United States Department of the Interior
Bureau of Land Management

Preliminary Environmental Assessment
DOI-BLM-CO-S010-2012-0026

April, 2013

West Dolores Rim Hazardous Fuels Reduction

Location: Dolores and San Miguel Counties, Colorado
Township 43 N, Range 19 W, sec. 36;
Township 43 N, Range 18 W, sec. 28, 29, 31- 33;
Township 42 N, Range 18 W, sec. 5- 11, 15- 18, 21, 22, 26-28, 33- 35;
Township 42 N, Range 19 W, sec. 12;
Township 41 N, Range 18 W, sec. 2, 3, 11, 14-16, 21, 22, 24, 26, 27, 35, 36;
Township 41 N, Range 17 W, sec. 19, 30-32;
Township 40 N, Range 17 W, sec. 4- 9;
Township 40 N, Range 18 W, 1, 2, 12

Tres Rios Field Office
29211 Highway 184
Dolores, Colorado, 81323
970-882-7296 (phone)
970-882-6841 (fax)

West Dolores Rim Hazardous Fuels Reduction
(DOI-BLM-CO-S010-2012-0026)

Table of Contents

West Dolores Rim Hazardous Fuels Reduction EA
(*DOI-BLM-CO-S010-2012-0026*)

1.0 PURPOSE & NEED

1.1 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the West Dolores Rim Hazardous Fuels Reduction as proposed by the Department of the Interior, Bureau of Land Management. The EA is a site-specific analysis of potential effects that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" Effects could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Effect Statement (EIS) or a statement of "Finding of No Significant Effect" (FONSI). If the decision maker determines that this project has "significant" Effects following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative. A Decision Record (DR), including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in "significant" environmental Effects (effects) beyond those already addressed in San Juan/San Miguel Resource Management Plan (*September 5, 1985*), as amended.

1.2 Background

The proposed project area is located in both Dolores and San Miguel Counties, approximately 1 mile east of Egnar, Colorado, and 4 miles east of Dove Creek, CO (Appendix B, Figure 1). This project aims to connect several previous fuels treatments (Quakie (CO-800-2005-037 (CE)), Dolores Rim (CO-SJFO-01-024EA), Powerline, Big Canyon, School (CO-800-2005-028CE), School 2, Radio (CO-800-2005-045CE) in order to create a mosaic of fuel breaks bordering private lands to the west and the western rim of the Dolores River Canyon on the east. The project area is located in all or parts of Townships (T) and Ranges (R) T40N R17W, T40N R18W, T41N R 17W, T41N R18W, T42N R18W, T42N R19W, T43N R19W, T43N R18W (Appendix B, Figure 1, Appendix C, Table 1).

1.3 Need for the Proposed Action

The Federal Land Policy and Management Act (FLPMA) of 1976 requires BLM to manage the multiple-uses of the public lands, including fuels, wildland fire, wildlife and natural values, and rangeland health without permanent impairment. Additionally, the project is intended to meet the goals of the San Juan/San Miguel RMP (September 5, 1985) which directs management of the area proposed for treatment to ensure that management of native plant species enhances, restores, and does not reduce the biological diversity of natural ecosystems.

1.4 Purpose(s) of the Proposed Action

BLM's purpose for this proposed action is to reduce the risk to agency and private lands and improvements from high severity wild land fire, as well as to improve the resistance to disturbance and the sustainability of ponderosa pine stands by treating fuels both mechanically

and with prescribed fire within the identified units. More specifically, the BLM's purpose for treating 14,998 acres of mountain shrub, pinyon/juniper woodland, sagebrush steppe, and Gambel oak/ponderosa pine community is to restore the fire regime condition class (FRCC) to more historical values within the project area. Currently, vegetation and fuels in the area have missed several fire return intervals and are susceptible to uncharacteristically large, high severity wild land fires. Most fuels in the area can be categorized as being in fire regime condition class two or three. This indicates that compared to historical conditions, vegetative conditions and natural disturbances have been altered to a degree that is abnormal for the area. In the case of the project area, the absence of the natural fire regime due to fire suppression since the early 1900's has allowed many of the areas to become overgrown with decadent vegetation in dense, unnatural stands. In addition reducing hazardous fuels in the project area, the proposed action would create age-class diversity in the vegetation and would provide nutrient rich growth critical to big game species survival during the winter. It will also provide overall improvement in the rangeland ecosystem with encouraging the establishment of native species thereby improving species composition and ecosystem resiliency.

Specifically, the treatment would provide additional tactical options, as well as larger safety margins for fire managers responding to wildland fires near the project area. Additionally, there is a microwave tower near the center of the project area, as well as an electric transmission line in the southeastern portion of the project area. Treating hazardous fuels around the microwave tower and the associated power lines and accessory outbuildings, and transmission line, would reduce the risk from catastrophic wildfire. Numerous private residences dot the land surrounding the BLM boundary, and much of the area both within and adjacent to public lands are classified as Wildland Urban Interface (WUI) by both the Dolores County and San Miguel County Community Wildfire Protection Plans. Treatment of fuels on agency land would reduce the risk of high severity wildfire to natural resources and improvements on both agency and private lands.

Secondary benefits from this fuel reduction would include

- Improve habitat and forage for big game (elk and deer) and turkey.
- Improve and maintain sagebrush habitat for Gunnison sage grouse
- Protect Gunnison sage grouse habitat from high severity wildland fire
- Move increased elk herd off private farm lands on to public lands
- Provide increased grass and forb cover on rangelands for cattle and big game
- Improve vigor and health of ponderosa pine stands
- Provide larger safety margins for fire managers and options for fires managed for resource benefit

1.5 Decision to be made

The BLM will decide whether or not to implement the West Dolores Rim Hazardous Fuels Reduction project, and if so under what terms and conditions.

1.6 Conformance with BLM Land Use Plan(s)

The proposed action identified within this assessment is in conformance with the San Juan/San Miguel Resource Management Plan (RMP), approved September 5, 1985, amended (1991). The

proposed action is consistent with the terms and goals of the following; livestock grazing management (page 5-6), timber management (page 21-22), managing habitats to provide forage for wildlife (page 12). The majority of the analysis area is in management area J emphasis on forestry and wood products. A portion of the analysis area near Egnar is in management area A, with emphasis on livestock management. One section in the Spud Patch area is in management area E, with emphasis on mineral development.

For Emphasis Area A, in regards to Fire Management, general guidance in the RMP states, "Provide level of protection from wildfire that will result in least total cost and will generally enhance range management values. Use prescribed fire to enhance forage production" (Page 28). With regards to hazardous fuels reduction and prescribed fires within Emphasis Area J, General Guidance the RMP states, "Provide a level of protection from wildfire that will result in a least total cost and will enhance forest resources. Use prescribed fire when possible to enhance forest management objectives" (Page 54). A Red book amendment to this RMP was issued in 1997 authorizing the use of prescribed fire.

1.7 Relationship to Statutes, Regulations, or Other Plans

- Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.)
- Healthy Forests Restoration Act of 2003 (16 USC 6501 et seq.)
- Sikes act of 1960 (16 USC sec. 670a)
- Clean Air Act of 1977 (USC 7401 et seq.)
- Colorado Department of Public Health and Environment Air Quality Control Commission Regulation No. 1
- Archaeological Resource Protection Act of 1974
- American Indian Religious Freedom Act of 1978
- National Historical Preservation Act of 1966 as Amended
- National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.)
- 1973 Endangered Species Act, as amended
- Migratory Bird Treaty Act of 1918 (16 USC 703711)
- Bald and Golden Eagle Protection Act (1962)
- Gunnison Sage-grouse Range-wide Conservation Plan, (Colorado Division of Wildlife Resources, 2005)
- Standards for Public Land Health: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands.

1.8 Identification of Issues

This project has been included in the Schedule of Proposed Action (SOPA) since January, 2012. Internal scoping was done through an Interdisciplinary Team (IDT) meeting (January 30, 2013). External scoping was done through the Schedule of Proposed Action (January 11, 2012), and a scoping letter sent to interested parties (January 25, 2013). Five comment letters were received during the public scoping period (January 25 2013 – February 25, 2013). Comment letters were received from three governmental agencies (State, County, and Town), and two organizations

and are included in the project file. As a result of internal and external scoping, the following preliminary issues and concerns were identified:

1.8.1 Wildlife

- The proposed action may affect, but is not likely to adversely affect, both individuals and habitat of the Gunnison Sage Grouse, a species proposed for listing under the Endangered Species Action.
- The project area is almost entirely in mule deer severe and critical winter range, as well as elk winter concentration and severe winter range. The proposed action may result in short-term, temporary loss of forage and browse due to the proposed actions.
- The proposed action has the potential to affect migratory birds during nesting and brood rearing time periods.

1.8.2 Range

- The proposed action may result in short term, temporary loss of forage due to prescribed fire, especially during drought, forage may be reduced for more than one growing season due to prescribed fire.

1.8.3 Invasive Weeds

- The proposed action may encourage the spread of invasive weeds throughout parts of the project area; however, design features of the proposed action address this issue.

1.8.4 Cultural Resources

- The proposed action could potentially affect cultural resources; however, cultural surveys and design features address this issue.

1.9 Issues Considered but Eliminated from Further Analysis

During internal scoping (January 30, 2013), BLM resource specialists identified resources that are either not present within the project area or would not be impacted by the Proposed Action. These resources are listed in the Interdisciplinary Team Checklist, (see project file).

1.9.1 Special Designation Lands, Social Justice, and Socioeconomics

- The proposed action does not lie within any Areas of Critical Environmental Concern, BLM Natural Areas, Wild and Scenic Rivers, or Wildernesses or Wilderness Study Areas.
- The proposed action would not affect Lands with Wilderness Characteristics or visual resources with proposed design features. See Appendix B, Figure 6 and design features below.
- The proposed action was not identified as having an effect on social justice or socioeconomics.

1.9.2 Climate Change and Air Quality

- Small levels of tailpipe emissions would be associated with the project from mastication and roller chopping equipment; however, these emissions would not contribute significant levels of greenhouse gas emissions because only one or two combustion engines would operate simultaneously and the activities would be of short duration (weeks). The amount of GHG emissions associated with prescribed fire will be small relative to an uncontrolled wildfire. This is because prescribed fire only burns a small portion of available biomass on a predetermined land area, and smoke emissions are limited to the amount permitted by the state. Wildfire has the potential to burn a high proportion of biomass on large and uncontrolled amount of acreage and carries a much higher risk of exponentially higher greenhouse gas emissions. Because of this, the proposed action was not identified as having an effect on global climate change.
- The proposed action was not identified as having an effect on air quality when mandatory compliance with Colorado State Department of Public Health and Environment smoke permitting processes is obtained.

1.9.3 Lands, Minerals, Hazardous Wastes, and Paleontology

- The proposed action was not identified as having an effect on lands or access, any mineral developments, or on paleontological resources. No hazardous wastes will be generated by the proposed action. A design feature in the proposed action addresses mining claim corner post avoidance.

1.9.4 Hydrology, Floodplains, and Soils

- While some of the project area lies within the watershed for the town of Dove Creek, the proposed action was not determined to have any effects on the infiltration gallery in the Dolores River. Sedimentation is not likely upstream of the infiltration gallery within the project area, as these units have received prior fuels treatments, thereby reducing the threat of high severity wildfire and erosion.
- Soils, springs, and ephemeral drainages were not carried forward for analysis after the application of design features to mitigate potential effects from the proposed action.
- There are no floodplains within the project area.

1.9.5 Wild Horses and Burros

- The proposed action was not identified as having an effect on any wild horse or burro populations.

1.10 Summary

This chapter has presented the purpose of and need for the proposed project, as well as the relevant issues, i.e., those elements of the human environment that could be affected by the implementation of the proposed project. In order to meet the purpose of and need for the proposed project in a way that resolves the issues, the BLM has considered and/or developed a range of action alternatives. These alternatives are presented in Chapter 2. The potential

environmental effects resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified issues.

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

2.1 Introduction

As a result of interdisciplinary team review, cooperative agency and public input key issues were identified related to the proposed action. Alternatives to that action that addressed the key issues and met the purpose of and need for action were considered and are carried through the analysis, including that of no action.

2.2 Alternative A – Proposed Action

BLM is proposing to treat hazardous fuels and other vegetation within a project area of 25,967 acres (for analysis purposes) with a combination of mastication, roller chopping, selective thinning/group selection, hand thinning, firewood collection, and prescribed fire over a ten year timeframe. There are thirty nine units totaling 14,998 acres identified for treatment under this alternative, with treatments based on vegetation type within the units (Appendix C: Table 1, Table 2; Appendix B: Figure 1, Figure 2, Figure 3). Of the total acres proposed for treatment, 8,553 acres have been previously treated mechanically within the last fifteen years, and 2,877 of the above mechanically treated acres have been treated with prescribed fire. This project proposal will analyzed the continued treatment of these acres as well as proposing new treatments in 6,445 acres. (Appendix B, Figure 8).

The predominant vegetation types in the project area consist of pinyon/juniper woodland, mountain shrub alliance, sagebrush steppe land, and ponderosa pine/Gambel oak forest (Appendix B, Figure 9). Fuels management objectives differ in each vegetation type, or fuel

A combination of mechanical thinning, mastication, and prescribed fire may be used on all units. If approved, implementation of mechanical fuels reduction would occur over the next ten years, beginning in 2013. After units have been treated with prescribed fire, they would be put on a rotation varying depending on vegetation type and historical fire return intervals to maintain light surface fuel loadings throughout the project area.

Mountain Shrub Communities

In mountain shrub communities, continuous fuels would be broken up by mastication, hand thinning, or prescribed fire to promote increased grass and forb growth, as well as new growth on the shrub layer. Mastication of these fuels with a hydro-axe or similar machine would focus on creating a random mosaic of small openings. Additionally, units 21 & 22 encompass a microwave radio tower and associated outbuildings and powerlines. Treating fuels around these improvements would greatly reduce the risk of damage from a wildland fire. Areas that receive mastication in this cover type may later be treated with broadcast prescribed fire, between one and three years post mechanical treatment. In areas where a masticator would be impractical or unsafe to operate (slopes over 30%, canyons), prescribed fire may occur in order to reduce hazardous fuels accumulations and break up the continuity of the brush canopy. Prescribed fire in mountain shrub would produce a moderate severity (less than 50% mortality of overstory)

burn. Adjacent to most mountain shrub units there are large areas that will remain untreated by this alternative. In areas of contiguous mountain shrub, treatments will total no more than 1,000 acres of all treatment types per year.

Pinyon/Juniper Woodland

In pinyon/juniper woodland, roller chopping, mastication, hand thinning, or prescribed fire would occur with the objectives of creating a mosaic of openings and seral stages, as well as improving and creating more suitable Gunnison sage grouse habitat. Openings in the canopy would be created ranging between 10 to 50 acres, incorporating leave islands of 3 to 15 acres to provide cover for wildlife. These canopy openings would be focused towards pinyon/juniper woodland that is areas that have been chained in the past and in older continuous stands to create mosaics and increased edge habitat. In areas of pinyon/juniper encroachment onto sagebrush meadows, trees and shrubs would be removed from the periphery of these meadows, allowing for sagebrush establishment and expansion. In roller chopped areas, seeding may be accomplished with a BLM approved seed mix after mechanical entry. Prescribed burning may follow between one and three years to reduce residues from mechanical treatments or piles from hand thinning. Prescribed burning would not occur in sagebrush meadows. Broadcast prescribed burning in this vegetation type would focus on herbaceous and surface fuels reduction, as well as maintaining openings by removing microsites (surface debris) in which pinyon and juniper seedlings become re-established. Prescribed fire would occur during times of the year in which fire spread in the leave islands and sagebrush meadows is improbable.

Ponderosa Pine Stands

Ponderosa pine stands within the project area have an understory of either Gambel oak or mountain shrub. Some low elevation areas feature ponderosa pine transitioning to pinyon/juniper. Mastication or hand-thinning would be performed on small diameter pine and shrub understory to reduce the continuity of ladder fuels, crown spacing and create mosaics in the oak understory, increasing stand resiliency to wildland fire, as well as to provide shaded fuel breaks near roads.

Under this alternative, units may be mechanically thinned by methods that would meet the silvicultural prescription of approximately 60 ft^2/acre of basal area in a clumpy distribution favoring larger fire resistant dominant and co-dominant trees. This treatment would produce saw-logs, bio-mass or firewood.

In all units containing ponderosa pine, prescribed fire would be used to keep surface fuel accumulations light, reduce canopy closure, increase stand resilience to wildland fire, and to dispose of slash generated by mechanical treatments. Initial entry of prescribed fire would occur between three months and three years post mechanical treatment. All pine units would be subject to prescribed fire every six to ten years under this alternative. Numerous miles of fire line would be required prior to prescribed fire implementation; however, most units have two track roads for boundaries.

After initial entry with prescribed fire over the project area, units would be burned based on vegetation type and desired fire return intervals (Appendix C, Table 3). Site specific prescribed

fire burn plans are required prior to any prescribed burning in any units identified under this alternative.

Throughout the project area, sagebrush steppe land exists in small to large meadows, and throughout all other vegetation types. No mechanical treatments or prescribed fires would effect sagebrush meadows or adversely modify any Gunnison Sage Grouse habitat, because of the design features below. In pinyon/juniper and mountain shrub areas with sage meadows, pinyon/juniper and mountain brush would be mechanically removed from the perimeter of the meadows to allow for sage expansion. No prescribed fire, broadcast or piles, would be authorized in Gunnison Sage Grouse proposed occupied critical habitat under this alternative. Specifically, all of unit 16, and small parts of units 17, 18, 20, and 21 that lie within proposed occupied habitat are not authorized under this alternative for the use of prescribed fire. All unit boundaries identified in Alternative A may be modified slightly if on the ground factors (topography, fuels, cultural sites, hydrologic concerns, TE&S species concerns, etc.) deem it necessary for successful project implementation. Any modifications to unit boundaries would be within the project area boundary, and generally to facilitate control during prescribed fire activities where identified unit boundaries from GIS data do not coincide with on the ground roads.

Coordination

Annually, all units proposed for implementation would be visited by resource specialists in order to survey for site- specific concerns within the unit prior to implementation. Maximum average annual treatment area, including all treatment options analyzed under this alternative, would not exceed 1,500 acres per year. Units covered by this alternative may be re-treated within ten years under this alternative.

Monitoring

Pre-treatment monitoring of surface fuel loading and invasive species composition will be done following standard line intercept fuel loading plots or photo series, as well as by either utilizing a one meter by one meter quadrant at each plot to evaluate invasive species composition or designating photo points within each unit to visually track invasive species composition. This monitoring is required prior to any prescribed fire, as well as once within two years post treatment.

During implementation of any prescribed fire, weather conditions, fire behavior, smoke observations, and first order fire effects would be monitored by either the prescribed fire burn boss or fire effects monitor.

2.2.1 Design Features of the Proposed Action

2.2.1.1 Wildlife

Management actions and conservation measures will apply to "proposed occupied critical habitat" for GUSG in the project area as follows:

> Gunnison Sage Grouse – Implement a .6 mile no surface disturbance buffer (RCP 2005) around all active leks for project implementation activities.

- Gunnison Sage Grouse – Prohibit surface disturbing activities within 4.0 miles of active leks from March 1 – June 30.

- Gunnison Sage Grouse – Avoid surface disturbance within mapped winter habitat for GUSG between December 1 and March 15.

- Migratory birds – Avoid treatments during the migratory bird nesting season from May 15 – July 15. Disturbance activities such as tree falling, pruning, skidding, vegetation mastication, and prescribed fire would be permitted during this time provided that the disturbance is less than 300 acres (0.01% of the project area) during the primary nesting season. Disturbance greater than 300 acres would require a survey of the area for migratory nesting birds prior to implementation. To the extent possible, restoration activities will be avoided during the primary nesting season. If a treatment larger than 300 acres is to be implemented during the nesting season, a survey to validate presence of migratory birds could be completed prior to project activities.

