

WEST SLOPE WILDLAND-URBAN INTERFACE HAZARD FUELS PROJECT ENVIRONMENTAL ASSESSMENT



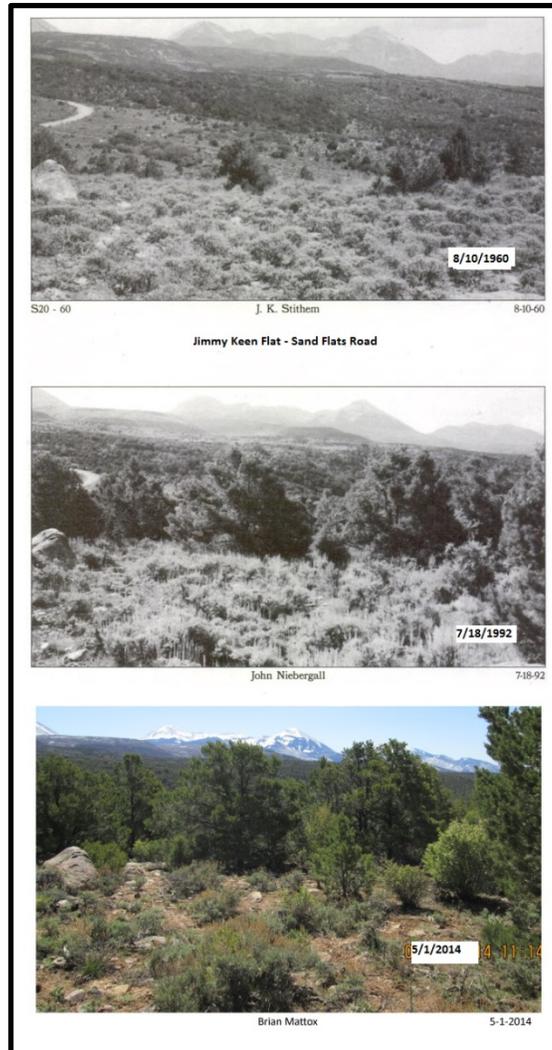
United States Department of Agriculture
Forest Service
Intermountain Region



Manti-La Sal National Forest
Moab/Monticello Ranger District

Responsible Official: Michael Diem – District Ranger

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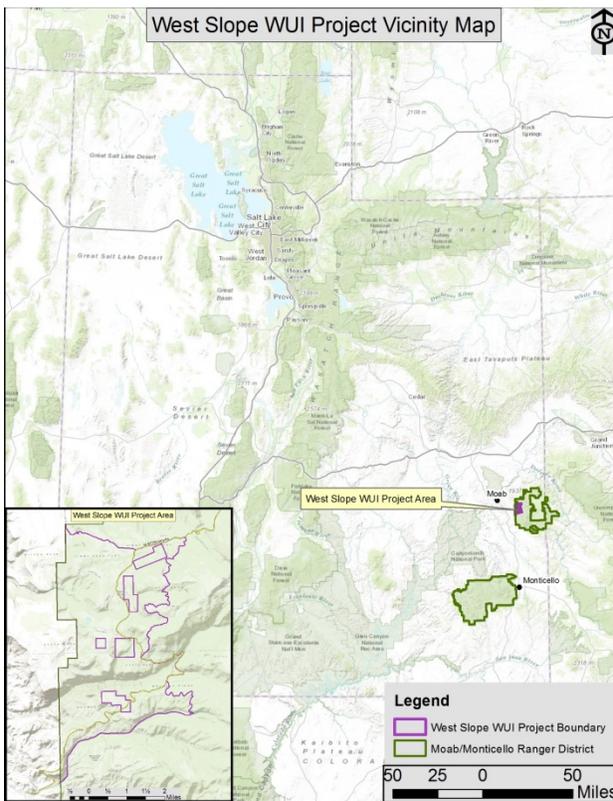
1.0 PURPOSE AND NEED

1.1 Introduction

The Moab/Monticello Ranger District, Manti-La Sal National Forest proposes to reduce fuel hazards and associated risk to forest resources, life, and property through mechanical thinning and prescribed burn treatments

The project area encompasses about 8,222 acres located in T26S, R 23E sections 13, 14, 23, 24, 25, 26, 25, 26; T26S, R23E sections 17, 18, 19, 30, 31; T27S, R23E sections 1, 2, 11, 12, 14; and T27S, R24E sections 5, 6, 7, 8 Salt Lake Meridian. It is approximately 13 air miles east-southeast of Moab, Utah in both Grand and San Juan Counties (Map 1). The project is bordered on the west by BLM and private lands then Forest Service lands on the south, east, and north sides. There are private inholdings within the project area and some of the project lies within the Inventoried Roadless Area. Proposed treatment locations are within 1.5 miles of private inholdings. This is an authorized hazardous fuel project as defined by The Healthy Forest Restoration Act of 2003 (HFRA).

Map 1: Vicinity



1.2 Background

Fire Exposure Risk: The West Slope Wildland Urban Interface project is in an area of high recreational and residential use located about 13 miles east of Moab, Utah.

In 2005, the Forest conducted a Fire Regime/Condition Class Assessment (USDA Forest Service 2005). The project area was determined to be Fire Regime 3/Condition Class 2.

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human intervention but including the possible influence of aboriginal fire use. Fire Regime 3 is described as generally mixed-severity and can also include low severity fires.

Fire regime condition class reflects the current conditions' degree of departure from modeled reference conditions. Condition Class 2 represents a moderate departure from historical conditions.

The Mill Creek fire in 1982 burned 40 acres within the project area. Two large fires have occurred recently near the project area. In 2008, the Porcupine Ranch fire burned 3400 acres. In 2013, the Lackey Fan fire burned 900 acres. Both of these natural ignitions responded to high fuel loading, terrain, and dry conditions. These wildfires negatively affected the safety of forest users and area residents. Current vegetation in the West Slope project area is similar to the conditions that burned on these two fires.

Fire history records (GIS) show that approximately 40 fires occurred with ignition points in locations able to burn into the project area during the period from 1988 to 2010. Except for the 1982 Mill Creek fire,

all other ignitions were suppressed at one acre or less in size. Large fire history around the area demonstrates that frequency is one indicator of risk. The Lackey Fan fire in 2013 burned about 930 acres. There had been approximately 15 wildfire starts around that area. The Porcupine Ranch fire in 2008 burned about 3,400 acres and wildfire starts in that area total about 12. This data demonstrates the potential impacts of fire suppression activities may have had on large fires in the West Slope WUI area (Map 2).

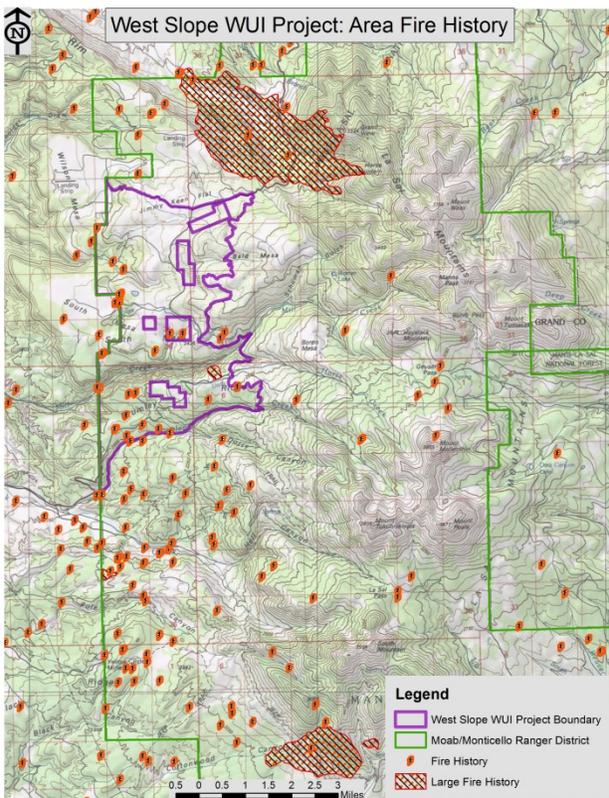
This project proposes to move between 2,000 to 4,500 acres within the project area from Condition Class 2 to Condition Class 1. The project will provide treatment of pinyon pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), and Gambel oak (*Quercus gambelii*) to create conditions that provide for less severe fires and lower risks to homeowners, area users, and environmental damage. The project provides for firefighter safety and reduces the risk of stand-replacing wildfire to life and property.

1.3 Purpose and Need

The **Purpose** of this proposal is to:

1. Reduce the risk from wildfire to life (fire fighters, recreationists, and permittees) and property in the area.
2. Reduce the negative consequences of a high severity wildfire fire on the soil and vegetation resources in the area.

Map 2 - Fire Occurrence



Need: The current vegetation communities are in a condition that a fire start, on an average summer day, would be uncharacteristically hot, difficult to control, and would be a significant threat to private land, public and firefighter safety (access and egress) and other developments on the west slope of the La Sal Mountains. Based on recent experiences in similar elevation and vegetation communities (Porcupine Ranch and Sunrise Mine fires) the results of such a fire would likely lead to overland flow, erosion, and debris flows from storm events that would have negative impacts downstream from National Forest System Lands in the North Fork of Mill Creek and Mill Creek drainages. Fire starts are common on the west side of the La Sal Mountains (Map 2).

Increasing density of stems and ladder fuels in stands of Gambel oak, mixed mountain shrubs, pinyon-juniper, and encroachment of pinyon-juniper trees into other vegetation types are increasing the susceptibility of these stands and adjacent private property to the development of severe stand-replacing fire.

Dense tree stands are also susceptible to pest outbreaks such as pinyon ips beetles which increase tree mortality and further increase the fire risk.

A major fire event in this area could damage municipal watershed values and collection systems. It could also damage private property and values within inholdings and pose risks to area visitors.

The passage of the Healthy Forests Restoration Act (2003) and the President's Healthy Forests Initiative created performance expectations and a mandate for the Forest Service to restore fire dependent ecosystems and reduce fire risk to people and property.

In 2012, the Governor of Utah began moving a catastrophic wildfire reduction strategy in conjunction with federal wildland fuels management direction. This statewide process focused risk reduction planning towards wildland-urban interface (WUI) areas. During this process, the West Slope WUI proposal was identified as an area that met the governor's criteria as well as national, federal guidance within the US Forest Service (Map 3).

The West Slope WUI project was developed in accordance with Forest Service Manual (FSM 5100-2005-1) section 5102 that states "Forest Service fire management activities shall always put human life as the single, overriding priority". This follows Forest Plan direction (Utah Fire Plan Amendment 2000) which states that "Human life (firefighter and public safety) is the highest priority during a fire" and the Manti-La Sal National Forest Fire Management Plan which states "Firefighter and public safety is the first priority in every fire management activity" (USDA Forest Service 2013).

Management is under the *Land and Resource Management Plan* for the Manti-La Sal National Forest (USDA Forest Service 1986, as amended). Areas proposed for treatment have a management prescription of RNG (management emphasis is Range – 6805 acres, 83% of project area) and GWR (management emphasis is General Winter Range for deer and elk -679 acres or 8% of the project area). In Mill Creek, there are 59 acres of SPR (Semi-Primitive Recreation, which is less than 1% of the project area). Also within the project area, there is RPI (Research, Protection and Interpretation management emphasis in the Mill Creek Gorge Research Natural Area -679 acres) where no vegetation treatment is proposed.

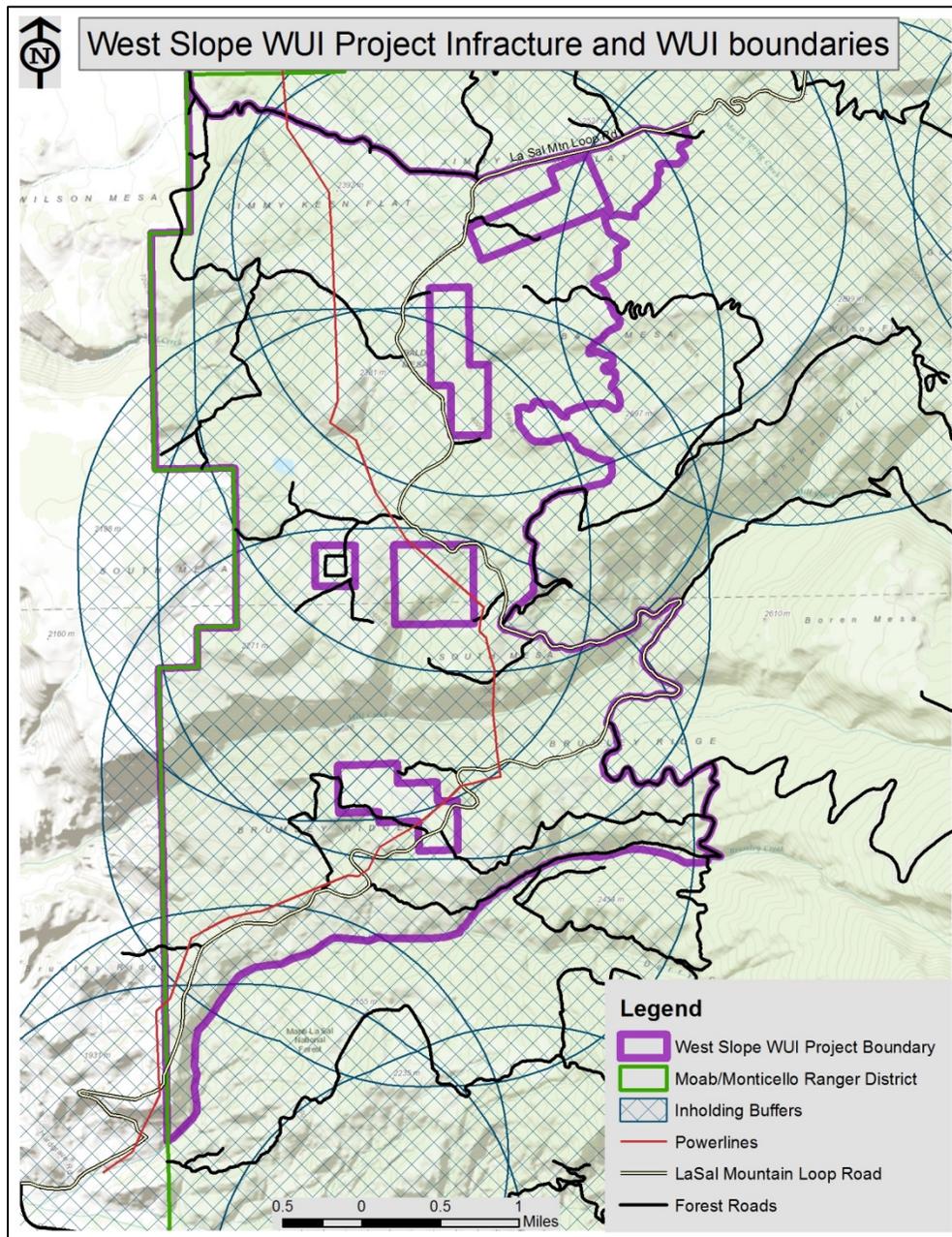
This document is tiered to the Manti-La Sal National Forest Plan Final Environmental Impact Statement. The project has been reviewed to identify conformance with Forest Plan management direction. It complies with the Forest Plan and meets specific goals and direction to:

1. *Minimize hazards from wildfire (LRMP III-5). Human life (firefighter and public safety) is the highest priority during a fire. Once firefighters have been assigned to a fire, their safety becomes the highest value to be protected. Property and natural and cultural resources are lower priorities (Utah Fire Amendment).*
2. *Reduce hazardous fuels (III-5). The full range of fuel reduction methods is authorized, consistent with forest and management area emphasis and direction (III-13, III-43).*
3. *Certain vegetative types are to be managed such that varying successional stages will be present to provide for a high level of vegetative diversity and productivity (III-2). Pinyon-juniper stands on gentle slopes and on lands with good soils will be treated periodically to maintain early successional stages (III-8). Intensive management practices would maintain structural diversity within the woody species in at least 25 percent of the area covered by the Gambel oak and mountain shrub type. In some cases, the Gambel oak would be encouraged to successionally develop as an open savannah or in a high seral stage (III-9).*

This project is identified on the Manti-La Sal National Forest Five-Year Integrated Vegetation Management Plan (USDA Forest Service 2005-2014), which has been coordinated with other Federal, State, and local agencies as part of our collaborative fuels management program. State of Utah and San Juan County, Utah officials have been contacted and support implementation of this project. It is

consistent with proposed management in the Moab/Spanish Valley Wildfire Protection Plan and the Southeastern Utah Regional Wildfire Protection Plan (Utah Division of Forestry, Fire, and State Lands 2007).

Map 3 - Infrastructure and WUI boundaries



1.4 Proposed Action

The Proposed Action is a Healthy Forest Restoration Act (2003) project designed to reduce vegetation density and ladder fuels on approximately 3,900 acres to reduce the probability of a high severity wildfire in the 8300 acre project area that encompasses five private inholdings with residences,

outbuildings, and infrastructure, as well as permitted key public communication systems and utility lines.

1.5 Public Involvement

Initial Scoping: Beginning with a field trip to the area in October 2012, the project and potential actions were introduced and discussed with agency staff, area residents, and other concerned groups.

A legal notice was published on November 29, 2012 under 36 CFR 215. Eight written comments were received during the 30-day notice and comment period.

EA/HFRA Process: A letter (dated April 22, 2014) clarifying the project as a Healthy Forests Restoration Act project was sent to all interested parties, including those who commented during the first comment period. A second legal notice was published in the Moab Times-Independent on April 24, 2014, announcing the intent to complete an Environmental Assessment under the authority of HFRA, with a 30-day notice and comment period and an opportunity to attend an Open House for additional information on the proposed project. The Open House was held in Moab on May 8, 2014. Thirteen individuals/representatives attended the Open House.

As a result of our public involvement efforts, we received letters or open house comment forms from 5 individuals/organizations during the 30-day comment period. Three other letters regarding the proposed project were received outside the comment period. As a result of public comments, the District Ranger directed detailed analysis of one additional action alternative in compliance with the Healthy Forest Restoration Act of 2003. A detailed description of the proposed action, other alternatives considered and other alternatives analyzed in detail in this Environmental Assessment (EA) are found in Chapter 2.0 Alternatives.

A Response to Comments is included in the EA as Appendix A. A review of the literature referenced in the comments is included in a separate document in the project record.



Project Area overview

2.0 ALTERNATIVES

2.1 Issues

Potential issues are derived from comments received from the public, organizations, other agencies, and Forest Service resource specialists. Issues are defined as a point of discussion debate, or dispute about environmental effects. From comments received, the Interdisciplinary Team recommends to the Deciding Official whether issues are outside the scope of the proposed action, can be addressed through design features included as part of the proposed action, should be analyzed for alternative comparison, or whether the issue should be analyzed as an alternative to the proposed action.

Following review of public comments and discussion with interdisciplinary team members, the District Ranger determined that there were two issues with the proposed action that resulted in development of one additional alternative for this EA. The issues are as follows:

1. The use of herbicide (Tebuthiuron) would result in adverse effects to soil and water resources
Indicator: acres treated with herbicide
2. The location, size, and shape and intensity of proposed treatments would negatively affect pinyon-juniper woodlands and other vegetation resources and are not necessary for fire protection

Indicator: acres treated mechanically, acres treated by hand (chainsaw), acres FRCC changed

The majority of public comments focused on concerns relative to the proposed use of herbicide. Following scoping and subsequent discussions, one additional action alternative was added for analysis in the EA.

The District Ranger has determined that there are no additional issues that require development of a new alternative and none that should be addressed in alternative analysis. Other issues raised are outside the scope of the analysis, are addressed through the No Action alternative, or are addressed in design features included in the proposed action.

2.2 Alternatives

2.2.1 Alternatives Eliminated From Detailed Study

The Healthy Forest Restoration Act sets out requirements for the range of alternatives to be considered in projects authorized under the act: 1) Within 1 ½ miles of the boundary of an at-risk community, federal agencies are not required to analyze any alternative other than the proposed action unless it is different than the recommendations contained in the applicable community wildfire protection plan related to proposed locations and methods of treatment, in which case both alternatives must be described; 2) For areas beyond 1 ½ miles of the boundary of an at-risk community, but that are within the Wildland-Urban Interface (“WUI” as described in a community wildfire protection plan), federal agencies are not required to analyze more than the proposed agency action and one additional action alternative; 3) For authorized projects in areas not encompassed by the previous two categories of land, the environmental analysis must describe the proposed action, a no action alternative, and an additional action alternative, if one is proposed during scoping or the collaborative process. This additional alternative must still meet the purpose and need of the project. If more than one additional alternative is proposed, the Secretary has discretion to select which one to consider and provide a written record describing the reasons for the selection.

Proposed treatment areas are within the wildland-urban interface as defined by HFRA. The proposed treatments are within the scope of actions identified for management of surrounding vegetation and fuel conditions. The proposed action qualifies as an authorized project under HFRA in all areas. This analysis provides for and analyzes an adequate range of alternatives under HFRA and NEPA.

