

Cliff Knox Project

Inventoried Roadless Areas Report

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for:
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Malheur National Forest

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Table of Contents

Introduction	2
Regulatory Framework	2
Methodology	2
Affected Environment	3
Inventoried Roadless Areas	3
Environmental Consequences.....	5
Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis.....	5
Alternative 1 – No Action	5
Alternatives 2 and 3 – Action Alternatives	8
Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans	13

List of Tables

Table 1. Types and amounts of treatments by alternative within the Malheur River Inventoried Roadless Area.....	8
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List of Figures

Figure 1. Malheur River Inventoried Roadless Area within the Cliff Knox planning area	16
Figure 2. Cliff Knox Project Alternative 2 within Malheur River Inventoried Roadless Area	17
Figure 3. Cliff Knox Project Alternative 3 within Malheur River Inventoried Roadless Area	17

Introduction

This report discloses the affected environment and environmental consequences for the Malheur River Inventoried Roadless Area.

Inventoried roadless areas were identified in the 2001 Roadless Area Conservation Rule in a set of inventoried roadless area maps contained in Forest Service Roadless Area Conservation Final Environmental Impact Statement, Volume 2, dated November 2000 (or any subsequent update or revision of those maps) which are held at the National headquarters office of the Forest Service (36 Code of Federal Regulations 294.11). These areas were set aside through administrative rulemaking and have provisions, within the context of multiple-use management, for the protection of inventoried roadless areas. Most inventoried roadless area boundaries are relatively identical to those identified as “roadless areas,” referred to in the 1982 planning rule (36 Code of Federal Regulations 219.17) and identified by the Malheur Forest Plan, Final Environmental Impact Statement, Appendix C; however, some localized, minor differences in boundaries may exist.

All roadless area acres were allocated to various management area strategies as disclosed in the Forest Plan Final Environmental Impact Statement, Appendix C and described in the Record of Decision (pages 14 to 17) for the final environmental impact statement. Some management area strategies were intended to retain the undeveloped roadless character of the roadless area, and some management area strategies were intended to develop the lands with timber harvest and road building activities, thus forgoing roadless character.

Regulatory Framework

Methodology

Impacts to inventoried roadless areas were assessed using the methodologies described in the Cliff Knox Silviculture; Soils; Watershed; Fire, Fuels, and Air Quality; Rare Plants; Wildlife; Aquatic Resources; Recreation; Visuals; and Heritage reports.

Information Sources

Information sources include analysis contained in the Silviculture; Soils; Watershed; Fire, Fuels, and Air Quality; Rare Plants; Wildlife; Aquatic Resources; Recreation; Visuals; and Heritage reports. Geographic information system layers were also used to compare inventoried roadless areas to proposed activities.

Incomplete and Unavailable Information

Past harvest activities geographic information system layers likely do not include all past harvest that has occurred in the planning area.

Spatial and Temporal Context for Effects Analysis

The spatial boundaries for analyzing the direct, indirect, and cumulative effects to inventoried roadless areas are the Malheur River Inventoried Roadless Area, because those are the only lands where the Roadless Area Conservation Rule applies in the planning area. The temporal boundaries for analyzing the direct, indirect, and cumulative effects to inventoried roadless areas vary by resource (see the direct, indirect, and cumulative effects boundaries sections in the Aquatic Resources; Fire, Fuels, and Air Quality; Heritage; Rare Plants; Recreation; Soils; Visuals; Watershed; and Wildlife reports).

Affected Environment

Inventoried Roadless Areas

Existing Condition

The entire 7,283-acre Malheur River Inventoried Roadless Area is located within the Cliff Knox planning area. Inventoried roadless areas are identified and mapped in the Malheur National Forest Land and Resource Management Plan Appendices – Final Environmental Impact Statement, Appendix C; Umatilla National Forest Land and Resource Management Plan Final Environmental Impact Statement Appendix D; and are also identified in the set of maps for inventoried roadless areas in the Forest Service Roadless Area Conservation Final Environmental Impact Statement, Volume 2, dated November 2000. There are no meaningful differences between the boundaries of the inventoried roadless areas identified in Appendix C of the Malheur Forest Plan and the 2001 inventoried roadless area boundaries.

Overall resource management addressed by the Malheur forest plan is comprised of management goals, objectives, Forest-wide standards and guidelines (USDA Forest Service 1990a, pages IV-1 to IV-45; USDA Forest Service 1990d, pages 4-1 to 4-94), and management area allocations (USDA Forest Service 1990a, pages IV-46 to IV-139; USDA Forest Service 1990d, pages 4-95 to 4-203). The roadless area issue is primarily addressed in the Malheur Forest Plan through management area allocations (USDA Forest Service 1990c, pages 14 to 17; USDA Forest Service 1990e, pages 6 to 9).

The Malheur River Inventoried Roadless Area consists of the canyons of the Malheur River as well as some relatively flat table lands along portions of the Malheur Canyon rim. The area is a deeply incised (500 feet) plateau with a generally narrow (50-100 feet) rocky bottom along the Malheur River.

Soils in the Malheur River Canyon are those that are generally found on steep slopes of variable aspect. Soil texture varies from clay to loam and some even have a recent volcanic ash surface layer. The bedrock under the surface soils is quite variable. Miocene-age volcanic-flow rocks cover most of the eastern portion of the area with Pleistocene-age basalt flows on the west. Vegetation on the northern and eastern slopes of the Malheur River consists mainly of ponderosa pine overstories with understories of Douglas-fir, grasses, and forbs. The table lands and slopes on the east side of the river generally support some scattered ponderosa pine, juniper, mahogany, sagebrush, and a variety of bunchgrasses. The canyon bottoms extending a short way up the slopes are generally timbered with mature ponderosa pine.