- Raptors - To ensure protection of nesting raptors (including bald eagles and peregrine falcons) in ponderosa pine units, a survey would be performed for presence of key species. If an active raptor nest is discovered in any unit, a species-specific spatial or temporal buffer would be applied until the nest either successfully fledges young, as determined and monitored by a BLM Wildlife biologist. If surveys in ponderosa pine units are not complete, avoid treatment during the raptor breeding period, March 1 through August 31.

- Raptors -- Any snags over 16" diameter at breast height (DBH) would be retained throughout project implementation. Additionally, snags that meet this DBH requirement would be lined or otherwise avoided when burning occurs in units with these snag components.

- Big Game – Avoid conducting treatments within big game and critical and severe winter range, and winter concentration areas between December 1st and April 30th of each year. (Appendix B, Figure 5).

- Big Game- To protect elk production areas, avoid project implementation in units containing mapped production areas between May 15 to June 15 (Appendix B, Figure 5).

- Mexican Spotted Owls - A survey for presence of MSO will be conducted if treatment is within ½ mile of canyon rims. If surveys are completed, projects activities can occur for a period of 5 years before additional surveys will be required. If Mexican spotted owl surveys are not possible, implementation in units with 0.5 miles of the canyon rim would be conducted outside of the breeding season; March 1 – August 31.

- Avoid units where invasive weed populations would dominate the site post treatment.

- If prairie dog colonies are present in the project area, surveys (as determined by a BLM Wildlife biologist) would be conducted in order to avoid potential burrowing owls.

2.2.1.2 Range

- In coordination with affected livestock permittees, grazing management actions that provide for rest and or deferment from grazing would be planned as necessary following treatment activities.

- Range permittees would be coordinated with in advance of treatments to offset any temporary loss of forage or lack of access due to the need to rest units prior to or after prescribed fire to increase fine fuel loading.

- Areas treated with prescribed fire would be rested from grazing for two full growing seasons unless vegetation recovery dictates otherwise.

- Treatments would avoid any damage to existing range improvement infrastructure.

2.2.1.3 Invasive Weeds

- Prior to any prescribed fire or ground disturbing mechanical treatment (with the exception of hand-thinning and piling, and prescribed fire line preparation) , the planned units would be visited by an interdisciplinary team consisting of, at a minimum, fire and fuels staff, weeds staff, and wildlife staff to analyze the composition of native grasses relative to invasive species (i.e. cheatgrass) presence (this is not necessary for re-entry burning in ponderosa pine). The specific purpose of the analysis would be to discuss and determine if the composition and vigor of native/seeded species relative to the abundance, vigor, and seed potential of cheatgrass in each unit is such that the natives are likely to out-compete cheatgrass or any other invasives, post-treatment. If cheatgrass is relatively abundant and native/seeded species less vigorous and less abundant then treatment of those specific units will be postponed. If native/seeded species are vigorous and make up most of the composition and cheatgrass is only found in isolated pockets and/or is not vigorous then treatment can be scheduled for those units. Typically precipitation patterns are the driver for changes in native/cheatgrass composition, with fall and spring moisture patterns positively influencing cheatgrass germination and growth while late spring and summer moisture is more ideal for native plant vigor and growth. These precipitation patterns can also be monitored pre-treatment to assist in determining suitability for scheduling treatments.

- Pre-treatment of invasive weeds may be required prior to implementation of the proposed action. This would be determined during the pre-treatment site visit with the above identified resource specialists. Specifically, in areas that it is determined invasive weeds exceed 10% of site biomass, pre-treatment is recommended prior to implementation.

- Post-treatment monitoring for cheatgrass, as well as other exotic/noxious species presence, would take place to determine if additional post-treatment management for those species needs to occur. Two and five year post-treatment monitoring is effective in identifying any issues with these non-native species. In some locations in the SW District it appears that with proper scheduling of treatments relative to 'low cycles' of cheatgrass abundance and vigor, post-treatment vegetation response is acceptable and

treatments are effective in meeting project objectives with no, or minimal increases in cheatgrass.

- In areas where noxious weed control measures are completed, effective monitoring would occur following treatments. In areas where noxious weed populations were not present at the time of treatment, monitoring would be completed during the growing season following treatment to ensure that no new populations of invasive weeds become established.

- All vehicles associated with both mastication and timber harvesting, as well as transport vehicles, would be power washed prior to moving on-site to prevent the spread of invasive weeds.

- Temporary skid routes used for hauling timber would be obliterated and seeded, and landings and skid routes will be ripped and seeded with a native seed mix based on the recommendation of the appropriate specialist after completion of any timber sales or hand thinning operations.

2.2.1.4 Cultural Resources

- Prior to implementation, cultural resources would be flagged for avoidance.

- Slash piling would not occur within the boundaries of eligible and potentially eligible sites.

2.2.1.5 Minerals

- Mining claim corner posts within units would be identified prior to implementation and avoided.

2.2.1.6 Recreation

- Any control lines created for prescribed fire activities would be hidden or obliterated where they intersect roads after the prescribed fire is called out to discourage off road travel, and would be rehabilitated within the treatment season.

- One week prior to any implementation of these Alternative, units would be signed at all road entry points with a notice of the intended action as well as a map. Prior to prescribed fire implementation, the units would be checked by a field office employee and cleared of campers or hunters inside the unit for public safety.

2.2.1.7 Hydrology and Soils

- Ruts created by machinery would not exceed 10 feet long and/or 4 inches deep.

- Ephemeral drainages would be buffered by a distance of 50 feet on both sides of the draw. No mechanical treatments would occur within the buffer. During prescribed fire implementation, no ignition would occur within this buffer, but fire would be allowed to back into drainages.

- Springs would be buffered by a distance of 100 feet from all mechanical treatments. A no ignition buffer would be placed 50 feet from springs during prescribed fire implementation. Fire would be allowed to burn through spring area.

- In pinyon/juniper areas that receive roller chopping, seeding may occur after mechanical treatments are completed with a seed mix recommended by the appropriate specialist. In pinyon/juniper areas that are encroaching on sagebrush meadows, seeding of disturbed areas may occur with a seed mix based on the recommendation the appropriate specialist.

2.2.1.8 Air Quality

- A Colorado Department of Public Health and Environment issued smoke permit is required prior to any prescribed fire.

2.2.1.9 Fuels Management

- Prior to implementation, an Interdisciplinary Team will review proposed treatment units and complete any resource specific inventories, on-sites, etc. necessary to implement pending planned projects.

2.3 Alternative B – No Action

Under Alternative B, or the No Action Alternative, no hazardous fuels reduction or vegetation treatments would occur within the project area.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the Effect area as identified in the Interdisciplinary Team Checklist found in Appendix A and presented in Chapter 1 of this assessment. Only those elements that are present and potentially affected are described and brought forth for detailed analysis. This chapter provides the baseline for comparison of Effects/consequences described in Chapter 4.

3.2 General Setting

The project area is located on the western rim of the Dolores River Canyon, approximately 4 miles east of Dove Creek, Colorado, and one mile east of Egnar, Colorado. The project is entirely on Bureau of Land Management administered land. The project area occurs on a large plateau with numerous small drainages throughout. Elevation in the project area ranges from 7,200’ to 8,000’, generally with the higher elevations in the southern end of the project and the lower elevations toward the north. The vegetation in the area consists of pinyon/juniper woodland, mountain shrub alliance, sagebrush steppe land, and ponderosa pine/Gambel oak forest. Average annual precipitation in the project area ranges from 15.25” to 19.5”, based on elevation.

The proposed project is spread between four sixth level sub-watersheds. Two of the sub-watersheds, Joe Davis Hill and Lake Canyon, are part of the Dolores River System. The other two sub-watersheds, headwaters of Cross Canyon and Alkali Canyon, are tributary to McElmo Canyon and part of the San Juan River Basin. There are no perennial streams within the proposed disturbance areas. Drainages can be described as ephemeral with little to no riparian vegetation. Springs may be present within the proposed disturbance area. The Dolores River, located along the eastern edge of the project area between ½ and 2 miles, is meeting its designated use for agriculture, public water supply and recreation, but is impaired for cold water aquatic life due to excessive iron content and is on the State 303(d) list for impaired waters (Colorado Department of Public Health and Environment (CDPHE), 2010). No other water bodies in the analysis area are in the Colorado Integrated 305 (b) and 303(d) 2010 Report (Colorado Department of Public Health and Environment (CDPHE), 2010).

The project area lies within an area of Colorado that was the homeland of numerous Native American tribes. More recent uses of the area include ranching, hunting, gas and oil exploration, mining, and logging, and firewood collection.

3.3 Resources/Issues Brought Forward for Analysis

3.3.1 Wildlife

3.3.1.1 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712 as supplemented) prohibits the unregulated "take" of most native bird species except gallinaceous birds. It covers direct harm to birds rather than including harm to habitat. MBTA does not exempt unintentional take of birds. Proposals that appear to risk direct damage to birds or live eggs must show diligence in avoiding or reducing this risk. The lead enforcement agency, the U.S. Fish and Wildlife Service (USFWS), publishes a list, "Birds of Conservation Concern" (BCC), indicating that avoiding harm to the species on this list will contribute substantially to showing diligence to the requirements of the Migratory Bird Treaty Act. These are non-game migratory avian species that the USFWS has targeted as conservation priorities but are not currently federally listed as threatened or endangered.

A Memorandum of Understanding (MOU) was recently signed between the U.S. Fish and Wildlife Service (USFWS) and the BLM outlining a collaborative approach to promote the conservation of migratory bird populations (4/12/10). The MOU states that BLM should evaluate the effects of actions on migratory birds during the NEPA process and identify where agency actions may have a measurable negative effect on migratory bird populations. The focus of this evaluation will be on species of concern, priority habitats, and key risk factors associated with the proposed action.

Table 3.3.1 shows the full list of BCC species found in the Tres Rios Field office. Species impacted refers to a measurable effect on bird populations from the proposed action, and is addressed in greater detail in the discussion of effects from the proposed action alternative.

Table 3.3.1 USFWS Birds of Conservation Concern

Species	Habitat Present In	Potential Affect by the

	Project Area?	Proposed Action
American Bald eagle	**Yes**	**Possible, unlikely with Design Features**
American bittern	**No**	**No**
Brewer's sparrow	**Yes**	**Possible, unlikely with Design Features**
Brown-capped rosy-finch	**No**	**No**
Cassin's finch	**Possible**	**Possible, unlikely with Design Features**
Ferruginous hawk (SC)	**Foraging habitat (winter only)**	**No**
Flammulated owl	**No**	**No**
Golden eagle	**Yes**	**No**
Grace's warbler	**Yes**	**Possible, unlikely with Design Features**
Gray vireo	**Yes**	**Possible, unlikely with Design Features**
Gunnison sage grouse (SC)	**Yes**	**Possible, unlikely with Design Features**
Juniper titmouse	**Yes**	**Possible, unlikely with Design Features**
Lewis' woodpecker	**Yes**	**Possible, unlikely with Design Features**
Peregrine falcon (SC)	**Yes**	**Possible, unlikely with Design Features**
Prairie falcon	**Yes**	**Possible, unlikely with Design Features**
Pinyon jay	**Yes**	**Possible, unlikely with Design Features**
Southwest willow flycatcher	**No**	**No**
Western burrowing owl (ST)	**Possible**	**Possible, unlikely with Design Features**
Yellow-billed cuckoo	**No**	**No**

3.3.1.2 Terrestrial and Aquatic Wildlife

There are numerous and diverse terrestrial wildlife species that may occur in the analysis area. Mammals that may be within the project area include, but are not limited to: red and gray fox (*Vulpes spp.)*, raccoon (*Procyon lotor*), coyote(*Canis latrans*), badger(*Taxidea taxus*), desert shrew (*Notiosorex crawfordi*) possibly the Merriam's shrew(*Sorex merriami*), black-tailed jackrabbit (*Lepus californicus*), desert and mountain cottontail (*Sylvilagus spp.*), chipmunks (*Tamias spp.*), ground squirrels (*Sciuridae spp.*), Gunnison's prairie dog (Cynomys gunnisoni), woodrats (*Neotoma spp.)*, mule deer (*Odocoileus hemionus*), elk (*Cervus Canadensis*), black bear (*Ursus americanus)* and several species of mice (*Peromyscus spp.*) (Fitzgerald 1994, pers.

observations). The condition of the grasses and forbs throughout the project area, and the responses to the prescribed treatments would affect the rodent, rabbit, and prairie dog populations, since these vegetation types are the forage base for these animals. Prairie dogs occur in very low densities on the Dolores rim and are seen infrequently in the project area.

Animals that utilize these vegetation types can illustrate extremes in numbers, fluctuating with available food resources and weather conditions. Rodents and rabbits, in turn, are prey for the carnivores likely to be found within these treatment units. The treatments would likely result in an increase of grasses and forbs and would have an overall benefit to these species. Numerous studies have illustrated the cause and effect relationship between healthy carnivore populations and availability of prey. A wide variety of reptile species may also be present in this mountain shrubland -sagebrush shrubland habitat, especially when interspersed with semi-desert shrublands, rock/cliff habitat, and other dry habitat types.

Although all of the species are important members of native communities and ecosystems, most are common and have wide distributions within the state, region, and field office. The proposed action may cause temporary displacement to many terrestrial wildlife species, but would likely be beneficial overall and wouldl not be carried forward for further analysis.

The only terrestrial wildlife species that would be analyzed in more detail is mule deer and elk. The majority of the proposed project area is within or near important winter range that provides forage and cover for elk and deer throughout the winter months. The potential impacts and benefits to big game winter range will be addressed in greater detail in the discussion of effects from the proposed action alternative.

Due to the lack of riparian areas or naturally occurring water systems such as springs, creeks and wetlands in the proposed project area; there is a very low potential to impact aquatic species. Stock ponds may be present in the project area and could provide habitat for some aquatic species. The use or manipulation of existing stock ponds is not part of the proposed action and will not affect potential aquatic species.

3.3.2. Threatened, Endangered, and Sensitive Wildlife Species

Analyzing and disclosing the effects of the proposed action to federally listed species is needed to comply with the Endangered Species Act of 1973 (16 U.S.C.1531 et seq.), as amended; BLM manual 6840 direction for special status species management; and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C.4321 et seq.), as amended. Listed species that may be affected by this proposed action (Tables 3.3.2 and 3.3.3) are discussed in detail in the affects analysis portion of this document. The Gunnison Sage grouse is a proposed species that also has proposed critical habitat in the project area. This environmental assessment is a landscape level document and will cover actions in the proposed area for many years. Because of this, the Tres Rios Field office would seek official consultation with the US Fish and Wildlife Service (Section 7, Endangered Species Act) if and when the Gunnison sage grouse is officially listed as a threatened or endangered species. A Biological Assessment (BA) would be created and submitted to the Fish and Wildlife service at that time.

BLM sensitive species that may occur in the project area (see table below) will be addressed in detail in the environmental effects section. BLM policy designates sensitive species to ensure these species receive full consideration in the NEPA process (BLM 6840 Manual Direction, Release 6-121). BLM sensitive species are designated by the Colorado State Director.

Table 3.3.2. Federally listed T&E and Candidate species

Federally Listed Species	Status	Habitat Present In Project Area?	Potential Affect by the proposed action ?
Mammals			
New Mexico jumping mouse	Candidate	**No**	**No**
Canada lynx	Threatened	**No**	**No**
Birds			
Southwestern willow flycatcher	Endangered	**No**	**No**
Western yellow-billed cuckoo	Candidate	**No**	**No**
Mexican spotted owl	Threatened	**Yes**	**Possible**
Gunnison sage grouse	Proposed Endangered	**Yes**	**Possible**
Fish			
Bonytail	Endangered	**No**	**No**
Colorado pikeminnow	Endangered	**No**	**No**
Razorback sucker	Endangered	**No**	**No**
Greenback cutthroat trout	Threatened	**No**	**No**
Humpback chub	Endangered	**No**	**No**

Table 3.3.3 Colorado Bureau of Land Management sensitive fish, plant, and wildlife species

Species	Habitat Present In Project Area?	Species Affected?
Mammals		
Allen's big-eared bat	**Yes**	**Possible**
Big free-tailed bat	**No**	**Possible**
Fringed myotis	**Yes**	**Possible**
Spotted bat	**Yes**	**Possible**
Townsend's big-eared bat	**Yes**	**Possible**
Desert Bighorn Sheep	**No**	**No**
New Mexico Meadow Jumping Mouse	**No**	**No**
Gunnison's Prairie Dog	**No**	**No**
Birds		
American Bald Eagle	**Yes**	**Possible**
American peregrine Falcon	**Yes**	**Possible**
Ferruginous hawk	**Winter Foraging**	**No**
Western Burrowing Owl	**Possible**	**No**
Colombian sharp-tailed grouse	**Possible**	**No**
Northern goshawk	**Possible**	**Possible**
White-faced ibis	**No**	**No**
Fish and Herpetofauna		
Bluehead sucker	**No**	**No**
Colorado River cutthroat trout	**No**	**No**

Flannelmouth sucker	**No**	**No**
Roundtail chub	**No**	**No**
Desert spiny lizard	**Possible**	**Possible**
Longnose leopard lizard	**Possible**	**Possible**
Canyon treefrog	**No**	**No**
Northern leopard frog	**No**	**No**
Insects		
Great basin silverspot butterfly	**No**	**No**

3.3.3. Threatened, Endangered and Candidate Plant Species, and BLM Sensitive Species

A total of five federal Threatened, Endangered, and Candidate (TEC) plant species were reviewed for their potential to occur in the project area (Table 3.3.5). As a result of this review, it was determined that none of the TEC plant species are potentially present in the proposed project area.

Table 3.3.5, Threatened, Endangered, and Candidate Plant Species

Common Name	Scientific Name	Status	Known/Suspected to be present?	Suitable Habitat Present?
Mesa Verde fishhook cactus	*Sclerocactus mesae-verdae*	Threatened	No	No
Knowlton's miniature cactus	*Pediocactus knowltonii*	Endangered	No	No
Pagosa skyrocket	*Ipomopsis polyantha var. polyantha*	Endangered	No	No
Schmoll's milkvetch	*Astragalus schmolliae*	Candidate	No	No
Mancos milkvetch	*Astragalus humillimus*	Endangered	No	No

A total of 14 BLM plant Sensitive Species are known or expected to occur on lands administered by the Tres Rios Field Office, BLM (Table 3.3.6). Based on this review it was determined that none of these sensitive plant species are potentially present in the proposed project area.

Table 3.3.6 BLM Sensitive Plant Species

Common Name	Scientific Name	Status	Known/Suspected to be present?	Suitable Habitat Present?
Jone's bluestar	*Amsonia jonesii*	BLM Sensitive	No	No
Naturita milkvetch	*Astragalus naturitensis*	BLM Sensitive	No	No
Sleeping Ute milkvetch	*Astragalus tortipes*	BLM Sensitive	No	No
Gypsum Valley cateye	*Cryptantha gypsophila*	BLM Sensitive	No	No
Fragile rockbrake	*Cryptogramma stelleri*	BLM Sensitive	No	No
Kachina fleabane	*Erigeron kachinensis*	BLM Sensitive	No	No
Comb Wash	*Eriogonum*	BLM Sensitive	No	No

buckwheat	*clavellatum*			
Lone Mesa snakeweed	*Gutierrezia elegans*	BLM Sensitive	No	No
Pagosa skyrocket	*Ipomopsis polyantha*	BLM Sensitive	No	No
Pagosa Springs bladderpod	*Lesquerella pruinosa*	BLM Sensitive	No	No
Dolores River skeletonplant	*Lygodesmia doloresensis*	BLM Sensitive	No	No
Eastwood's monkeyflower	*Mimulus eastwoodiae*	BLM Sensitive	No	No
Aromatic Indian breadroot	*Pediomelum aromaticum*	BLM Sensitive	No	No
Cushion bladderpod	*Physaria pulvinata*	BLM Sensitive	No	No

3.3.4 Range

Domestic livestock grazing has occurred on public lands in Colorado since the late 1870s. The livestock industry has been an integral part of community development, as well as overall lifestyle, in southwestern Colorado. Public lands supply winter, spring and summer grazing for dependent livestock producers and represent a significant portion of their total operations. In Colorado, nearly 1,500 livestock operators are authorized for grazing use on 2,500 grazing areas called allotments through an approved grazing permit/lease.