The alternative presented by Grand Canyon Trust and others was not used in its entirety as it did not meet the defined purpose and need to adequately reduce fire hazards within this area. Central components of the proposed alternative were used in the development of an additional alternative to the proposed action.

The following actions or alternatives to the proposed action were considered but eliminated from detailed study [40 CFR 1502.14(a)].

Defensible Space – a recommendation was made to limit fuels treatments only to defensible space zones around facilities and improvements. It was determined in the fuels specialist report and others that limiting treatment to areas around residential inholdings would not meet the purpose and need of this project. Although the Forest Service cannot require treatments on private land, local land management agencies are working with the State FFSL to encourage Firewise treatments.

2.2.2 Alternative 1 - No Action

Alternative 1 addresses requirements to provide a “No Action” alternative. The No Action Alternative would continue current management within the project area. No vegetation or fuel reduction treatments would occur within the project area.

2.2.3 Alternative 2 (Proposed Action)

Treatments

The Proposed Action would reduce vegetation density and ladder fuels on approximately 2,350 acres of the 8,222 acre project area.

1. **Pinyon-Juniper/Sagebrush Vegetation Type (889 acres of treatment):** mastication of pinyon-juniper encroachment into historically sagebrush vegetation communities due to fire suppression. Rocky areas that traditionally did not burn would not be treated. Equipment will be restricted to 30 percent slopes or less.
2. **Pinyon-Juniper/Shrub Vegetation Type (1,028 acres of treatment):** mastication of pinyon-juniper encroachment into historically mixed shrub vegetation communities due to fire suppression. Overgrown sprouting shrubs such as serviceberry may be stimulated by top cutting to encourage new growth that to provide wildlife with additional forage. Pinyon-juniper immediately adjacent (300 feet) to private property would be thinned and ladder fuels removed to reduce the visual impact of the treatments. Pruning of residual trees will typically be average four feet up from the ground or no more that 50 percent of the live crown of the tree. Equipment will be restricted to 30 percent slopes or less.
3. **Gambel Oak Vegetation Type (2,200 acres – up to 360 treatment acres, dependent on soil conditions):** openings of 1 to 3 acres would be created using tebuthiuron (Spike) following a cutting or mastication treatment. Gambel oak patches with diameters less than 6 inches will be targeted. The herbicide is applied by hand in the form of pellets that are placed under the drip line of the

Gambel oak to be killed. Other vegetation types within the treatment areas will be avoided where possible. Herbicide would not be applied within 50 feet of dry swales and drainages. Equipment for the cutting will be restricted to 30 percent slopes or less. Specific sites where tebuthiuron will be applied will be based upon a site specific soil survey, to ensure all soil and watershed constraints are not present. This is a one-time treatment, no maintenance treatments will be authorized under this alternative.

4. **Riparian Vegetation Type (46 acres):** pinyon-juniper will be removed 30 feet from areas with riparian vegetation (willow, cottonwood, etc.) where practical and where the removal would not adversely affect bank stability. In areas that have been invaded by tamarisk, the tamarisk would be treated prior to the pinyon-juniper by hand using a chainsaw.
5. **Communication Site -Gambel Oak (49 acres – up to 10 treatment acres):** A mosaic of openings of 1 to 3 acres in size following the Finney Brick model would be created using tebuthiuron (Spike) following cutting or mastication. Gambel oak patches with diameters less than 6 inches will be targeted. The herbicide is applied by hand and is in the form of pellets that are placed under the drip line of the Gambel oak to be killed. Other vegetation types within the treatment areas will be avoided where possible. Herbicide would not be applied within 50 feet of dry swales and drainages. Equipment will be restricted to 30 percent slopes or less.

2.2.4 Alternative 3 (Preferred Alternative)

Treatments

Alternative 3 would reduce vegetation density and ladder fuels within 4546 acres of treatment units in the 8,222 acre project area. In the Gambel oak vegetation type, treatment would occur on 30-70% of the unit acreage – for a maximum of 1625 acres treated in the Gambel oak type. There is one maintenance treatment proposed in this alternative.

1. **Pinyon-Juniper/Sagebrush Vegetation Type (911 acres of treatment):** mastication of pinyon-juniper encroachment into historically sagebrush vegetation communities due to fire suppression. Rocky areas that traditionally did not burn would not be treated. Equipment will be restricted to 30 percent slopes or less.
2. **Pinyon-Juniper/Shrub Vegetation Type (934 acres of treatment):** mastication of pinyon-juniper encroachment into historically mixed shrub vegetation communities due to fire suppression. Overgrown sprouting shrubs such as serviceberry may be stimulated by top cutting to encourage new growth and provide wildlife with additional forage. Pinyon-juniper immediately adjacent (300 ft zone) to private property would be thinned and ladder fuels removed to reduce the visual impact of the treatments. Pruning of residual trees will typically be average four feet up from the ground or no more than 50 percent of the live crown of the tree. Equipment will be restricted to 30 percent slopes or less.
3. **Gambel Oak Vegetation Type (1,504 acres – up to 1,050 treatment acres):** a mosaic of openings of 1 to 3 acres would be created using a one entry mastication treatment. Some hand treatment (thinning with chainsaws) may occur in suitable areas and on steeper slopes especially in the zone around private land. Gambel oak patches with diameters less than 6 inches will be targeted. Other vegetation types within the treatment areas will be avoided.

4. **Drainage Corridors (366 acres):** These map units are drawn 300 feet either side of perennial, intermittent and ephemeral drainages shown on the Forest GIS database stream layer, and which may not support typical riparian vegetation such as cottonwoods, willows or plant species which indicate maintenance of moist soil conditions. Pinyon and juniper trees would be masticated as close as 50 feet to the center line. Within the 50 foot buffer zone, trees may be cut by hand and moved out of the drainage to be masticated, burned (pile burning will be >100 feet from drainage) or some material may be lopped and scattered. Tree removal must not adversely affect bank stability.
5. **Drainage Corridors/Oak Vegetation Type (782 acres – up to 545 treatment acres):** a mosaic of openings of 1 to 3 acres would be created using a one entry hand treatment. Gambel oak patches with diameters less than 6 inches will be targeted. Other vegetation types within the treatment areas will be avoided where possible.
6. **Communication Site – Gambel Oak (49 Acres – up to 30 treatment acres):** A mosaic of openings of 1 to 3 acres would be created using a one entry mastication treatment. Gambel oak patches with diameters less than 6 inches will be targeted. Other vegetation types within the treatment areas will be avoided where possible.

Throughout the document, the use of the term ‘riparian vegetation type’ has been replaced with ‘drainage corridors’ to better describe the location and characterize the vegetation in intermittent/ephemeral channels. The term riparian vegetation will be used only to refer to areas characterized by riparian woody vegetation (cottonwood, willow, redbud or aspen) or other hydrophilic vegetation.

2.2.5 Alternative Summary

The following table provides a comparison of the various outputs or specific treatment proposals of the alternatives analyzed in detail in this document. It includes a comparison of objective achievement and issues for the analysis. Information in this section is based upon presentation of the alternatives earlier in this chapter and the resource information detailed in Chapter 3. Based on this and additional information that follows, the Responsible Official and the public should be able to compare how the different alternatives address the purpose and need, respond to the issues, and affect resources.

Table 1 - Alternative Summary Table

		Alternative 1		Alternative 2		Alternative 3	
Project Area Acres		8,222		8,222		8,222	
<p>Objectives: Reduce the risk from wildfire to life (fire fighters, recreationists, and permittees) and property in the area, and reduce the negative consequences of a high severity wildfire fire on the soil and vegetation resources in the area.</p>							
Fuels/Vegetation/Treatment (Approximate Acres)							
HFRA Authorized Treatment Acres		0 acres		8,222 acres		8,222 acres	
Treatment Descriptions				<p>The Proposed Action would reduce vegetation density and ladder fuels within 2,350 acres of treatment units in the 8,300 acre project area. In the Gambel oak vegetation type, treatment would occur on approximately 360 acers.</p>		<p>Alternative 3 would reduce vegetation density and ladder fuels within 4,546 acres of treatment units in the 8,300 acre project area. In the Gambel oak vegetation type, treatment would occur on 30-70% of the unit acreage - for a maximum of 1,625 Gambel oak acres treated.</p>	
Mastication Unit Acres		0		2,316		3,398	
Hand Treatment Unit Acres		0		46		1,148	
Mastication and Herbicide Acres		0		360		0	
Treated acres and percent by vegetation type within the project area (8222 acres)		Alternative 1		Alternative 2		Alternative 3	
Vegetation*	Total Acres** by vegetation type	Potential Treatment Acres**	Percent Treated	Potential Treatment Acres**	Percent Treated	Potential Treatment Acres**	Percent Treated
Pinyon-juniper	3798	0	0%	1963	52%	2211	58%
Gambel oak	3712	0	0%	450	12%	1625	44%
Mountain Brush	524	0	0%	254	48%	282	54%
Sagebrush	142	0	0%	95	67%	95	67%
Intermittent Wetlands	36	0	0%	8	22%	8	22%
Lake, Pond, or Reservoir	10	0	0%	0	0%	0	0%

* source: Forest VegFSVeg_EV data layer, by dominant overstory

** acres are approximate

Predicted Fire Hazard			
	Alternative 1	Alternative 2	Alternative 3
Large fuel reduction (acres harvested - commercial thin/group selection)	0 acres	0 acres	0 acres
Fuels ≤ 3 Inches Diameter	current average 1.08 tons/acre	forecasted average 7.44 tons/acre	forecasted average 7.44 tons/acre
Fuels > 3 Inches Diameter	current average 0.8 tons/acre	forecasted average 0.6 tons/acre	forecasted average 0.6 tons/acre
Total Fuels (tons/acre)	current average 1.88 tons/acre	forecasted average 8.04 tons/acre	forecasted average 8.04 tons/acre
Predicted Maximum Flame Length	17	6.2	6.2
Predicted Maximum Rate of Spread in chains/hour***	83 chains/hour	33.5 chains/hour	33.5 chains/hour
Active Crown Fire?	Yes	No	No
Potential Effected Acres (includes outside project boundary)	0	7,700	9,800
Retardant Avoidance Areas treated	0	833	1,270
FRCC Acres Changed (CC2 to CC1)	0 acres	2,350 acres	4,545 acres
Issue 1: The use of herbicide (Tebuthiuron) would result in adverse effects to soil and water resources			
Herbicide Treatment Acres	0	360	0
Cumulative Effects	0	360	0
Issue 2: The location, size, and shape and intensity of proposed treatments would negatively affect pinyon-juniper woodlands and other vegetation resources and are not necessary for fire protection			
Treatment in PJ woodlands (Acres)	0	1,963	2,211
Gambel Oak Treatment Units (Acres)	0	2,250	2,335
Gambel Oak Treatment Acres		360	700-1,625
Mastication Treatment Acres	0	2,277	2,925
Thinning/Hand Treatment Acres	0	46	911
Cumulative Effects	0 acres	FRCC 2 moved to FRCC 1 on 2,350 acres (45% of project area) Predicted flame lengths reduced on up to 2,350 acres Potential 140 stream corridor acres treated (40% of project area streams)	FRCC 2 moved to FRCC 1 on 4,545 acres (55% of project area) Predicted flame lengths reduced on up to 4,545 acres Potential 223 stream corridor acres treated (65% of project area streams)

3.0 AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

This chapter describes the current management situation (affected environment) and environmental consequences that could result from implementation of the alternatives described in Chapter 2. The current management situation and probable environmental consequences are described in relation to how well objectives (purposes) are achieved. They disclose whether there may be significant environmental effects as described at 40 CFR 1508.27. Further analysis and conclusions about potential effects are available in resource specialist reports and other supporting documentation located in the project record. The following are discussions of resources and topics that have relevance to a determination of significance for the Deciding Official. Based on this and information displayed in Figure 4 (Chapter 2 – section 2.2.5), the Responsible Official and the public should be able to compare how the different alternatives address the purpose and need, respond to the issues, and affect resources.

3.1 Project Objectives

- Reduce the risk from wildfire to life (fire fighters, recreationists, and permittees) and property in the area.
- Reduce the negative consequences of a high severity wildfire fire on the soil and vegetation resources in the area

3.1.1 Current Situation

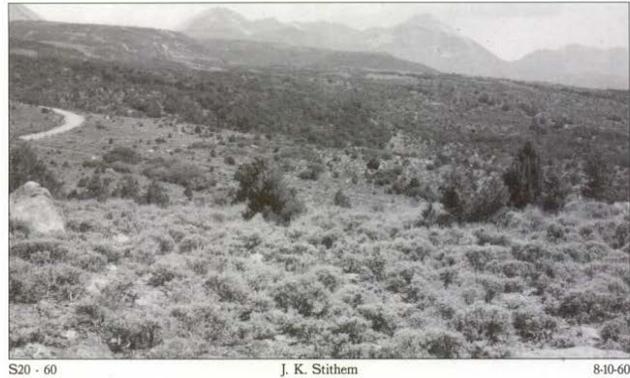
This project area was determined to be Fire Regime III, Condition Class 2 (USDA Forest Service 2005). The stands have been determined to be at risk from stand replacing fire and have been identified as a priority treatment area for hazard fuel reduction treatments. High intensity wildland fire in this area would place the public, firefighters, private property, and National Forest resources at risk.

Across the project area, two dominant vegetation types occur: Gambel oak or oakbrush, approximately 3,700 acres, and pinyon-juniper woodlands, approximately 3,800 acres (Table 1). Sagebrush communities are dominant on approximately 140 acres. Mountain brush [a mix of shrubs, mostly Utah serviceberry (*Amelanchier utahensis*), birch-leaf mountain mahogany (*Cercocarpus montanus*), Gambel oak and big sagebrush] is the dominant vegetation on approximately 530 acres. Wetlands are identified on a small portion (36 acres, 0.5%) of the project area.

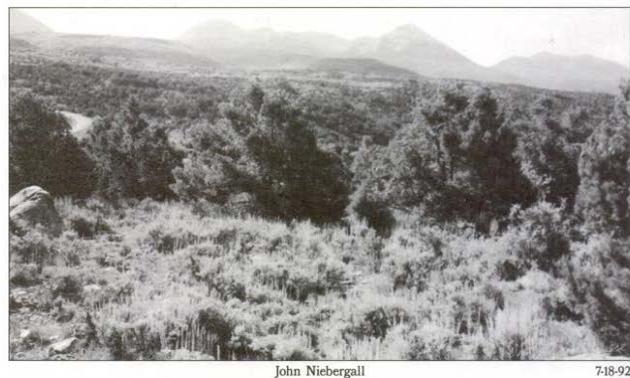
Within the major communities, pinyon and juniper trees have expanded into other vegetation types and have increased stand density within historical woodlands (Figure 1). Historical photos and technical reports demonstrate this encroachment and the reinvasion of previously chained areas within the project boundary.

The Vegetation (USFS 2015c) and Fuels Technical reports (USFS 2105b) determined that the increased density and cover of pinyon-juniper and Gambel oak have increased the probability and risk of high intensity wildland fire events. The project area contains important urban-interface areas and receives high visitor use. The combination of human presence and high wildland fire risk produces undesirable risks to first-responders. The other component addressed by this project is the environmental risks when wildfires burn at high intensities. Wildfires of this extreme type remove vegetation on a large scale resulting in many negative effects including soil degradation, damage to water quality and collection systems, and loss of wildlife habitat, including important deer fawning habitat and elk winter range, and temporary reduction of forage production in a range emphasis area.

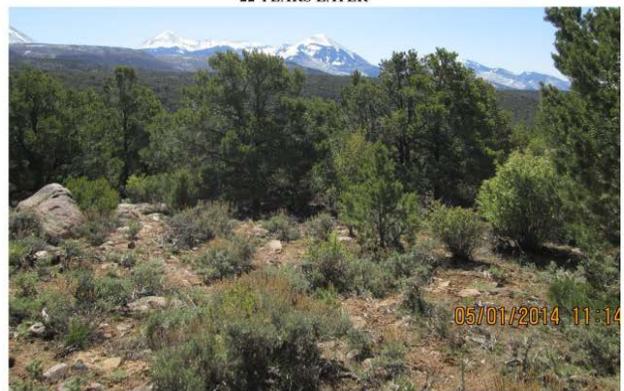
Figure 1. Historical photos from 1960 and 1992, retaken in color in 2014.



32 YEARS LATER

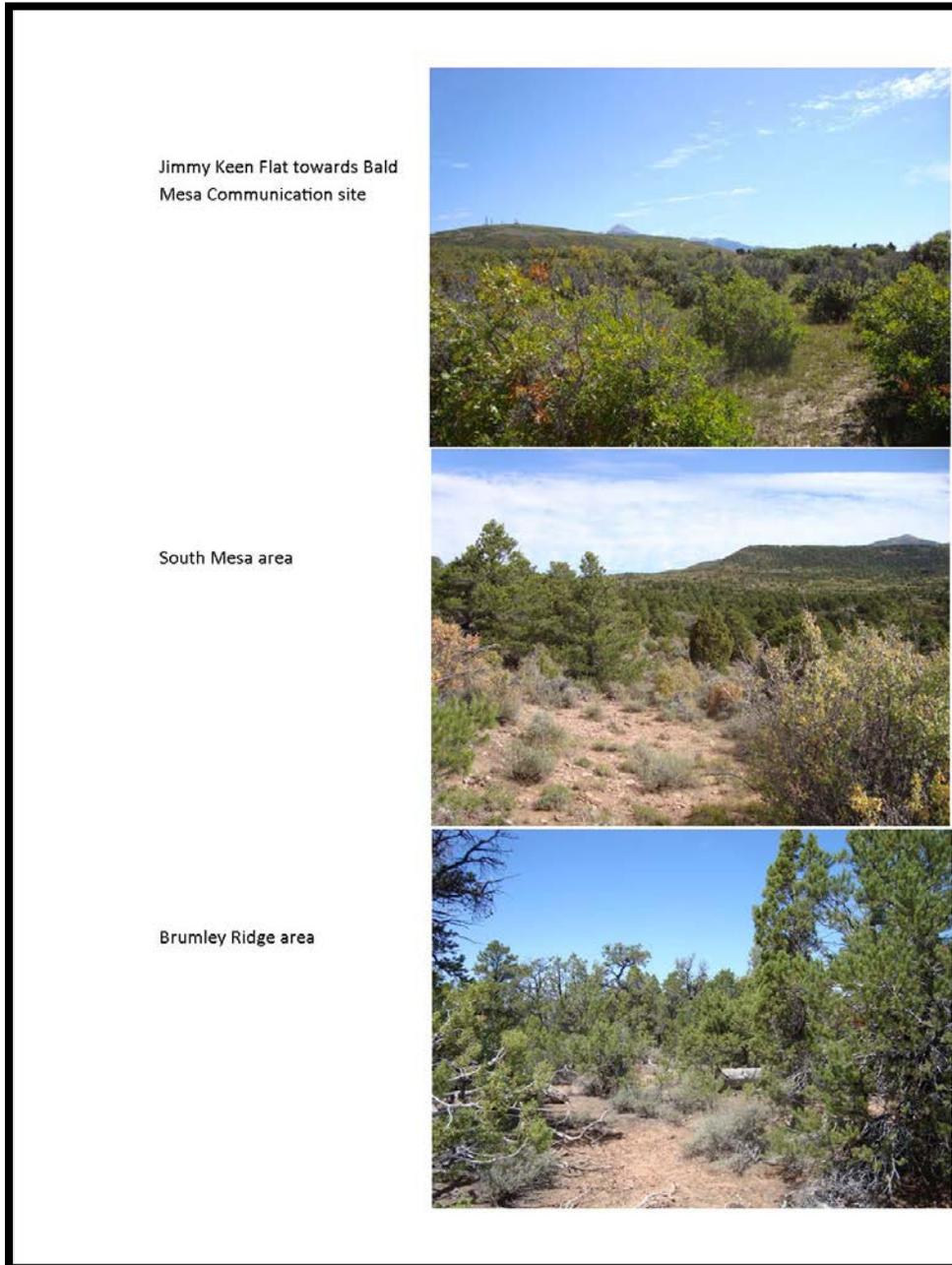


22 YEARS LATER



Data from the Forest’s 1956 vegetation type maps show 2970 acres of pinyon-juniper habitat in the project area. In 2000, vegetation base maps show 3798 acres in the same area. The increase in pinyon-juniper dominated habitat has been to the detriment of the sagebrush community type, which decreased from 1383 acres in 1956 to 142 acres in 2010.

There are five inholding areas containing approximately 30 homes within the project boundary. Many of these homes are immediately adjacent to, or within dense Gambel oak and/or pinyon-juniper vegetation. A majority of the project area is within the HFRA WUI distance of 1.5 miles. Several powerlines bisect the project area. The Loop Road, County Road 73, serves as part of the project boundary, with some sections of the road within the boundary. The road is a scenic byway and a highly used corridor for both residents and visitors.