This area provides year-round Rocky Mountain elk habitat with the lower one-fourth of the area identified as elk winter range. Mule deer use this area during the spring, summer, and fall. The close proximity of old-growth forest, rimrock, and riparian habitats in this area support a majority of the species found in the southern Blue Mountains. The Malheur River supports an inland trout fishery. Big-game hunting and trout fishing are currently the main recreational uses of the area. Other uses include camping, hiking, rafting, riding, recreational gold panning, photography, and nature study. However, all recreational use in the area is nominal. Access into the area is provided by Malheur River Trail 303, a National Recreation Trail, which follows the river course at a gentle grade suitable for the average hiker. This trail provides early season hiking opportunities when many high elevation trails are still snowed in. The Malheur River Ford at the northern tip of the area is a very popular dispersed campsite. Most of the area receives light or no use by livestock due to natural barriers, steep slopes, and limited forage. There are two cattle grazing allotments within the area. The tablelands around the canyon rims have been logged and roads have been built throughout the area. In contrast to this, the bottom of the canyon provides a pleasant, remote area with a free-flowing river and views of an undisturbed ecological system.

There is scenic variety both vertically (from rim tops to canyon bottoms) and horizontally, as the vegetation covers change. The federally listed bull trout is found within the entire length of this portion of the Malheur River. In addition, sensitive species such as the Columbia spotted frog, the Malheur mottled sculpin, and redband trout are found in the area. At the Malheur Ford location, a historic splash dam has been identified. In the past, the area immediately adjacent to the Malheur Ford was flooded. Logs were stored in the water and then floated downstream to a mill near Bluebucket Creek. The probability of finding cultural sites is quite high because of fisheries in the Malheur River and the proximity of the area to the Harney Basin and Logan Valley. Several sites have been located during recent surveys.

Lands with values and features that often characterize inventoried roadless areas are increasingly important within developed landscapes to provide clean drinking water and to function as biological strongholds for populations of threatened and endangered species. They provide areas that are important for biological diversity and dispersed outdoor recreation, serving as defenses against the spread of non-native invasive species, and provide reference areas for study and research (36 Code of Federal Regulations 294, page 3245).

Within the Malheur River Inventoried Roadless Area, human influences have had less impact on the natural appearance or long-term ecological process compared to managed lands. The current condition of soil, water quality, air quality; plant and animal communities; habitat for threatened, endangered, and sensitive species; noxious weeds, recreation; and cultural resources are described in the Cliff Knox Final Environmental Impact Statement, chapter 3.

Livestock grazing, fire suppression, and dispersed recreation (hunting and camping) has occurred within the planning area and surrounding vicinity for over 100 years. The area has no known locatable mineral potential and contains no mining claims. There is no existing geothermal or oil and gas leases in this area. Past timber harvest has occurred within portions of the Malheur River Inventoried Roadless Area mainly along the relatively flat table lands along portions of the Malheur Canyon rim. During the years 1975 thru 1995, overstory removal treatments occurred on about 200 acres and single-tree selection treatments occurred on about 170 acres.

There are a few Forest roads (about 2.4 miles of open road and 1.8 miles of closed road) that intrude into the inventoried roadless area. Firewood gathering and removal of danger trees along these Forest roads changes the vegetation, leaves stumps, and presents a managed appearance within a developed transportation corridor.

During the last several years, several small fires have occurred in the area. The largest fire burned approximately 280 acres along the breaks of the river. The history of fire suppression in the area has caused a gradual change in the understory vegetation from ponderosa pine reproduction to white fir and other tree species.

Opportunities for a feeling of solitude, the spirit of adventure and awareness, serenity, and self-reliance are very high, particularly along the stream bottoms. The depth of the canyons and vegetative cover provide excellent screening. The rim tops offer a limited opportunity for solitude. The views give an impression of a vast, unspoiled canyon area, but there are intrusions from the adjacent tablelands.

The Malheur National Forest Land and Resource Management Plan Appendices – Final Environmental Impact Statement, Appendix C describes the Malheur River Inventoried Roadless Area as providing semi-primitive non-motorized (1,448 acres), roaded natural (5,357 acres), and roaded modified (477 acres) recreation opportunities. Refer to Cliff Knox Project Recreation Report for a full description of each recreational opportunity spectrum.

Desired Condition

The desired future condition is to improve characteristics of the Malheur River Inventoried Roadless Area as defined by the 2001 Roadless Area Conservation Rule (SS 294.11). Specifically:

- (3) Diversity of plant (shrub steppe woodlands, dry pine/pine savannah, and quaking aspen), and animal communities,
- (6) reference landscapes,
- (7) natural appearing landscapes with high scenic quality, and
- (9) other locally identified unique characteristics (in this case, improving big-game winter range by reducing conifer encroachment in areas of browse).

The desired future condition is also to reduce the encroachment of western juniper and conifers into areas where they did not historically occur to increase water availability and reduce shading for native vegetation and encourage natural recovery of unique vegetation communities (shrub steppe woodlands, pine savannah, aspen, and mountain mahogany).

Environmental Consequences

Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis

Past, present, and reasonably foreseeable activities that are relevant to this resource are displayed in the Cliff Knox Final Environmental Impact Statement, Appendix D.

Alternative 1 – No Action

Direct, Indirect and Cumulative Effects

By definition, direct and indirect effects (40 CFR 1508.8), and cumulative effects (40 CFR 1508.7) result from the proposed action, and thus are not germane to the No Action alternative.

Under the No Action alternative there would be no direct, indirect, or cumulative effects to inventoried roadless areas because no activities would occur in these areas. The existing condition would remain unchanged, except by natural processes and ongoing management activities. Biological and ecosystem functions would continue. Growth rates of trees would continue to decline, and natural processes that affect tree vigor and changes in stand structure would continue. The landscape would likely continue developing complex fuel loads. A wildfire may burn more extensively and kill more trees within forest stands, which would result in larger acreages of blackened landscapes compared to prescribed burning. Some forest visitors may avoid blackened landscapes until green vegetation returns after 3 to 5 years. Fire is a natural occurrence and expected disturbance process in this landscape. Impacts from insects and diseases would also increase (see Cliff Knox Project Silviculture Report).

The consequences of no action to the nine inventoried roadless area characteristics would be:

High Quality or Undisturbed Soil, Water, and Air

Soil – Alternative 1 would cause no detrimental soil quality effects, erosion, or changes in the trends for forest floors and nutrients. Existing detrimental effects would slowly decrease over decades due to growing roots, burrowing animals (including arthropods), and freezing water.