Issuance of a term grazing permit for an allotment determines the amount of forage resources allocated to livestock grazing on a particular parcel of BLM administered public land. This allocation is defined by the mandatory terms and conditions specified in the permit. These include the:

- Kind and number of livestock,
- The period of use,
- The amount of use, in Animal Unit Months.

Permit/leases are generally issued for a term of 10 years.

Livestock use levels are measured in Animal Unit Months (AUMs). An AUM is the amount of forage it takes to support one cow/calf pair, one bull, five sheep or one horse for one month.

Livestock grazing is a primary land use in the project area. Most allotment lands are managed by the BLM, but there are inholdings of private land in the West Dolores Rim project area that are used by allottees.

Table 3.3.4 provides the basic information of each of the grazing allotments and pastures in the project area

Table 3.3.4 - Grazing allotments, pastures, and temporary AUM reductions from prescribed fire in the project area

Allotment Name	Pasture Name	Agency	Pasture Acres	AUMs/pasture *(Derived from Pasture Acreage/Allotment Acreage x Allotment AUMs)*	Temporary AUM reduction from 200 ac. Rx Fire	Temporary AUM reduction from 1000 ac. Rx Fire
Big Canyon	Big Canyon	BLM	4884.53	Unpermitted/0	0	0
East Pines Common, 8,752 acres, 921 AUMs	Big Canyon	BLM	1084.58	114.13	21.05	105.23
	Little Joe	BLM	1481.69	155.91	21.05	105.23
	Outside Horse	BLM	1433.14	150.80	21.05	105.23
	Overlook	BLM	1136.40	119.58	21.05	105.23
	Power Line	BLM	963.76	101.41	21.05	105.23
	Sagebrush	BLM	838.60	88.24	21.05	88.24
	Secret	BLM	898.78	94.58	21.05	94.58
	Timber	BLM	915.65	96.35	21.05	96.35
Sandrock, 6,295 acres, 590 AUMs	Pine Unit	BLM	1580.82	148.16	18.74	93.72
	Quakie Unit	BLM	1029.48	96.48	18.74	93.72
	Sandrock Unit	BLM	1631.75	152.93	18.74	93.72
	Sawmill Spring	BLM	520.09	48.74	18.74	48.74
	Wilson Unit	BLM	1533.19	143.69	18.74	93.72
Spud Patch, 10,403 acres, 878 AUMs	Chico	BLM	1643.52	138.71	16.88	84.40
	North Holding	BLM	140.27	11.84	11.84	11.84
	North Spud	BLM	2321.35	195.91	16.88	84.40
	Radio	BLM	1937.32	163.50	16.88	84.40
	School	BLM	2441.26	206.03	16.88	84.40
	South Spud	BLM	1919.62	162.01	16.88	84.40

3.3.5 Invasive Weeds

Noxious weeds and other invasive vegetation species are aggressively competitive and can often out-compete native vegetation, especially on recently disturbed sites. A "noxious weed" is usually a non-native plant that has been designated by Federal or State law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new or not common to the United States. "Invasive vegetation", as defined by Executive Order 13112, is defined as "non-native plants whose introduction does, or is likely to, cause economic or environmental harm to human health."

Currently there has been very little noxious weed inventory that has been conducted within the project area. Although, the limited inventory that does exist documents the occurrence of Colorado State listed noxious weeds within a small portion of the project area. The noxious weed infestations that have been documented occur along County Road J, County Road 15 and County Road 16. These infestations consist of musk thistle, Canada thistle and Russian knapweed and occur along the roadsides in the disturbed areas. These county roads border proposed Units 1-7, 9, 10-12, and 14, as well as 36-38 (Appendix B, Figure 7).

Although there has been little inventory conducted to date within the proposed project it is very likely that other noxious weed infestations may occur due to the fact that there are known infestations of noxious weeds that have been documented on private and public lands directly adjacent to the proposed project area. These known infestations of noxious weeds consist of musk thistle, Canada thistle, Russian knapweed and Dalmatian toadflax. All of which are very aggressive invaders into disturbed sites.

3.3.6 Cultural

There is evidence of occupation of the analysis area from approximately 10,000 years ago to the present. Cultural resources associated with PaleoIndian, archaic, formative, protohistoric, and historic use of the analysis area are present. Prehistoric resources in the area typically consist of artifact scatters representing lithic reduction and tool manufacture related to short term hunting forays and animal and vegetal processing. Many of the sites lack diagnostic artifacts, and are classified as unknown prehistoric. A majority of the dateable prehistoric resources are associated with the archaic period, and to a lesser degree, the formative period. Historic era resources are generally related to mineral exploration and ranching activities. More detailed summaries of regional prehistory and history can be found in Colorado Prehistory: A Context for the Southern Colorado River Basin (Lipe and Pitblado 1999); and Colorado Plateau Country Historic Context (Husband 1984).

A review of the existing BLM and Colorado Office of Archaeology and Historic Preservation records was conducted to identify previous incidences of archaeological survey and known cultural resources within the analysis area. Fifty eight cultural resource inventories have been previously conducted within the proposed treatment units, resulting in a total of approximately 9,976 acres of survey. The majority of these acres are associated with 10 surveys that were conducted in advance of fuels reduction projects during the past 13 years. Approximately 2,450 acres of new survey was completed for the current analysis, resulting in a total of 12,426 acres. Two hundred twenty three sites and 415 isolated finds have been recorded in the treatment units. This data indicates a mean site density of one site per 67 acres. All of the isolated finds and 177 of the sites are not eligible for the National Register of Historic Places (NRHP). Fifteen of the sites are eligible and 31 of the sites are potentially eligible for the NRHP.

3.3.7 Vegetation

The predominant vegetation types proposed for treatment activities consist of ponderosa pine/Gambel oak forests, pinyon/juniper woodlands and mountain shrub communities. The primary ecological site descriptions associated with these vegetation types are described below.

3.3.7.1 Mountain Shrubland

In approximately twenty three percent of the project area, the vegetation cover type is characterized as a mountain shrub community. The soil type associated with this community is mountain loam. This site generally occurs on hills and mesas with gentle slopes ranging from 1 to 12 percent. Elevation ranges from 7,100 to 8,500 feet. This site tends to be dominated by

Gambel oak (Quercus gambelii), Utah serviceberry (*Amelanchier utahensis*), curlleaf mountain-mahogany (*Cercocarpus ledifolius*) and cliff fendlerbush (*Fendlera rupicola*). Associated perennial grass species may include western wheatgrass (*Pascopyrum smithii*), muttongrass (*Poa fendleriana*), bottlebrush squirreltail (*Elymus elymoides*), mountain muhly (*Muhlenbergia montana*) and Arizona fescue (*Festuca arizonica*). The majority of this vegetation type is dense, with limited bare ground between shrubs. A definitive fire regime is not established for this fuel model, but studies at Mesa Verde National Park indicate a maximum 100 year fire free interval in the extent of the shrub lands (Floyd, Romme, & Hanna, Fire History and Vegetation Pattern in Mesa Verde National Park, Colorado, USA, 2000). Geospatial data, particularly LANDFIRE (Landscape Fire and Resource management Planning Tools), indicates the mean fire return interval (MFRI) in mountain shrub land in the project area is between twenty-two and thirty-five years (Appendix C, Table 3). The Fire Regime Condition Class in most of this vegetation type is currently classified as 2, or a moderate departure from historic vegetative conditions. In the drainages scattered throughout the project area, the FRCC is class 3, or significantly altered from historic ranges. In both FRCC 2 and 3, fire regimes have been altered outside of the normal range of variability and the risk of losses of key elements of ecosystems are moderate to high in an unplanned wildland fire event.

3.3.7.2 Pinyon/Juniper Woodland

Approximately 44% of the project area is classified as pinyon/juniper woodland. The associated soil type is loamy foothills. This site occurs on gentle, usually rolling, terrain on mesas, benches, alluvial fans, foothill valleys and broad plateaus. It is typical of the "bean country" of southwestern Colorado. Elevation ranges mostly between 6,000 and 7,000 feet. This site tends to be dominated by pinyon pine and juniper, with an understory of mostly muttongrass *(Poa fendleriana)* in the longtime absence of fire. Perennial grasses mixed with big sagebrush *(Artemisia tridentata)* or black sagebrush *(Artemisia nova)* gives this site its typical appearance. Perennial grasses may include western wheatgrass *(Pascopyrum smithii)*, bottlebrush squirreltail *(Elymus elymoides)*, Indian ricegrass *(Achnatherum hymenoides)*, needle-and-thread *(Hesperostipa comata)* and junegrass *(Koeleria asiatica)*. Other less dominant shrub species may include Antelope bitterbrush *(Purshia tridentate)*, Utah serviceberry *(Amelanchier utahensis)*, True mountain mahogany *(Cercocarpus montanus)* and rabbitbrush *(Chrysothamnus Nutt.)*. Historical fire return intervals in closed canopy pinyon/juniper are between 200 and 400 years; however, recent large fire events (1989-present) in southwest Colorado may indicate a large scale alteration of the historically long fire return interval to a shorter one in a short period of time (Floyd, Hanna, & Romme, Historical and Recent Fire Regimes in Pinon-Juniper Woodlands on Mesa Verde, Colorado, USA, 2004). Pinyon/Juniper woodland within the project area is currently at risk for high intensity and severity wildfire, compounded by the nearby presence of communication sites, powerlines, and private land. The current FRCC of the pinyon/juniper woodlands in the project area is class 2.

In areas that pinyon/juniper woodland exist with shrubs in a more open stand, historical fire return intervals may be significantly shorter; however, low intensity fires are harder to detect with current methodologies, making a precise MFRI number difficult to assess (Baker & Shinneman, 2004). LANDFIRE data has been relied upon for this data (Appendix C, Table 3). In

these areas, pinyon/juniper trees have expanded into the historical range of sagebrush meadows, impacting species that rely on sagebrush for habitat and forage (Miller & Rose, 1999).

3.3.7.3 Ponderosa Pine Forest

The remaining 33% of the project area is characterized by an overstory of ponderosa pine (*Pinus ponderosae* var. *Scopulorum),* occurring on flat to gently sloping soils in either pine grasslands or a mix of ponderosa pine and Gambel oak forest. Lower elevation areas feature ponderosa pine transitioning to pinyon/juniper woodland. Pine grassland occupies relatively flat to gently sloping soils. Elevation ranges from 7,000 to 9,500 feet. At ecological potential, this site consists of a scattered canopy of Ponderosa pine (*Pinus ponderosa)* and an understory dominated by native perennial bunchgrasses. These dominate bunchgrasses include Arizona fescue *(Festuca arizonica),* parry oatgrass *(Danthonia parryi),* mountain muhly *(Muhlenbergia montana)* and pine dropseed *(Blepharoneuron tricholepis).* Major forb species include western yarrow *(Achillea millefolium),* northwest cinquefoil *(Potentilla gracilis),* hairy goldenaster *(Heterotheca villosa)* and Fendler sandwort *(Arenaria fendleri).* Shrubby cinquefoil *(Potentilla fruticosa),* western snowberry *(Symphoricarpos occidentalis)* and fringed sagebrush *(Artemisia frigida)* are the main shrubs species present.

Ponderosa pine and Gambel oak understory occupies relatively flat to gently sloping soils. Elevation ranges from 6,500 to 8,500 feet. At ecological potential, this site consists of and over-story of ponderosa pine *(Pinus ponderosa)* with a well-developed understory of Gambel oak *(Quercus gambelii).* Less dominant shrub species include mountain mahogany *(Cercocarpus montanus),* serviceberry *(Amelanchier spp.),* buckbrush *(Ceanothus fendleri),* bitterbrush *(Purshia tridentate),* Oregon grape *(Mohonia repens)* and snowberry *(Symphoricarpos rotundifolius).* Ground layer vegetation can be highly variable depending on aspect, soil type, over story canopy cover etc. Common perennial grasses and forbs may include Arizona fescue *(Festuca arizonica),* Parry oatgrass *(Danthonia parryi),* bottlebrush squirreltail *(Elymus elymoides),* muttongrass *(Poa fendleriana),* Kentucky bluegrass *(Poa pretensis),* elk sedge *Carex geyeri),* daisy *(Erigeron formosissimus),* cinquefoil *(Potentilla hippiana),* goldenrod *(Solidago simplex),* beardstongue *(Penstemon barbatus),* and geranium *(Geranium caespitosum).*

Approximately two thirds of ponderosa pine stands within the project area have received some sort of fuels reduction in the past decade. The Dolores Rim EA (CO-SJFO-01-024EA) and the Quakie CE (CO-800-2005-037 (CE)) are both within the project area. These projects focused on mastication of Gambel oak and small diameter pine and have both had prescribed fire application. Stands within the treated areas currently have between 60 and 80 trees per acre, with a basal area of between 50-80 ft^2/acre. The remaining one third of the ponderosa pine within the project area is untreated. A site visit indicated very little evidence of fire history in this vegetation type, and a mature Gambel oak understory intermixed with small diameter pine. This fuel complex is highly conducive to crown fire by providing ladder fuels, or a vertical path for fire to enter the canopies of overstory trees. Historical fire return regimes are well documented in ponderosa pine in the southwest, consisting of low to moderate severity fires with fire return intervals between six and ten years near the project area (Grissino-Mayer, Romme, Floyd, & Hanna, 2004). Units that have been previously treated in the project area have an FRCC of 1, or within the natural range of variability. Units that are untreated are currently at FRCC 2.

Units 2, 3, 10, 11 and 12 have a pine dominated overstory with an understory of smaller pine and Gambel oak. These stands have a remnant structure of scattered old growth pine mixed with a predominantly even-aged stand of 80-100 year old second growth pine. Openings and understory have filled in with a pole/small saw log size (5-12" DBH) pine with Gambel oak dominating small and larger openings. Very little timber harvest has occurred in these stands since between 1910 and 1920, when the mature pine was removed. Stocking in these stands ranges from 100 to 300 trees per acre, and basal areas are in the 80-250 ft^2/acre range. This combination of ages and a multi-storied stand of pine with Gambel oak provides for an over-stocked stand with high density of ladder fuels and a high risk of crown fire.

In the middle of the project area in units 17, 18 and 19, a healthy stand of second growth pine is found. Ages range from 40 to 60 years, with DBH in the 5-12" range. Trees per acre vary with an average of 60 to 80 common with some large Gambel oak in the openings. Trees appear to be planted in rows and this stand has the look of an old plantation. Areas of natural pine regeneration are present.

4.0 ENVIRONMENTAL EFFECTS

4.1 Introduction

The following is a disclosure of direct, indirect, and cumulative effects of the proposed action. Because all known mitigating measures have been included in the Descriptions of the Alternatives, the environmental consequences described below are unavoidable.

4.2 General Analysis Assumptions and Guidelines

In order to conduct the effects analysis, specialists by resource were identified at an interdisciplinary team meeting (January 30, 2013). These specialists used the most current and best available data to determine effects on their specific resources. Assumptions in the analysis were that; all prescribed fire in Alternative A would achieve the stated objectives; all design features of Alternative A would be implemented, and; current conditions in the project area will not radically shift prior to the completion of this document.

4.3 Direct and Indirect Effects

Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.

4.3.1 Alternative A – Proposed Action

4.3.1.1 Wildlife

4.3.1.1.1 Migratory Birds

The Proposed Action would result in up to 14,998 acres of treatment, with a combination of mastication, roller chopping, selective thinning/group selection, hand thinning, firewood collection, and prescribed fire. The proposed implementation methods could potentially result in the destruction of active nests or disturb the breeding behavior of migratory bird species if implemented on a landscape scale during the core nesting and breeding window of May 15 to July 15. However, given the large project area, implementation of under 300 acres of the proposed action is acceptable given its' relatively small size within the project area (0.01% of the

project area). These localized effects are not expected to adversely affect the overall populations of migratory bird species. Additionally, impacts would be minimized through the implementation of the design features outlined in Section 2.2.1. Specifically, activities associated with the proposed action in excess of 300 acres would be conducted outside of the bird nesting and breeding seasons whenever practical. If activities must be conducted in these areas during the nesting season, site surveys would be completed by a qualified biologist to determine the presence of nesting birds and to establish protective buffer zones until the young birds have fledged. In addition, habitat fragmentation would be temporary, and in the long-term the proposed action is anticipated to have an effect on migratory bird habitat by creating age class diversity within it.

4.3.1.1.2 Terrestrial Wildlife

The West Dolores rim project area is within mapped crucial big game winter range as mapped by Colorado Parks and Wildlife (CPW). CPW has designated the area within the project area as big game winter range, separated by three categories of winter range: critical winter range, severe winter range, and winter concentration areas (CPW NDIS Database). This area provides substantial winter browse and cover to big game species during the harsher winter months. The intensity of winter use by elk varies widely from year to year and from site to site and is generally controlled by annual variation in the timing and amount of snowfall. The intensity of use is also variable based on the long-term fluctuations in population levels for the local herds. Elk and mule deer populations are managed by Colorado Parks and Wildlife and are not controlled by the BLM.

Elk migrate into the west rim of the Dolores River from high elevation summer habitat on surrounding U.S. Forest Service lands. Elk move in and out of this area over the winter months, strongly influenced by weather patterns and available forage in mid-elevations. Deer tend to use this area on year-round basis, but are dependent on it during the winter season.

Local State and Federal agencies are actively engaged in habitat improvement and game damage programs with the following objectives: change the pattern of use on the landscape, discourage game damage, and improve forage. The proposed project would help to diversify the existing age class of available forage and would encourage new growth of shrubs, grasses and forbs which are higher in nutrient content. The removal of decadent mountain shrubs and pinyon/juniper trees will also open the canopy and encourage the growth of palatable grasses and forbs in the understory. While there is some concern that the proposed treatments may encourage the spread of non-native vegetation, design features and monitoring requirements would minimize and manage this potential.

The Tres Rios field office has been actively treating habitat in big game winter range across the management area for many years. The proposed treatments would be a continuation of treatments and will be an overall benefit to mule deer and elk that rely on this habitat. The design criteria outlined for big game species will minimize potential impacts and will optimize the benefits from the proposed action.

4.3.1.1.3 Threatened, Endangered, and Sensitive Wildlife Species

Analyzing and disclosing the effects of the proposed action to federally listed species is needed to comply with the Endangered Species Act of 1973 (16 U.S.C.1531 et seq.), as amended; BLM manual 6840 direction for special status species management; and the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C.4321 et seq.), as amended. The project effects discussed below will result in a requirement to consult with the US Fish and Wildlife Service (Section 7, Endangered Species Act).

This proposed project area falls within the range of several listed threatened or endangered species in Colorado and eastern Utah (Table 3.3.2). The Project Area does provide potential suitable habitat for some listed species and contains proposed critical habitat for the Gunnison sage grouse within the project area. An analysis of potential effects to federally listed or otherwise sensitive species has been completed and is addressed below.

The proposed project area is near or within the San Juan management unit of the Colorado plateau recovery unit for the Southwestern willow flycatcher (*Empidonax traillii extimus)*. There is no mapped critical habitat near the project area or potentially suitable habitat within the analysis area.

Critical habitat for the following species is outside of the project area and the proposed project will have no effect to these species. The species listed would not be affected by the proposed action.

- *The proposed action will have "No Effect" to the Southwestern willow flycatcher, Yellow-billed cuckoo, New Mexico jumping mouse, Bonytail fish, Humpback chub, Colorado pikeminnow and the Razorback sucker, because none of these species are known to occur in the project area.*

The Canada Lynx (*Lynx canadensis)* is a threatened species that has been successfully re-introduced to Southwest Colorado and is known to occur within the TRFO management area. The areas proposed for this action are not in any mapped Lynx analysis units (LAU's) and are outside of suitable lynx habitat. Although there may be incidental occurrences near or in the project area, the proposed action is not expected to have an effect to this species.