Examples of project area photos. There are additional photos of treatment areas in the project record.

3.1.2 No Action

Direct and Indirect Effects: This alternative would provide no treatment of vegetation across the project area and therefore current potential for severe wildland fire would remain and increase over time. With increased tree/shrub density, the area would be more prone to insect infestations that could further increase the wildland fire risk. The Fire Regime Condition Class would continue to move towards Class 3. This is considered a high departure with a high risk of losing key ecosystem components such as large trees, native species, and soil.

There would be no reduction of fire risk on Federal land. Terrain influences around private inholdings could channel fire that originated on federal lands towards homes and other private property. Using ground forces to defend structures across this large landscape during high intensity wildland fire would require high levels of traffic control, road closures, and strain local firefighting capabilities. The Forest Service does not have authority to dictate what private landowners do on their lands to reduce risks. This places even more importance on addressing the risk on federal lands. Limiting treatment to the home ignition zone would not address the risk to the powerlines and associated electrical systems that serve this area and neighboring communities such as Castle Valley and Willow Basin.

3.1.3 Alternative 2

Direct and Indirect Effects: Treatments would reduce vegetation in a variety of mosaic patterns on 2722 acres. The mosaic pattern in Gambel oak would be reinforced with herbicide application where soils allow. Herbicide application areas would be 1-3 acres in size, and over a period of two years is expected to kill the oakbrush and also some of the associated herbaceous vegetation. This action would reduce risks of high severity fire spread within the project area. Areas where herbicide is applied would have longer duration reduction in wildland fire risk on 360 acres, although the area would continue to experience wildland fire. The post-treatment predicted fire behavior is established in the fuels report (USFS 2015a). That report shows a significant reduction in flame length on all treated areas with increased rates of spread due to the increase in small, fine surface fuels (grasses and forbs). The reduction in flame length is projected to reduce hazard to private properties and road corridors. The increased rate of spread is more easily managed by wildland firefighters than a high flame length. Many of the treated areas would also continue to have bare soil, rather than the predicted grass and forb growth, which further retards fire spread. The Condition Class will be reduced from 2 to Condition Class 1 for this Fire Regime III area. Fires occurring following project completion would predominantly be surface fires that are less intense and severe, more manageable, and with lowered risks to firefighters, public, private property, vegetation, and other forest resources in the area.

3.1.4 Alternative 3

Direct and Indirect Effects: As with alternative 2, treatments would reduce vegetation density in a variety of mosaic patterns. Treatments in Gambel oak would have a limited lifespan, while reduction of pinyon-juniper would provide longer duration risk reduction. This action would reduce high severity fire within the project area. The area would continue to experience wildland fire. The post-treatment predicted fire behavior is established in the fuels report. That report shows a significant reduction in flame length on all treated areas with increased rates of spread due to the increase in small, fine surface fuels (grasses and forbs). The reduction in flame length is expected to greatly reduce hazard to private properties. The increased rate of spread is more easily managed by wildland firefighters than a high flame length. Many of the treated areas would also continue to have bare soil, rather than the predicted grass and forb growth, which further retards fire spread. Hazard to private properties is reduced. Condition Class will be reduced from 2 to Condition Class 1 for this Fire Regime III area. Fires occurring

following project completion would predominantly be surface fires that are less intense and severe, more manageable, and should pose less risk to fire fighters, the public, private property, vegetation, and other forest resources in the area.

This alternative includes treatments in intermittent and ephemeral drainages (65% of project area stream corridors) and road corridors. Treatments in the drainages are expected to reduce forward fire spread and crown fire potential when fires start below them. Fuels reduction work along road corridors will increase visual opportunities and increase safe use of these treated road corridors during wildland fire events.

Treatments on steep slopes or drainages would be most effective with pile burning or complete removal of biomass. Burning in these areas poses risks of soil hydrophobicity, therefore watershed design features are incorporated to reduce effects from this action.

The follow-up maintenance treatment would reduce Gambel oak and smaller pinyon and juniper trees that were missed or had increased since the first treatment. The retreatment would also include all project design features to minimize adverse effects.

3.1.5 Cumulative Effects

The cumulative effects area for this analysis is the Mill Creek watershed, an area of approximately 70,000 acres on the west side of the La Sal Mountains, from the peaks down to the Colorado River at Moab. The area potentially impacted by the proposed actions in terms of wildfire risk would be structures, facilities, vegetation and soils upslope of the project area, and also downstream related to the effects of runoff and sedimentation.

Over the long term, the increased use and development of inholdings and private land adjacent to the Forest boundary, the Bald Mesa communication site and road corridors would create higher potential for life and/or private property loss in the event of wildland fire. Increased human use, including dispersed camping (campfires), motorized vehicles and woodcutting, may increase the potential for accidental fire starts in the area. Essential County and State-wide communications could be disrupted if the Bald Mesa communications site and utility lines are impacted by fire. The risk extends to environmental consequences, with expected increased potential for loss of key ecosystem components on the 8222 acre project area and throughout the cumulative effects area. In this important watershed for the town of Moab and Spanish Valley, impacts to soil from severe wildfire include hydrophobicity, loss of soil protection and resulting soil movement and loss, could lead to sedimentation and adverse impacts to water quality in major drainages in the area.

3.2 Issues

3.2.1 The use of herbicide would result in adverse effects to soil and water resources

The use of the herbicide tebuthiuron to reduce sprouting of Gambel oak in selected areas was proposed to meet the objective. Concerns regarding its use led to the development of an additional action alternative, included as Alternative 3.

3.2.1.1 Current Situation

Gambel oak is the dominant vegetation on 3712 acres in the project area, growing in low, tree-like clumps and in dense brushy stands. This shrub sprouts vigorously from the root crown after disturbance

or top removal, and it burns readily under the right conditions (Simonin 2000). The taller, tree-like clumps of Gambel oak often have an herbaceous understory, while the dense brushy thickets have limited forage value but do provide excellent cover and watershed protection. To maintain the reduction of horizontal fuel continuity following mastication and increase the life of the treatments, the use of an herbicide to control oak re-sprouting was proposed. Reduction of the extensive oak stands would also increase forage production and habitat diversity for big game and livestock, but would not eliminate oak from the landscape.

Spike® is the commercial pelletized tebuthiuron product proposed for use in this project. Tebuthiuron is a general use herbicide with an EPA toxicity class III – slightly toxic. Tebuthiuron is a relatively nonselective, soil activated herbicide that acts by inhibiting photosynthesis. It is used to control broadleaf and woody weeds, grasses and brush primarily on pasture and rangeland. It is recognized that tebuthiuron has the potential to affect ground water, surface water, drinking water, and aquatic and terrestrial species if misapplied.

Tebuthiuron is persistent in soil and soluble in water; this combination suggests a likelihood of transport beyond the application site. However, in field studies, neither tebuthiuron nor its breakdown products have been found at soil depths greater than 24 inches (EXTOXNET 1996). Mobility through the soil profile is affected by pH, moisture content and soil texture. Field and laboratory studies found that the chemical is more mobile in alkaline soils, in humid regions with relatively high annual precipitation, and in soils with high percentages of sand (Caux et al 1997).

Tebuthiuron can stay active in the soil for 3 years or longer. Microorganisms metabolize or break down tebuthiuron in the soil. Tebuthiuron is low in toxicity to soil microorganisms. Products formed by the breakdown of tebuthiuron by soil microorganisms are low in toxicity. Plants absorb tebuthiuron from the soil and metabolize it. Woody plants die slowly, over a period of 1 to 3 years. Tebuthiuron is non-selective and toxic to many plants. It will kill trees, shrubs, and other desirable plants whose roots extend into treated areas. Tebuthiuron accumulates or builds up in plants. By reducing the maximum application rates and limiting the frequency of applications to once every three years, EPA expects to reduce the risk to non-target plants (EPA 1994).

Tebuthiuron dissolves in water and can slowly leach or seep through some soils and can pollute groundwater. Tebuthiuron is practically nontoxic on an acute basis to birds, fish and aquatic invertebrates, but is slightly toxic to mammals. Current registered uses of tebuthiuron should not pose a hazard to terrestrial or aquatic organisms (EPA 1994). Tebuthiuron and its formulations have not been tested for chronic effects in aquatic or terrestrial animals. Although tebuthiuron is moderately toxic by the oral route, it is only slightly toxic by inhalation and is practically non-toxic through the skin. It is not a skin irritant or sensitizer, and causes only slight irritation to the eyes. Based on the results of animal studies, tebuthiuron does not appear to cause cancer, birth defects, or genetic damage. Tebuthiuron has little or no effect on fertility, development, or reproduction. The dietary risk of exposure to residues of tebuthiuron in meat or milk appears to be minimal. Risks to occupational pesticide users (mixers, loaders, and applicators) are also considered minimal due to the pesticide's low toxicity. There have been no reported cases of long-term health effects in humans due to tebuthiuron exposure.

The proposed West Slope WUI project is within the town of Moab's sole source aquifer designated by the EPA for protection of drinking water supply. The intent of the designation is to protect both surface water and groundwater resources. The sole source aquifer program does not provide direction about how the lands overlying a designated aquifer might be managed nor are there any published guidelines about how EPA would evaluate a proposed activity or project (Foster 2007).

3.2.1.2 No Action

Direct and Indirect Effects: Alternative 1 would not change the existing structure of the vegetation within the project area. Pinyon-juniper and oak would continue to dominate the site. No changes to stand composition or structure are anticipated under this alternative except the natural reduction of stocking as a result of tree mortality from competition.

This alternative does not mitigate the risk of wildfire in the proposed project area. Large scale wildfires have shown the potential of damaging watershed values by impacting soil productivity and reducing infiltration from the resulting formation of soil hydrophobicity. The results are increased runoff, soil erosion and sedimentation in the short term, and through loss of topsoil and the subsequent reduction in soil productivity in the long term. However, there would be no herbicide related effects to the watershed/aquifers.

3.2.1.3 Alternative 2

Direct and Indirect Effects: Following a cutting or mastication treatment in Gambel oak, openings of 1 to 3 acres would be created using tebuthiuron (Spike). Approximately 360 acres within the oak vegetation type would receive herbicide treatment. Specific sites where tebuthiuron is applied would be based upon a site specific soil survey, to ensure soil and watershed constraints are not present. Tebuthiuron would not be applied within 100 feet of perennial/intermittent or ephemeral stream channels, ditches, springs or reservoirs. Initially the oak will sprout, but within 2 to 3 years the chemically treated plants will die.

This alternative would reduce the risk of high intensity wildfire within the proposed project area and for the Mill Creek Watershed. Pinyon-juniper treatments would have 400-100 year effectiveness. Gambel oak sprouts vigorously following mastication treatment, reducing the effectiveness of the treatment over time. Application of the herbicide tebuthiuron would extend the longevity of the treatments by killing the Gambel oak and reducing resprouting, and is therefore included in this alternative in addition to mastication and other mechanical hand treatments.

Forbs, grasses, and understory shrubs other than oak brush are expected to expand in the treated sites. A large percentage of the slash from all treatments would be chipped on the slopes less than 30 percent and either burned, removed from the site, or scattered onsite where slopes are greater than 30 percent.

Monitoring for invasive weeds will be needed due to the possibility of cheatgrass and other non-native species establishing in the treated sites. The herbicide tebuthiuron will also affect any cheatgrass within 1 foot of the treated oak (USDA, Natural Resource Conservation Service, 2006, Plant Guide – Cheat grass). Hand seeding of targeted treatment sites would occur following the herbicide application with a combination of native and introduced perennial species. This step will minimize the potential for cheatgrass to spread into the treated areas (Pellant 1996).

Because of its water solubility, persistence and mobility in the environment, tebuthiuron could potentially leach into groundwater or be incorporated into surface water during runoff events. The herbicide's persistence in soils is due to its 15 month field half-life. Therefore, the soil specialist report (USFS 2015b) contains specific direction on soil mapping units where tebuthiuron could be used and where it would be restricted due to soil characteristics. With all the restrictions, the actual area where tebuthiuron could be used is limited. There should be no direct or indirect effects to channels, floodplains and wetlands due to project design, limitations on herbicide use and incorporation of recommendations and Soil and Water Conservation Practices (SWCP's). The potential risk to ground and surface water quality as well as to drinking water source areas is greater under this alternative than alternatives 1 and 3.

The use of herbicide in selected oakbrush areas would be in accordance with Federal and state laws, and following all label directions. Under those restrictions, there is no direct effect expected to the species analyzed as tebuthiuron is practically nontoxic on an acute basis to birds, fish and aquatic invertebrates, but is slightly toxic to mammals. Current registered uses of tebuthiuron should not pose a hazard to terrestrial or aquatic organisms (EPA 1994). However, tebuthiuron may pose a significant risk to on- and off-site endangered terrestrial, semi-aquatic, and aquatic plants, and may have adverse effects on other non-target plants. Indirect effects to wildlife habitat would occur through the reduction of Gambel oak density and cover, but none of the wildlife species considered are dependent on particular amounts of oakbrush habitat. By focusing treatment on dense shrubby oak and mountain brush areas, and by retaining areas or groups of older trees, the proposed actions would meet the purpose and need and also improve wildlife habitat by increasing age-class and structural diversity, creating more productive openings and moving towards properly-functioning condition for the vegetation types (MLNF 1998). As the oakbrush to be treated would be cut or masticated first, there would be no dead standing Gambel oak to impact visual qualities.

3.2.1.4 Alternative 3

Alternative 3 was developed in response to concerns over the use of the herbicide tebuthiuron in the proposed action. This alternative does not allow the use of herbicide. Citizen comments also expressed support for more treatment along the road corridors and private land boundaries in the project area, so this alternative includes additional acres there and in some areas that showed up during fire modeling as areas where treatment to reduce hazardous fuels would have the most benefit.

Direct and Indirect Effects: Outside of historical pinyon-juniper woodlands, 70-90% of pinyon-juniper would be removed. Gambel oak less than 6" collar diameter would be masticated in 1-3 acre openings on 30-70% of the area. Treatment would take place within the 1504 acres of Gambel oak type identified in the project area. Gambel oak patches with diameters less than 6 inches would be targeted on 30-70% of the area, for a maximum of 1050 treated acres. Treatments in drainage corridors and riparian areas allow for redistribution, chipping, or burning of cut material. Other vegetation types within the treatment areas would be avoided. Without the use of herbicide, the oak would not be killed by the mastication treatment and it will re-establish dominance in the treated areas in the absence of continued treatments. Re-sprouting can result in dense Gambel oak thickets within 4-5 years.

This alternative would include additional treatment of drainages that could act as funnels during a wildfire. There are more acres proposed for treatment in this alternative than in Alternative 2. Where slopes permit, treatments would be done by mechanical mastication to within 50 feet of intermittent drainages. While hand removal of material would not cause impacts to soil and water resources, pile burning of the removed material can be problematic. Underlying soils can be severely burned because slash piles burn at very hot temperatures, for extended periods of times. Severely burned soils are sterilized thus impacting soil productivity, and they are erosive because of induced hydrophobicity – both effects have slow recovery. If piles are located near drainages, the potential for soil erosion and sedimentation delivery into drainages is heightened. Therefore, the treatments result in reduced adverse effects to drainages during a wildfire, but require removal of cut material to avoid adverse impacts from pile burning.

This alternative would reduce the risk of wildfire within the proposed project area and for the Mill Creek watershed. Gambel oak sprouts vigorously following mastication treatment, reducing the effectiveness of the treatment over time in this vegetation type. Therefore, in lieu of herbicide, this alternative includes a follow-up maintenance treatment to reduce these woody fuels. Burning of biomass where allowable will further lengthen treatment effectiveness.

3.2.1.5 Cumulative Effects

The cumulative effects area for this analysis is the Mill Creek watershed, an area of approximately 70,000 acres on the west side of the La Sal Mountains, from the peaks down to the Colorado River at Moab. The potential effects of herbicide use on soils, the Mill Creek watershed and water quality would naturally be within and downstream of the project area.

An unplanned wildfire would have adverse effects to private and USFS lands in the area and downstream in the watershed due to the effects of runoff and sedimentation to water quality and irrigation facilities.

No other vegetation treatments are currently proposed on Forest Service land within the West Slope WUI project cumulative effects area. Treatments on private land and inholdings may utilize mechanical and chemical fuels reduction, which would add to the reduction of wildfire risk in the area but also add an unknown level of herbicide use in the watershed. With implementation of SWCP's and the herbicide label restrictions, no direct or indirect adverse effects on water quality or soils, including sedimentation, are expected from the proposed action. The use of herbicide may cause mortality of desirable understory vegetation, but is not expected to cause effects outside of the immediate treatment area (360 acres). Alternative 3 does not include the use of herbicide, so would not add any cumulative effects. Because no direct or indirect effects are anticipated, there should be no cumulative watershed effects.

3.2.2 Treatment location, size, and shape

During public scoping it was recommended that vegetation treatment locations, type, and size be selected based on research of wildland-urban interface fires from the Missoula Fire Sciences Laboratory. This research addresses the cause and prevention of private property destruction from wildland fire. The research demonstrates that structures burn either by direct flame contact or firebrands landing on receptive and ignitable components of a structure. It shows that creating a Firewise structure involves use of fire resistant building materials and treating the vegetation within the "home ignition zone" (100-200').

This recommendation was analyzed by the forest specialists. It was determined that the recommendation does not fully address the purpose and need of this project. The risk this project aims to reduce is the fire risk over a broader area than isolated inholdings or individual structures. Mitigation work on federal lands would augment treatments by private landowners while decreasing the risk to other users.

This project has been integrated with planning by agency partners such as Grand County and the Utah Division of Forestry, Fire & State Lands (FFSL). These entities are able to work more directly with landowners and residents. When the Forest Service manages the risk on its lands, it supports the work conducted by homeowners. This project is planned with this interagency coordination as a fundamental component.

As shown in the fuels technical report (USFS 2015a), numerous fires have occurred within the project area (Map 2). Several of these could have burned at higher intensity and created substantial risk to people recreating in the area, as well as residents and their property. Performing fuels treatments establishes opportunities for wildland fires to change fire behavior as it moves across a landscape. This change in fire behavior is a substantial aid to suppression actions and increases the safety to anyone in the area.

There are also risks to the environment from high intensity wildfires. When these fire types occur, the negative impacts may extend outside the project boundary. In high intensity wildfires there is risk of soil loss, water quality degradation, and loss of visual quality. There may be adverse impacts to wildlife habitat in the short or long term depending on the vegetation type and length of time to recovery to a productive condition.

3.2.2.1 Current Situation

There are five inholding areas containing approximately 30 homes and additional outbuildings within the project boundary. Many of these homes are immediately adjacent to, or within dense Gambel oak and/or pinyon-juniper vegetation. Terrain influences around these properties could channel fire that originated on federal lands towards these homes. Federal restrictions on retardant use would likely reduce the viability of that suppression tool. Using ground forces to defend structures across this large landscape during high intensity wildland fire would require high levels of traffic control, road closures, and strain local firefighting capabilities.

A majority of the project area is within the HFRA WUI distance of 1.5 miles. The Forest Service does not have authority to dictate what private landowners do on their lands to reduce risks. This places even more importance on addressing the risk on federal lands.

Several powerlines pass through the project area. Limiting treatment to the home ignition zone would not address the risk to these electrical systems that serve this area and neighboring communities such as Castle Valley and Willow Basin.