However, one consequence of alternative 1 is that the risk of a high-severity wildfire would continue to increase (see the Fire and Fuels section), increasing the hazard of soil erosion. In addition, if a high-

severity wildfire were to occur, much organic matter and nutrients would be volatilized, possibly decreasing the amount of organic matter and nutrients below amounts present before fire suppression. See Cliff Knox Project Soils Report.

Water – Alternative 1 would cause no change in the watershed hazard, it would remain the same as the existing condition in the short term. The presence of riparian roads would continue to limit stream channel recovery. Over the long term, watershed hazard would generally decrease as recovery from past activities continues, although localized areas of active erosion would continue as chronic, localized hazards.

Air Quality – Alternative 1 would have the least immediate impact on air quality, as there would be no prescribed burning or pile burning. All biomass would remain available for consumption by wildfires and would continue to accumulate, increasing the potential for large amounts of wildfire smoke during the summer months. These smoke concentrations can have high particulate levels. See Cliff Knox Project Fire, Fuels, and Air Quality Report for more specific impacts to fire, fuels and air quality from no action.

Sources of Public Drinking Water

There are no public drinking water sources identified in the Cliff Knox planning area.

Diversity of Plant and Animal Communities; Habitat for Threatened, Endangered, Proposed, Candidate, and Sensitive Species and For Those Species Dependent on Large, Undisturbed Areas of Land

Plants – There are no known populations or potential habitat for any federally listed, candidate, or proposed plant species in the planning area. Therefore, this project would have no effect to any federally listed, proposed, or candidate plant species. Alternative 1 would have no direct or indirect effects to sensitive species assumed present in the planning area or rare plant habitats. However, environmental outcomes may still occur due to ongoing activities and natural processes. See Cliff Knox Project Rare Plants Report.

Terrestrial Wildlife Species – A consideration of what may reasonably occur under this alternative as it applies to all addressed species and habitats is discussed in the Cliff Knox Project Wildlife Report.

In general, it is expected that early seral stands would continue to decrease. Early seral forests are as important for wildlife as old growth forests (Swanson et al. 2014) and the decline in early seral habitat adversely affects early seral dependent bird species, many of which are migratory.

Large overstory ponderosa pine would continue to weaken due to moisture stress resulting from competition in overstocked stands. Western larch would continue to lose vigor due to dense stand conditions that reduce crown width and height. Both tree species and size classes are important to a wide variety of wildlife, particularly the majority of the sensitive species in the planning area. Susceptibility to insect and disease disturbances in excess of the historical range of variability would continue to increase. Large snags would likely increase due to tree mortality from the above causes, benefiting snag-dependent species in areas not accessible by roads (that provide access for firewood cutting).

Fire effects could result in higher stand loss, as discussed in the Fire and Fuels section. Disturbances would be of a higher severity (increasing mortality of larger trees) and over a larger area than under historical conditions. Severe fire affecting a large portion of the inventoried roadless areas would adversely impact a majority of species. See Cliff Knox Project Wildlife Report.

Aquatic Species – Although there would be no direct or indirect effects from the no action alternative (and thus no cumulative effects either), some environmental outcomes would still occur as a result of taking no action. Aquatic habitat for Upper Snake River bull trout and critical habitat, redband trout, and Columbia spotted frog in the aquatic analysis area is currently in a degraded state. A slow and partial recovery of some habitat conditions would occur because of passive improvements in overall land management. The hazard from severe wildfire would remain high under this alternative, as described in the Cliff Knox Project Fire, Fuels, and Air Quality Report. A stand-replacement wildfire would result in the loss of shading along stream channels, loss of instream wood, and both short-term (3 to 5 years) and long-term (10 to 50 years) loss of streamside vegetation. This could adversely affect fish habitat. See Cliff Knox Project Aquatic Resources Report.

Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized Classes of Dispersed Recreation

As described above, most of the Malheur River Inventoried Roadless Area is designated for providing roaded natural recreation opportunities however there are about 1,450 acres of semi-primitive non-motorized recreational opportunities. The primary recreational uses are big-game hunting and trout fishing.

With alternative 1, seasonal usage patterns would remain about the same, including dispersed camping opportunities, trout fishing, and hunting. Environmental consequences of taking no action (alternative 1), include the compounding effects of decades of fire suppression. Over the next decade, vegetation would continue to depart from historical conditions. The increasing understory vegetation and ground fuels would diminish the viewshed, obstruct cross-country travel for recreationists, and diminish ecological resilience. By not taking action, legacy effects would be compounded, and the opportunity to mitigate the effects of severe wildfire could be missed. See Cliff Knox Project Recreation Report.

Natural Appearing Landscapes with High Scenic Quality; Reference Landscapes

Alternative 1 would not produce any short-term visual disturbances or directly change the planning area's existing disturbances viewed from the planning area's scenic visual corridors. Many of the existing scattered minor and moderate disturbances would be greatly diminished through vegetative renewal over the next 10 years. However, potentially strong and adverse indirect scenic disturbance effects could become increasingly more likely with alternative 1 since declines in fire-adapted vegetation and ecological resiliency would continue in future decades. In the event of an uncharacteristic wildfire, many of the desirable elements of landscape character would be lost for an extended period. See Cliff Knox Project Visuals Report.

Traditional Cultural Properties and Sacred Sites

Alternative 1 would have no direct effect on the existing conditions of the heritage resources identified within the Cliff Knox planning area. Alternative 1 would not reduce fuel loads resulting in the continued threat of an uncharacteristically severe or moderately severe wildfire, which would not contribute to the long-term stability of cultural resources.

Other Locally Identified Unique Characteristics

The Malheur River Inventoried Roadless Area features the following special or unique characteristics:

- There is scenic variety both vertically (from rim tops to canyon bottoms) and horizontally, as the vegetation covers change. See above section on Natural Appearing Landscapes with High Scenic Quality; Reference Landscapes, and chapter 3, Visual Resources section for more information.