- *The proposed action will have "No Effect" to the Canada Lynx*

The Mexican spotted owl (*Strix occidentalis lucida*) is a threatened species with potential habitat in the Tres Rios field office management area. Mexican spotted owl habitat definitions that have been refined for Colorado, include the importance of sandstone cliffs for nesting. There is potential nesting habitat for Mexican spotted owls within the Dolores River canyon which is adjacent to the proposed project area. Though there is no mapped critical habitat for the Mexican spotted owl in the analysis area, the project are is within the "Colorado Plateau Ecological Management Unit" as defined by the revised 2012 Mexican spotted owl recovery plan (USDI FWS 2012). Recent survey efforts in the Dolores River canyon have not detected any breeding spotted owls and there have been no observations of this species within the project area. Survey efforts will continue in ensuing years to locate Mexican spotted owls and define the best potential habitat within the Tres Rios field office. The mesa tops adjacent to the Dolores river corridor provide important foraging habitat for the Mexican spotted owl. A variety of prey species are known to occur in the project area and may experience temporary fluctuations due to

project implementation. Many prey species rely on course woody debris and ground cover which may be reduced through prescribed burning. Burning that occurs in ponderosa pine stands present in the project area may also temporarily decrease ground vegetation and large woody debris that may be present. By creating age class diversity in the existing vegetation and by removing decadent vegetation in ponderosa pine stands, the proposed project would increase Mexican spotted owl foraging habitat. The proposed action would also increase the distribution of sage brush meadows and parks over the period of the plan by removing encroaching pinyon and juniper trees in this habitat. The removal of decadent and contiguous vegetation, particularly around existing sage brush parks, would limit the threat of catastrophic fire within this important habitat. Throughout the life of this plan, the long-term benefit of reducing the potential for stand replacing fires in the various vegetation types available for foraging would be beneficial to the Mexican spotted owl. The threat of stand replacing fires is cited in the recovery plan as a threat to habitat for the Mexican spotted owl. The proposed action will reduce this threat and provide a mosaic of habitat types that provide prey species for the Mexican spotted owl.

Proposed actions within 0.5 miles of the edge of the river canyon will require protocol surveys or would be implemented outside of the breeding period as recommended by the recovery plan. The revised Mexican spotted owl recovery plan requires 2 years of initial surveys to determine occupancy of breeding adults. After five years has elapsed, an additional one year of surveys is required every five years. Surveys for the majority of the treatment units were completed in 2008 and would require additional surveys since five years has elapsed. The proposed units in the southern portion of the project area (units 3-14) have been surveyed in 2012 and 2013 and would be covered by survey efforts for the next 5 years. This was a two-year survey and would allow for implementation in these units until 2018. Units 1 and 2 were not covered in this survey effort and would need to be surveyed previous to implementation. All other proposed units within 0.5 miles of the canyon rim would also require surveys or would be implemented outside the breeding period for Mexican spotted owls (March 1 – August 31).

With the appropriate design features in place and adequate clearance surveys completed throughout the life of this plan, there are few anticipated impacts to Mexican spotted owls. Therefore, the proposed project may affect, but is not likely to adversely affect the Mexican spotted owl.

- *With the incorporated design features (see section 2.2.1.1), the proposed action may affect, not likely to adversely affect the Mexican Spotted owl.*

The Gunnison sage-grouse (*Centrocercus minimus*) has been proposed for listing under the Endangered Species Act as endangered by the U.S. Fish and Wildlife Service (USFWS) and a Colorado BLM state sensitive species. When publishing the proposed rule the USFWS also issued the proposed rule for Gunnison sage-grouse critical habitat. The BLM and the Tres Rios field office manage habitat for sensitive and federally listed species in accordance with recommended goals and objectives. The recommended goals and objectives for the conservation of the Gunnison sage-grouse (grouse) can be found in the "Gunnison Sage-grouse Range-wide Conservation Plan" (RCP 2005, RCP). This document is referenced throughout this environmental assessment. The Colorado BLM currently adheres to the RCP, the most recent Colorado BLM Instruction Memorandum (current most recent May 7, 2013) and best available

science for management direction in regards to the grouse. If the grouse is officially listed, this document would adhere to conservation measures that may be recommended by the USFWS through consultation for this proposed action, any subsequent recovery plans, and the decision for the land use plan revision. The Tres Rios field office would also implement best management practices in regards to grouse mitigations and conservation measures as new science and research dictates throughout the life of this EA.

There are seven sub-populations of grouse throughout its known range and the Tres Rios field office has surface management jurisdiction for two separate segments of those populations. This includes part of the Dove Creek/Monticello sub-population and a portion of the San Miguel basin sub-population. The proposed action occurs in proposed unoccupied and occupied critical habitat associated with the Dove Creek/Monticello sub-population (Appendix B, Figure 4). The proposed project area is in grouse habitat located east and north of the town of Dove Creek, Colorado. The Dove Creek population had a high male count of 2 and an estimated population size of 10 in 2004, the last published count before the publication of the RCP. There have been several augmentation efforts since 2004 in the western portion of the Dove Creek population and it is estimated that the overall Dove Creek population has increased since the RCP was published (E. Freels, personal observation, CPW data). No population augmentation has taken place in the project area, the eastern portion of the Dove Creek population. Grouse in the area may be considered a 'pure' population that has not been impacted by gene mixing from the Gunnison Basin population. The proposed project area contains habitat necessary for all life functions of the grouse, including lek sites, nesting and brood rearing sites and winter habitat. These various habitat types are defined in the RCP and the USFWS proposed critical habitat ruling. These habitat types are mixed throughout the project area and implementation efforts will be dependent on the specific habitat in the proposed unit.

For analysis purposes, the project area covers approximately 25,967 acres, of which 14,998 acres are proposed for treatment. In the project area 10,120 acres are a mixture of mountain shrub and pinyon/juniper. These vegetative communities likely have sagebrush as a secondary vegetative component or sage brush is present in parks or within the understory. This mixed mountain shrub/pinyon juniper vegetation type, with a sage brush component, makes up approximately 67% of the project area. The amount of sage brush present in this vegetation type is not continuous and is not present throughout this entire area. In areas where sage is present, it is often a minor part of the understory in this vegetation type. In areas where the sage is dominant or in large parks, the treatments methods will be prescribed to minimize any alteration to existing sage brush vegetation. There is approximately 4,879 acres ponderosa pine in the project area with various understory components. This ponderosa pine habitat is considered unusable to grouse and makes up about one-third of the project area. The BLM will report annually to the USFWS acres treated and proposed treatment for the following fiscal year, as well as noxious weed monitoring efforts that are occurring in proposed critical habitat.

Nests are not uniformly distributed within nesting habitat (Bradbury et al. 1989, Wakkinen et al. 1992) although some research indicates that 70-80% of all nests often occur within 2 miles of an active lek (Bradbury et al. 1989, Wakkinen et al. 1992), research on Greater sage-grouse has shown that 88% of all nests occur within 5.8 miles of active leks (RCP, 2005). Based on this data, nest sites have the potential to occur within a large portion of the proposed project area.

The grouse that occur in the proposed project area are unique in the habitats utilized compared to other sub-populations throughout the range of the grouse. The Dove Creek grouse population has been observed using agricultural lands, particularly agricultural lands enrolled in the Conservation Reserve Program (CRP), and mountain shrub habitat dominated by Gambel oak interspersed with sagebrush (RCP 2005). Habitat threats to the Dove creek population includes permanent loss of habitat through the conversion of habitat to agricultural fields, the sub-dividing of habitat for residential development and the potential growth of mineral development near this population. The loss of habitat in both occupied and in the historic range is stated repeatedly as the main threat to the grouse and the conservation of this species (RCP 2005). The RCP refers to habitat treatments in grouse habitat stating that fire/fuels management is crucial to maintaining and restoring the health of sagebrush communities.

The RCP has several guidelines for properly implementing treatments in both proposed occupied and unoccupied critical habitat. In total, 5 of the 38 treatment units, equaling 3,062 acres, occur in proposed occupied critical habitat. An additional 22 units encompass 5,984 acres of proposed unoccupied critical habitat. Research has shown that various treatment methods, including mechanical treatment and prescribed fire, can be beneficial to grouse habitat. The RCP states the following:

"Mechanical treatments can be used as a fuel reduction tool in much the same manner as prescribed burns, to reduce the potential for catastrophic fires in GUSG habitat, wildland/urban interface, or human infrastructure areas. Mechanical fuels treatments, when developed and implemented using an interdisciplinary approach, can be very effective in meeting both the fuel/fire objectives as well as some habitat objectives (see "Habitat Enhancement" rangewide strategy, pg. 214). Reseeding following mechanical treatment and prescribed burning may be necessary to reduce the potential for invasive weeds and to maintain a desired shrub, grass and forb species mix."

The proposed action will only take place in grouse habitat when it would be beneficial to the grouse and would not adversely modify proposed occupied critical habitat. Some treatments, such as mechanical vegetation removal, could have a temporary adverse effect on critical habitat but would be provide a long term benefit to the habitat being treating. All treatments being proposed will not lead to adverse modification of any proposed critical occupied habitat. The design features of the proposed action would minimize the magnitude of treatments in proposed occupied critical habitat. This includes habitat that provides essential year-round functionality for the grouse. The proposed project area contains multiple use areas for the grouse, particularly lekking, brood-rearing, and nesting areas; as well as critical winter habitat. Treatments must not be allowed in known winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and would maintain winter range habitat quality. Winter habitat for grouse is comprised large areas of mature sage, which would not be adversely modified with the design features in place.

The use of prescribed fire in grouse habitat can be beneficial, but also has the potential to exacerbate problems such as invasive vegetation and damage existing habitat. The use of prescribed fire in areas that are dominated by sagebrush, or where sagebrush is a major component of the understory, would be closely monitored at the time of implementation. Fire

must not be used to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species; Connelly et al. 2000, Hagen et al. 2007, Beck et al. 2009). The lowest annual precipitation in the project area is 15.5 inches. As drought conditions continue in the southwest, this precipitation level could change and will need to be monitored on an annual basis. However, if as a last resort and after all other treatment opportunities have been explored and site specific variables allow, the use of prescribed fire for fuel breaks that would disrupt the fuel continuity across the landscape could be considered, in stands where cheatgrass is a very minor component in the understory (Brown 1982). Wildfire, particularly in low elevation Wyoming big sagebrush systems, has resulted in habitat loss primarily because of subsequent invasion by cheatgrass and other exotic plant species (Miller et al. 2011). Because of this threat to grouse habitat, the proposed action would reduce the threat of a catastrophic wildfire throughout the proposed project area. The potential to spread invasive weeds, and particularly cheat grass, is one of the biggest concerns with the treatment methods proposed in grouse proposed occupied critical habitat. Invasive weed management would be paramount throughout the implementation of this plan, and has been addressed in both the design features and the effects analysis for invasive weeds The treatment of individual units throughout the life of this plan would be initiated with a site visit by fuels, wildlife and weed management resource specialists. Treatment units will be inventoried prior to implementation for the presence of noxious/non-native weed species. An invasive species action plan will be part of every treatment in the proposed project area (San Juan National Forest and Tres Rios Field Office BLM, 2012)

The proposed listing packet referred to critical grouse habitat as areas in which 25% of the vegetation is sagebrush within 0.9 miles of a given point. Implementation of the proposed action would only occur in areas where the sagebrush component is not likely to be affected. In addition to pure sagebrush habitat, there is habitat in the proposed project area that provides physical and biological components essential to grouse. These features are referred to as constituent elements and are composed of, but not limited to, the following [ESA §3(5)(A)(i), 50 CFR 424.12(b)],followed by constituent elements identified in the proposed rule (78 CFR 2539) :

(1) Space for individual and population growth, and for normal behavior;
    Primary Constituent Element 1—Areas with vegetation composed primarily of sagebrush plant communities (at least 25 percent of primarily sagebrush land cover within a 1.5-km (0.9-mi) radius of any given location), of sufficient size and configuration to encompass all seasonal habitats for a given population of Gunnison sage-grouse, and facilitate movements within and among populations.
(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
    Primary Constituent Element 2—Breeding habitat composed of sagebrush plant communities with structural characteristics within the ranges described in Table 1(See FR notice 78 CFR 2539). Habitat structure values are average values over a project area.
(3) Cover or shelter;
    Primary Constituent Element 3—Summer-late fall habitat composed of sagebrush plant communities with structural characteristics within the ranges described in Table 2 (See FR notice 78 CFR 2539). Habitat structure values are average values over a project area.
(4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and

Primary Constituent Element 4—Winter habitat composed of sagebrush plant communities with sagebrush canopy cover between 30 to 40 percent and sagebrush height of 40 to 55 cm (15.8 to 21.7 in). These habitat structure values are average values over a project area.

(5) Habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species.

Primary Constituent Element 5— Alternative, mesic habitats used primarily in the summer-late fall season.

Proposed treatments in proposed occupied critical habitat or proposed unoccupied critical habitat that meets the physical and biological attributes that are outlined in the proposed listing package would be closely monitored to ensure treatments are beneficial. The treatments that are proposed in this plan which could provide added value to this population include:

- Removal of Pinyon/Juniper trees encroaching on sage brush parks and historical sage brush habitat. This would increase the size of existing sage parks and remove raptor perches near this habitat.
- Removal of decadent and excessive vegetation that could contribute to a catastrophic wildfire.
- Removal of decadent overstory vegetation in sagebrush areas order to encourage the growth of native grasses and forbs which provide essential nesting cover.
- Pre- and Post-treatment of invasive weeds that may be present in the treatment units.

The proposed action would be implemented in accordance with a variety of design criteria outlined in section 2.2.1. Until concurrence is obtained from the USFWS for this plan, priority units for implementation would be outside of mapped Gunnison Sage Grouse proposed critical occupied habitat.

Implementation of the design features would eliminate direct impacts to nesting grouse by requiring all activity outside the nesting and brood-rearing season. Indirect impacts such as mortality to individual sagebrush plants may reduce available nesting habitat. Though individual sage plants are likely to be removed, the proposed actions would not modify existing sage parks or contiguous sage habitat. The incidental effects to individual sagebrush plants would be offset by the removal of hazardous fuels, specifically pinyon-juniper, and would increase the amount of available suitable habitat for Gunnison sage-grouse. The potential of invasion of non-native or noxious weeds would be greatly reduced by the implementation of the weed management plan (San Juan National Forest and Tres Rios Field Office BLM, 2012). Cheatgrass invasion has been documented in areas across the west after prescribed fire and fuels treatments, particularly in the great basin, and not associated with fuels project in the BLM Tres Rios Field Office.

No activity would take place during the winter months, eliminating effects to grouse on winter concentration areas. If implementation actions are conducted in accordance with the proposed design features, this project would not jeopardize the continued existence of the Gunnison sage-grouse Dove Creek population. The following determination is for the Gunnison sage-grouse population located in the project area, and for the proposed critical habitat within the project area.

- *This proposed action May affect, is not likely to adversely affect the Gunnison sage-grouse.*
- *The proposed action May affect, is not likely to adversely affect proposed critical habitat for the Gunnison sage-grouse.*

Table 4.3.1 - Effects Determinations for USFWS Threatened and Endangered Wildlife Species

Species	Status	Effect Determination
Mammals		
Canada lynx (*Lynx canadensis*)	Threatened	No effect
Birds		
Mexican spotted owl (*Strix occidentalis lucida*)	Threatened	May Affect, not likely to adversely affect
Southwestern willow flycatcher (*Empidonax traillii extimus*)	Endangered	No effect
Gunnison sage-grouse (*Centrocercus minimus*)	Proposed Threatened	May Affect, not likely to adversely affect
Fish		
Bonytail chub (*Gila elegans*)	Endangered	No effect
Colorado pikeminnow (*Ptychocheilus lucius*)	Endangered	No effect
Humpback chub (*Gila cypha*)	Endangered	No effect
Razorback sucker (*Xyrauchen texanus*)	Endangered	No effect
Insects		
Uncompahgre fritillary butterfly (*Boloria acrocnema*)	Endangered	No effect

BLM Sensitive Species

Several BLM sensitive species that may be found in the project were brought forward for analysis in this assessment. These include the desert bighorn sheep, Brewer's sparrow, Bald eagle, ferruginous hawk, Allen's big-eared bat, fringed myotis, Yuma myotis, big free-tailed bat, spotted bat, peregrine falcon, desert spiny lizard and long-nosed leopard lizard. There is a diversity of habitats suitable for terrestrial species from ponderosa pine and pinyon-juniper woodlands, mountain shrub steppe to sage brush parks. There are several sensitive species that may occur within the project area due to the diverse vegetation within the proposed treatment area.

Desert Bighorn Sheep (*Ovis canadensis nelsoni* - BLM sensitive) populations have been successfully introduced into the upper Dolores river corridor over the past 20 years. This

population of bighorn sheep regularly uses the Dolores River corridor that is directly below some of the proposed treatment units. Colorado Parks and Wildlife has monitored this population in recent years with GPS radio collars and has collected more precise habitat use data for this population. This population exclusively uses the bottom of the river corridor and the adjacent rock ledges. The proposed action will not have any negative impacts to this species and any impacts would be temporary in nature. This population will continue to be annually monitored to insure conflicts that could be detrimental to this species are not occurring as a result of the proposed action.

Brewer's sparrow (*Spizella breweri* - BLM sensitive) is a small, migratory songbird that is found in the plains and foothills of the western U.S. in mostly sage brush habitats. The loss of sage brush habitat has contributed to the overall range wide decline of this species. The impacts from the proposed action may cause temporary displacement and remove some habitat. Special attention will be given to minimizing impacts or removal to sage brush throughout the project area. The overall impacts will not be long-term and will not contribute to the decline of this species, however, mitigation measures are in place to insure that breeding habitat is not impacted during the breeding season.

American bald eagles (*Haliaeetus leucocephalus* -BLM sensitive) and Golden eagles(*Aquila chrysaetos*) are year round residents in Southwest Colorado and are known to occur in the vicinity of the project area. Bald eagles are known to use the adjacent Dolores river canyon during the winter for roosting and foraging. Golden eagles are known to nest in rocky canyon habitats similar to the habitat present in the Dolores river canyon. There are no known bald eagle nests in the project area. Mitigation measures will be in place to minimize potential impacts to both of these species throughout the implementation of the proposed action.

Ferruginous Hawk's (*Buteo regalis* - BLM sensitive) are migratory raptors with no known occurrences of breeding within the Tres Rios field office management area. They may occur during migration and forage in the project area during the winter. There are no consequences to this species from the proposed action. This species will not be carried forward for further analysis.

The following BLM sensitive bat species; Allen's big-eared bats (*Idionycteris phyllotis*), fringed myotis (*Myotis thysanodes*),Yuma myotis (*Myotis yumanensis*), Big free-tailed (*Nyctinomops macrotis*) and spotted bats (*Euderma maculatum*) are found in semi-desert environments and are known to roost in trees, mines, rock crevices and caves. There may be roosts, as well as foraging areas, within the pinyon-juniper woodlands in the project area. These species are also tied to surface water and riparian areas and therefore would likely occur in the Dolores River vicinity. There may be a temporary loss of roosting and foraging habitat due to the implementation of this project, but it would not have long-term impacts to the bat populations listed above.