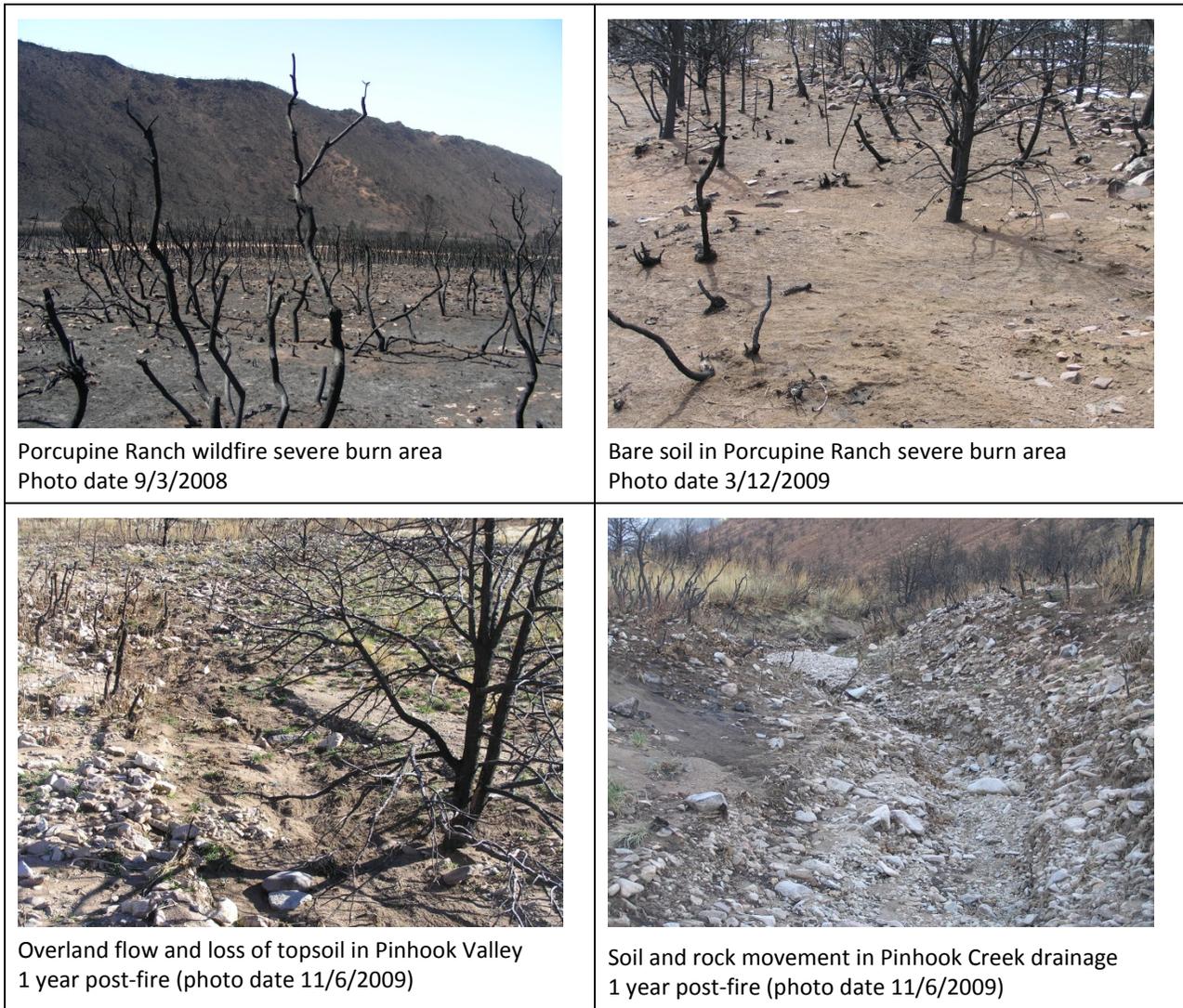
The Loop Road, County Road 73 crosses through the project area, and serves as part of the project boundary. This road is a scenic byway and a highly used corridor for both residents and visitors.

3.2.1.2 No Action

Direct and Indirect Effects: The No Action alternative would not change the existing structure of the vegetation within the project area. No acres would be treated on National Forest System lands. Pinyon-juniper and Gambel oak would continue to dominate the site. No changes to stand composition or structure are anticipated under this alternative except the natural reduction of stocking as a result of tree mortality from competition.

This alternative does not mitigate the risk of wildfire in the proposed project area. Large scale wildfires have shown the potential of damaging watershed values by impacting soil productivity and reducing infiltration from the resulting formation of soil hydrophobicity. The results are increased runoff, soil erosion and sedimentation in the short term, and loss of topsoil and the subsequent reduction in soil productivity in the long term. The 3400 acre Porcupine Ranch wildfire (August 2008) in an area just north of the West Slope WUI project area with similar vegetation types cost over \$2 million dollars for suppression, and contributed to severe flooding over the next several years to the downstream community of Castle Valley. Approximately 40% of the Porcupine Ranch Fire burned at severe stand-replacing intensities with associated adverse effects to soils and other resource values (Figure 2).

Figure 2. Porcupine Ranch post-fire photos from 2008 and 2009.



3.2.2.2 Alternative 2

Direct and Indirect Effects: Treatments would reduce woody vegetation cover and density on a total of 2,323 acres. Herbicide application would occur on up to 360 acres, in patches of 1-3 acres. The mosaic pattern in Gambel oak would be established where soils allow for herbicide application. This action would reduce risks of high severity fire spread within the project area. Areas where herbicide is applied would have longer duration reduction in wildland fire risks. The area would continue to experience wildland fire. The post-treatment predicted fire behavior is established in the fuels report. That report shows a significant reduction in flame length on all treated areas with increased rates of spread due to the increase in small, fine surface fuels (grasses and forbs). The reduction in flame length is projected to reduce hazard to private properties and road corridors. The increased rate of spread is more easily managed by wildland firefighters than a high flame length. Many of the treated areas would also continue to have bare soil which further retards fire spread. The Condition Class will be reduced from 2 to Condition Class 1 for this Fire Regime III area. Fires occurring following project completion would predominantly be surface fires

that are less intense and severe, more manageable, and with lowered risks to firefighters, public, private property, vegetation, and other forest resources in the area.

Other possible effects in the area include short term disturbance and reduction of forage for ungulates during treatment applications and an increase in invasive weeds in treatment areas. These effects will be minimized through the use of specific design features (see Appendix C).

3.2.2.4 Alternative 3

Direct and Indirect Effects: Treatments would reduce woody vegetation cover and density on a total of 3,836 acres. Outside of rocky, historical woodlands, 70 – 90% of the pinyon-juniper would be removed. The treatments would target encroaching trees in sagebrush openings and previously treated areas, and young ingrowth to reduce density in established stands. Gambel oak less than 6" collar diameter would be mechanically treated (mastication with bullhog/Fecon equipment) in 1-3 acre openings on 30-70% of the treatment units. Treatments in drainage corridors would allow for redistribution, chipping, or burning of cut material.

This alternative would reduce the risk of wildfire within the proposed project area and for the Mill Creek watershed. Duration of treatment would be longest in pinyon-juniper masticated areas. Gambel oak sprouts vigorously following mastication treatment, reducing the effectiveness of the treatment over time in this vegetation type. The follow-up maintenance treatment would reduce this woody fuel, and technical reports for this project show that this alternative would reduce environmental risks after treatments for several decades.

There are more acres proposed for treatment in this alternative than in Alternative 2. Where slopes permit, treatments would be done by mechanical mastication to within 50 feet of intermittent drainages. While hand removal of material would not cause impacts to soil and water resources, pile burning of the removed material can be problematic. Underlying soils can be severely burned because slash piles burn at very hot temperatures, for often extended periods of times. Severely burned soils are sterilized, thus impacting soil productivity, and may also be erosive due to hydrophobicity – both effects are slow to recover. If piles are located near drainages, the potential for soil erosion and sedimentation delivery into drainages is heightened, therefore piles must be at least 100 feet from a drainage (see Appendix C –Watershed/Soil design features).

3.2.2.5 Cumulative Effects

An unplanned wildfire could have adverse effects to private and USFS lands in the area and the watershed. Natural or man-caused fires should have potential to occur with a lower intensity and severity within the cumulative effects area. Fire fighter and public safety should be improved through reduced fire hazard and improved ingress and egress for fire fighters and the public. Fuel reduction treatments on private land in the project area would further reduce the risk of loss due an unplanned fire. Future fires should be of low severity and intensity as compared to the Porcupine Ranch fire. Watershed and other resource values should be maintained for current and future uses.

Past, present and future actions which impact the structure and composition of vegetation in the cumulative effects area include past vegetation management, chaining and reseeding treatments on South Mesa (chained/seeded 400 ac in 1975, 100 acres retreated w/roller chopped in 1990) and Brumley Ridge (chained/seeded 276 acres in 1975). The proposed project would maintain the previous investment in those areas, and improve forage production for mule deer, elk and livestock. Livestock grazing impacts the herbaceous component of the vegetation community, but as the treatments are expected to increase overall forage production, there would be no adverse cumulative effects. New

fences and spring developments in the project area are expected to help control livestock distribution and forage utilization. There is a potential for an increase in invasive species, especially cheatgrass, in treated areas.

No past, present, or reasonably foreseeable actions should result in other cumulative effects to vegetation resources through implementation of the action alternatives.

3.3 Relationship between Short-Term Use and Long-Term Productivity, Irreversible/Irretrievable Commitment of Resources, & Forest Plan Consistency

Irreversible commitments are those that cannot be reversed (extinction of a species or removal of mined ore), except perhaps in the extreme long-term (restoration of an old growth forest). Irretrievable commitments are those that are lost for a period of time.

Alternatives 2 & 3: No irreversible commitment of resources would occur related to the vegetative resource within treated stands under the action alternatives. Some trees would be removed, but a greater number would be maintained when compared to the effects of either insect epidemic or wildfire in the long-term under the No Action alternative. The proposed treatments to remove trees and shrubs to set vegetation in the area back to an earlier successional stage are an irretrievable commitment of resources in the short-term, but over time without periodic disturbance, similar vegetation structural stages could be restored. No other irreversible or irretrievable commitment of resources is anticipated under the proposed action.

Thinning pinyon and juniper trees to reduce competition and improve growth of the understory shrub and herbaceous component maintains health and vigor of treated stands and long-term productivity. Maintenance of some coarse woody (> 3 inches diameter) debris also maintains soil and long-term site productivity. There would be an increase in fine fuels following thinning that would change fire risk. However, thinning is necessary to reduce ladder fuels and crown canopy continuity. The mastication and thinning treatments will reduce fuel loading, continuity, and composition within treatment areas; reducing overall wildland fire risk to manageable levels while maintaining site productivity. Should a wildfire occur, fire severity would be reduced from the expected outcome if treatments do not occur in the project area.

These alternatives are consistent with the goals, objectives, standards, and guidelines of the Manti-La Sal National Forest Land and Resource Management Plan.

No Action: Loss of existing stand structures if an epidemic or catastrophic wildland fire occurred under No Action could be irretrievable (loss of soils and productivity) and may be an irreversible commitment of the vegetation resource (100 years or more could be required to restore these forest structures and up to 200 years to establish old growth trees and stands). This loss would also affect visual resources and wildlife habitat irretrievably due to the long time required to reestablish big sagebrush and mature pinyon-juniper stands and to the potential increase in invasive species such as cheatgrass that would be difficult to eradicate once established. Under No Action, severe stand replacing wildfire could affect soil and long-term productivity.

The No Action alternative would not be consistent with Forest Plan goals and objectives to:

- Maintain a healthy forest by applying appropriate silvicultural treatments (LRMP III-3);
- Minimize hazards from wildfire (LRMP III-5);

- Manage trees and shrubs to enhance visual quality and recreation opportunities on existing and proposed recreation facilities (LRMP III-50).

Consideration of Available Science: The techniques and methodologies used in this analysis consider the best available science. It includes a summary of the credible scientific evidence, which is relevant to evaluating reasonably foreseeable impacts, and identifies methods and provides references to scientific sources. Conclusions are based on a thorough review of relevant scientific information, consideration of responsible opposing views, and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk. The Project Record (cited here in its entirety) contains specialist and technical reports, comment analysis and reviews of relevant literature.

The relevant science considered for this analysis included several elements:

- On-site data and history;
- Scientific Literature – Relevant literature includes information reviewed for basic understanding, science actually cited in the specialist reports, and review of science submitted as a responsible opposing view.
- Modeling using currently acceptable analysis methods;
- Incorporation of the collective knowledge of the project area and resources by specialists through integration of available science with knowledge of local conditions and the individual and collective education and experience of team members and specialists; and
- Comparative analysis considering other similar projects, past monitoring data, local insect and disease outbreaks, and local fire events.

3.4 Specifically Required Disclosures

3.4.1 Threatened and Endangered Species

A Biological Assessment consistent with the requirements of the Endangered Species Act (ESA) was completed, with a determination that there would be no effect to any federally listed species, proposed species, or critical habitat (USFS 2014a). The effects analysis was prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)), and follows standards established in the Forest Service Manual (FSM 2671.44 and 2672.4). Consultation with the US Fish and Wildlife Service (USFWS) was not required for this project.

3.4.2 Migratory Birds

The project complies with the USFWS Directors Order No. 131 (December 21, 2000) related to the applicability of the MBTA to federal agencies and requirements for permits for ‘take’. The project complies with the intent of the MBTA and EO 13186 and the 2008 MOU, and follows bird conservation recommendations in the Utah Partners in Flight (PIF) Avian Conservation Strategy where applicable under the scope of this project (USFS 2014b).

3.4.3 Cultural and Historic Resources

Cultural resource surveys have been completed for the proposed project. Consultation has been conducted with appropriate tribes. Design features for the management and protection of cultural resources have been included (see Appendix C). The State Historical Preservation Office (SHPO) was consulted and has concurred with the determination of “No Historic Properties Affected”. Eligible sites will be avoided during ground disturbing activities or managed in accordance with the SHPO agreement;

therefore, there will be no effect to these sites. The project meets the requirements of Archeological Resources Protection Act and the National Historic Preservation Act (NHPA) of 1966.

3.4.4 Wetlands and Floodplains

There are wetlands, riparian areas, and floodplains in the project area. Design features have been included in the proposed action that minimize disturbance in these areas and provide for their protection. These include avoidance of wetlands and wet areas with mechanized equipment, designation of temporary road and skid trail locations, and others. Best Management Practices (BMPs) and Soil and Water Conservation Practices (SWCPs) will be implemented to mitigate adverse effects and are described in Appendix C. The practices controlling operations are effective in minimizing disturbance when fully and properly implemented. The Proposed Action meets the intent of Executive Orders 11988, 11990, and the Clean Water Act (USFS 2014c).

3.4.5 Environmental Justice

The proposed action was assessed to determine whether it would disproportionately impact minority or low-income populations, in accordance with Executive Order 12898. No local minority or low-income populations should be disproportionately impacted by implementation.

3.4.6 Effects of Alternatives on Social Groups

There should be no effects on minorities, Native American Indians, women, or civil liberties of any American citizen resulting from implementation of the proposed action.

3.4.7 Prime Farmland, Rangeland, and Forest Land

All alternatives are in accordance with the Secretary of Agriculture Memorandum 1827 for prime farmland, rangeland, and forest land. "Prime" forest land is a term used only for non-federal land, which would not be affected by project activities. National Forest System lands would be managed with sensitivity to adjacent private lands.

3.4.8 Energy Requirements and Conservation Potential

In terms of petroleum products, the energy required to implement the proposed action is inconsequential when viewed in light of production costs and the effects on the national and worldwide petroleum reserves.

3.4.9 Effects on the Human Environment

The civil rights of any American citizen, including women and minorities, are not differentially affected by implementation of either the No Action or Alternatives B & C.

3.4.10 Conflicts with Other Agency Goals and Objectives

Public involvement with other Federal, State, and local agencies indicate there are no major conflicts between the provisions of the proposed action and the goals and objectives developed for other governmental entities. Collaboration completed for the proposal indicates other interested agencies are supportive of the proposed action.

3.4.11 Climate Change

The Resources Planning Act 2007 update acknowledges and addresses climate change, and indicates that climate variability makes predictions about drought, rainfall, and temperature extremes highly uncertain. Based on the best available science, it would be too remote and speculative to factor any

specific ecological trends or substantial changes in climate into the analysis of environmental impacts of the project. Research about long-range shifts in species range, etc. is ongoing and a number of groups are discussing the implications of climate change on forest management. Although there is a solid consensus that global warming is occurring, there is still much uncertainty about subsequent ecological interactions and trends at the local or site-specific scale. Given the stochastic nature of climate-related events such as droughts, wildfire and floods, it would be highly remote and speculative to make management decisions based on such predictions. The best available science concerning climate change is not yet adequate to support reliable predictions about ecological interactions & trends at the local (site-specific) scale.

However, studies on climate change (Backlund et al. 2008) show that climate change is already affecting U.S. forest resources. Report findings show that climate change is resulting in increases in size and frequency of forest fires, insect outbreaks and tree mortality. Records of drought conditions and fire in this area are reflective of those findings (Montgomery 2012). Drought conditions have increased across the west and southwest. Palmer drought indices for southeast Utah show that drought conditions have dominated precipitation patterns in this area over the last 20 years (NOAA 2012). These and other changes are expected to continue, increasing the potential for stand-replacing fire within and surrounding the project area. This is in accordance with current science that restoration (maintenance) of FRCC 1 condition will result in a lower risk of uncharacteristically severe fire.

3.4.12 Healthy Forest Restoration Act of 2003 (HFRA)

The proposed action complies with direction provided in HFRA. One of the purposes of HFRA is to reduce wildfire risk in communities, municipal water supplies, and other at-risk Federal land through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects (HFRA Sec. 2 Purposes). HFRA provides direction in the following areas.

COLLABORATION: This project was developed in collaboration with local, state, and federal agencies (Project Record). A Regional Wildfire Protection Plan (RWPP) was published in 2007 for the communities at risk within Grand and San Juan Counties. The private lands within the West Slope WUI proposed project did not have a CWPP developed at that time. This project uses the HFRA guidelines for WUI of a 1.5 mile buffer area around private lands. This project has been included on the Manti-La Sal National Forest 5-Year Integrated Plan (implementation plan) for several years. These projects are reviewed by the Desert Edge Fuels Committee and the Southeast Regional Catastrophic Fire Working Group (both include representatives of local, State, and Federal agencies) to help coordinate and prioritize projects and funding.

AT-RISK COMMUNITY: An At-Risk community is defined as an area – (A) that is comprised of – (i) an interface community as defined in the notice entitled “Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire” issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with title IV of the Department of Interior and Related Agencies Appropriations Act, 2001; or (ii) a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to Federal land; (B) in which conditions are conducive to a large-scale wildland fire event; and (C) for which a significant threat to human life or property exists as a result of a wildland fire disturbance event (HFRA Sec. 101).

The West Slope WUI Project area is not included in applicable Communities At-Risk lists for San Juan and Grand Counties and the State of Utah. The project is within 1 ½ miles of private in-holdings that contain homes, transportation routes, and other private developments. The project area also meets Conditions B and C, where risks and threats are high.

WILDLAND-URBAN INTERFACE: Wildland-urban interface is defined as (A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or (B) in the case of an area for which a community wildfire protection plan is not in effect – (i) an area extending ½-mile from the boundary of an at-risk community; (ii) an area within 1 ½ miles of the boundary of an at-risk community, including any land that—(I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community; (II) has a geographic feature that aids in creating an effective fuel break, such as a road or ridge top; or (III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and (iii) an area that is adjacent to an evacuation route for an at-risk community that the Secretary has determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community (HFRA Sec. 101).

Although not included in the applicable communities-at-risk lists, the project area is identified as part of the City of Moab’s municipal watershed and emphasis is placed on protection and management of the resources of this area. An RWPP (Regional Wildfire Protection Plan) was completed for southeastern Utah (Utah Forestry, Fire, and State Lands 2007) that also identifies this watershed value. Fire risk is identified as high for these WUI areas in the RWPP and proposed treatments are within the scope of actions defined for fuel reduction in the RWPP.

AUTHORIZED PROJECTS: Authorized hazardous fuel reduction projects are those consistent with the implementation plan, on – (1) Federal land in wildland-urban interface areas; (2) condition class 3 Federal land, in such proximity to a municipal water supply system or a stream feeding such a system within a municipal watershed that a significant risk exists that a fire disturbance event would have adverse effects on the water quality of the municipal water supply or the maintenance of the system, including a risk to water quality posed by erosion following such a disturbance event; (2) condition class 2 Federal land located within fire regime I, fire regime II, or fire regime III, in such proximity to a municipal water supply system or a stream feeding such a system within a municipal watershed that a significant risk exists that a fire disturbance event would have adverse effects on the water quality of the municipal water supply or the maintenance of the system, including a risk to water quality posed by erosion following such a fire disturbance event (HFRA Sec. 102).

This project qualifies as an “Authorized Project”. The project area treatments are within 1.5 miles of private inholdings. It is primarily municipal watershed for Moab, Utah with system infrastructure. A fire disturbance event could have adverse effects on the system and on water quality. The project area has been determined to be fire regime III in condition class 2.

OLD GROWTH: In carrying out a covered project, the Secretary shall fully maintain, or contribute toward the restoration of, the structure and composition of old growth stands according to pre-fire suppression old growth condition of the forest type, taking into account the contribution of the stand to landscape fire adaptation and watershed health, and retaining the large trees contributing to old growth structure (HFRA Sec. 102). No cutting or mastication of old growth stands or trees is proposed in either of the action alternatives.

LARGE TREE RETENTION: In general, except in old growth stands where the management direction is consistent with subsection (e)(2), the Secretary shall carry out a covered project in a manner that—(A) focuses largely on small diameter trees, thinning, strategic fuel breaks, and prescribed fire to modify fire behavior, as measured by the projected reduction of uncharacteristically severe wildfire effects for the forest type (such as adverse soil impacts, tree mortality or other impacts); and (B) maximizes the retention of large trees, as appropriate for the forest type, to the extent that the trees promote fire-resilient stands (HFRA Sec. 102).

Large tree retention requirements must not prevent reduction of wildland fire risk to communities, municipal water supplies, and at-risk Federal land (USDA Forest Service 2008b). All trees proposed for removal have been prescribed in accordance with the objective to reduce fuel hazards and develop fire-resistant stands. Treatments focus on the felling or mastication of small diameter trees and shrubs.