- The federally listed bull trout is found within the entire length of this portion of the Malheur River. In addition, sensitive species such as the Columbia spotted frog, the Malheur mottled sculpin and redband trout are found in the area. See above section on Diversity of Plant and Animal Communities; Habitat for Threatened, Endangered, Proposed, Candidate, and Sensitive Species and For Those Species Dependent on Large, Undisturbed Areas of Land, and chapter 3, Aquatic Resources section for more information.
- At the Malheur Ford location, a historic splash dam has been identified. In the past, the area immediately adjacent to the Malheur Ford was flooded. Logs were stored in the water and then floated downstream to a mill near Bluebucket Creek. There would be no direct, indirect, or cumulative effects to this feature as no activities would occur.
- Rocky Mountain Elk habitat would continue development of late and old structure or multi-strata stands and would create additional satisfactory and marginal cover stands with continued fire suppression in the mid to long term. The improved cover or potentially larger homogenous stands of cover would decrease forage as tree canopies close and shade the ground, which could conceivably reduce habitat effectiveness index values. Conversely, increased tree stocking could increase the frequency and intensity of high-severity wildfire events. A wildfire of moderate to intense magnitude and severity could convert late and old structure or multi-strata cover habitat to stand initiation forage habitat, thereby changing forage to cover ratios and distribution across the planning area. These proportionate changes in ratio would likely reduce habitat effectiveness index below Malheur Forest Plan standards.

Alternatives 2 and 3 – Action Alternatives

Direct and Indirect Effects

Table 1 lists the activities proposed within the Malheur River Inventoried Roadless Area. The proposed action alternative would commercially treat about 190 acres, non-commercially treat 1,220 acres, and prescribe burn/unplanned ignitions on 7,280 acres within the Malheur River Inventoried Roadless Area. Alternative 3 would non-commercially treat about 630 acres, allow management of unplanned ignitions on 7,280 acres, and close 0.8 miles of open road within the Malheur River Inventoried Roadless Area.

Table 1. Types and amounts of treatments by alternative within the Malheur River Inventoried Roadless Area

Proposed treatment types	Alternative 1 – no action	Alternative 2	Alternative 3
Commercial treatment	0 acres	190 acres	0 acres
Non-commercial treatment	0 acres	1,220 acres	630 acres
Prescribed burning	0 acres	7,280 acres	0 acres
Unplanned ignitions	0 acres	7,280 acres	7,280 acres
Close existing open road	0 miles	0 miles	0.8 miles

The effects to the nine inventoried roadless area characteristics would be:

High Quality or Undisturbed Soil, Water, and Air

Soil – The effects on soils by alternatives 2 and 3 are expected to be indistinguishable in all respects, save the amount of acres and miles impacted by proposed activities. Alternatives 2 and 3 would have negligible impacts to soil quality, soil erosion, and organic matter and nutrients. Alternative 2 is likely to result in slightly more detrimentally affected soils and effects to soils from disturbance related to approximately 190 more acres of commercial treatment, 590 more acres of non-commercial thinning, and 7,280 more acres of prescribed burning in the Malheur River Inventoried Roadless Area. All activities under alternatives 2 and 3 would be mitigated if needed to result in compliance with standards and guidelines. See Cliff Knox Project Soils Report.

Water – The risk of sediment delivery to streams is reduced by a variety of best management practices that require existing trails to be slashed and seeded. Based on monitoring of past projects and best available science, logging slash and ground cover are sufficient to slow down and disperse flow paths that may form on compacted surfaces when placed properly on low-moderate slopes (Wade et al. 2012, Wade et al. 2012, Vinson et al. 2017). Prescribed burning and/or managing unplanned ignitions within riparian habitat conservation areas would burn with primarily low soil severity and maintain high volumes of down wood in the stream channel and floodplain. Low-intensity fire is not expected to burn wetter riparian vegetation; fires would likely die out in the inner riparian habitat conservation areas. Consequently, prescribed burning is not expected to contribute to watershed hazard nor detrimentally affect streams or riparian conditions. Effects would be reduced under alternative 3, as no prescribed burning would occur.

Air Quality – Smoke from prescribed fire treatments under alternatives 2 and 3 would comply with the State of Oregon Smoke Management Implementation Plan and would be implemented following the guidelines in this plan. Alternative 2 would produce more greenhouse gas emissions (1,078,400 tons) from prescribed burning and wildfire events post-treatment than alternative 3 (904,700 tons). See the Cliff Knox Project Fire, Fuels, and Air Quality Report for more information.

In alternative 3 under wildfire conditions, Inventoried Roadless Areas would burn similar to alternative 1 as fuels treatments would not occur in this area. Managed fires would have limited opportunity and most fire starts would need to be suppressed in these areas as the resource benefits may be difficult to achieve.

Sources of Public Drinking Water

There are no public drinking water sources identified in the Cliff Knox planning area.

Diversity of Plant and Animal Communities; Habitat for Threatened, Endangered, Proposed, Candidate, and Sensitive Species and For Those Species Dependent on Large, Undisturbed Areas of Land

Plants – There are no known populations or potential habitat for any federally listed or proposed plant species in the planning area. Therefore, this project would have no effect to any federally listed or proposed plant species. All known populations of sensitive plants would be buffered from all ground-disturbing activities. Some populations may be subject to prescribed burning. However, project design criteria would reduce or eliminate potential effects. Alternatives 2 and 3 may detrimentally impact, but would not lead to a trend toward federal listing for rare plants associated with coniferous forest, aspen, and riparian habitat and would have no impact to rare plants associated with lithosols, sagebrush, shrublands, grasslands, cliffs, outcrops, and talus habitat. The potential spread of invasive plants would be minimized under alternatives 2 and 3 with the implementation of Forest-wide invasive plant prevention standards and project design criteria described in the Cliff Knox Final Environmental Impact Statement, Appendix C. See also Cliff Knox Project Invasive Plants Report.

Terrestrial Wildlife Species – The action alternatives have similar activities proposed, with similar levels of treatment. As proposed treatments increase, the level of expected associated effects would also increase.