Peregrine falcons (*Falco peregrinus*) are known to occur and reproduce in the Dolores River canyon, adjacent to the analysis area. This species is rebounding and was recently delisted from protection under the Endangered Species Act. They are beginning to re-occupy cliff sites that have not been used in decades. New sites are located in southwest Colorado annually. Peregrine falcon annual breeding success is strongly tied to prey availability. Potential impacts to

peregrines could occur as a result of changes to their prey base and this is not likely to be impacted by the proposed action. Peregrines eat a diversity of bird species including neotropical migrants and year-round residents. Several ground nesting neotropical migrants known to occur in the area include the horned lark and green-tailed towhee, which could be temporarily impacted by the proposed action. There are no consequences to this species from the proposed action. Desgn features would l be in place to protect potential breeding sites near the project area.
The burrowing owl (*Athene cunicularia*) is a state listed species and a BLM sensitive species. Potential habitat for this species exists in prairie dog colony sites, though they are not documented to occur within the proposed project area. There are no known prairie dog colonies in the project area, which burrowing owls are dependent on for nesting and reproduction. Mitigation measures will be in place to avoid impacts to burrowing owl habitat.

Both the long-nose leopard lizard (*Gambelia wislizenii*) and the desert spiny lizard (*Sceloporus magister*) are larger-bodied lizards that are on the BLM sensitive species list. Habitat for both of these species is similar, flat or gently sloping shrublands with a large percentage of open ground and includes mesa tops above canyons. Habitat for these species is not abundant in the project area and they are not likely to be impacted by the proposed action.

The northern leopard frog (*Rana pipiens*) is known to occur throughout Colorado and is associated with wet meadows and water's edge. This species may occur in man-made reservoirs throughout the project area, but is not likely to be affected by this action.

4.3.1.1.4 Threatened, Endangered and Candidate Plant Species, and BLM Sensitive Species

A total of five federal Threatened, Endangered, and Candidate (TEC) plant species were reviewed for their potential to occur in the project area. As a result of this review, it was determined that none of the TEC plant species are potentially present in the proposed project area.

4.3.1.2 Range

The proposed action would involve the short term loss of vegetation from prescribed fire, ranging from 200 acres to 1,000 acres per year dependent on funding, smoke permits, staff resources and fire severity conditions.

Dependent upon the range of acres to be treated each year there is a potential loss of AUMs ranging from 21 AUMs under the 200 acre scenario to 105 AUMs under the 1000 acre scenario (Table 3.3.4).

Use of design features including planning treatments in coordination with the permittee would minimize effects to livestock grazing and associated range improvements, including fences.

The proposed action would improve range production via regrowth and access to forage in the project area through the removal of shrubs and brush. Improved plant diversity expected from the mowing and burning would not be accomplished if adequate lead time and range management flexibility is not implemented in coordination with the grazing permittee in the project area. Management flexibility, for instance, includes deferring livestock use on the treated areas for at least one growing season after the treatment occurs.

The proposed action would be implemented over a period of 10 years. Annual treated acres would range from 1.3% to 6.6% of the 14,998 acres proposed for treatment. The "block" approach allows for adequate livestock grazing deferment, if at all necessary, based on grazing rotation schedules dictated by the terms of the grazing permit.

Burning, more so than mechanical mowing, would leave areas more vulnerable to erosion. If inadequate regrowth or excessive soil loss occurs lengthier (over two years) grazing deferment would be required until range conditions improved.

Use of Best Management Practices described in the as design features, as outlined in Section 2.2.1, would minimize effects to livestock grazing and associated range improvements.

4.3.1.3 Invasive Weeds

Alternative A proposes to treat 14,998 acres over the next 10 years using a combination of mastication, selective thinning/group selection, hand thinning, firewood collection and prescribed fire. As a result of the above proposed activities there will be some soil disturbance, removal of existing vegetation and exposure of bare soil associated with these proposed treatments.

The extent and amount of disturbance that may occur as result will vary depending on the type of treatment that is selected. The amount of soil disturbance, temporary loss of vegetation and the amount of bare ground exposed will be more widespread with prescribed fire than they would be with mastication, selective thinning/group selection, hand thinning and firewood collection. Disturbance associated with these activities would be limited to vehicle travel routes, skid trails, and landings.

Regardless of the activity implemented, those treatment areas in which ground disturbance has occurred, vegetative cover has been removed and/or bare soil exposed are very susceptible to the spread and establishment of noxious weed species.

Although the proposed action has the potential to increase and spread noxious weeds within the proposed project area, the design criteria identified as part of the proposed action partially negate these effects. Design criteria include mitigations that 1) treatment areas will be inventoried where possible for noxious weeds at least one growing season prior to treatment. If noxious weeds are present then noxious weed treatment may occur prior to treatment activities and in subsequent years as needed based on treatment effectiveness monitoring; 2) In areas where noxious weed control measures are completed, effectiveness monitoring will occur following treatments. In areas where noxious weed populations were not present at the time of treatment, monitoring will be completed during the growing season following treatment to ensure that no new populations of noxious weeds become established; 3) require all vehicles associated with mastication and timber harvesting to be power washed for the purpose of removing potential noxious weed plant parts and/or seeds prior to moving on site; 4) areas of ground disturbance associated with roads, skid trails and landings would be re-seeded following completion of any treatment operations.

4.3.1.4 Cultural

Significant impacts to cultural resources are actions that would adversely affect sites that are eligible or potentially eligible for the National Register. A significant impact would affect the integrity or qualities of a site to a degree where the site in no longer eligible or potentially

eligible for the NRHP. A total of 46 significant (eligible or potentially eligible) sites are located in the proposed treatment units or directly adjacent to unit boundaries not delineated by roads. These sites were examined to determine which activities under the proposed action could have an impact on these sites.

Mechanical mastication/mulching equipment such as hydromowers and roller choppers, mechanical thinning equipment, and travel of this equipment through sites can damage or destroy site features, such as architectural remains or hearths. The tires and tracks of these types of equipment can dig into the ground surface, especially in wet conditions, displacing artifacts and disturbing the research potential of sites. Ground disturbance associated with roller chopping has the potential to increase soil erosion in the vicinity of sites over time, if not followed with seeding. The resulting mulch from hydromowing can help stabilize soils, but it also masks the site surface, thus limiting future site condition assessment efforts and site management. All 46 significant sites could be impacted by mechanical mastication/mulching and travel of this equipment through sites in wet conditions..

Mechanical thinning equipment and harvesting methods are potentially ground disturbing, and can destroy site features and disturb buried cultural deposits. The tires and tracks of the associated equipment, such as feller bunchers, forwarders and skidders, can have similar impacts on sites as mechanical mastication/mulching equipment. Temporary haul road construction and log skidding can reduce or destroy site integrity. The skid trails from log skidding could change the erosional gradient or drainage patterns around nearby sites, resulting in soil destabilization, if not followed with ripping and seeding. Twenty significant sites are located in treatment units or immediately adjacent to unit boundaries where selective thinning and harvesting could occur. All 20 sites could be impacted by thinning activities.

Incidences of fire, both natural and prescribed, have occurred throughout most of the treatment units, including many of the sites. The majority of the sites within the treatment units are lithic scatters with no features. The application of low intensity prescribed fire within these sites would not adversely affect them. Prescribed fire can damage or destroy fire sensitive features such as wooden site components and interfere with chronometric data. Five significant sites within the treatment units contain features that could be adversely affected by prescribed fire. The proposed action could also benefit cultural resources as it should reduce the chances of severe wildfire occurring within the boundaries of National Register eligible sites.

Fire line construction can impact site features and disturb buried cultural deposits. Seven significant sites are directly adjacent to treatment unit boundaries where fire line would be constructed. They could be impacted if fire line constructed occurred within their boundaries. The remainder of the significant sites are located in the interior of treatment unit boundaries, and are a sufficient protective distance from unit boundaries where fire line construction would occur or are located in treatment unit areas where existing roads would serve as fire control lines.

Hand thinning within site boundaries does not typically impact sites, and can reduce the risk of severe wildfire within sites, as long as the resulting slash is removed from within site boundaries. The higher temperatures and heat concentration associated with the burning of slash piles can damage artifacts or features or destroy combustible components of sites. All 40 significant sites could be impacted by pile burning, should it occur within their boundaries.

Project impacts to eligible and potentially eligible cultural resources were considered in the crafting of the proposed action. Where practical, treatment unit boundaries were revised to exclude eligible and potentially eligible sites near those boundaries. Eligible and potentially eligible sites within the treatment units or directly adjacent to unit boundaries will be avoided to protect them from project activities that could significantly impact them. Flagging tape would be placed along the boundaries of site avoidance areas prior to the commencement of fuel reduction operations. As all eligible and potentially eligible sites would be avoided by actions that have the potentially to adversely affect them, there should be significant direct impacts to cultural resources. Design features that serve to minimize impacts to soil, water, and vegetation resources would likely minimize long-term indirect effects to sites by stabilizing the ground surface and preventing excessive erosion.

Consultation with the Colorado State Historic Preservation Officer (SHPO) on the National Register eligibility of sites, the determination of effect of the proposed undertaking on eligible and potentially eligible sites, and recommended site protection measures is ongoing and will be completed before a decision on this proposal is made. Consultation with affiliated Native American tribes and pueblos regarding properties of traditional, religious and cultural importance is also in progress.

4.3.1.5 Vegetation

Vegetation manipulation (prescribed fire, mechanical thinning, and/or hand thinning) under Alternative A would reduce the threat of high severity wildland fire within the project area, as well as near the surrounding private lands and improvements. Additionally, the FRCC of the area would be returned to more historical values.

4.3.1.5.1 Mountain Shrubland

In mountain shrub communities, continuous fuels would be broken up by mastication, hand thinning, or prescribed fire to promote increased grass and forb growth, as well as new growth on the shrub component. Mastication would focus on creating a random mosaic of small openings throughout the treatment areas. Following mastication, prescribed fire may be used between 1 and three years following mechanical treatment. In areas where mechanical treatment is either unsafe or impractical to operate, prescribed fire may be used in order to reduce hazardous fuels accumulations and break up the continuity of the brush canopy.

In the short term, mastication followed by burning will reduce fire danger and release the growth of native perennial grasses and forbs within the understory. Mastication of the Gambel oak will increase the amount of fine and coarse woody debris on the soil surface in the form of mowing slash. Much of this slash will be consumed by prescribed burns. Mowing and burning will encourage vigorous re-sprouting of Gambel oak and other shrub species that have the ability to re-sprout such as serviceberry, snowberry and mountain mahogany.

In the short term the density of Gambel oak will be decreased; in the long term, this species re-sprouts vigorously following disturbance such as mowing and/or burning. With periodic retreatments as authorized by Alternative A, sprouting density should be kept in check.

New growth of perennial grasses, forbs and shrubs triggered by mastication and prescribed burning will be highly palatable and has the potential to increase forage for both livestock and

wildlife species such as mule deer and elk. In the short term within the first year following treatments, these areas will be highly favored by both livestock and big game species as compared to adjacent untreated areas. The new growth and better accessibility may lead to these areas being heavily grazed. Heavy grazing has the potential to cause additional stress on existing plants recovering from fire and has the potential to shift the species composition toward less desirable vegetation over time. However, based on the design criteria outlined in chapter 2.2.1.2, which addresses grazing management following treatments, potential impacts from grazing should be negated.

While the project area has not seen extensive, landscape scale fires in mountain shrub land and pinyon/juniper, like Mesa Verde National Park and the surrounding areas recently have, the potential exists in the immediate vicinity, as seen in the 2009 Narraguinnep fire across the Dolores River Canyon on the San Juan National Forest. That fire, ignited by lightning, started during red flag conditions (issued by the National Weather Service during periods of high fire danger, including high temperatures, low humidity, and high wind) in the same vegetative type as the project area, and eventually burned 6,749 acres. Most of that area is classified as a high severity burn. By treating fuels in advance of an unplanned wildland fire event, the severity of a fire can be reduced, as well as the final fire size and costs to rehabilitate it. Since this project focuses on treating fuels above the Dolores River Canyon, any fires that ignite below the rim will have more barriers to fire spread than currently exist.

4.3.1.5.2 Pinyon/Juniper Woodland

In the short term, roller chopping, mastication or hand thinning followed by burning will reduce fire danger and release the growth of native perennial grasses and forbs within the understory. Mastication of the pinyon/juniper will increase the amount of fine and coarse woody debris and roller chopping will increase the amount of large woody debris on the soil surface in the form of mulch and/or large diameter slash. Much of this woody debris will be consumed by prescribed burns.

The amount of ground disturbance resulting in areas of exposed bare soil would be higher with a roller chopping activities than they would be with hand thinning or mastication activities. Areas with higher levels of ground disturbance in which bare soil is exposed are more susceptible to noxious weed infestations than those with lower levels of ground disturbance. Design features exist to mitigate these effects.

New growth of perennial grasses, forbs, and shrubs triggered by roller chopping, mastication and prescribed burning will be highly palatable and has the potential to increase forage for both livestock and wildlife species such as mule deer and elk. In the short term within the first year following treatments, these areas will be highly favored by both livestock and big game species as compared to adjacent untreated areas. The new growth and better accessibility may lead to these areas being heavily grazed. Heavy grazing has the potential to cause additional stress on existing plants recovering from fire and has the potential to shift the species composition toward less desirable vegetation over time. However, based on the design criteria outlined in chapter 2.2.1.2, which addresses grazing management following treatments, potential impacts from grazing should be negated.

Across the project area, the treatments identified in Alternative A would lower the FRCC from their current values of two or three to FRCC 1, which means that the vegetation structure and fire regimes would be close to historical values. These treatments to these ecosystems would reduce the threat of wildland fire to structures inside the project area, as well as surrounding private land, encourage a heterogeneous mix of age classes of trees and shrubs, lower the risk of loss of key ecosystem components from fire, as well as allow fire managers larger safety margins and an increased range of options when managing wildland fires.

4.3.1.5.3 Ponderosa Pine Forest

Mastication or hand-thinning would be performed on small diameter pine and shrub understory to reduce the continuity of ladder fuels, crown spacing and create mosaics in the Gambel oak understory to increase stand resiliency to wildland fire, as well as to provide fuel breaks near roads. Following mastication or hand-thinning, prescribed fire would then be applied in all treatment units to keep surface fuel accumulations light and to dispose of slash generated by mechanical treatments.

In the short term, mastication followed by prescribed burning will reduce fire danger and release the growth of native perennial grasses and forbs within the understory. Mastication of the Gambel oak and small diameter ponderosa pine will increase the amount of fine and coarse woody debris on the soil surface in the form of mowing slash. Much of this slash will be consumed by prescribed burns. Mowing and burning will encourage vigorous re-sprouting of Gambel oak and other shrub species that have the ability to re-sprout such as serviceberry, snowberry and mountain mahogany.

In the short term the density of Gambel oak will be decreased; in the long term, this species re-sprouts vigorously following disturbance such as mowing and/or burning. With periodic retreatments as authorized by Alternative A, sprouting density should be kept in check.

New growth of perennial grasses, forbs and shrubs triggered by mastication and prescribed burning will be highly palatable and has the potential to increase forage for both livestock and wildlife species such as mule deer and elk. In the short term within the first year following treatments, these areas will be highly favored by both livestock and big game species as compared to adjacent untreated areas. The new growth and better accessibility may lead to these areas being heavily grazed. Heavy grazing has the potential to cause additional stress on existing plants recovering from fire and has the potential to shift the species composition toward less desirable vegetation over time. However, based on the design criteria outlined in chapter 2.2.1.2, which addresses grazing management following treatments, potential impacts from grazing should be negated.

In Ponderosa pine stands, primarily in middle and southern portions of the project area, untreated areas are overstocked. Treatments proposed in Alternative A would thin these stands to stocking densities between 60-80 trees per acre and 20-35% SDI (Stocking Density Index). Suppressed, diseased trees with little crown ratio or poor form would be cut and dominant and co-dominant larger trees will be favored for leave. Crown canopy closure would be reduced and pine stands would be more fire resilient and of better health and vigor.

4.3.1.Z Monitoring and/or Compliance

Monitoring required under Alternative A is focused on 4 areas: wildlife, noxious weeds, fuel loading, and fire behavior. Fuels and fire behavior monitoring requirements are located in Chapter 2, Proposed Action.

Wildlife and noxious weeds monitoring requirements are located in Chapter 2.2.1 Design Features of the Proposed Action (Alternative A).

4.3.2 Alternative B – No Action

Under the No Action Alternative, there would be no direct, indirect, or cumulative effects from the proposed action.

Under Alternative B, or the No Action Alternative, fuels and associated fire behavior within the project area would not be reduced in the foreseeable future. In the absence of a wildland fire event, fuels would continue to accumulate. In the presence of a wildland fire event, fuels would be susceptible to passive crown fire activity under conditions when the energy release component (ERC, the amount of available energy per area at the head of a fire) in the 90th percentile (≥81). Flame lengths would be between eight and thirty feet throughout the project area, necessitating an indirect control strategy. Rates of spread would be between 20-110 chains per hour. A high severity (>50% mortality of overstory) is likely under these conditions in all vegetation types. Gunnison Sage Grouse habitat would continue to be at high risk of loss from wildland fire due to the remote location and long response times of federal wildland firefighters.

Ponderosa pine stands in the project area are at a high risk for bark beetle attack. Stocking density in a majority of the proposed timber treatment areas is high, and future growth and vigor of pine stands would be compromised.

The potential for the spread and establishment of noxious weeds within the proposed project area would still exist. The potential for spread would exist due to the fact that 1) noxious weeds are currently present within the project area as well as on adjacent public and private lands; 2) vectors for the spread of noxious weeds will continue to exist such as improved and un-improved roads and trails, livestock grazing, oil and gas activities and recreational activities. All of these activities cause some level of ground disturbance which increases the potential for noxious weeds to establish.

4.4 Cumulative Effects Analysis

"Cumulative Effects" are those Effects resulting from the incremental Effect of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. The cumulative effects analysis considers the geographic scope of the cumulative effects and past, present, and reasonably foreseeable actions. Geographic scope may vary by resource and will be described within that cumulative impacts section for that specific resource if different than that described below.

For this project, the geographic scope is focused upon the project area (Appendix B, Figure 1). This area is 25,967 acres in total, all of which are administered by the BLM. A small (147 acre) amount of private land is present within the project area.

4.4.1 Past Actions

Past actions that affect the same components of the environment as the proposed action are: livestock grazing, timber harvesting, hazardous fuels reduction, prescribed fire, wildlife habitat improvement projects, recreational activities, and mineral extraction.

4.4.2 Present Actions

Present actions that affect the same components of the environment as the proposed action are: livestock grazing and recreational activities.

4.4.3 Reasonable Foreseeable Future Actions

Mineral extraction would likely occur near and within the project area. Livestock grazing would continue to occur on public and private land. BLM would continue to preclude or mitigate potential effects to grazing allotments through analysis of allotments, such as the Lower Disappointment Grazing Allotment analysis and the Slickrock Trailing Permit analysis. Recreational uses such as hunting would continue. Off-road motorized vehicle usage would likely continue in the area. Fuel wood collection would likely continue in the area. In addition, the Tres Rios Field Office is Revising the Resource Management Plan, San Juan National Forest Land and Tres Rios Field Office Land and Resource Management Plan Revision (Final EIS and Record of Decision anticipated in later in 2013). (http://ocs.fortlewis.edu/forestplan/).

4.5 Cumulative Effects Summary

4.5.1 Wildlife

4.5.1.1 Migratory Birds

The MBTA regulates actions that directly affect individual migratory birds. With the mitigation measures (surveys and timing of implementation) described above, the actions proposed by this EA are consistent with the MBTA and would prevent or minimize direct and indirect effects, therefore no cumulative impacts are anticipated.

If past, present and reasonably foreseeable future actions such as increased off road ATV and vehicle use, mineral exploration, and the development off adjacent private lands continue; effects to migratory birds could increase over the life of this assessment.

4.5.1.2 Terrestrial Wildlife

Cumulative effects on the species analyzed in section 3.3.1.2 could occur with the incremental loss of the quantity and/or quality of habitat over the life of this plan. High use during the winter by big game species is having a profound influence on private lands within and adjacent to the Dolores Rim fuels project area, annually damaging agricultural croplands and fences. Increases in recreational use of public lands, and the utilization of natural resources on private and federal lands may contribute to habitat loss for these species. High-intensity, stand-replacement fires, and the means by which land managers control them, have contributed, and may continue to contribute, to loss of habitat for these species. With the design features described, the cumulative impacts to terrestrial species would be minimized during the implementation of this proposed plan.