RANGE OF ALTERNATIVES: The HFRA sets out new NEPA requirements for the range of alternatives to be considered in projects authorized under the act: 1) Within 1 ½ miles of the boundary of an at-risk community, federal agencies are not required to analyze any alternative other than the proposed action unless it is different than the recommendations contained in the applicable community wildfire protection plan related to proposed locations and methods of treatment, in which case both alternatives must be described; 2) For areas beyond 1 ½ miles of the boundary of an at-risk community, but that are within the Wildland Urban Interface (“WUI” as described in a community wildfire protection plan), federal agencies are not required to analyze more than the proposed agency action and one additional action alternative; 3) For authorized projects in areas not encompassed by the previous two categories of land, the environmental analysis must describe the proposed action, a no action alternative, and an additional action alternative, if one is proposed during scoping or the collaborative process. This additional alternative must still meet the purpose and need of the project. If more than one additional alternative is proposed, the Secretary has discretion to select which one to consider and provide a written record describing the reasons for the selection.

Proposed treatment areas are wildland-urban interface as defined by HFRA. A RWPP has been prepared for this area and proposed treatments are within the scope of actions identified for management of surrounding vegetation and fuel conditions. The proposed action qualifies as an authorized project under HFRA in all areas. This analysis provides for and analyzes an adequate range of alternatives under HFRA and NEPA. One additional action alternative has been analyzed. No other proposed alternatives fully meet the defined purpose and need for action (see Chapter 2 of this document).

ADMINISTRATIVE REVIEW PROCESS: In accordance with the Healthy Forest Restoration Act of 2003 (HFRA), this proposal is subject to objection under 36 CFR 218. This process is not subject to notice, comment, and appeal provisions pursuant to 36 CFR 215 (see 36 CFR 218.3).

3.4.13 Forest Plan

The project complies with direction provided by the Manti-La Sal National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service 1986 as amended). It complies with regulation and direction to provide for firefighter and public safety as the single, overriding priority in fire management. It complies with requirements for management of threatened, endangered, sensitive, and management indicator species as well as other applicable direction for management of this area and its resources. See the information provided in section 1.3 Purpose and Need, the project Comment Analysis document (Appendix A), specialist reports (project record), the Biological Assessment/Biological Evaluation (USDA Forest Service 2014), and other supporting documentation in the project record for additional information.

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APPENDICES

APPENDIX A – RESPONSE TO COMMENTS

Comment Analysis
for the
West Slope Wildland-Urban Interface
Hazardous Fuels Reduction Project
Environmental Assessment

June 2014

USDA, Forest Service, Region 4
Manti-La Sal National Forest
Moab Ranger District
Grand and San Juan Counties, Utah

Responsible Official:

Michael Diem
District Ranger
Manti-La Sal National Forest
Moab/Monticello Ranger District
P.O. Box 386
Moab, Utah 84532
(435) 259-7155

Prepared by:

Barb Smith
Wildlife Biologist

COMMENT ANALYSIS

This document is an analysis of comments received from the public, other agencies, and Tribes in response to a Legal Notice of Opportunity to Comment for the West Slope WUI Hazardous Fuels Reduction Project. The comments were used to develop a list of potential issues for the proposed action and were considered in the development of the Environmental Assessment.

The initial scoping for the project was at a meeting of interested parties on October 11, 2012. A Legal Notice of the 30-day comment period was published in the *Times-Independent* on November 29, 2012. Due to funding opportunities, the project was changed to be under authority of HFRA. A Legal Notice of Opportunity to Comment and to announce an Open House in Moab on May 8, 2014 was published in the *Times-Independent* on April 24, 2014. A letter explaining the new CFRs and announcing the additional comment period was mailed/e-mailed to 88 individuals, organizations, and agencies.

Formal Consultation will be conducted with tribal governments in conformance with 36 CFR Pt. 800.1 (c)(2)(iii).

Table 1 identifies the 7 persons, organizations, or agencies who responded with comments regarding the proposed action. Comments received outside the established comment periods are considered, but the commenters do not have standing to object (Table 1A). Table 2 categorizes all the comments by general topics such as vegetation or wildlife. Table 3 regroups all of the comments summarized in Table 2 by topic and includes our response to individual or groups of similar comments.

In Table 1, the comments from individuals, groups, agencies, or tribes are numbered in the order received.

**TABLE 1 – Comments Received during the 30-day comment period
in response to the
November 29, 2012 and April 24, 2014 Legal Notices
and at the May 8, 2014 Open House**

COMMENT DATE & NUMBER	RESPONDENT NAME/TITLE	COMPANY or ORGANIZATION	ADDRESS
12/31/2012 - #1	David deRoulhac, Utah Forest Associate	Grand Canyon Trust	745 Locust Lane, Moab, UT 84532
	Wayne Hoskission	Utah Chapter, Sierra Club	PO Box 14 Moab, UT 84532
	Allison Jones, Conservation Biologist	Wild Utah Project	824 South 400 West, B-117 Salt Lake City, UT 84101
12/31/2012 - #2	Kevin Mueller/Program Director	Utah Environmental Congress	1817 S Main St, Suite 10 SLC, UT 84115
5/8/2014 - #3	Michele Blackburn		PO Box 152 Moab, UT 84532
5/17/2014 - #4	David deRoulhac, Utah Forests Associate	Utah Forests Program, Grand Canyon Trust	745 Locust Lane, Moab, UT 84532
5/18/2014 - #5	Thea Nordling		1996 Highland Drive Moab, UT 84532

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TABLE 1A - Other comment letters received:

COMMENT DATE & NUMBER	RESPONDENT NAME/TITLE	COMPANY or ORGANIZATION	ADDRESS
11/20/2013 - #6	David D. Erley, Mayor	Town of Castle Valley	HC64 Box 2705 Castle Valley, UT 84532
12/3/2013 - #7	Gene Ciarus, Chair	Grand County Council	125 E. Center St. Moab, UT 84532
6/17/2014 - #8	Jason Johnson, Southeast Area Manager	Utah Division of Forestry, Fire and State Lands	1165 S. Hwy 191, Suite 6 Moab, UT 84532

In Table 2, the comments have been analyzed for content and categorized by topic. The first part of the reference number is the number assigned in Table 1; the second part of the reference number is an individual topical statement.

TABLE 2 – Topical Statements by Respondent

REF. #	TOPIC	COMMENT
1-1	Herbicide	Tebuthiuron may contaminate Moab’s drinking water supply and its use to kill native vegetation is unacceptable.
1-2	Restoration	The Forest Service has a responsibility to choose treatments that are ecologically responsible, not just easier or more cost effective.
1-3	Herbicide	The use of tebuthiuron is a major Federal action affecting the quality of the human environment and an EIS should be prepared.
1-4	Herbicide	Tebuthiuron-promoted establishment of exotic vegetation may increase the risk of increased fire severity and subsequent erosion due to lack of vegetation.
1-5	Herbicide	Application rates sufficiently high to remove tree-size woody overstories will be very damaging to native perennial forage plants in the Intermountain region.
1-6	Herbicide	The use of tebuthiuron will not create desired conditions of diverse age class structure at the tree, stand and landscape level.
1-7	Herbicide and livestock grazing	The cumulative impact of clearing Gambel oak and using a non-selective herbicide, followed by livestock grazing of vegetation that emerges post-herbicide, threatens soil stability.
1-8	Livestock grazing	Historic and current livestock grazing are an underlying cause of woody shrub and tree density.
1-9	Pinyon-juniper community types and fire return intervals	Different types of pinyon-juniper communities have different fire return intervals.
1-10	Pinyon-juniper community types	Treatments should be based on heterogeneity and distinct pinyon-juniper community types.
1-11	Pinyon-juniper expansion	Treatments should be designed to address underlying causes of pinyon-juniper expansion.
1-12	Proposed Action	The Proposed Action states that fire suppression is the main driver of increasing fuel loads in the West Slope project area without reference to scientific literature upon which this conclusion is based.
1-13	Proposed Action	The Proposed Action may be altering historic communities of persistent pinyon-juniper woodland rather than treating pinyon-juniper expansion.
1-14	Pinyon-juniper mastication	Mastication in pinyon-juniper communities may result in higher exotic plant cover.

COMMENT ANALYSIS

REF. #	TOPIC	COMMENT
1-15	Proposed Action	The Proposed Action lacks identified cooperation with private landowners or Utah Division of Forestry, Fire and State Lands.
1-16	Firewise principles	Firewise principles should be followed.
1-17	EA	EA should include monitoring results from similar treatments, including post-treatment understory conditions, post-treatment fire behavior and intervals before retreatment.
1-18	EA	EA should include evidence for the conclusion that fire suppression is the cause of dense canopies in pinyon-juniper communities in the project area.
1-19	EA	EA should include a map of private inholdings indicating defensible space and fuel reduction treatments
1-20	SMU Alternative	Evaluate and analyze the Sustainable Multiple Use (SMU) Alternative
1-21	Wilderness character	Treatments within Unroaded/Undeveloped Areas and Unified Wilderness Proposal should be analyzed for impacts to wilderness characteristics.
1-22	Livestock grazing	In the SMU, treatment areas will be rested from livestock grazing at least two years and until native plant thresholds for cover are reached.
2-1	Proposed Action	Basis of the Proposed Action is not supported.
2-2	Fire return intervals and HRV	USFS is using and interpreting fire frequency information incorrectly. HRV and fire interval in Gambel oak and pinyon-juniper vegetation types.
2-3	Landfire/FRCC	Accuracy and applicability of LANDFIRE/FRCC to current project.
2-4	Pinyon-juniper expansion	Relationship of fire exclusion to tree/woody plant encroachment into openings.
2-5	Livestock grazing effects on tree expansion	Relationship of livestock grazing to tree/woody plant encroachment into openings.
2-6	Treatment zone	Objection to all vegetation treatments outside the 300 ft zone around WUI areas.
2-7	Firewise principles	Treatments must focus on defensible space and Firewise principles.
2-8	Moab Face and Willow Basin comments	Incorporate by reference earlier comments on the Moab Face and Willow Basin projects.
2-9	Wilderness character	USFS should drop all proposed mechanical treatments that overlap with the Unified Wilderness proposal.
2-10	IRA	Objection to proposed mechanical and herbicide treatments within Inventoried Roadless Areas.
2-11	Herbicide	The proposed use of tebuthiuron on a landscape scale triggers the requirement to prepare an EIS.
2-12	Wildlife habitat, population viability and sensitive species	The proposed action may impact wildlife population viability and sensitive species habitat. Concern that regulations regarding diversity, viability and sensitive species monitoring, data collection and management are not being met.
2-13	MBTA	The EA must include an analysis of effects to migratory birds.
2-14	Legal notice	The November 29, 2012 Legal Notice did not meet all the content requirements of 36 CFR 215.5, specifically regarding the format for the submission of electronic comments.
3-1	Herbicide	Preference for no herbicide use. Support for alternative #4.
4-1	SMU	The SMU proposed by GCT should be analyzed in the EA.
4-2	Comment period	The EA should be subject to a comment period before the Decision is finalized.
4-3	SMU	Revisions to SMU by vegetation type. Aanalysis of the alternative should be included in EA.
4-4	Treatment in riparian areas	It is valuable to thin conifers and tamarisk out of certain riaprian areas. Grazing mangement must allow recovery of riaprain plant species.
4-5	Treatment zone	Certain areas along the Loop Road do not pose a fire hazard and do not warrant treatment.
4-6	Sagebrush communities	Retention of sagebrush communities is important.
4-7	Treatment zone	Treat Gambel oak only within 300 ft of property boundaries and Loop Road.
4-8	Treatment zone	Treat pinyon-juniper/mounatin brush only within 300 ft of propoerty boundaries and necessary porions of the Loop Road.
4-9	Tree thinning	Focus hand thinning on juniper rather than pinyon trees.

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REF. #	TOPIC	COMMENT
4-10	Private land treatments	The alternatives should be analyzed considering treatments on private land WUI areas.
5-1	Herbicide	Concern over the use of tebuthiuron.
5-2	SMU	Support for the Sustainable Multiple Use alternative.
6-1	Herbicide	Objection to the use of tebuthiuron in any municipal watershed.
6-2	Support	Support for the West Slope WUI project. Would like to see treatment to protect the Rattlesnake powerline.
7-1	Support	Support for the West Slope WUI project as a part of the Catastrophic Wildfire Reduction Plan.
8-1	Support	Support expressed for the project due to fire start history, WUI, electrical and communications infrastructure in watersheds of concern.
8-2	Support	The West Slope area has been identified as a priority area in the Governor's Catastrophic Fire Planning Process.

Table 3 groups and summarizes similar statements from all respondents by topic. A response statement follows each of these statements or groups of similar statements.

TABLE 3 – Response to Topical Statements

REF. #	TOPIC	COMMENT
Treatment actions		
1-1, 1-4, 1-5, 1-6, 3-1, 5-1, 6-1	Use of herbicide	Several commenters expressed concern that the use of the herbicide tebuthiuron for the treatment of Gambel oak would have adverse effects on the aquifer/municipal watershed and native understory vegetation, and would not result in a diverse age class structure.
Forest Service response: The proposed use of tebuthiuron is fully analyzed in the EA and specialist reports. The Soils Specialist Report (USFS 2015) contains a detailed analysis of tebuthiuron use by soil characteristics and potential effects related to soil depth, permeability, shrink-swell potential and runoff hazard and distance to stream channels. The Vegetation Report (USFS 2014) addresses the impact of mastication and herbicide treatments on the Gambel oak type. An additional alternative that does not include the use of herbicide was developed and is included in the Environmental Assessment (EA) as Alternative C.		
1-7	Herbicide and livestock grazing	The cumulative impact of clearing Gambel oak and using a non-selective herbicide, followed by livestock grazing of vegetation that emerges post-herbicide, threatens soil stability.
Forest Service response: The Soil Specialist Report (USFS 2015) addresses the cumulative effects of livestock grazing post-treatment, and determined that the thinning of thick brush would distribute the existing livestock use, and overall be beneficial to soil and watershed values. An additional alternative that does not include the use of herbicide was developed and is included in the EA as Alternative C.		
1-14, 4-9	Pinyon-juniper mastication, thinning	Mastication in pinyon-juniper communities may result in higher exotic plant cover. Focus hand thinning on juniper rather than pinyon trees.
Forest Service response: Post-treatment monitoring in similar treatments within the Region (Soils Specialist Report) and on the Forest have not found an increase in invasive species. However, after wildfire in pinyon-juniper communities there is often a marked increase in annual weeds, including cheatgrass. On the Brushy Basin DWR trend study site in a treated area on the Monticello District, no cheatgrass or other annual species were measured in 2014 (UDWR 2015). A general consensus in the current literature indicates that exotic species, including cheatgrass (<i>Bromus tectorum</i>), are not a problem unless present before the mechanical treatments, but these undesirable species often do increase after fire, as seen on the nearby Porcupine Ranch wildfire. A study on similar treated sites in Colorado found that while cheatgrass was present at three of the pinyon-juniper study sites, it occurred at the same abundance in mulched and untreated areas, and did not invade treated sites where it didn't occur in control sites (Battaglia et al 2009). Preliminary observations in the nearby Willow Basin project area have not shown an increase in invasive or weedy species. Mastication treatments result in very little soil		

COMMENT ANALYSIS

REF. #	TOPIC	COMMENT
Treatment actions		
<p>disturbance, and appropriate Best Management Practices, Soil and Water Conservation Practices and other measures to limit detrimental soil disturbance (see Soils Specialist Report pgs. 14-16) will be followed in implementation of the project to limit the potential for an increase in weeds.</p> <p>Pinyons are generally favored in the prescriptions, although mature trees of both species will be retained.</p>		
4-4	Riparian zones	It is valuable to thin conifers and tamarisk out of certain riparian areas. Grazing management must allow recovery of riparian plant species.
<p>Forest Service response: The proposed actions include hand thinning in riparian areas. Tamarisk is treated as part of the district-wide weed management program. There are established standards for grazing utilization in riparian areas that are followed under the allotment management plan.</p>		
2-6, 4-5, 4-7, 4-8	Treatment zone	Treat pinyon-juniper/mountain brush only within 300 ft of property boundaries and necessary portions of the Loop Road. Treat Gambel oak only within 300 ft of property boundaries and Loop Road. Certain areas along the Loop Road do not pose a fire hazard and do not warrant treatment.
<p>Forest Service response: We know from past fires and current scientific literature that the configuration and structure of live and dead fuels in the project area could result in severe fire. The Porcupine Ranch (2008) and Lackey Fan (2013) wildland fires demonstrated that high severity fires occur within these vegetation types and landscape on the Moab Ranger District. Limiting treatments to a 300' area around private property and small portions of the Loop Road would only impact those small areas and would not reduce risks to firefighters, area visitors using the area, or the environmental components within the project area. Forest Service policy requires work to manage these risks. Mosaic patterns are generally favored for treatment design. Treatments are designed to reduce high intensity wildland fires across the area. Restoration of sagebrush and mountain shrub vegetation type are a secondary benefit.</p>		
1-16, 2-7	Firewise principles	Treatments must focus on defensible space and Firewise principles.
4-10	Private land treatment	The alternatives should be analyzed considering treatments on private land WUI areas.
<p>Forest Service response: Analysis of the impacts of wildland fire across the landscape demonstrate that treatments outside defensible space zones provide for the safety of firefighters, area visitors, and environmental components. This is a requirement of Forest Service policy.</p> <p>We consider the State of Utah and Grand County to be partners in this process and have collaborated with them throughout the process. A Utah Division of Forestry, Fire, & State Lands representative participated with us in the 5/8/2014 open house public meeting. Federal agencies work with partners to support but not require FireWise planning and implementation on private lands. The State of Utah and Grand County have identified the West Slope WUI area as being at high-risk to fire and have encouraged management of fuels in this area. This project does not remove the responsibility of the State of Utah and Grand County to promote fire safe planning for their constituents or private land owner's responsibility to provide fire safe fuel conditions and structures on their own properties.</p>		
6-2, 7-1, 8-1, 8-2	Support	Support expressed for the project due to fire start history, WUI, electrical and communications infrastructure in watersheds of concern. The West Slope area has been identified as a priority area in the Governor's Catastrophic Fire Planning Process.
<p>Forest Service response: Expressions of support for fuel treatments are noted.</p>		
Ecology		
1-10	Pinyon-juniper community type	Treatments should be based on heterogeneity and distinct pinyon-juniper community types.
1-9, 2-2, 2-4	Fire return intervals and HRV	Different types of pinyon-juniper communities have different fire return intervals. USFS is using and interpreting fire frequency information incorrectly. Address HRV and fire interval in Gambel oak and pinyon-juniper vegetation types.
<p>Forest Service response: Treatment areas are generally planned to build heterogeneity. Areas identified as historical or perennial pinyon-juniper woodlands are not planned for broad treatments beyond reducing infill in targeted locations.</p>		