Implementation of forest and unique habitat restoration activities under alternatives 2 and 3 would transition stands towards species composition and stand structure reflective of historical conditions, particularly in the drier forest types. These treatments would facilitate an increase in the size of remaining trees, which in the long term could become large snags. Wildlife dependent on open mature pine-dominated habitat would benefit from increased stand health and increased forage. Conversely, wildlife dependent on denser forest conditions, post-fire habitat, or insect outbreaks may experience a mid- to long-term reduction in habitat within the planning area. Variable density thinning, prescriptions retaining higher tree densities, blocks of no treatment, skips within units, and a network of connectivity corridors (denser forest areas) are all designed to retain heterogeneity within the planning area, and ultimately at the landscape level, provide for a diversity of habitat types across the landscape, and retain existing snags.

Prescribed burning can alter or remove vertical and horizontal stand structure including snags and downed wood. Prescriptions using only prescribed burning would exhibit the largest number of snags recruited from direct mortality, but burning activities have the potential to both consume existing snags and downed wood and to create new snags. Any snag creation as a result of fire would benefit post-fire-dependent species like the black-backed woodpecker. Although this pulse of snags would provide foraging for numerous woodpecker species, most snags would likely be too small to provide suitable nesting habitat. Design features are included to minimize consumption of existing habitat, especially large trees, snags, and downed wood. Although some snags are expected to be lost as a result of implementation, losses are expected to be minor across the landscape.

Effective road closures or decommissioning would secure potential habitat from vehicle access and disturbance. Alternative 2 would result in seven percent elk security through the closure of 12 miles of currently administratively open roads, decommissioning of four miles of currently administratively open roads, reopening of five miles of administratively closed roads, and construction of 0.7 miles of newly proposed administratively open roads. However, this is a reduction in existing (alternative 1) elk security by two percent. This alternative would slightly increase disturbance to elk across the planning area as compared to alternative 3 which would result in 16 percent elk security (an increase of seven percent from current) through the closure of 35 miles of roads. Scarifying roadbeds and seeding with native seed would rehabilitate bare ground to forage in the short term and allow conifer recruitment in the mid to long term. Disturbances to wildlife would be expected to decrease the longer roads are effectively closed. See Cliff Knox Project Wildlife Report.

Aquatic Species – The Cliff Knox planning area contains Upper Snake River bull trout and critical habitat, redband trout, and Columbia spotted frog. The avoidance, conservation and/or minimization measures, including best management practices and project design criteria, proposed in this project supports the determination: The Cliff Knox Project may affect, but is not likely to adversely affect the Upper Snake River bull trout, and the respective designated critical habitats of this species. Determinations for redband trout and Columbia spotted frog are activities may impact individuals or habitat but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species in the short term. There would be a beneficial impact in the long term. See Cliff Knox Project Aquatic Resources Report.

Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized Classes of Dispersed Recreation

As described above, most of the Malheur River Inventoried Roadless Area is designated for providing roaded natural recreation opportunities however there are about 1,450 acres of semi-primitive non-motorized recreational opportunities within the inventoried roadless area. The primary recreational uses are big-game hunting and trout fishing.

Effects to semi-primitive classes of recreation, including isolation from the sights and sounds of man, would be affected by the increase of human presence and activity during the time of proposed treatments (commercial and non-commercial treatments, prescribed burning/unplanned ignitions, and closing roads) under alternatives 2 and 3. Under alternative 2, the sights and sounds of human activity would increase as 190 acres of mechanical timber harvest treatments, 1,220 acres of non-commercial thinning, and 7,280 acres of prescribed burns/unplanned ignitions are implemented. Under alternative 3, the sights and sounds of human activity would increase as 630 acres of non-commercial thinning, up to 7,280 acres of managed unplanned ignitions and 0.8 miles of road are closed within the inventoried roadless area. Commercial and non-commercial treatments, and fuels treatments would have a short-term effect on scenic values, trout fishing, big game hunting, and use of dispersed campsites. Smoke may reduce the quality of the experience short term for recreationists that may be in the area. Sights and sounds of human activity would increase as mechanical timber harvest treatments and prescribed burns are implemented. However, this increase of activity would be short term, and at the conclusion of treatments, the sights and sounds of human activity would revert back to pre-project levels. The short-term effects to semi-primitive classes of recreation would be increased human presence, sights and sounds of timber harvest machinery, and road treatments.

Under alternatives 2 and 3, the non-motorized Malheur River National Recreation Trail in the Malheur River Inventoried Roadless Area would continue to provide roaded natural recreation opportunities. About 5 acres of non-commercial thinning by hand would occur at the Malheur Ford trailhead under both alternatives. About 30 acres of commercial harvest and small diameter treatment would occur at the Hog Flat trailhead under alternative 2. Under alternative 3 this treatment unit would become non-commercial thinning by hand. The direct effects of the treatment activities and associated noises, evidence of ground disturbances, and recreation area closures could detract from the recreation experience over the short term.

Natural Appearing Landscapes with High Scenic Quality; Reference Landscapes

Under alternatives 2 and 3 there would be some visual effects to the landscape. Upland restoration activities and prescribed burning would produce minor, short-term scenery disturbances, including visible soil discoloration, and canopy, tree, or plant contrasts such as stumps, skid roads, burn piles, burn areas, and landings. A small portion of these effects would be visible from the planning area's visual corridors. Proposed treatments would improve the long-term scenic integrity, by opening the stands up for increased visibility and visual diversity. Prescribed fire would improve conditions for fire-resistant species, which would indirectly improve the landscape character attributes of large tree character and open stands that can withstand low-intensity fires. This treatment would improve visuals into the forest understory from foreground views.

The action alternatives would enhance the spatial and species diversity, scenic character attributes, and resilience of the forest canopy. These enhancements would protect large trees and old forest characteristics and would promote future large tree character and spatial and species diversity within the existing dense stands. Vegetation density within forest stands would be reduced through thinning and fuels reduction treatments that would create more attractive, open, and structurally diverse conditions,

favoring historically dominant species such as Douglas fir, western white pine, ponderosa pine, and western larch. These more attractive, open, and diverse stand structure and species conditions would also considerably reduce the risk of scenery-damaging ecosystem disturbances (insects, disease, wildfires, etc.). More historically appropriate wildfire would better perpetuate the Cliff Knox planning area's attractiveness and historically "natural" scenic character. Reductions in ecosystem threats to the planning area's vegetation scenery attributes would increase the scenic stability level from low (most vegetation attributes are threatened or absent) to moderate (most vegetation attributes are present and likely to be sustained). Refer to the Cliff Knox Project Visuals Report for more information.