If past, present and reasonably foreseeable future actions such as increased off road ATV and vehicle use, mineral exploration, and the development off adjacent private lands; effects to terrestrial wildlife species, particularly big game species, could increase over the life of this assessment. However, the proposed action objectives are expected to be beneficial in the long-term.

4.5.1.3 Threatened, Endangered, and Sensitive Species

Cumulative effects on the species analyzed in section 3.3.2.1 could occur with the incremental loss of the quantity and/or quality of habitat over the life of this plan. Overall, increases in urbanization, increases in recreational use of public lands, and the utilization of natural resources on state, private and federal lands may contribute to habitat loss for sensitive and listed species. High-intensity, stand-replacement fires, and the means by which land managers control them, have contributed, and may continue to contribute, to loss of habitat for these species.
The Proposed Action could result in the short-term removal of potential Mexican spotted owl foraging habitat and could alter Gunnison sage-grouse habitat within the project area. The effect from the removal of potential habitat would depend on the future use by these species. Individual Gunnison sage-grouse could also be temporarily displaced and impacted by the proposed action. Multiple management actions are projected to occur over the next 10 years and could potentially impact individuals that have been reintroduced or that are occupants of this area. If drought conditions continue and the environment experiences warmer, drier climates in the near future, the potential of catastrophic fire will be increased. The removal of decadent and contiguous vegetation, particularly around existing sage brush parks, would limit the threat of catastrophic fire within this important habitat. Future development from mineral extraction activities within the project area and on adjacent public and private lands would increase habitat conversion to industrial uses and increase human disturbance from construction activities, road traffic, and noise. Noise from construction and from vehicles have been documented to disrupt lekking success in grouse (Patricelli et al. 2012) and could disturb regular breeding, foraging, and socializing behavior of Mexican spotted owls.

Grazing is currently permitted in the project area will continue throughout the life of this EA. Studies have shown that grazing could have a negative impact to sage brush communities and in particular could reduce nesting cover for grouse in these environments (RCP 2005). Grazing has also been documented in the spread of noxious weeds, which could have a negative impact to grouse habitat. Livestock grazing in Gunnison sage-grouse habitat located within this project area, combined with other reasonably foreseeable impacts, could contribute to the degradation of grouse habitat.

This EA will likely be implemented under a new Resource Management Plan (RMP) for the Tres Rios Field office. This RMP has addressed the various reasonably foreseeable future actions outlined in the cumulative effects section. Conservation measures for wildlife species are outlined in detail in this plan and will minimize or alleviate the impacts of reasonably foreseeable future actions that may occur in conjunction with the implementation of this EA.
If past, present and reasonably foreseeable future actions such as increased off road ATV and vehicle use, mineral exploration, grazing and the development off adjacent private lands; effects to terrestrial wildlife species, particularly Gunnison sage-grouse, could increase over the life of this assessment.

Under the No Action Alternative, on-going effects to threatened, endangered, and sensitive species; if present, would continue at it is currently occurring. Because the No Action Alternative would not result in any direct or indirect effects to threatened and endangered species, it would not result in an accumulation of effects.

4.5.2 Range

It has been determined that cumulative effects would be negligible as a result of the proposed action or alternatives because the proposed project and livestock grazing would be managed according to Best Management Practices (BMP) and design criteria explained in section 2.2.1.

If past, present and reasonably foreseeable future actions such as increased off road ATV use, uranium or potash mining, as well as oil and gas development, potential soil erosion could increase. However, with planned and successful BMPs, cumulative effects could be reduced.

4.5.3 Invasive Weeds

It has been determined that cumulative effects would be negligible as a result of the proposed action or alternatives because the management and control of noxious weeds would occur as outlined in the design criteria incorporated in the proposed action alternative. There would be no cumulative impacts associated with the no action alternative.

Furthermore, past, present and reasonably foreseeable future actions such as increased off road ATV use, uranium or potash mining, as well as oil and gas development would increase the potential spread of noxious weeds.

Subsequently, the potential spread of noxious weeds would be negated by implementation of the Tres Rios Field Office's invasive species action plan which centers around using an integrated weed management approach that focuses on early detection, prevention and implementation of appropriate control measures to include the use of chemical, mechanical and biological control agents for treating and controlling noxious weeds.

4.5.4 Cultural Resources

Cumulative effects should be negligible as a result of the proposed action or alternatives because eligible and potentially eligible cultural resources would be protected as outlined in the design criteria incorporated in the proposed action alternative. There would be no cumulative impacts associated with the no action alternative.

Past, present and reasonably foreseeable future actions such as increased off road motorized use, livestock grazing, and timber harvesting have the potential to destabilize soils and increase long term erosion in the vicinity of archaeological sites. Any cumulative effect should be reduced by the implementation of soil stability BMPs and design features associated such actions.

4.5.5 Vegetation

When considering cumulative effects under Alternative A, it is important to consider the landscape scale of fuels reduction projects, timber sales, prescribed fires, and wildland fires across the Dolores River canyon on the San Juan National Forest. In the past decade, over 10,000 acres has burned in several wildland fires, 1,000 acres has had prescribed fire applied, 1,700 acres have been logged, and over 1,000 acres has been mechanically thinned. When

combined with this proposed action the threat from wildland fire is substantially reduced along most of the Dolores River canyon between Bradfield Bridge and the western rim of the canyon across from Joe Davis Hill. The threat of wildland fire generating on public lands and moving onto private land would be reduced, as well as the threat of high severity fire moving onto public land from private. Fire managers, both BLM and Forest Service, would have larger safety margins when fires ignite within the Dolores River canyon knowing that when the fire hits the rim it would most likely transition to a low intensity surface fire.

Cumulatively, FRCC reduction resulting from this project and the aforementioned Forest Service projects would reduce the threat of high severity, uncharacteristically large wildland fires across a broad, multi-agency landscape.

5.0 CONSULTATION AND COORDINATION

5.1 Introduction

The issue identification section of Chapter 1 identifies those issues analyzed in detail in Sections 3 and 4. The ID Team Checklist provides the rationale for issues that were considered but not analyzed further (Appendix A). In addition, these issues were identified through the public and agency involvement process.

5.2 Summary of Public Participation

During preparation of the EA, the public was notified of the proposed action by posting on the Tres Rios Field Office NEPA Register website (http://www.blm.gov/co/st/en/BLM_Information/nepa/TRFO_NEPA.html) in January 2012, as well as the San Juan Public Lands Schedule of Proposed Actions in January 2012. The process used to involve the public was mailing scoping letters to interested parties, range allotment permit holders, local environmental groups, and other governmental agencies (A list of these parties can be found in the project file). A public scoping period was offered between 1/23/2013 and 2/28/2013. Five comment letters were received during the public scoping period. Comment letters were received from three government agencies, and two organizations. Please see section 1.8 for more information regarding scoping.

5.3 List of Preparers

Table 5.3.1 BLM Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Brad Pietruszka	IDT Lead	Sections 1.0-1.10, 2.1-2.3, 3.1-3.2, 3.3.5, 4.1, 4.2, 4.3.1.5, 4.3.1.Z, 4.3.2, 4.4, 4.4.1-3, 4.5.5, 5.1-5, 6.1-3, Appendix A-C
Bruce Bourcy	Fuels Archaeologist	Sections 2.2.1, 3.3.4, 4.3.1.4, 4.4.4, Appendix A
Tom Rice	Assistant Field Office Manager	Sections 2.2.1, 3.3.2, 4.3.1.2, 4.4.2, Appendix A

Gina Jones	NEPA Coordinator	NEPA Compliance
Mike Jensen	Invasive Species Coordinator	Sections 2.2.1, 3.3.2, 3.3.3, 3.3.5, 3.3.5.1, 4.3.1.5, 4.3.2, 4.4.3, Appendix A
Eric Freels	Wildlife Biologist	Sections 2.2.1, 3.3.1, 4.3.1.1, 4.5.1, Appendix A
Dan Huijsen	Fire Ecologist	Sections 2.1, 2.2, 4.5.5
Mark Krabath	Dolores Ranger District, San Juan NF, Supervisory Forester/Silviculturist	Sections 1.1-1.7, 2.1-2.3, 3.3.5, 4.3.1.5

6.0 REFERENCES, GLOSSARY AND ACRONYMS

6.1 References Cited

(2001). *Federal Land Policy and Management Act of 1976 as Amended.* Congressional Act, Washington DC.

(2003). *Healthy Forests Restoration Act of 2003.* Congressional Act, Washington, D.C.

Baker, W., & Shinneman, D. (2004). Fire and restoration of pinon-juniper woodlands in the western United States: a review. *Forest Ecology and Management 189*, 1-21.

Bureau of Land Management. (1985). *San Juan/San Miguel Resource Management Plan.* Environmental Impact Statement, Durango.

Colorado Department of Public Health and Environment (CDPHE). (2010). *Colorado's Section 303 (d) List of Impaired Waters and Monitoring and Evaluation List.* Denver: CDPHE Water Quality Control Commision.

Colorado Department of Public Health and Environment (CDPHE). (2010). *Integrated Water Quality Moniitoring and Assessment Report, State of Colorado, Prepared pursuant to Section 303(d) and Section 315(b) of the Clean Water Act.* Denver: CDPHE Water Quality Control Commission.

Eiswerth, M. S. (2006). Examining post-wildfire reseeding on arid rangeland: a multivariate tobit modelling approach. *Ecological Modelling*, 286-298.

Floyd, M., Hanna, D., & Romme, W. (2004). Historical and Recent Fire Regimes in Pinon-Juniper Woodlands on Mesa Verde, Colorado, USA. *Forest Ecology and Management 198*, 269-289.

Floyd, M., Romme, W., & Hanna, D. (2000). Fire History and Vegetation Pattern in Mesa Verde National Park, Colorado, USA. *Ecological Applications, 10(6)*, 1666-1680.

Freels, E. (2013, 04 05). Personal Communication. Dolores, CO, USA.

Grissino-Mayer, H., Romme, W., Floyd, M., & Hanna, D. (2004). Climatic and human influences on fire regimes of the southern San Juan Mountains, Colorado, USA. *Ecology, Vol 85*, 1708-1724.

Gunnison Sage-grouse Rangewide Steering Committee. (2005). *Gunnison Sage Grouse Rangewide Conservation Plan.* Denver, CO: Colorado Division of Wildlife.

Husband, M. (1984). *Colorado Plateau Country Historic Context.* Denver: Office of Archaeology and Historic Preservation, Colorado Historical Society.

Joint Fire Science Program. (2013, January 17). *Assessing Mechanical Mastication and Thinning-Piling-Burning Treatments on the Pinyon-Juniper Woodlands of Southwestern Colorado.* Retrieved from Fire Research and Management Exchange System: www.frames.gov/rcs/11000/11739.html

Miller, R., & Rose, J. (1999). Fire History and Western Juniper Encroachment in Sage-brush Steppe. *Journal of Range Management 52*, 550-559.

Pitblado, W. D. (1999). *Colorado Prehistory: A Context for the Southern Colorado River Basin.* Denver: Colorado Council of Professional Archaeologists.

Romme, W., Floyd, M. L., & Hanna, D. (2009). *Historical Range of Variability and Current Landscape Condition Analysis: South Central Highlands Section, Southwestern Colorado & Northwestern New Mexico.* Fort Collins, CO: Colorado Forest Restoration Institute at Colorado State University.

San Juan National Forest and Tres Rios Field Office BLM. (2012). *Invasive Species Action Plan.* Dolores, CO: BLM.

US Fish and Wildlife Service. (2012). *Final Recovery Plan for the Mexican Spotted Owl (Strix occidentalis lucida), First Revision.* Albuquerque, NM: US Fish and Wildlife Service.

6.2 Glossary of Terms

Community Wildfire Protection Plan: A community based collaborative plan developed by local stakeholders that identifies and prioritizes ares for hazardous fuel reduction

Diameter at Breast Height: The standard measurement of tree diameter, taken outside bark diameter at breast height. Breast height is defined as 4.5 feet (1.37m) above the forest floor on the uphill side of the tree

Diameter at Root Collar: The straight line passing through the center of a cross section of a bole measured at the root collar of a shrub or tree.

Energy Release Component: A number related to the available energy (British Thermal Units) per unit area (square foot) within the flaming front at the head of a fire.

Fire Regime Condition Class: a classification of the amount of departure from the natural vegetative cover and fire regime, broken into three groups. FRCC 1 indicates a low departure from natural values. FRCC2 indicates a moderate departure from natural values. FRCC 3 indicates a high departure from natural values

Fire Regime: The general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning

Fire Severity: Aboveground and belowground organic matter consumption from fire. In timbered vegetative systems, this can include percent of canopy loss. In shrub vegetative systems, percent of canopy loss is not a valid metric because the presence of sprouting species can effectively recolonize the site in a short amount of time

Hazardous Fuels: Wildland vegetation which, if ignited, threaten public safety, structures, facilities, cultural and natural resources, natural processes, or permit wildfires to spread across administrative boundaries

Ladder Fuels: A vegetative vertical path for fire to enter the canopies of overstory trees

Mastication: A mechanical fuels reduction technique that shreds targeted live and standing dead vegetation into small pieces and redistributes them as surface fuels

Mean Fire Return Interval: The average period between fires under the presumed historical fire regime

Mechanical Thinning: The process of removing vegetation with machinery

Noxious Weed: any plant designated by a Federal, State or county government as injurious to public health, agriculture, recreation, wildlife or property. A noxious weed is also commonly defined as a plant that grows out of place and is "competitive, persistent, and pernicious."

Prescribed Fire: fire that is intentionally applied in a skillful manner, under exacting weather conditions, in a designated place, to achieve specific results

Roller Chopping: a mechanical fuels reduction technique using a large drum, filled with water, with teeth welded on it pulled behind a bulldozer or similar machine. Vegetation is crushed and chopped under the weight of the drum

Sedimentation: the geologic process of soil and rock being deposited

Wildland Urban Interface: Areas where homes, transmission lines, communication sites, or other improvements are built near or among lands prone to wildland fire. Includes locations where unplanned wildland fire could threaten public safety

6.3 List of Acronyms

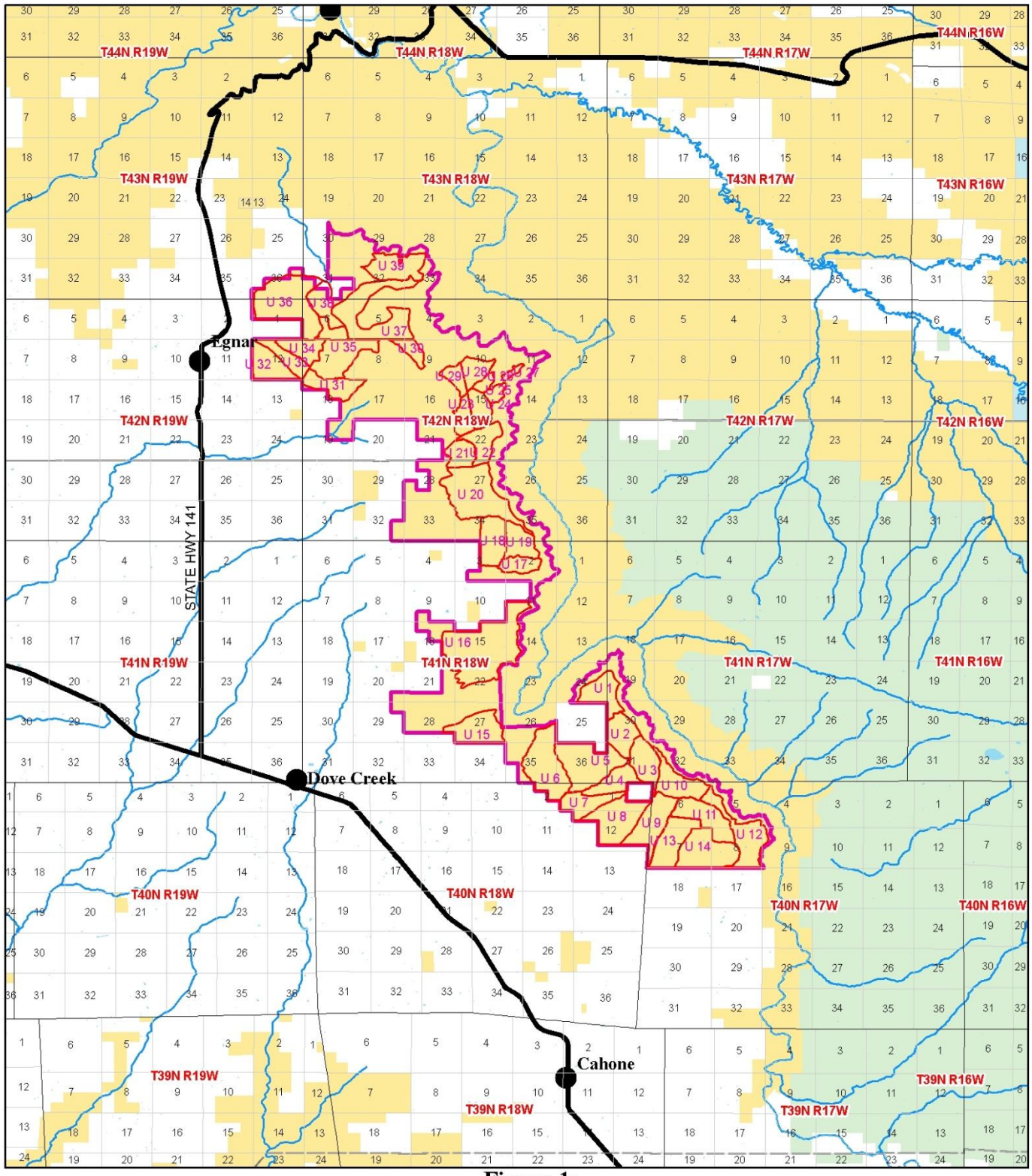
ATV: All Terrain Vehicle
BA: Biological Assessment
BCC: Birds of Conservation Concern
BLM: Bureau of Land Management
BMP: Best Management Practice
CPW: Colorado Parks and Wildlife
dBA: Decibel
DBH: Diameter at Breast Height
DR: Decision Record
DRC: Diameter at Root Collar
EA: Environmental Analysis
EIS: Environmental Impact Statement
ERC: Energy Release Component
ESA: Endangered Species Act
FLPMA: Federal Land Policy and Management Act of 1976
FONSI: Finding of No Significant Impact
FRCC: Fire Regime Condition Class
IDT: Interdisciplinary Team
LANDFIRE: Landscape Fire and Resource Management Planning Tools
MBTA: Migratory Bird Treaty Act of 1918
MFRI: Mean Fire Return Interval
MOU: Memorandum of Understanding
NEPA: National Environmental Policy Act
NRHP: National Register of Historic Places
RCP: Rangewide Conservation Plan
RMP: Resource Management Plan
SHPO: State Historic Preservation Officer
SOPA: Schedule of Proposed Action
TEC: Threatened, Endangered, and Candidate
TRFO: Tres Rios Field Office
USFWS: United States Fish and Wildlife Service
WUI: Wildland Urban Interface

APPENDICES

Appendix A: Interdisciplinary Team Checklist

(Located in Project Record)