COMMENT ANALYSIS

REF. #	TOPIC	COMMENT
Treatment actions		
<p>The historic range of variability (HRV) is included in the Fire Regime Condition Class development. This project area has been identified as Fire Regime III in Condition Class 2 (USFS 2005). This is classified as a moderate departure from reference conditions. In this case the area analyzed was approximately 22,00 acres. Best science shows that fires of various sizes and intensities occur within the larger landscape represented. The treatments are generally designed to mimic patch size fires while retaining historic vegetation throughout a landscape.</p>		
2-3	Landfire/FRCC	Address the accuracy and applicability of LANDFIRE/FRCC to the current project.
<p>Forest Service response: Data and interpretation of data has used best science. Landfire does have limitations and those limitations may be brought into the FRCC calculations. Case studies cited in the fuels report show that despite potential errors in modeling, this area is prone to high intensity wildland fires over the broad landscape (Porcupine Ranch fire, 2008 and Lackey Fan Fire, 2013). This evidence is used to balance the Landfire and FRCC data.</p>		
1-2	Restoration	The Forest Service has a responsibility to choose treatments that are ecologically responsible, not just easier or more cost effective.
<p>Forest Service response: In this Wildland-Urban Interface area, the purpose of the proposed project is to reduce the probability of a high severity wildfire that is difficult to control and reduce the negative consequences of a fire on the soil and vegetation resources in the area. The type of treatments proposed are well understood and effective, and but historic conditions and restoration principles are also considered in treatment design. As documented in several historic photos of the area, the encroachment and increased density of pinyon and juniper trees has changed formerly open sagebrush/mountain brush communities. Restoration of these areas by removing pinyon-juniper is ecologically responsible. Past wildland fires on this district such as Porcupine Ranch (2008) and Lackey Fan (2013) demonstrated that ecological damages occur with high intensity wildland fires in this vegetation type and landscape. Those fires created higher cost to suppress and rehabilitate than implementation of fuels treatments.</p>		
REF. #		
TOPIC		
COMMENT		
Vegetation		
1-8, 1-11, 2-5	Pinyon-juniper expansion, livestock grazing effects on tree expansion	Historic and current livestock grazing are an underlying cause of woody shrub and tree density. Treatments should be designed to address underlying causes of pinyon-juniper expansion. Address the relationship of livestock grazing to tree/woody plant encroachment into openings.
<p>Forest Service response: Historic livestock grazing and fire suppression have both impacted current vegetation conditions. The proposed vegetation treatments are designed to reduce hazard fuels and the risk of unplanned wildfire in the wildland-urban interface. Pinyon-juniper expansion excludes understory grass and forbs. In the absence of those fuels grazing becomes limited to other locations.</p> <p>By reducing fine fuels, livestock grazing may influence the ability of a fire to spread in some vegetation types, especially ponderosa pine, but fires in mature pinyon-juniper stands are generally wind-driven crown fires and not affected much by understory fuel conditions. And since these types of wildfires cannot be allowed to burn adjacent to private lands, there is little opportunity to affect tree/woody plant encroachment. Over the long-term, livestock grazing may favor an increase in the density of shrubs/woody vegetation by selectively foraging on herbaceous species. This effect is limited by the use of proper grazing management principles, such as controlling intensity, frequency and season of use. These factors related to livestock grazing are directed by the Allotment Management Plan, Forest Plan direction and the Annual Operating Instructions. The project area is in a Range emphasis area. Appropriate monitoring will be included in the Decision Notice.</p>		
4-6	Sagebrush communities	Retention of sagebrush communities is important.
<p>Forest Service response: The retention of sagebrush communities is a desired result of the proposed project. Removal of encroaching pinyon-juniper in sagebrush areas and reducing pinyon and juniper density in other areas will increase the health and productivity of the sagebrush and associated understory (Bates et al 2000). As big sagebrush does not re-sprout following fire, reducing the fire risk is also beneficial for the retention of existing sagebrush communities.</p>		
NEPA		
1-12,1-13, 1-15, 2-1	Proposed Action	The Proposed Action states that fire suppression is the main driver of increasing fuel loads in the West Slope project area without reference to scientific literature upon

COMMENT ANALYSIS

REF. #	TOPIC	COMMENT
Treatment actions		
		which this conclusion is based. The Proposed Action may be altering historic communities of persistent pinyon-juniper woodland rather than treating pinyon-juniper expansion. The Proposed Action lacks identified cooperation with private landowners or Utah Division of Forestry, Fire and State Lands.
<p>Forest Service response: The Proposed Action is to reduce vegetation density and ladder fuels on 2,350 acres within the West Slope Wiland-Urban Interface project area. It does not discuss the causes for increasing fuel loads. There is general consensus in the scientific literature that fire suppression is a factor in increased fuel loads (Agee and Skinner 2005). Numerous historic fire starts within and around the proposed project area show that fires have been actively suppressed. Any or all of these may have impacted this project area without suppression actions.</p> <p>Other than in the buffer zone immediately adjacent to private land boundaries, mature pinyon-juniper woodlands are not identified for treatment.</p> <p>Coordination and development of the project has included State of Utah and Grand County participation over several years. A Utah Division of Forestry, Fire, & State Lands (FFSL) representative participated with us in the 5/8/2014 open house public meeting, and the project is in a priority area for treatment identified in the Governor’s Catastrophic Fire Plan. FFSL is working with private landowners in the area on fuel reduction treatments (see FFSL letter dated June 17, 2014).</p>		
1-17, 1-18, 1-19	Environmental Assessment	EA should include monitoring results from similar treatments, including post-treatment understory conditions, post-treatment fire behavior and intervals before retreatment. The EA should include evidence for the conclusion that fire suppression is the cause of dense canopies in pinyon-juniper communities in the project area. The EA should include a map of private inholdings indicating defensible space and fuel reduction treatments.
<p>Forest Service response: Results from similar treatments in similar vegetation have been used in specialist reports and are included by reference in the EA. A conclusion that fire suppression is the cause of increased vegetation density was not stated in the proposed action and has not been established in the EA. Providing a map of homes with established defensible space requires data that is not available to the district staff. That data has not been gathered by the Utah Division of Forestry, Fire, & State Lands.</p>		
1-20, 4-1, 4-3, 5-2	Sustainable Multiple Use alternative	Several commenters expressed support for the Sustainable Multiple Use alternative proposed by Grand Canyon Trust.
<p>Forest Service response: An EA (Environmental Assessment) with an appropriate range of alternatives is being completed for this project. The HFRA of 2003 Sec. 104. (d) Alternative Analysis Process for Projects in Wildland-Urban Interface (2) states that “if an authorized hazard fuel reduction project proposed to be conducted in the wildland-urban interface is located no further than 1½ miles from the boundary of an at-risk community, the Secretary is not required to study, develop, or describe any alternative to the proposed agency action in the environmental assessment or environmental impact statement”. This HFRA authorized project is within 1 ½ miles of an at-risk community and meets qualifying requirements, therefore the Proposed Action and No Action alternatives are considered in this analysis and the environmental assessment. See the determination of issues and alternatives in the EA, and the Vegetation Specialist Report (USDA Forest Service 2014) for additional information.</p> <p>Components of the Sustainable Multiple Use Alternative which address the Purpose and Need are included and analyzed in the EA as Alternative 3. Two points in the SMU Alternative dealing with grazing allotment management are not included in the project analysis, as this is outside the scope of the project.</p>		
2-8	Incorporation of previous comments	Incorporate by reference earlier comments on the Moab Face and Willow Basin projects.
<p>Forest Service response: In accordance with NEPA and the applicable regulations and administrative guidelines, there was an opportunity for public comment during the preparation of the EA. To be eligible to participate in the administrative review process for an HFRA project, comments submitted during the public comment period must be specific written comments that relate to the proposed action (HFRA 105(a)(3)). Specific written comments are defined as: Written comments are those submitted to the responsible official or designee during a designated opportunity for public participation (§218.5(a)) provided for a proposed project. Written comments can include submission of transcriptions or other notes from oral statements or presentation. For the purposes of this rule, specific written comments <i>should be within the scope of the proposed action, have</i></p>		

COMMENT ANALYSIS

REF. #	TOPIC	COMMENT
Treatment actions		
<p><i>a direct relationship to the proposed action, and must include supporting reasons for the responsible official to consider (36 CFR 218.2).</i></p> <p>Comments for the Moab Face landscape analysis in 1999 do not have a direct relationship to the current proposed action. Comments on the Willow Basin project from 2007 and 2008 also do not relate directly to this proposed action. The Willow Basin project comments include activities not proposed in the current project, such as prescribed fire, ponderosa pine treatments and impacts to the Castle Valley aquifer.</p> <p>Issues raised in objections must be based on previously submitted specific written comments regarding the proposed project or activity and attributed to the objector, unless the issue is based on new information that arose after the opportunities for comment. The burden is on the objector to demonstrate compliance with this requirement (§218.8(c)).</p>		
2-14	Legal Notice	The November 29, 2012 Legal Notice did not meet all the content requirements of 36 CFR 215.5, specifically regarding the acceptable format for the submission of electronic comments.
<p>Forest Service response: It is true that, due to an oversight, the November 29, 2012 Legal Notice did not include a statement on the acceptable format for electronic comments. However, all comments received during the comment period were in a standard, acceptable format. Also, there was another 30-day comment period under 36 CFR 218 in April 2014, and comments were accepted and considered from both periods during the analysis of this project. 36 CFR 215.5 no longer applies to this HFRA project.</p>		
4-2	Comment period	The EA should be subject to a comment period before the Decision is finalized.
<p>Forest Service response: While the EA is not subject to a comment period, the Decision Notice will be released as a draft, with an opportunity for those who provided substantive comments to officially object to the Decision. A 30-day Notice and Comment Period was provided simultaneously with scoping. The draft decision document is subject to objection by those who provided comments during the 30-day comment period. The regulations, found at 36 CFR 218, provide an opportunity for individuals, organizations and tribal entities to review the EA and draft decision and to file an objection to a project before the final decision is signed.</p>		
1-3, 2-11	Herbicide	The use of tebuthiuron is a major Federal action affecting the quality of the human environment and an EIS should be prepared.
<p>Forest Service response: One of the purposes of an EA is for the Deciding Official to consider the direct, indirect, and cumulative effects of a proposal to determine if there are significant effects that should be analyzed in an EIS. The Deciding Official will make the determination as to whether there are significant effects that require us to complete an EIS.</p>		
2-12	Wildlife habitat, population viability and sensitive species	The proposed action may impact wildlife population viability and sensitive species habitat. Commenter expressed concern that regulations regarding diversity, viability and sensitive species monitoring, data collection and management are not being met.
<p>Forest Service response: Preliminary review indicates that this proposal is consistent with the Forest Plan, laws, and regulations related to this area of the National Forest. The Deciding Official will make the official determination of consistency at the time of decision. The Environmental Assessment, specialist reports, and supporting Project Record will provide the basis for that conclusion. A BA/BE and a Wildlife Specialist Report have been prepared for this EA that addresses the alternatives as defined by the Deciding Official (USDA Forest Service 2014). The Deciding Official will determine if the range of alternatives analyzed in the EA is acceptable in accordance with NEPA and HFRA.</p> <p>The EA, BA/BE (USDA Forest Service 2014, and Wildlife Specialist report (USDA Forest Service 2014) address potential effects to Threatened and Endangered Species, Management Indicator Species, Migratory Birds, and other wildlife species; including discussions of trend for TES and MIS. The management recommendations and guidelines used in the design of the proposed project have been widely accepted in the Intermountain Region and by the Wildlife Society and American Ornithologists' Union. The Proposed Action includes design features and best management practices that provide for the protection of streams, wetlands, riparian, and other wildlife habitat.</p>		

COMMENT ANALYSIS

REF. #	TOPIC	COMMENT
Treatment actions		
2-13	MBTA	The EA must include an analysis of effects to migratory birds.
<p>Forest Service response: There is an analysis of impacts to migratory birds in the Wildlife Report (USFS 2014). Mature stands of trees, pinyon/juniper and Gambel oak, and the most suitable nesting substrates will generally be retained. Only a limited area will be treated during migratory bird nesting season. There may be some incidental take in the short-term, but long-term, landscape level benefits are expected through the increased species and age-class diversity resulting from the vegetation treatment.</p>		
Management		
2-10	IRAs	Objection to proposed mechanical and herbicide treatments within Inventoried Roadless Areas (IRAs).
<p>Forest Service response: There is an overlap of 140-200 acres in a portion (<1% of IRA acreage) of the Manns Peak-Horse Mountain IRA with the proposed treatment units (depending on alternative). These areas proposed for treatment are directly adjacent to private inholding boundaries, the Bald Mesa communication site and access road. The impact of the proposed vegetation treatments in this area have been reviewed (see IRA-Wilderness Attribute-Roadless Character Worksheet), and have been determined to be consistent with the 2001 Roadless Area Conservation Rule (letter to project file).</p>		
1-21, 2-9	Wilderness character, IRA	Treatments within Unroaded/Undeveloped Areas and Unified Wilderness Proposal should be analyzed for impacts to wilderness characteristics. USFS should drop all proposed mechanical treatments that overlap with the Unified Wilderness proposal
<p>Forest Service response: Our analysis found up to 125 acres that were included in the draft unroaded/undeveloped analysis for the Forest Plan revision process overlap with the proposed treatment units. The small area of overlap is immediately adjacent to a private inholding and the Loop Road. The area is heavily developed with roads, communication towers and buildings. The treatments in the Gambel oak vegetation type will be designed and carried out largely with equipment that will leave treatments in the area substantially unnoticeable to the average person after 3-5 years. The unit boundaries and leave areas will follow terrain features, leaving natural appearing groupings, mosaics of vegetation and feathered edges so that treatments blend into the landscape. The project is not expected to change the manageability of the area as wilderness in the future. With the consideration of IRAs and the unroaded/undeveloped lands, it is not necessary to also analyze or eliminate treatments within the Unified Wilderness proposal.</p>		
1-22	Livestock grazing	Proposal to rest treatment areas from livestock grazing at least two years and until native plant thresholds for cover are reached.
<p>Forest Service response: The Purpose and Need for Action have been defined. Appropriate design features are included and analyzed in the EA. If additional changes in livestock grazing are needed in the future to ensure the restoration of herbaceous vegetation, this will be done through the permit process. Non-use agreements for resource protection and Annual Operating Instructions that implement the yearly management of livestock can address changes that are concluded to be necessary.</p>		

Comments were compiled by Barb Smith, Wildlife Biologist and Brian Mattox, Fuels Specialist. The responses were prepared using information provided by Interdisciplinary Team members and other specialists. Comments and concerns raised were considered and used to adjust project design features or develop alternatives as appropriate.

District Ranger Comment Response/Issue Identification Concurrence:


 MICHAEL DIEM
 District Ranger
 Moab/Monticello Ranger District

3/20/15
 Date

Literature Cited

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Bates, J., R. F. Miller, and T. S. Svejcar. 2000. *Understory dynamics in cut and uncut western juniper woodlands*. Journal of Range Management 53:119–126.

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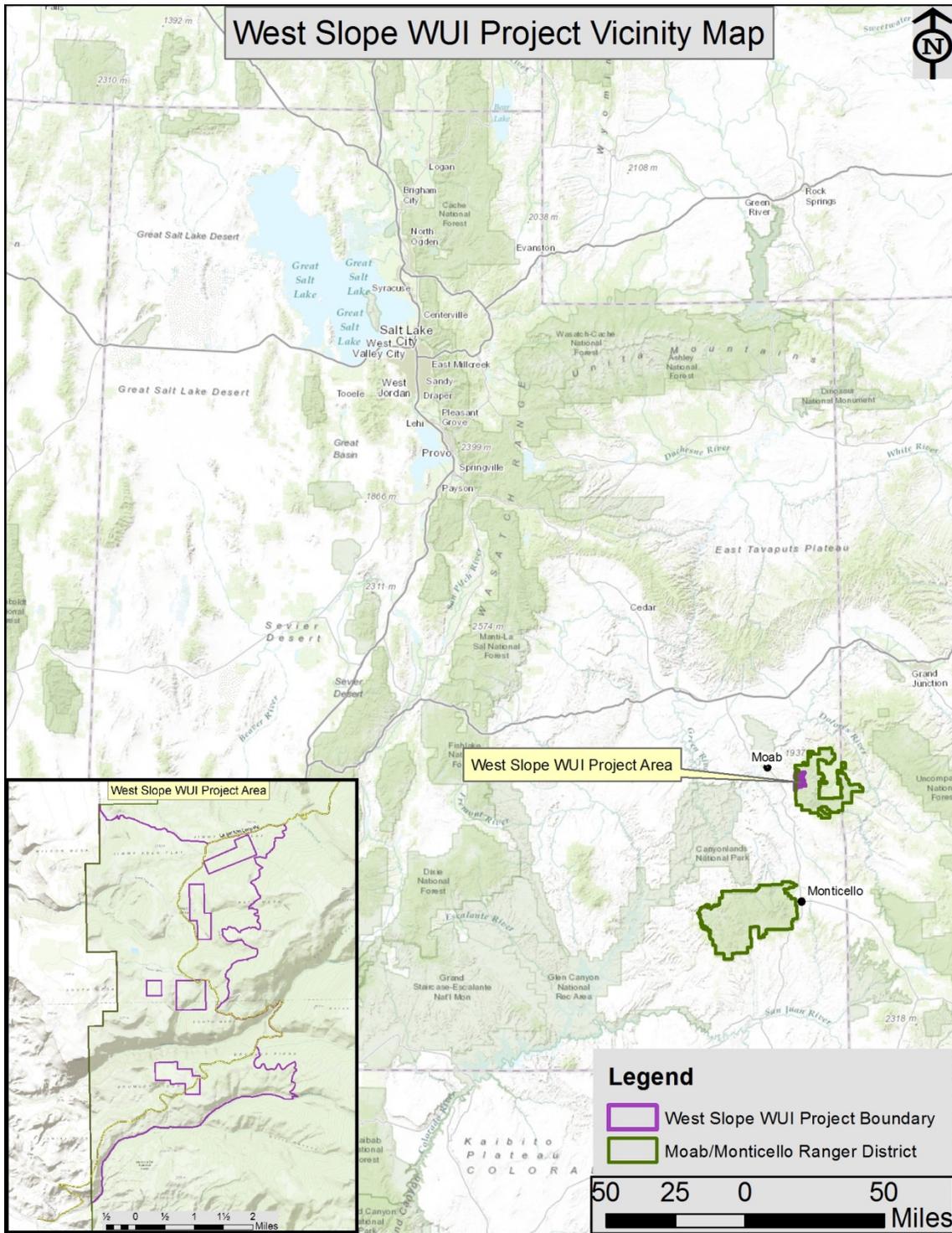
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USDA Forest Service (USFS). 2014. Wildlife Report on Manti-La Sal National Forest Management Indicator Species and Migratory Birds for the West Slope Wildland-Urban Interface Hazardous Fuels Reduction Project. Barbara Smith, Manti-La Sal National Forest. Moab, UT.

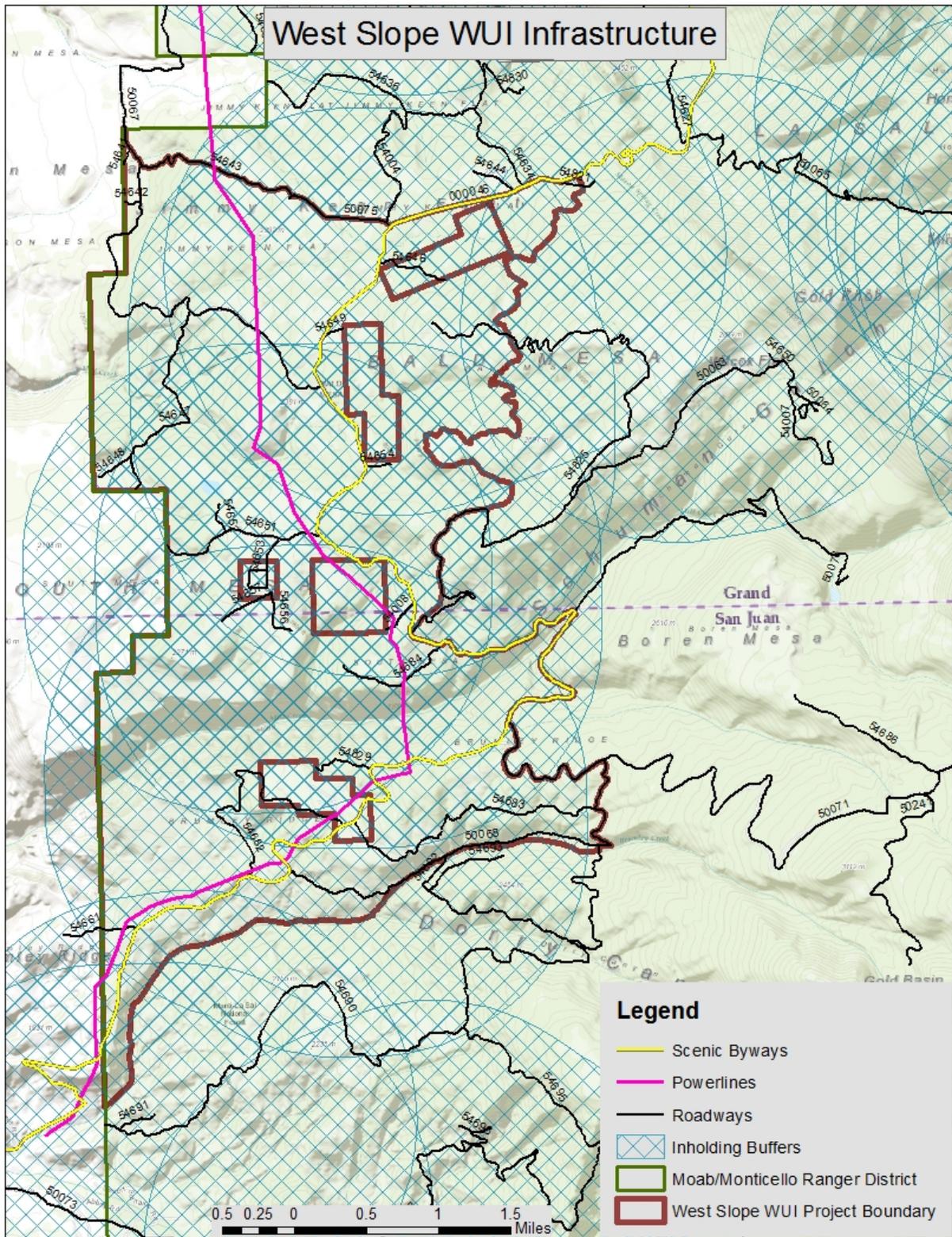
Utah Division of Wildlife Resources (UDWR). 2015. Brushy Basin 14-2 range trend study data summary (draft). Unpublished.