Traditional Cultural Properties and Sacred Sites

All known traditional cultural properties and sacred sites would be avoided under alternatives 2 and 3. Therefore, there would be no direct or indirect effects to traditional cultural properties and/or sacred sites. See Cliff Knox Heritage Report.

Other Locally Identified Unique Characteristics

The Malheur River Inventoried Roadless Area features the following special or unique characteristics:

- There is scenic variety both vertically (from rim tops to canyon bottoms) and horizontally, as the vegetation covers change. See above section on Natural Appearing Landscapes with High Scenic Quality; Reference Landscapes, and chapter 3, Visual Resources section for more information.
- The federally listed bull trout is found within the entire length of this portion of the Malheur River. In addition, sensitive species such as the Columbia spotted frog, the Malheur mottled sculpin and redband trout are found in the area. See above section on Diversity of Plant and Animal Communities; Habitat for Threatened, Endangered, Proposed, Candidate, and Sensitive Species and For Those Species Dependent on Large, Undisturbed Areas of Land, and chapter 3, Aquatic Resources section for more information.
- At the Malheur Ford location, a historic splash dam has been identified. In the past, the area immediately adjacent to the Malheur Ford was flooded. Logs were stored in the water and then floated downstream to a mill near Bluebucket Creek. Proposed non-commercial thinning and prescribed burning would have no direct, indirect, or cumulative effects to this feature because the remains of the dam are soil and basalt and no activities would take place at the dam site. The splash dam's eligibility determination was concurred Not Eligible for listing on the National Register of Historic Places on 08/09/1989.
- Rocky Mountain Elk habitat, specifically hiding cover would be reduced in the short-term but is expected to recover and transition back to cover in approximately 25 to 50 years. The greater the reduction in cover would result in a greater increase in forage. Disturbance from proposed activities would cause elk to move to undisturbed security areas for the short term, during implementation. Because prescribed fire would be expected to burn in a mosaic, ground vegetation would be reduced but not eliminated. Temporarily, forage opportunities may be better elsewhere until ground vegetation is reestablished. Burning would eventually improve forage conditions as more open canopies allow more light to reach the forest floor. Alternative 3 would reduce road densities within the inventoried roadless area and therefore provide additional elk security. See above section on Diversity of Plant and Animal Communities; Habitat for Threatened, Endangered, Proposed, Candidate, and Sensitive Species and For Those Species Dependent on Large, Undisturbed Areas of Land, and chapter 3, Wildlife Resources section for more information.

Cumulative Effects

Reasonably foreseeable future actions include a slash barrier and about 200 feet of 4-strand barbed wire fence authorized in the Central Malheur Allotment project environmental assessment and decision notice. Cumulative effects from this project are described below. Reasonably foreseeable future actions authorized under the Malheur National Forest Aquatic Restoration Decision in the Cliff Knox planning area (Appendix D, Table D-2) would not have cumulative effect on inventoried roadless areas because none of the proposed activities would occur in the inventoried roadless area.

Cumulative effects to soils; water quality; air quality; plant and animal communities; habitat for threatened, endangered, and sensitive species; recreation; non-native invasive plants; and cultural resources in inventoried roadless areas are disclosed throughout the Cliff Knox Final Environmental Impact Statement chapter 3 and specialist reports and are not reiterated here.

Under alternatives 2 and 3, upland restoration activities along with the slash barrier would increase the numbers of stumps, and the open nature of the forest stand would likely be the most apparent visual change resulting from implementation. In the long term (about 50 plus years), alternatives 2 and 3 would restore areas with dry meadows, dry pine sites, pine savannah habitats, shrub steppe habitat and scabland flats.

The effects of the proposed prescribed fire/planned ignitions would combine with effects from past wildfires within the inventoried roadless area to create a mosaic of fuel loads. Cumulatively, this would benefit the natural character of the inventoried roadless area. Combined effects of the proposed prescribed fire/planned ignitions with effects of past fires within the inventoried roadless area would also create conditions that would allow future natural fire to occur. These effects would appear natural and visually blend with surrounding areas that have burned, creating a mosaic of vegetation types and sizes.

Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

Malheur Forest Plan

The outcomes of all project activities within the Malheur River Inventoried Roadless Area are consistent with the intent of the land allocation decisions made in the Malheur Forest Plan.

2001 Roadless Area Conservation Rule

The 2001 Roadless Rule states that the cutting, sale, or removal of generally small-diameter timber is allowed if it is needed to maintain or improve one or more of the roadless area characteristics as defined in § 294.11. “To improve threatened, endangered, proposed, or sensitive species habitat” 36 Code of Federal Regulations 294.13(b)(1)(i), or “to maintain or restore the characteristics of ecosystem structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period” 36 Code of Federal Regulations 294.13(b)(1)(ii).

Generally Small Diameter

The Roadless Area Conservation Rule did not specifically define what constitutes “generally small diameter timber . . . because of the great variation in stand characteristics between vegetation types in different areas . . .” The Rule further states that project planning:

Will consider how the cutting or removal of various size classes of trees would affect the potential for future development of the stand, and the characteristics and interrelationships of plant and

animal communities associated with the site and overall landscape. Site productivity, due to factors such as moisture and elevation gradients, site aspect, and soil types, will be considered, as well as how such cutting or removal of various size classes of standing or down timber would mimic the role and legacies of natural disturbance regimes in providing habitat patches, connectivity, and structural diversity critical to maintaining biological diversity. In all cases, the cutting, sale, or removal of small diameter timber will be consistent with maintaining or improving one or more of the roadless area characteristics (see Final Rule, Federal Register, Volume 66, No.9, 3257).