Appendix B: Maps



0 1 2 4 Miles

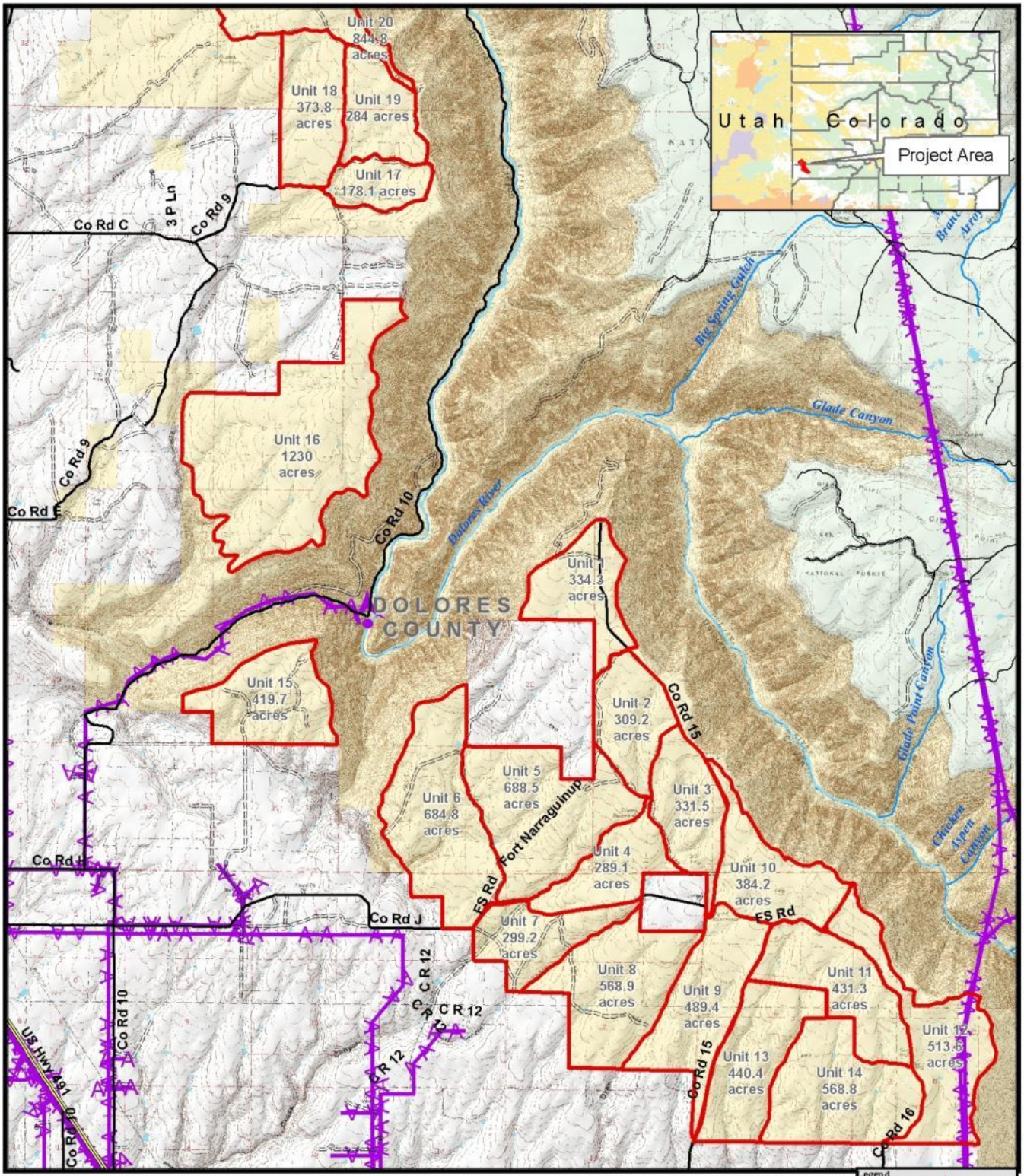
1:200,000

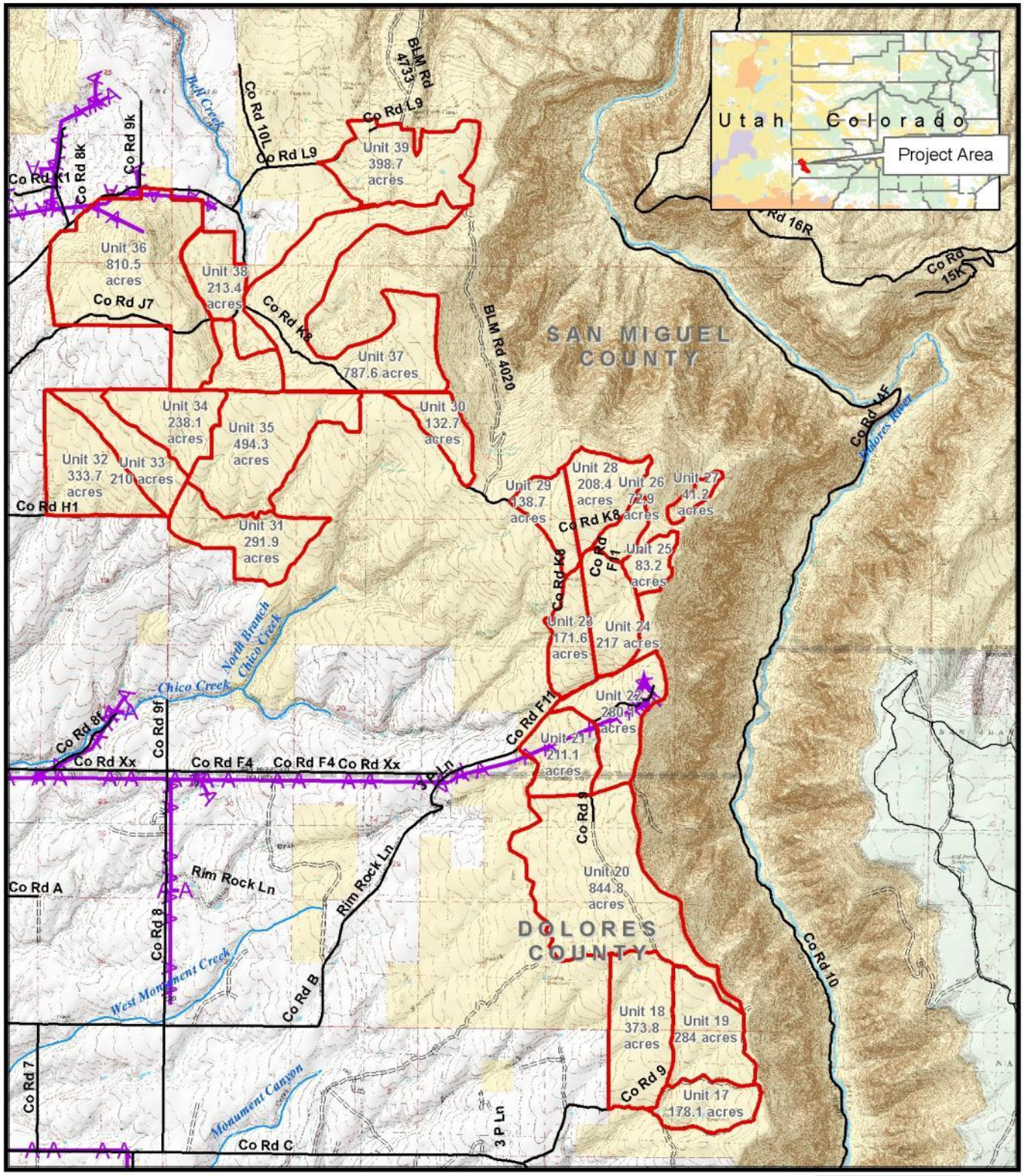
Figure 1:
West Dolores Rim EA Vicinity Map and Project Area Boundary
DOI-BLM-CO-SO10-2012-0026

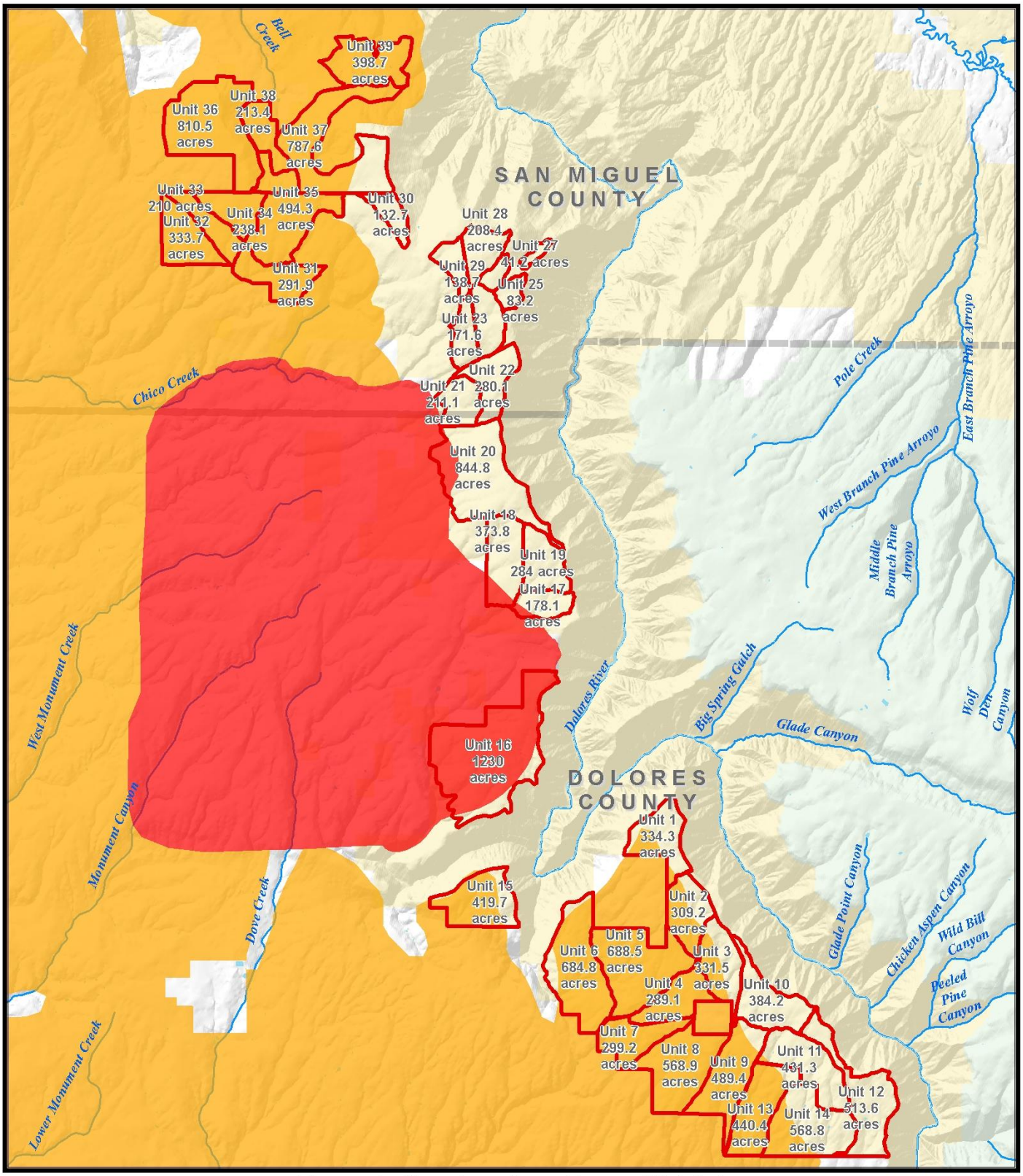
Legend
WDRimEA_AllProposedTreatmentUnits
West Dolores Rim EA
Highways
Towns
Surface Ownership
Bureau of Land Management
US Forest Service
Bureau of Indian Affairs
National Park Service
State
Private

Prepared by: bpietruszka
Current Date: 01/25/2013 08:21:35 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.


Unit 20
844.8
acres
Unit 18
373.8
acres
Unit 19
284 acres
Unit 17
178.1 acres
Utah
Colorado
Project Area
Co Rd C
3 P Ln
Co Rd 9
Co Rd 9
Co Rd E
Unit 16
1230
acres
Co Rd 10
Dolores River
Big Sprung Gulch
Glade Canyon
Brant
Arroy
DOLORES
COUNTY
Unit
334.3
acres
Unit 15
419.7
acres
Unit 2
309.2
acres
Co Rd 15
Unit 5
688.5
acres
Unit 6
684.8
acres
Fort Narraguinup
Unit 3
331.5
acres
Glade Point Canyon
Chicken
Aspen
Canyon
Co Rd H
Unit 4
289.1
acres
Unit 10
384.2
acres
FS Rd
FS Rd
Co Rd J
Unit 7
299.2
acres
Unit 8
568.9
acres
Unit 9
489.4
acres
Unit 11
431.3
acres
C R 12
C R 12
C R 12
Co Rd 10
US Hwy 491
Co Rd 10
Unit 13
440.4
acres
Unit 14
568.8
acres
Unit 12
513.6
acres
Co Rd 15
Co Rd 16
0 0.25 0.5 1 Miles
1:63,360
N
Figure 2: Alternative A Treatment Units, South Half
West Dolores Rim EA
DOI-BLM-CO-SO10-2012-0026
Prepared by: bpietruszka
Current Date: 01/25/2013 08:05:35 AM
No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.
Legend
Treatment Units
Roads
US Hwy
State Hwy
County
Other
Powerline
Radio Towers
Towns
CO Counties
USFS
BLM
PRIVATE


Utah
Colorado
Project Area
SAN MIGUEL COUNTY
DOLORES COUNTY
Unit 39 398.7 acres
Unit 36 810.5 acres
Unit 38 213.4 acres
Unit 37 787.6 acres
Unit 34 238.1 acres
Unit 35 494.3 acres
Unit 30 132.7 acres
Unit 32 333.7 acres
Unit 33 210 acres
Unit 31 291.9 acres
Unit 29 138.7 acres
Unit 28 208.4 acres
Unit 26 7.49 acres
Unit 27 41.2 acres
Unit 25 83.2 acres
Unit 23 171.6 acres
Unit 24 217 acres
Unit 22 280.1 acres
Unit 21 211.1 acres
Unit 20 844.8 acres
Unit 18 373.8 acres
Unit 19 284 acres
Unit 17 178.1 acres
Co Rd L9
Co Rd 10L
BLM Rd 4733
Co Rd K1
Co Rd 8K
Co Rd 9K
Co Rd J7
Co Rd K2
BLM Rd 4020
Co Rd H1
Co Rd 16R
Co Rd 15K
Co Rd 14F
Dolores River
Co Rd K8
Co Rd K9
Co Rd F11
North Branch Chico Creek
Chico Creek
Co Rd 8F
Co Rd 9F
Co Rd Xx
Co Rd F4
3 P Ln
Co Rd 9
Co Rd A
Rim Rock Ln
Co Rd 8
West Monument Creek
Co Rd B
Co Rd 10
Co Rd 7
Monument Canyon
Co Rd C
0 0.25 0.5 1 Miles
1:63,360
N
Figure 3: Alternative A Treatment Units, North Half
West Dolores Rim EA
DOI-BLM-CO-SO10-2012-0026
Prepared by: bpietruszka
Current Date: 01/25/2013 08:26:35 AM
No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.
Legend
Treatment Units
Roads
US Hwy
State Hwy
County
Other
Powerlines
Radio Towers
Towns
CO Counties
USFS
BLM
PRIVATE



0 0.4 0.8 1.6 Miles

1:110,000

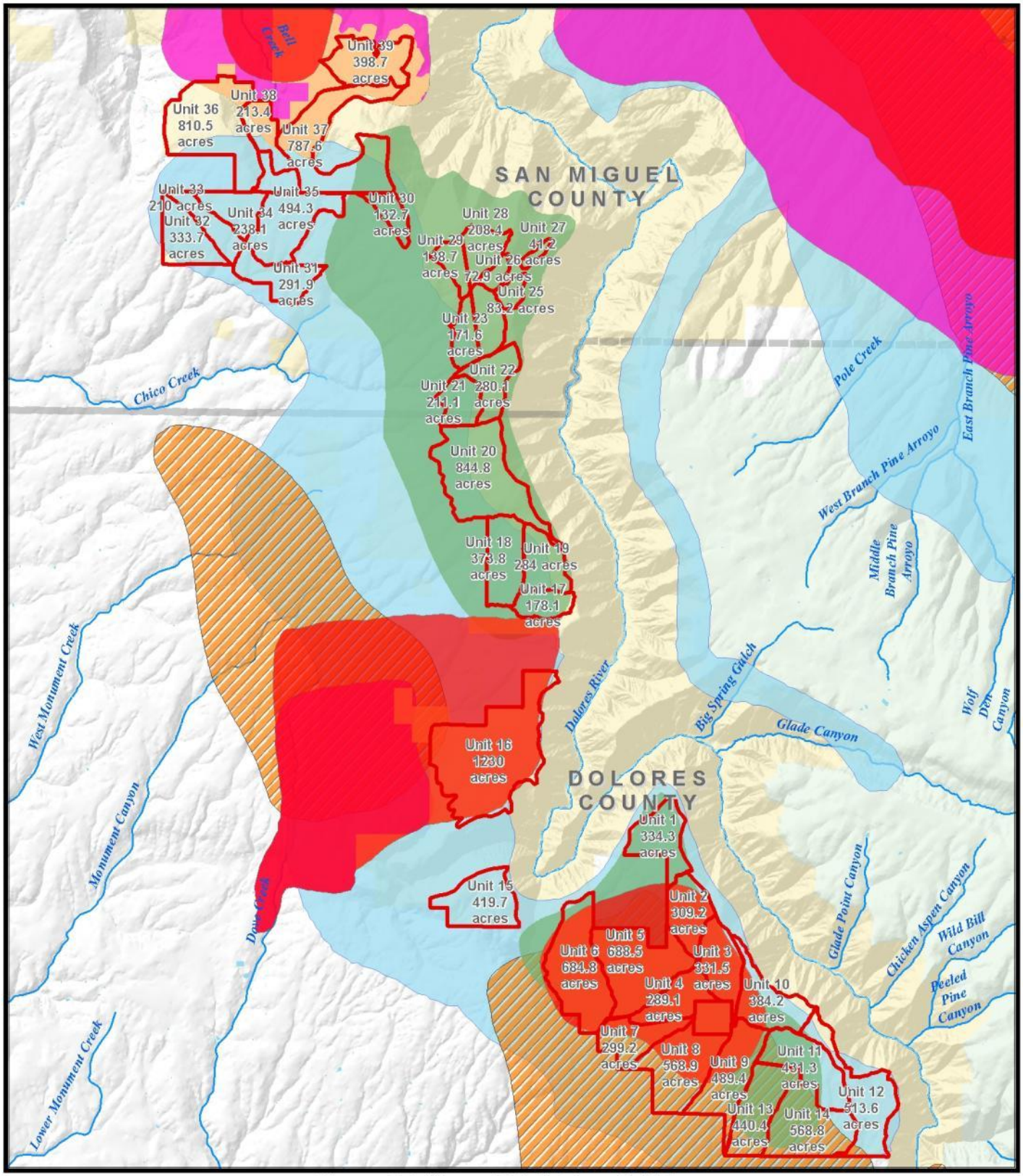
N

Figure 4: Gunnison Sage Grouse Habitat
West Dolores Rim EA
DOI-BLM-CO-SO10-2012-0026

Legend
- Treatment Units
- **GUSG Proposed Habitat Status**
  - Proposed Occupied Critical Habitat
  - Proposed Unoccupied Critical Habitat
  - Vacant/Unknown
- CO Counties
- USFS
- BLM
- PRIVATE

Prepared by: bpietruszka
Current Date: 01/31/2013 10:38:46 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