APPENDIX B - MAPS

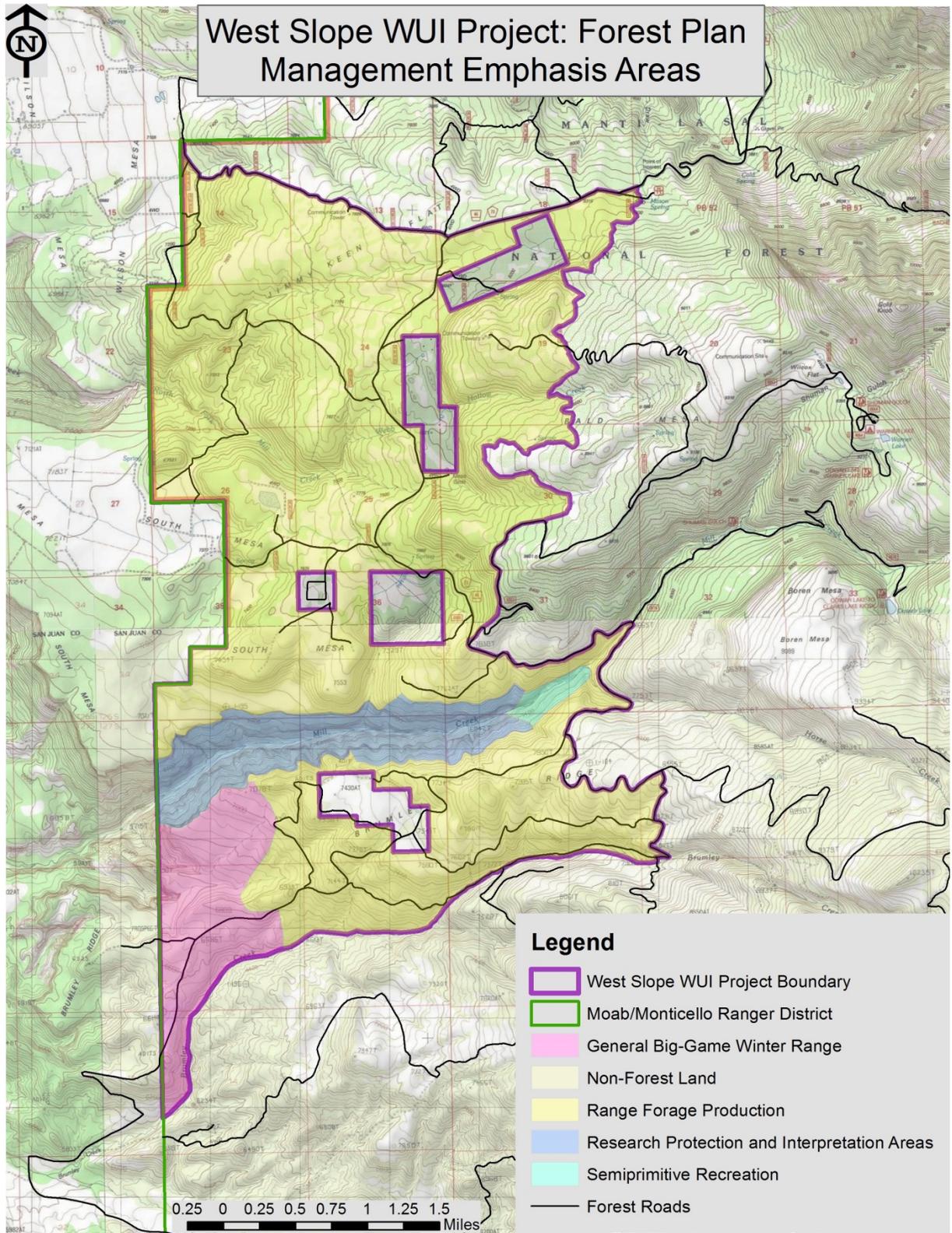
Vicinity Map



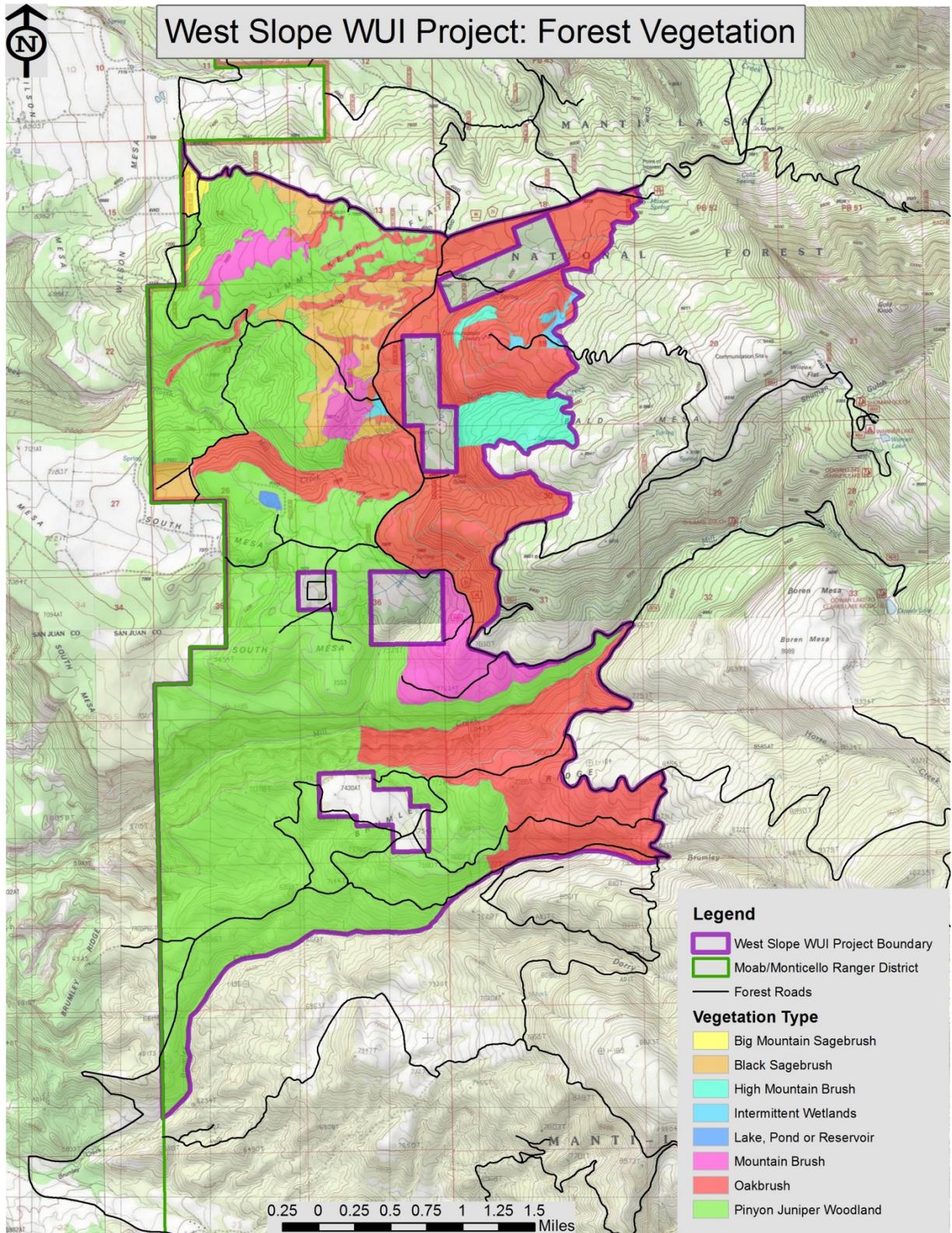
Area Infrastructure and WUI buffers



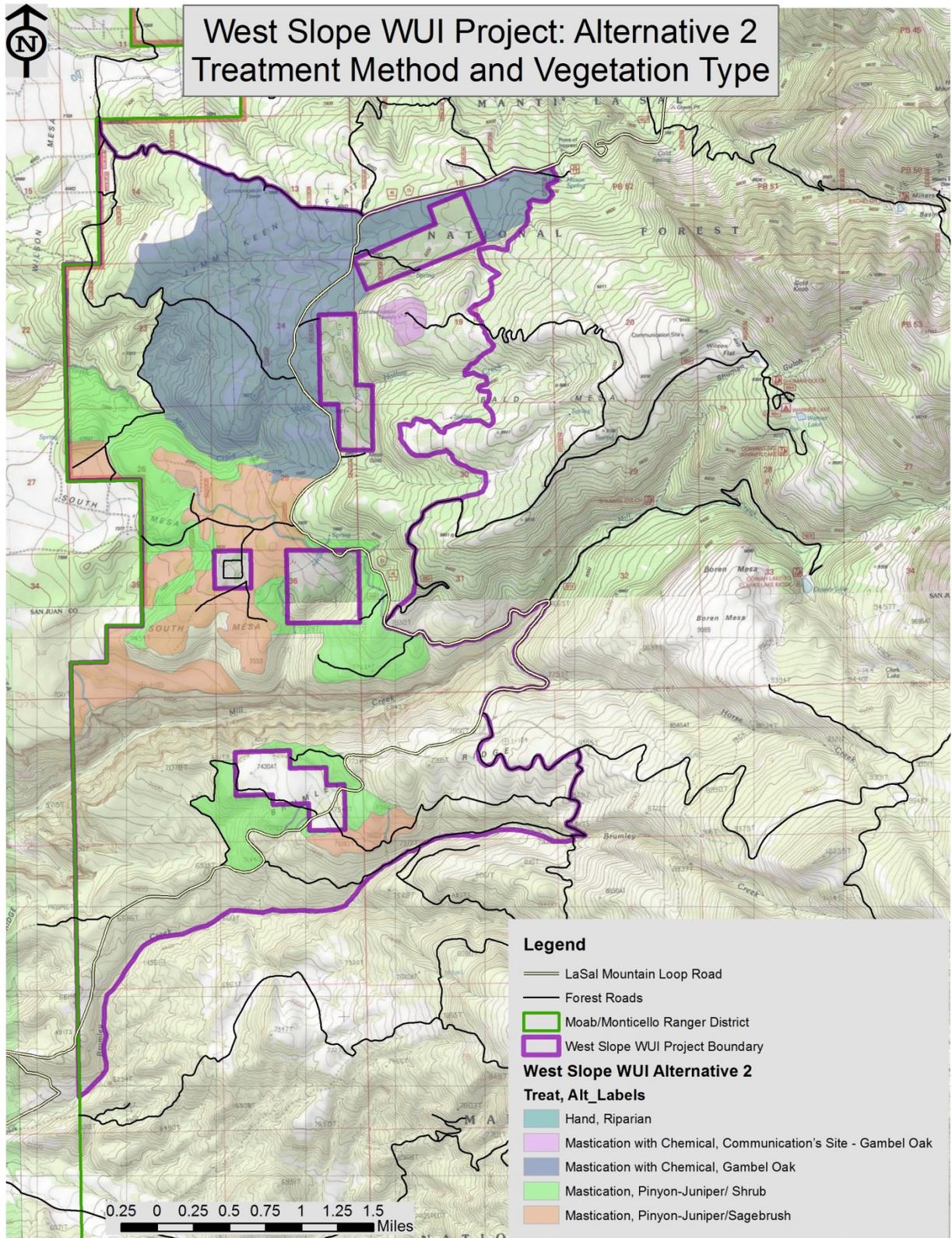
Forest Plan Management Emphasis Areas



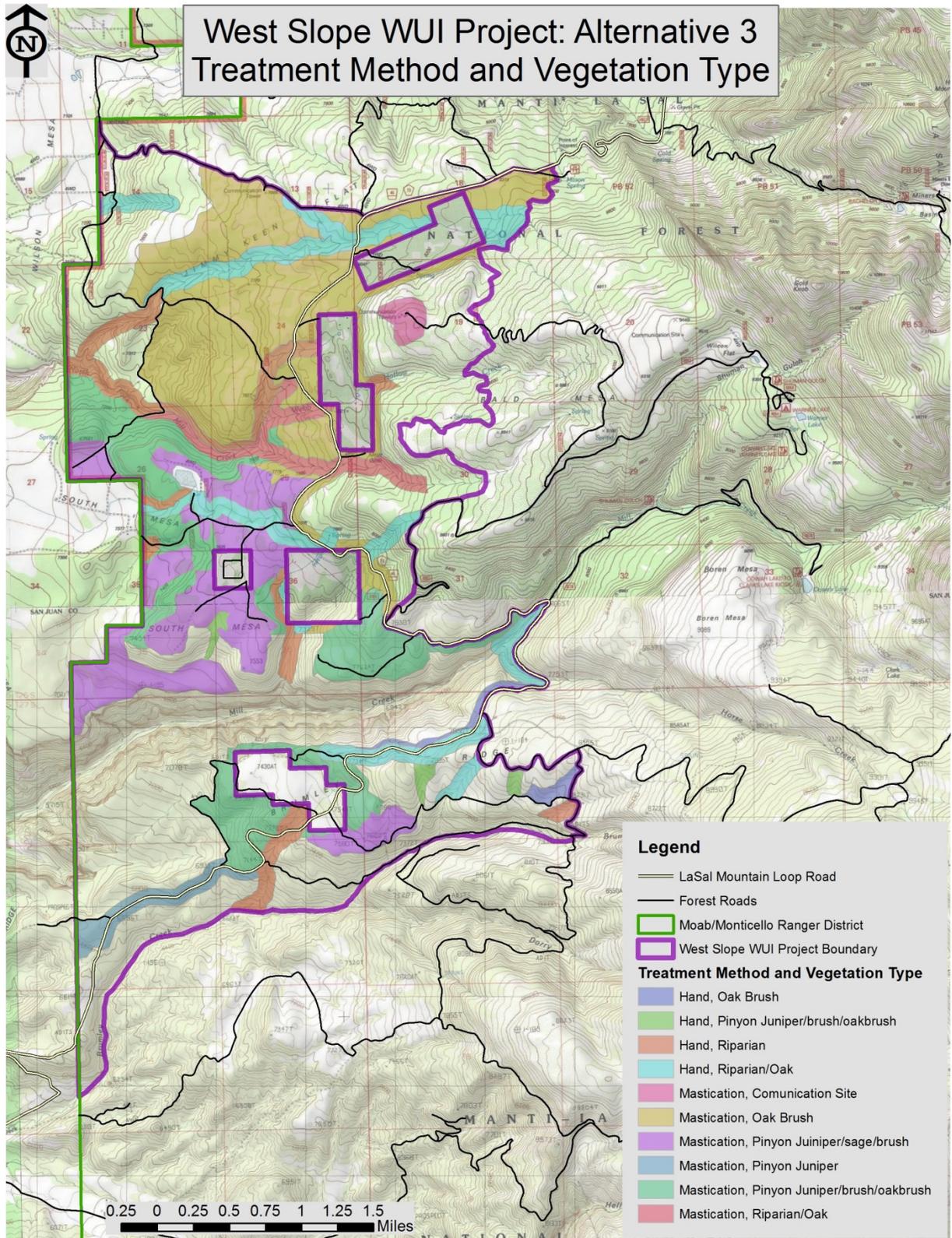
Forest Vegetation



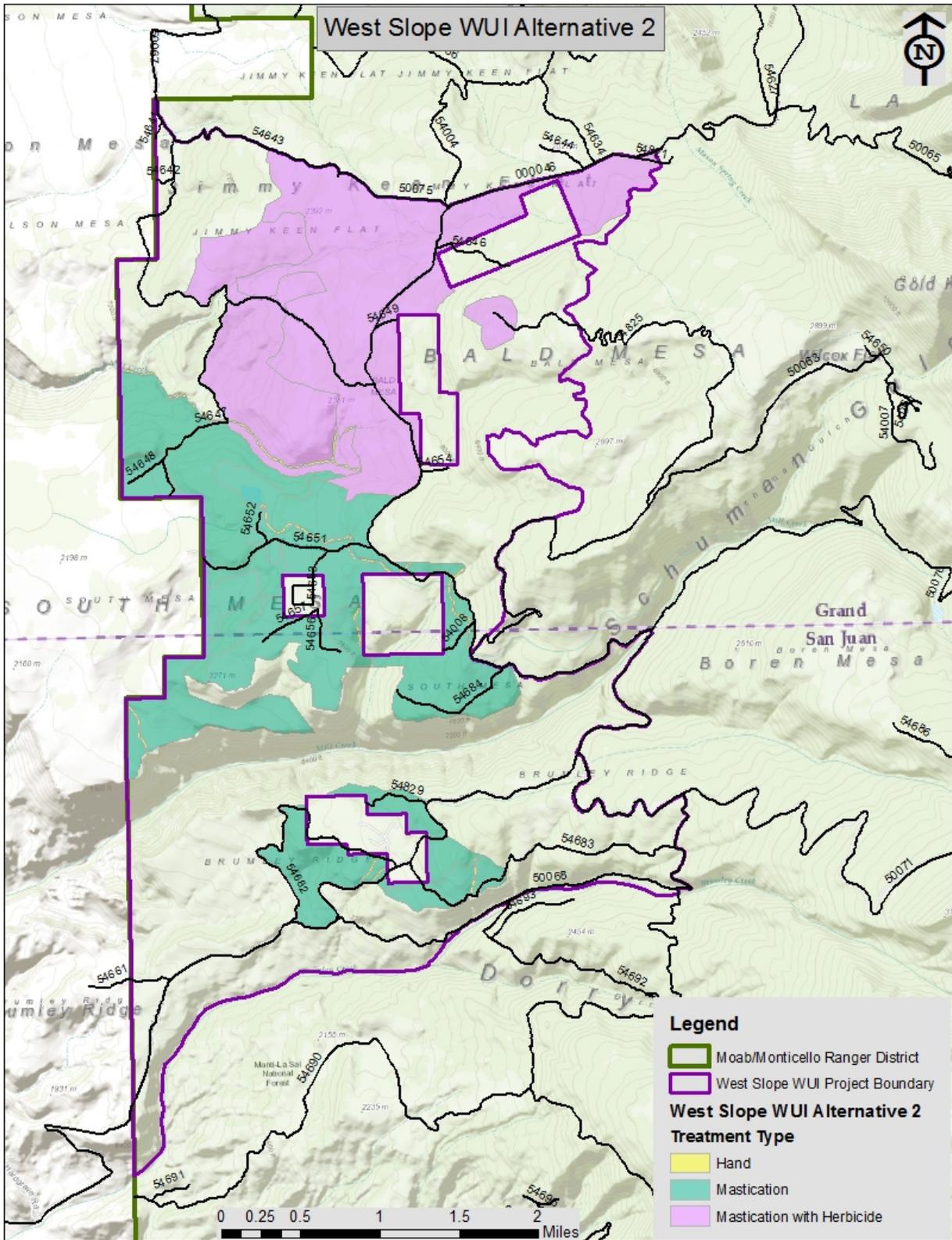
Alternative 2 - Treatments with Forest Vegetation Type



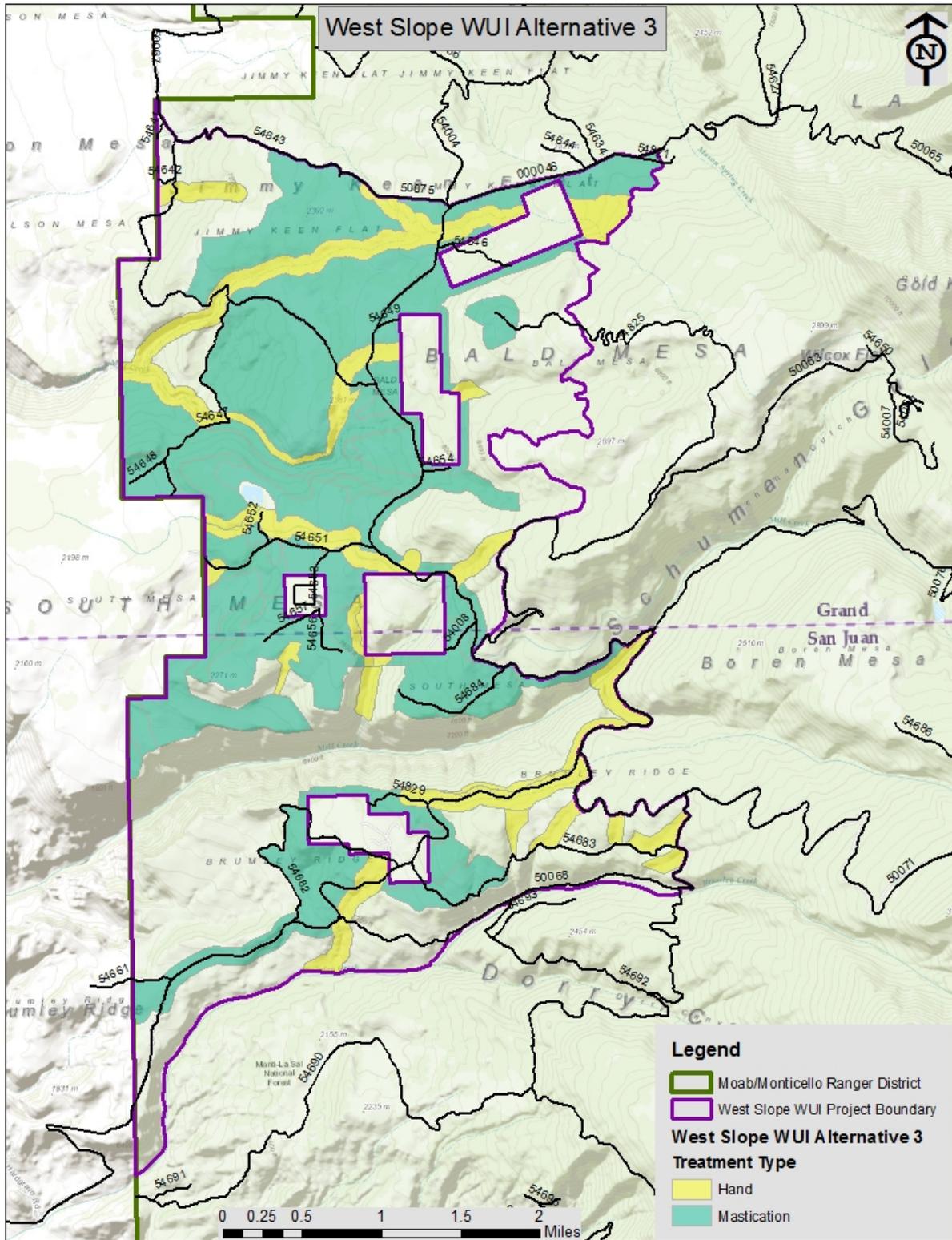
Alternative 3 - Treatments with Forest Vegetation Type



Alternative 2 Treatment Areas



Alternative 3 Treatment Areas



APPENDIX C - DESIGN FEATURES & MONITORING

DESIGN FEATURES

The West Slope WUI Project includes the following features designed to better implement the project. All applicable Forest-wide and Management Unit direction identified in the Forest Plan are hereby incorporated by reference unless otherwise stated.