Commercial thinning is proposed in 190 acres among five overstocked units under Alternative 2. Variable density thinning of conifer trees less than 21 inches diameter at breast height is proposed to open the canopy to increase light on the forest floor, decrease moisture competition, and slow the rate of juniper encroachment. By thinning from below, larger trees would be left to help restore those areas closer to a historic density. Commercial thinning would occur via ground-based methods. Only existing roads would be used for haul within the inventoried roadless area; no temporary roads would be constructed. All proposed haul roads, except for a well-traveled existing road to a trailhead, would occur along the outer edge of the inventoried roadless area. No timber would be sold or removed under Alternative 3.

Non-commercial thinning for dry pine restoration, pine savannah restoration, shrub steppe restoration, and aspen restoration within the Malheur River Inventoried Roadless Area would consist of generally small diameter trees felled with chainsaws. All trees felled would either be left on site for resource protection (such as for erosion mitigation measures), jackpot burned, or piled and burned. Most trees felled would be young juniper and conifers less than about 9 inches diameter at breast height. These trees are generally small diameter because trees in these stands range from young to old growth trees that are 30 inches diameter at breast height and larger.

Maintaining or Improving Roadless Area Characteristics

Tree (timber) cutting would maintain or improve the following roadless area characteristics (§294.11):

Diversity of plant and animal communities

- Shrub steppe woodlands in the Malheur River Inventoried Roadless Area have been encroached upon by juniper, conifers, and non-native invasive plants. Native bunchgrass and shrub communities that provide important wildlife habitat are being encroached upon and shaded out. Juniper woodland and shrub steppe restoration activities would restore or increase native bunchgrass and browse species that are important for wildlife in the project area, especially elk and mule deer.

Natural Appearing Landscapes with High Scenic Quality; Reference Landscapes

- The objectives and guidelines associated with the visual quality objectives for each management strategy intersecting a treatment area would be met. The upland restoration (dry pine restoration, pine savannah and shrub steppe habitats) proposed under alternatives 2 and 3 would move these habitat types towards their historical conditions (pre-fire suppression). Short-term acceptable effects from treatments are recognized and long-term enhancement to the visual landscape is expected. Prescribed burning and/or managed ignitions would not affect natural integrity because fire is a natural condition on the landscape and influenced the development of the forest community. Effects on apparent naturalness would be minimal and of short duration during implementation of the prescribed fire. See Cliff Knox Project Visuals Report.

Other locally identified unique characteristics (improving big-game winter range).

- 3,920 acres of proposed elk security occurs within the IRA which would minimize disturbance to wildlife from motorized use.
- Most treatments within the inventoried roadless area are non-commercial small diameter thinning to reduce conifer encroachment and enhance forage conditions in big game winter range (Management Area 4).
- Mahogany and aspen restoration treatments are also targeted within the inventoried roadless area, which would improve unique habitat features for wildlife.

Except within about 190 acres (Alternative 2), material would not be sold or removed; it would be either cut and left in place, scattered, or pile burned to reduce fuel loading, used for woody debris placement in nearby streams, or placed on highly erodible soils to reduce the potential for erosion. Within the 190 acres proposed for commercial thinning, thinning would be from below, therefore the larger trees would be left to help restore those stands to a more historic density.

Maintaining or Restoring the Characteristics of Ecosystem Composition and Structure

Potential for crown fires and heavy fuels build up is high within the inventoried roadless area. Approximately 76 percent of the forested acres (3,750 acres) is above the target management zone for stand density, with 20 percent (990 acres) within the target management zone, and only 4 percent below the target management zone. The data suggests the inventoried roadless area is largely overstocked and in need of thinning and under-burning to restore the characteristics of the ecosystem composition and structure to reduce the risk and effects of insect and disease outbreaks, and uncharacteristic wildfire that would have been expected to occur under natural disturbance regimes. Generally, small diameter trees would be thinned from below in order to leave large trees to help restore those areas to a density closer to what was there historically.

Cutting and Sale of Timber is Infrequent

Harvest last occurred in the Malheur River Inventoried Roadless Area about 26 years ago (between 1975 and 1995) on about 370 acres. There are no foreseeable projects that would cut or remove timber in the Malheur River Inventoried Roadless Area; this action would be infrequent on this landscape.

Figure 1. Malheur River Inventoried Roadless Area within the Cliff Knox planning area