0 0.4 0.8 1.6 Miles

1:110,000

N

Figure 5: Elk and Mule Deer Habitats

West Dolores Rim EA

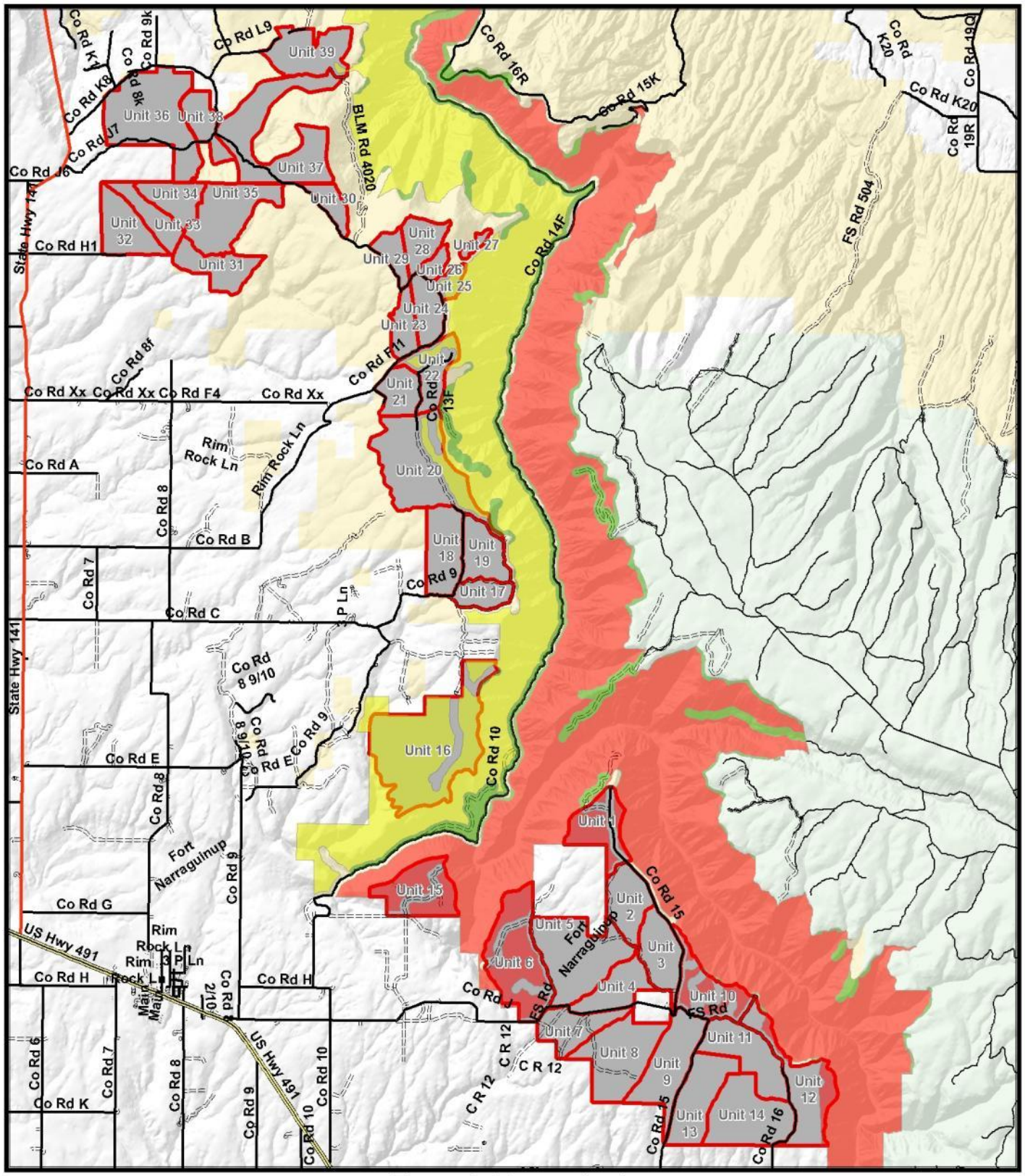
DOI-BLM-CO-SO10-2012-0026

Prepared by: bpietruszka
Current Date: 01/31/2013 10:38:46 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Legend

- Treatment Units
- MuleDeerSevereWinterRange06222011
- Mule Deer Critical Winter Range
- Mule Deer Winter Concentration Area
- Elk Production Area
- Elk Severe Winter Range
- Elk Winter Concentration Area
- CO Counties
- USFS
- BLM
- PRIVATE



0 0.45 0.9 1.8 Miles N

1:110,000

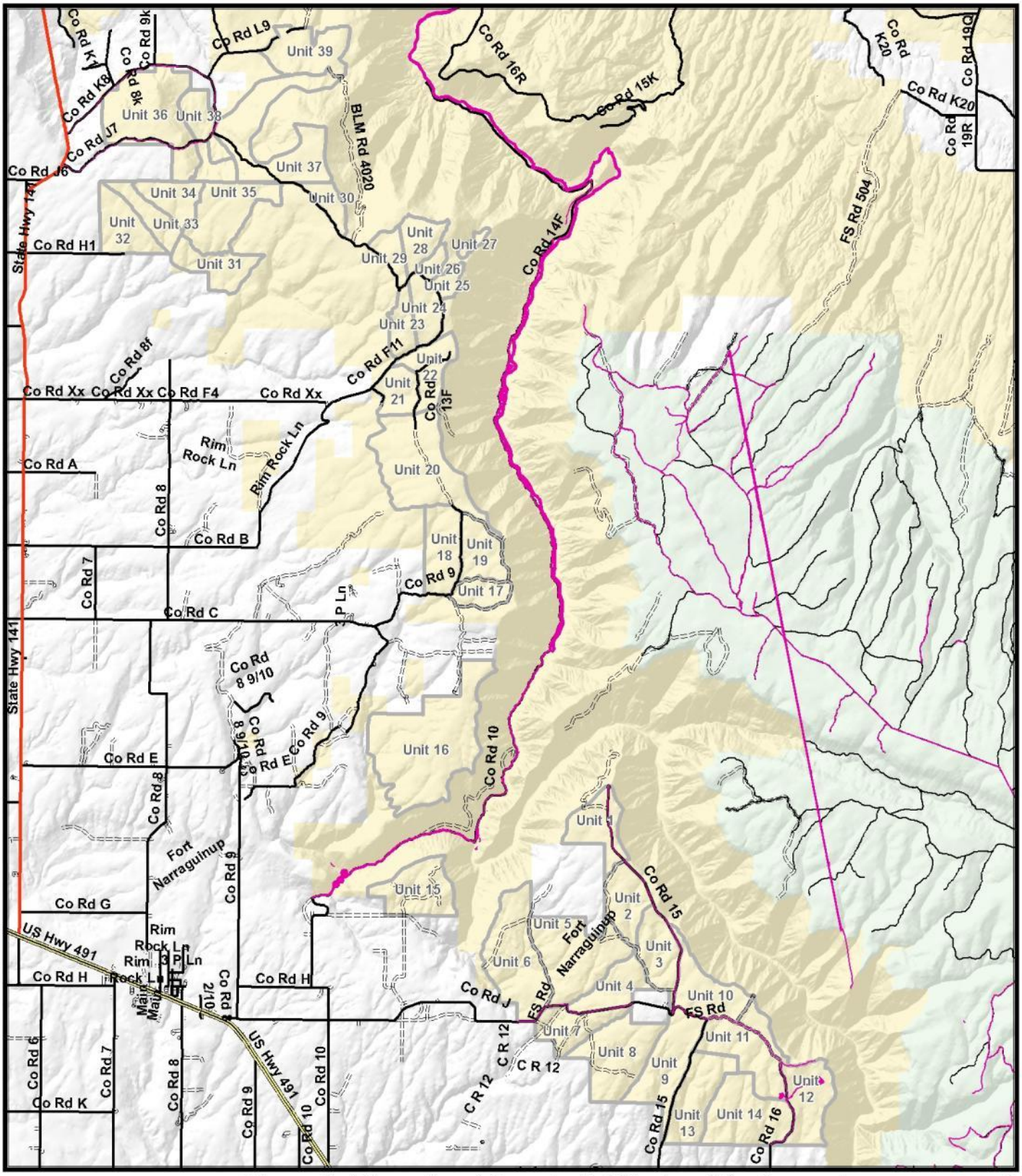
Prepared by: bpietruszka
Current Date: 01/25/2013 08:05:35 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Figure 6: Alternative A
Lands With Wilderness Characteristics
West Dolores Rim EA
DOI-BLM-CO-SO10-2012-0026

Legend
Areas with Wilderness Characteristics in Draft RMP
- Carried forward into Alt. B
- Carried forward into Alt. C
- Alt. C, larger than 5000 Acres

Roads
- US Hwy
- State Hwy
- County
- Other
- Treatment Units
- USFS
- BLM
- PRIVATE



0 0.45 0.9 1.8 Miles

1:110,000

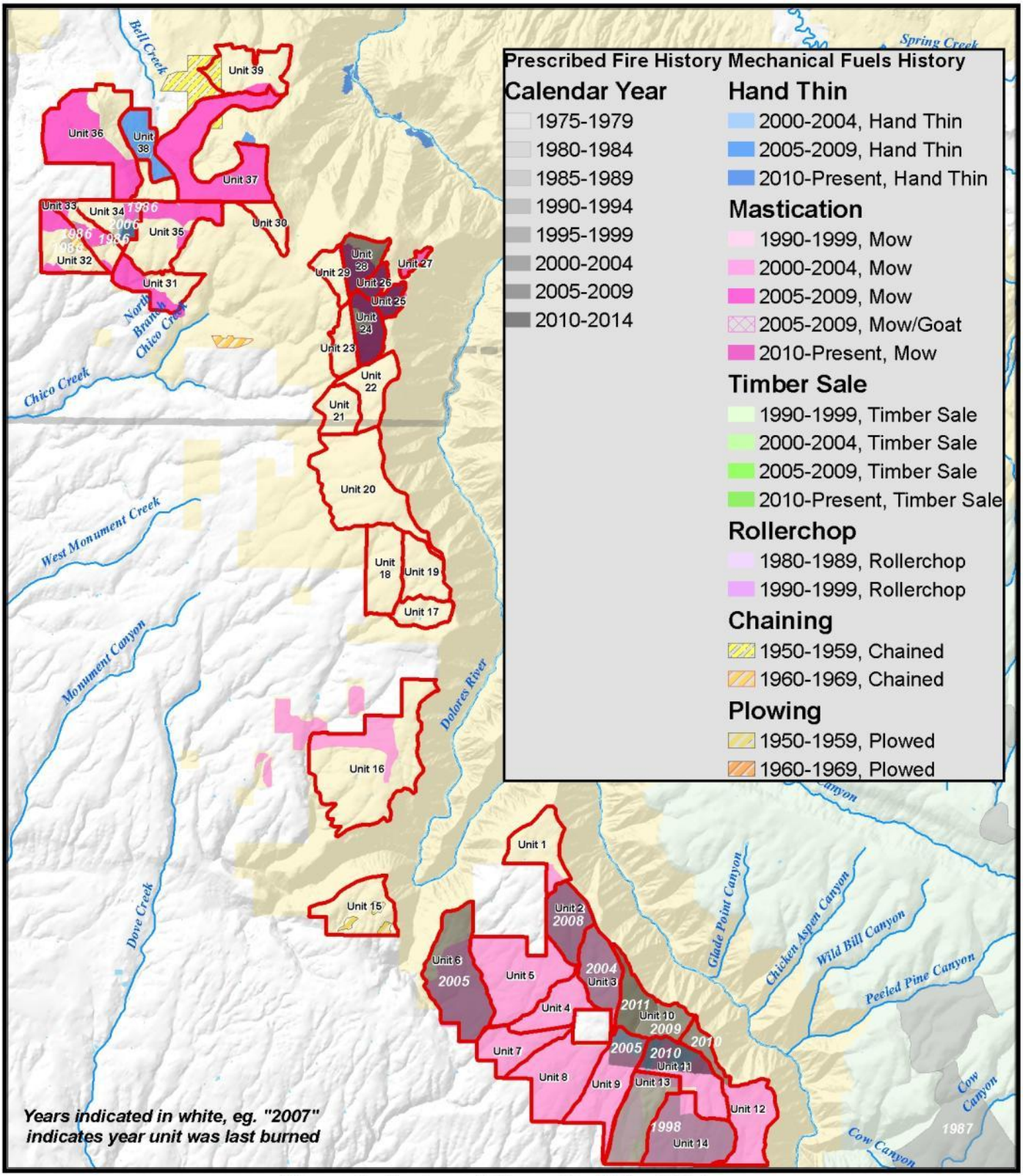
N

Figure 7: Alternative A Inventoried Noxious Weeds

West Dolores Rim EA
DOI-BLM-CO-SO10-2012-0026

Prepared by: bpietruszka
Current Date: 01/25/2013 08:05:35 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



0 0.30.6 1.2 Miles

1:110,000

N

Figure 8: Fuels and Prescribed Fire History

West Dolores Rim EA

DOI-BLM-CO-SO10-2012-0026

Legend

Treatment Units

CO Counties

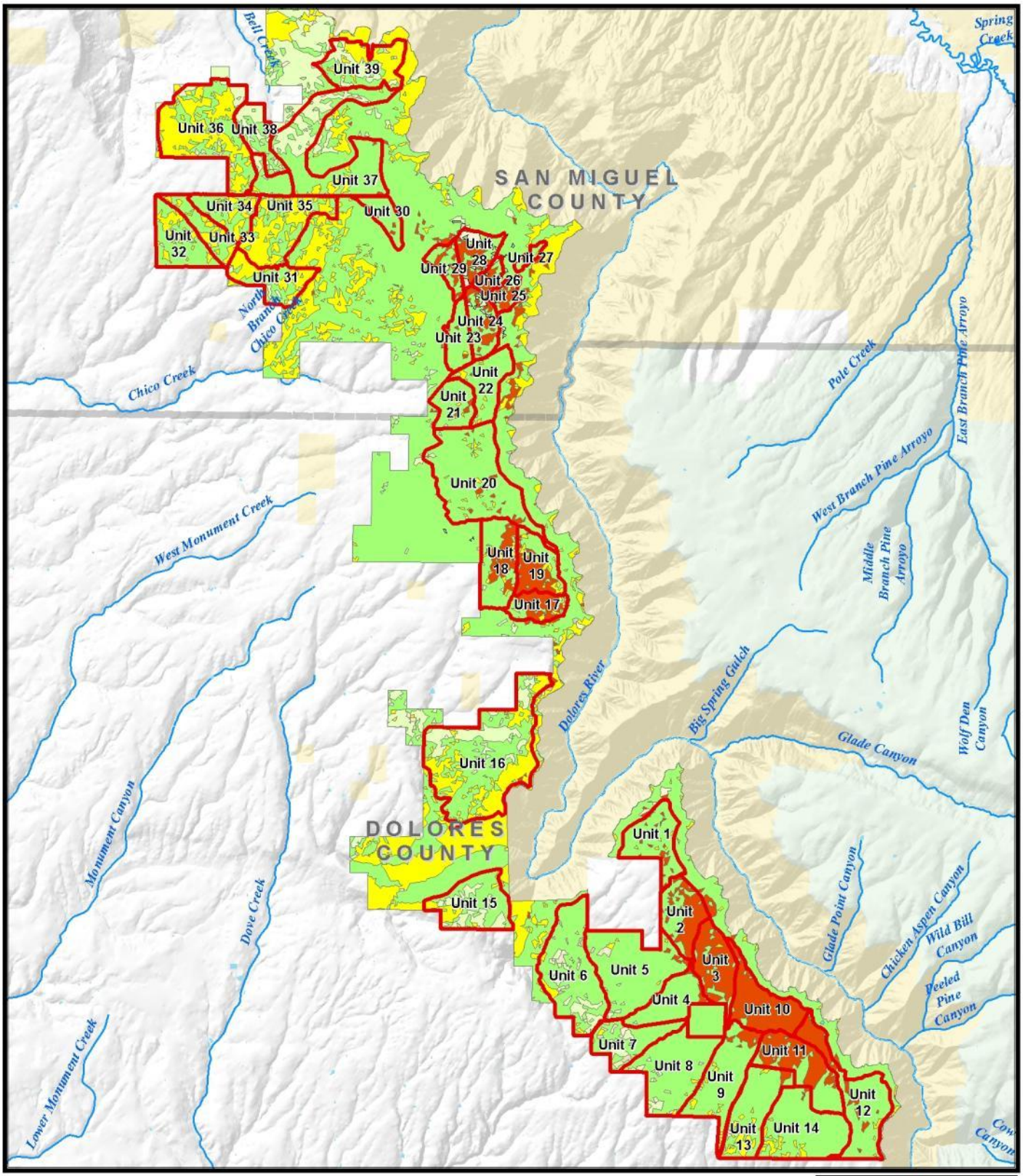
USFS

BLM

PRIVATE

Prepared by: bpietruszka
Current Date: 01/31/2013 10:38:46 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



0 0.30.6 1.2 Miles

1:110,000

N

Figure 9: Vegetation Types
West Dolores Rim EA
DOI-BLM-CO-SO10-2012-0026

Prepared by: bpietruszka
Current Date: 01/31/2013 10:38:46 AM

No warranty is made by the Bureau of Land Management as to the accuracy, eligibility, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Legend

- Treatment Units
- GAP Vegetation Type
  - Sagebrush
  - Mountain Shrubland
  - Pinyon-Juniper
  - Ponderosa Pine
  - Riparian
  - Grassland
- CO Counties
- USFS
- BLM
- PRIVATE

Appendix C: Tables

Table 1: Proposed Alternative A treatments by vegetation type and size

Unit	Area (ac.)	Vegetation Type
1	334.3	Ponderosa pine/Gambel oak
2	309.2	Ponderosa pine/Gambel oak
3	331.5	Ponderosa pine/Gambel oak
4	289.1	Mountain Shrub
5	688.5	Mountain Shrub
6	684.8	Mountain Shrub
7	299.2	Mountain Shrub
8	568.9	Mountain Shrub
9	489.4	Mountain Shrub
10	384.2	Ponderosa pine/Gambel oak
11	431.3	Ponderosa pine/Gambel oak
12	513.6	Ponderosa pine/Gambel oak
13	440.4	Pinyon/Juniper & Mountain Shrub
14	568.8	Pinyon/Juniper & Mountain Shrub
15	419.7	Pinyon/Juniper & Mountain Shrub
16	1230.0	Pinyon/Juniper & Mountain Shrub
17	178.1	Ponderosa pine & Pinyon/Juniper
18	373.8	Ponderosa pine & Pinyon/Juniper
19	284.0	Ponderosa pine & Pinyon/Juniper
20	844.8	Ponderosa pine & Mountain Shrub
21	211.1	Mountain Shrub
22	280.1	Mountain Shrub
23	171.6	Pinyon/Juniper & Mountain Shrub
24	217.0	Ponderosa pine/Gambel oak
25	83.2	Ponderosa pine/Gambel oak
26	72.9	Ponderosa pine/Gambel oak
27	41.2	Ponderosa pine & Mountain Shrub
28	208.4	Ponderosa pine & Mountain Shrub
29	138.7	Ponderosa pine & Mountain Shrub
30	132.7	Ponderosa pine & Mountain Shrub
31	291.9	Pinyon/Juniper & Mountain Shrub
32	333.7	Pinyon/Juniper & Mountain Shrub
33	210.0	Pinyon/Juniper & Mountain Shrub
34	238.1	Pinyon/Juniper & Mountain Shrub
35	494.3	Pinyon/Juniper & Mountain Shrub
36	810.5	Pinyon/Juniper & Mountain Shrub

37	787.6	Pinyon/Juniper & Mountain Shrub
38	213.4	Pinyon/Juniper & Mountain Shrub
39	398.7	Pinyon/Juniper & Mountain Shrub
Total 14,998.8 acres		

Table 2: Treatment size by vegetation type

Vegetation Type	Total Treatment Area (ac.)	Percent of Treatment Area
Pinyon/Juniper & Mountain shrub	6608.7	44.1%
Mountain Shrub	3511.2	23.4%
Ponderosa pine/Gambel oak	2677.2	17.8%
Ponderosa pine & Mountain shrub	1365.8	9.1%
Ponderosa pine & Pinyon/Juniper	835.9	5.6%
Total	14,998.8	100.0%

Table 3: Prescribed fire return intervals after initial entry

Mean Fire Return Interval (years)	Vegetation Type	Treatment acres under Alternative A
27	Mountain Shrub	3511.2
22	Pinyon/Juniper & Mountain shrub	6608.7
8	Ponderosa pine/Gambel oak	2677.2
10	Ponderosa pine & Mountain shrub	1365.8
12	Ponderosa pine & Pinyon/Juniper	835.9