Forest Vegetation

- 70-90 percent of pinyon-juniper mastication will occur in sage/mountain brush vegetation types.
- Pinyon-juniper with old growth characteristics will not be removed.
- Gambel oak vegetation will range from 30-70% of coverage area within project with emphasis on 1-3 acre openings.
- A certified Silviculturist will prepare vegetation prescriptions for this project that provide specific objectives and guidance for treatments utilizing the Decision Notice/FONSI, EA, Forest Plan, and guidance included in specialist reports.
- A project Burn Plan will be prepared utilizing project specific direction provided in the Vegetation Prescription and applicable NEPA documentation prior to burning.
- Firewood gathering in the project area will be controlled with appropriate permits.
- Inform the public about planned burn activities prior to implementation through signing, media notification, or as determined appropriate with community leaders or permittees.
- Leave screening vegetation along the edges of collector roads to the degree feasible to prevent a short-term increase in illegal off-road travel. Monitor off-road vehicle use. When necessary to reduce impacts, rehabilitate mechanized access trails or firelines that intersect Forest Service System Roads.
- Mature pinyons or junipers may be pruned (limbed flush with bole of tree) for a height of 3-5 feet around the base of live trees to minimize the potential spread of fire into tree canopies. This will be required for a distance of about 15 feet around the edge of pockets or groups of un-thinned trees left in woodland areas; for 300 feet on the edge of property boundaries and along access roads.

Fuels and Fire Behavior

- Firefighter and public safety is the most important factor in implementation of prescribed fires.
- Do not directly ignite scattered rotten logs or stumps, standing snags, or large (> 6" DRC) Gambel oak.
- Use techniques to minimize smoke production and impacts from slash burning:
- Keep soil out of burn piles.
- Notify area residents and users of prescribed fire activity.

Noxious and Invasive Plants

- Equipment shall be cleaned of soils, seeds, vegetative matter, or other debris that could contain or hold noxious seeds. Operators will ensure that off-road equipment is free of noxious weeds prior to startup of operations.
- If contractors are used to complete treatments they will certify that their equipment is free of noxious weeds prior to startup of operations.
- Noxious weed free certification will be required for all straw or hay bales used for erosion control, any mulch, and seed applied in reclamation.

- Control noxious weeds as appropriate under existing decisions and agreements.

Rangeland Allotment

- Protect all range improvements from project-caused damage.
- Coordinate all work with the District Range Management Specialist. When determined appropriate adjustments in grazing may be implemented under the grazing permit to minimize livestock disturbance or allow recovery of rangeland vegetation following treatment.

Wildlife Resources

- Restrict vegetation treatment in the pinyon-juniper vegetation type from May 1- July 20 to minimize impacts to nesting birds.
- No treatment in General Winter Ranger (GWR) on lower Brumley Ridge during the winter season (Dec 1-April 15) to avoid disturbance to wintering deer and elk.
- Peregrine falcon nesting buffer zone – no vegetation treatment during breeding season (Feb 1- August 30) unless cleared by District Wildlife Biologist
- Additional survey of Loop Road corridor and lower Brumley Ridge treatment unit in Alternative 3 for *Astragalus iselyi*
- If *Astragalus iselyi* is found within any treatment unit, the Forest/District Botanist will designate and mark a site-specific no-treatment buffer zone around the population

Recreation

- Treatment should be scheduled to avoid the opening of the big game hunts (deer and elk).
- Treatments should not occur directly adjacent to the Jimmy Keen non-motorized trail.

Visual Landscape

- Maintain or establish visual continuity of dead-down between treated and untreated areas.
- Woody slash debris should be spread over skid trails, temporary roads, landings, and other disturbed areas. The treatment should replicate conditions adjacent to the area.
- Openings for visual benefits may be created where off-road vehicle access is restricted. Openings will mimic as much as possible, those that occur naturally throughout the area.

Cultural Resources

- Evaluate, protect, and monitor all National Register eligible sites. These sites will be avoided.
- Discovery of previously unknown sites, on either the surface or subsurface, may occur during project implementation and shall be protected in accordance with the requirements of contracts/agreements and Federal Laws as cited below.
- Where project activities cannot be modified to protect sites in place, develop plans to recover scientific data in accordance with the National Historic Preservation Act of 1966 (as amended), Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. Consult with appropriate Native American entities and SHPO as necessary.

Transportation System

- County and National Forest System Roads will be protected.
- Install warning signs and devices on roads commensurate with project and public safety. When necessary, traffic controllers (flaggers) will be used.

- Vehicle traffic and equipment operation will be restricted during wet periods to prevent rutting in excess of one inch on gravel roads, 2 inches on native surface roads, and 4 inches on other work surfaces.

Watershed/Soils

- No herbicide will be applied within 100 feet of perennial, intermittent or ephemeral stream channels, ditches, springs, or reservoirs.
- No heavy equipment operations will occur within 50' of any riparian zone or drainage corridor.
- Refueling of heavy equipment will take place a minimum of 200 feet from water collection areas.
- Spill containment materials will be on site when heavy equipment is used.
- Operate equipment on the contour to minimize slippage and to protect existing vegetation cover.
- Avoid potential soil erosion effects by limiting ground based mechanical treatment to slopes less than 30 percent as prescribed in the Manti-La Sal Land Management and Resource Plan.
- For all treatment areas, ground based mechanical equipment should be restricted to occur during the normal dry conditions to mitigate the potential for detrimental compaction when soils are moist or wet.
- Soil erosion analysis shows that the project area has a predominance of soil types having a high vulnerability to soil erosion following surface soil disturbance. Therefore, extra care should be taken to minimize surface soil disturbance. Extra measures could include:
 - Minimize spinning on tracked equipment
 - Minimize uprooting vegetation
 - Avoid tilling or disking
 - Avoid creating new or temporary access roads or trails
 - Minimize or avoid repeated movement over the same soil surface areas
 - Limit mechanical treatment to slopes less than 30 percent
- Use any historic trails, roads, or user-created routes to minimize new soil disturbance and soil compaction.
- Exclude all operations from wetlands, bogs and wet meadows.
- Any unauthorized user-created routes used for access or egress into treatment areas need to be obliterated and rehabilitated: (1) restore to approximate original contour by pushing and/or lifting road fill back into place and put the road prism back to slope; (2) alleviate road prism compaction and subsurface compaction by ripping, tilling, or deep surface roughening; and (3) seed with an appropriate mix to re-vegetate with native forbs, grasses and shrubbery.
- Any soil compaction resulting from concentrated off-road use needs to be alleviated. Soil productivity may be impacted from resulting soil compaction if treatments are performed on either wet or moist soils. Susceptibility to soil compaction significantly increases as soil-moisture content reaches field capacity, even in sandy soils. Soils within the project area should not be subjected to vehicle or surface disturbance when the soils are wet or near the field capacity point.
- No pile burning will occur within 100 feet of riparian areas and a greater distance if slopes exceed 30% or if treatment adjoins perennial streams.
- Some slash created during implementation of this project could be left onsite in riparian corridors.

- Native seed mixtures shall include the following certified weed free mixtures and amounts unless otherwise approved through the District Range Management Specialist and District Silviculturist:

SPECIES	POUNDS/ACRE
Western Wheatgrass or Bluestem (<i>Agropyron smithii</i>)	2.0
<i>Poa fendleriana</i>	1.0
Bluebunch Wheatgrass (<i>Agropyron spicatum</i>)	1.5
Indian Ricegrass (<i>Oryzopsis hymenoides</i>)	.5
<i>Lupinus argenteus</i>	.5
Bitterbrush (<i>Purshia tridentata</i>)	.5
Total Pounds	6

- Implement the following Soil and Water Conservation Practices and State Best Management Practices (USDA Forest Service 2010):

In addition to the beneficial use classifications, all surface waters, irrespective of ownership, that are geographically located within the outer boundary of a National Forest are designated as High Quality Waters – Category 1. Best management practices must be designed to maintain the current, high level of water quality. The Forest Service is the designated Water Quality Management Agency for National Forest System lands in Utah. A 2009 memorandum of understanding (MOU) between the Forest Service and the Utah Division of Water Quality defines the roles and responsibilities of each agency relative to water quality management on National Forest System lands.

To comply with the antidegradation policy and State water quality standards, the Forest Service must implement or ensure the implementation of practices that maintain the current, high level of water quality. These include practices in Forest Service Handbook 2509.22, *Soil and Water Conservation Practices*; State best management practices; or specialized, site-specific practices (USDA Forest Service 2014). All these types of practices are designed to fully protect and maintain water-related beneficial uses, and to prevent or minimize nonpoint source pollution. See Tables 1 and 2 for SWCPs applicable to this project.

Table 1 - Planning Phase SWCPs

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
11.01	DETERMINATION OF CUMULATIVE WATERSHED EFFECTS – To determine the cumulative effects or impacts on beneficial water uses by multiple land management activities.	
11.04	FLOODPLAIN ANALYSIS AND EVALUATION – To protect floodplain values and avoid, where possible, the long and short-term adverse impacts to soil and water resources associated with the occupancy and modification of floodplains.	<p><i>The SWCP states that a floodplain analysis and evaluation will be made when sites within floodplains are being considered for structures, developments, or management activities. Environmental quality, ecological effects, and individual safety and health will be considered.</i></p> <p>Floodplains have not been mapped for the project area. All drainages have a flood-prone area adjacent to them. This flood-prone area would be included in the multi-distance buffer zones around all mapped drainages in the project area. The proposed project should not facilitate additional structures or development in the floodplains of streams within the project area.</p>
11.05	WETLANDS ANALYSIS AND EVALUATION – To maintain wetlands function and avoid adverse soil and water resource impacts associated with the destruction or modification of wetlands.	<p><i>The SWCP states that the Forest Service does not permit the implementation of activities and new construction in wetlands whenever there is a practical alternative. A wetland analysis and evaluation will be made prior to acquisition or exchange of wetlands. Evaluation of proposed actions in wetlands will consider factors relevant to the proposal's effect on the survival and quality of the wetlands.</i></p> <p>Wetlands associated with streams, springs, spring brooks, and reservoirs would be included in a multi-distance buffer zone - no herbicide within 100 feet; no burn piles within 100 feet. No adverse effects are expected.</p>
11.14	MANAGEMENT OF SNOW SURVEY SITES – To protect snow courses and related data sited from effects by land management activities	<p><i>The SWCP states that snow survey sites will be protected according to the terms of the MOU or special use permit issued to the NRCS. Consult with the NRCS if adjacent activities might affect their value or site integrity.</i></p> <p>There are no snow courses or SNOTEL sites in the project area.</p>
13.07	PESTICIDE USE PLANNING – To incorporate water quality and hydrologic considerations into project planning. Note that this SWCP also applies to herbicides	<p><i>The SWCP states that the pesticide use planning process will be used to identify sensitive areas, identify preventive measures and other mitigation measures, and incorporate hydrologic, water quality, and aquatic concerns.</i></p> <p>Sensitive areas have been identified and no-treatment buffer zones specified. See SWCP 11.05 and 13.10.</p>
13.10	PESTICIDE SPILL CONTINGENCY PLANNING – To reduce contamination of water from accidental spills. Note that this SWCP also applies to herbicides	Contingencies for pesticide spill should be established as part of the project implementation plan or incorporated into the hazardous materials contingency plans per SWCP 11.07

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
18.02	FORMULATION OF FIRE PRESCRIPTIONS - To provide for soil and water resource protection while achieving management objectives through the use of prescribed fire.	<p><i>The SWCP identifies the following prescription elements: fire weather, slope, aspect, soil moisture, and fuel moisture. These elements influence fire intensity and have a direct effect on whether a litter layer remains after burning and whether hydrophobic layers develop. The amount of remaining litter and induced hydrophobicity can significantly affect erosion rates, water quality, and runoff volumes. Both the optimum and tolerable limits for soil and water resource effects should be established.</i></p> <p>Slash piles should be constructed at least 100 feet outside of drainages.</p>

Table 2 - Implementation Phase SWCPs

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
13.02	SLOPE LIMITATIONS FOR TRACTOR OPERATION - To reduce gully and sheet erosion and associated sediment production	Ground-based equipment will be limited to slopes of 30% or less.
13.03	TRACTOR OPERATION EXCLUDED FROM WETLANDS, BOGS, AND WET MEADOWS - To limit soil damage, turbidity, and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion. Note that this SWCP applies to all heavy equipment operations.	<p><i>The SWCP states that application of the SWCP is mandatory for all vegetation manipulation projects, including mining operations; exceptions must be specifically addressed in the EIS. The agency project administrator or project supervisor is responsible for identifying wetlands and meadows not previously recognized in the NEPA process and for following or developing management controls to protect wetland and meadows. Protection of wetlands (mapped and unmapped) should be included in pre-work briefings.</i></p> <p>A 50-foot no mechanical treatment buffer should be flagged or otherwise marked as necessary to aid in location around springs, spring books, stream channels and reservoirs currently mapped in the project area. Similar buffer zones should be implemented for any springs and/or wetlands located during project implementation. See SWCP 13.08 and 14.20 for description of multi-distance buffer zones.</p>
13.06	SOIL MOISTURE LIMITATIONS FOR TRACTOR OPERATION - To minimize soil compaction, puddling, rutting, and gully with resultant sediment production and loss of soil productivity. Note that this SWCP applies to all heavy equipment operations.	Rutting will be used as an indicator of wet conditions. Vehicle traffic and equipment operation will be restricted to prevent rutting in excess of one inch on gravel roads, 2 inches on native surface roads and 4 inches in other work areas. Proponent(s) will provide maintenance equipment to repair rutting as soon as ground conditions permit.
13.08	APPLY PESTICIDES ACCORDING TO LABEL AND EPA REGISTRATION DIRECTIONS – To avoid water contamination by complying with all label instructions and restrictions. Note that this SWCP also applies to herbicides	<p>The following buffer zones are for groundwater protection:</p> <p>Leave a 100-foot untreated buffer on both sides of all mapped drainages and ditches.</p> <p>Leave a 100-foot untreated buffer around the springs, spring brooks, and reservoirs. Buffer zones should be flagged or otherwise marked as necessary to aid in boundary location.</p>

SWCP	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION
13.12	<p>PROTECTION OF WATER, WETLANDS, AND RIPARIAN AREAS DURING PESTICIDE SPRAYING – To minimize the risk of a pesticide entering surface of subsurface waters in affecting riparian areas, wetlands. And other non-target areas.</p> <p>Note that this SWCP applies to herbicides and to all application methods.</p>	<p>Leave a 100 foot herbicide-untreated buffer on both sides of all mapped drainages and ditches.</p> <p>Leave a 100 foot untreated buffer around the springs, spring brooks, and reservoirs. Buffer zones should be flagged or otherwise marked as necessary to aid boundary location.</p>
14.03	<p>USE OF SALE AREA MAPS (SAMs) FOR DESIGNATING SOIL AND WATER PROTECTION NEEDS -To delineate the location of protected areas and available water sources and insure their recognition, proper consideration, and protection on the ground.</p> <p>Note that this SWCP also applies to fuels treatment project maps.</p>	<p>No treatment buffer zones will be mapped and included on project treatment maps.</p>
14.06	<p>RIPARIAN AREA DESIGNATION - To minimize the adverse effects on riparian areas with prescriptions that manage nearby logging and related land disturbance activities.</p> <p>Note that this SWCP applies to all heavy equipment operations.</p>	<p>Buffer zones are specified in SWCP 14.20</p>
14.15	<p>EROSION CONTROL ON SKID TRAILS - To protect water quality by minimizing erosion and sedimentation derived from skid trails.</p> <p>Note that this SWCP applied to any temporary working travelway.</p>	<p>To the extent possible, the “slash busting” equipment should be operated over project-created slash.</p>
14.20	<p>SLASH TREATMENT IN SENSITIVE AREAS - To protect water quality by protecting sensitive tributary areas from degradation which would result from using mechanized equipment for slash disposal.</p>	<p>Buffer zones for mechanical treatments:</p> <p>Leave a 50 foot untreated buffer on both sides of all mapped drainages.</p> <p>Leave a 50 foot untreated buffer around the spring and spring brook.</p> <p>Buffer zones for burn piles:</p> <p>Leave a 100 foot untreated buffer on both sides of all mapped drainages.</p> <p>Leave a 100 foot untreated buffer around the spring and spring brook.</p> <p>Hand (chainsaw) treatments are authorized within the 50 foot riparian buffer zone.</p>
15.11	<p>SERVICING AND REFUELING EQUIPMENT - To prevent contamination of waters from accidental spills of fuels, lubricants, bitumens, and other harmful materials.</p> <p>Note that this SWCP applies in all areas where heavy equipment is operated.</p>	<p>Refueling areas should be a minimum of 200 feet from perennial and intermittent stream channels, seeps and springs, wetlands, lakes and reservoirs, stock water developments, and other water features.</p> <p>All heavy equipment and service vehicles should have a supply of absorbent and other cleanup materials on hand for initial containment of spills.</p> <p>All projects will adhere to the Hazardous Substance Spill Plan in case of accidents.</p>

MONITORING:

The general objective of monitoring is to determine if land management activities are being implemented correctly and if the implementation requirements are effective. This is accomplished through project supervision or implementation monitoring and post-project monitoring. Post-project monitoring is defined in the Forest Plan. This project will be monitored as appropriate in accordance with that document. The following will be accomplished during and following project implementation:

- Day-to-day monitoring of contract or force account operations will be completed during implementation by a designated Contractor Officer's Representative (C.O.R.) or by a qualified Forestry Technician (force account).
- Prescribed (pile) burning will be supervised by a qualified Burn Boss to ensure that implementation is completed in accordance with NEPA, Silvicultural Prescription, and Burn Plan.
- Existing or new weed populations will be treated in accordance with existing noxious weed management decisions.
- An interdisciplinary review will be conducted following implementation (within two years) to determine if project objectives have been met and to determine whether implementation of SWCPs has been effective.
- Photo points will be established in each treatment type (mastication, herbicide, hand-thinning) to identify pre and post-treatment conditions, as well as long-term monitoring points for future reference. Post-treatment photos will be taken within one season of completion.

APPENDIX D – LIST OF PREPARERS

NAME	EXPERTISE	INTERDISCIPLINARY TEAM
Michael Diem	District Ranger	Line Officer
Barbara Smith	Wildlife Biologist	Team Leader
Brian Mattox	Fuels Specialist	Team Member
Diane Cote	Silviculturist	Team Member
Brian Murdock	Recreation/Wilderness	Specialist
Autumn Ela	Visuals	Specialist
Robert Davidson	Soils/Hydrology	Specialist
Joni Vanderbilt	Hydrology	Specialist
Don Irwin	Archaeologist/Native American Consultation	Specialist
Tina Ward	Range Management	Specialist
Scott Watson	Law Enforcement/Public Safety	Specialist