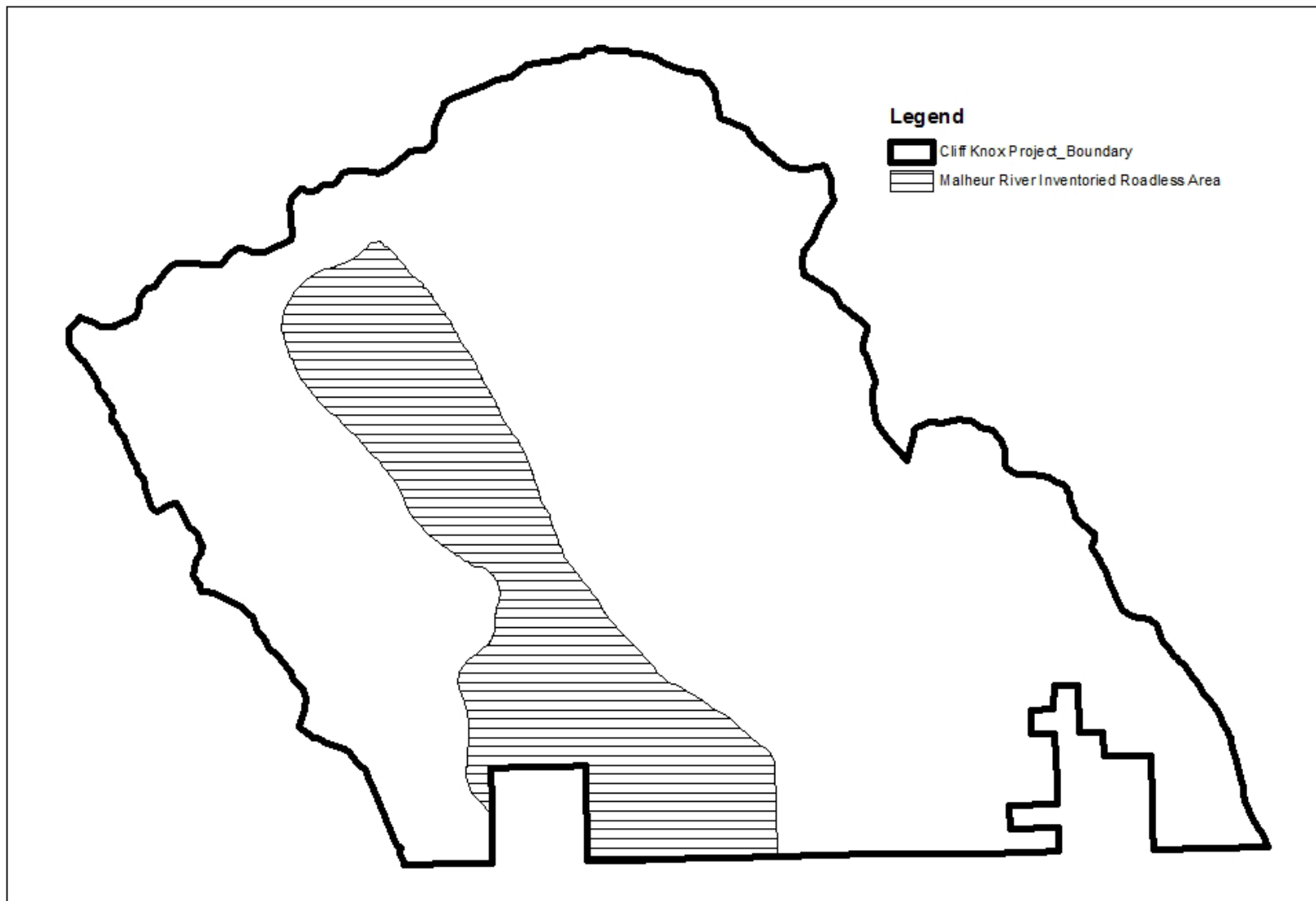
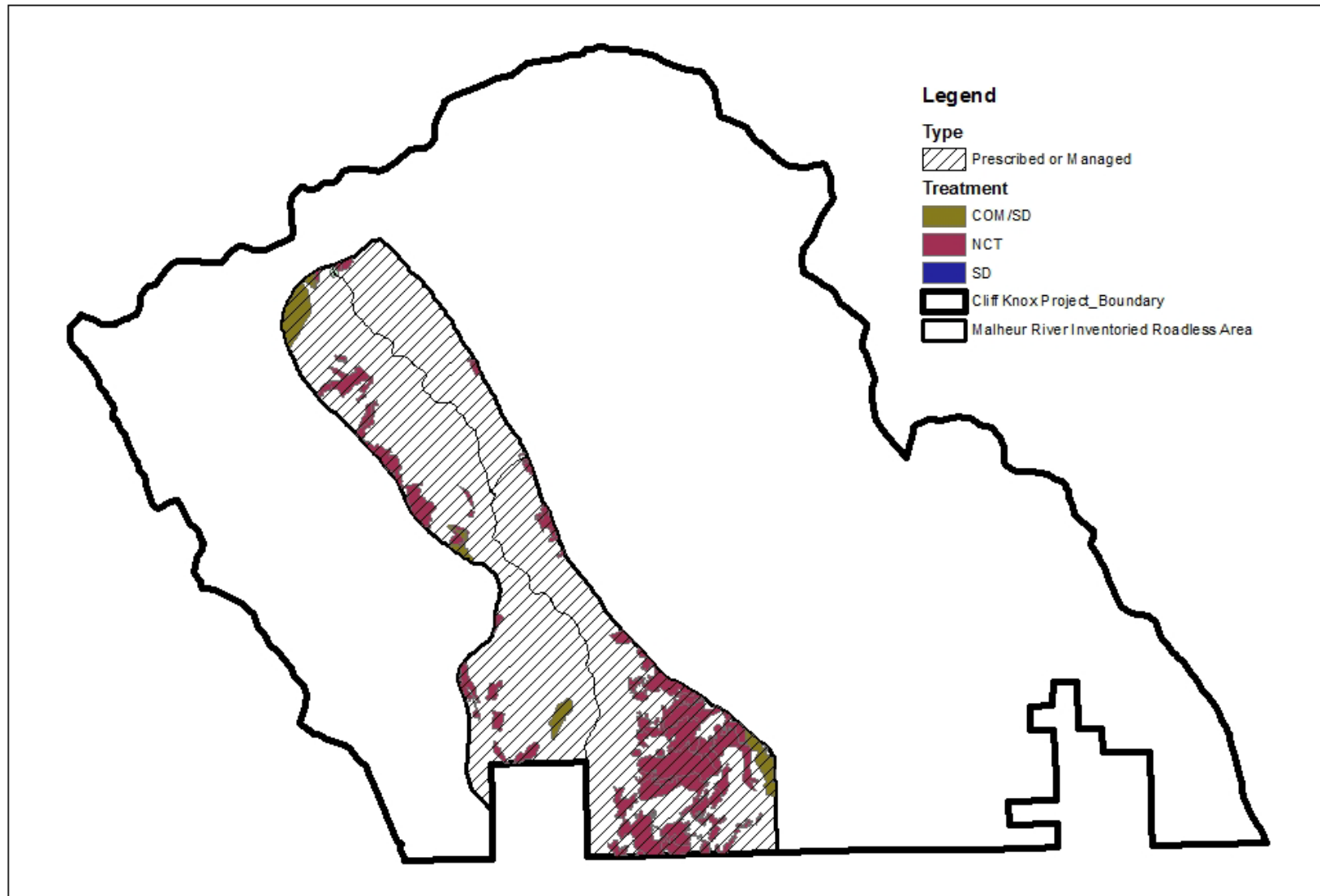


Figure 2. Cliff Knox Project Alternative 2 within Malheur River Inventoried Roadless Area**Figure 3. Cliff Knox Project Alternative 3 within Malheur River Inventoried Roadless Area**

