North Red Mountain Forest Health and Fuels Reduction

EA # DOI-BLM-CA-N030-2020-0015-EA

U.S. Department of the Interior
Bureau of Land Management (BLM)
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1. Introduction

Background and Setting

The Arcata Field Office of the Bureau of Land Management, in close consultation with neighboring private landowners and local cooperators, has identified an opportunity to develop strategic treatments to improve forest health and reduce hazardous fuels in the area of North Red Mountain. The Red Mountain area has experienced large fires in the past, most recently the Noble (2006) and Red Mountain (2008) Fires.

In the winter of 2019-2020, BLM forest and fire management staff held a series of meeting with members of the public, representatives from the local resource conservation district, and the Piercy Volunteer Fire Department (VFD) to develop treatments that were strategic in nature and could be later expanded on to adject private lands to reduce the risk to communities and natural resources in the area around Red Mountain.

Purpose and Need for Action and Decision to be Made

Purpose and Need for Action

The purpose of the "Red Mountain Forest Health and Shaded Fuel Break" is to decrease the severity of wildfire, help protect the communities surrounding the North Red Mountain area from wildfire, and protect the communities of southern Humboldt County by fostering forest health and allowing for safe firefighter access and residential evacuations during a wildfire.

There is an urgent need for the BLM to remove hazards to people and critical infrastructure associated with dead and dying trees, overly dense stands of timber and excess fuel loading on BLM-managed public lands within the North Red Mountain area. There is a long-term need to manage vegetation adjacent to critical infrastructure to reduce tree and shrub densities, fuel loads, and protect the largest healthiest trees to minimize future tree mortality from drought, insects, disease, and fire.

Density management studies and principles of ecosystem restoration support the need for promoting a healthy forest and woodland structure that retains large trees, protects species diversity, returns the role of fire, and includes small and mid-sized trees for wildlife habitat (Oliver et al. 1996; Rambo & North 2009). This can be accomplished by removing the excess trees and shrubs that can carry high severity fire into the canopy of the overstory. In an addition, development of a system of fuel breaks can help protect communities and allow for safe firefighter access and residential evacuation during a wildfire.

Decision to be Made

The decision to be made is to how best to address the need to reduce fuels and increase community and firefighter safety in the North Red Mountain area. If the proposed action

is not selected, the No Action Alternative (continue with existing management) would be implemented.

Conformance with Land Use Plan

LUP Name: Arcata Planning Area Resource Management Plan (RMP; USDI-BLM 1996)

The proposed action is in conformance with the RMP which identifies the following management objectives for the Red Mountain Management Area:
"Employ a concept/strategy of ecosystem management that includes late-successional/ northern spotted owl core habitat" which includes the identification of "opportunities to re-create, to the extent possible, the structural and compositional features of late successional forests…through silviculture" (RMP; USDI-BLM 1996).

Relationship to Statutes, Regulations or Other Plans

This document tiers off the RMP and is in conformance with the Federal Land Policy and Management Act of 1976 and the National Environmental Policy Act (NEPA) of 1969.

North Red Mountain is identified with an LSR land use allocation under the Northwest Forest Plan Record of Decision (USDA-USDI 1994); management objectives and actions must be implemented in a manner that is in conformance to the standards and guidelines of this plan. Furthermore, the proposed action is consistent with the South Fork Eel River Late Successional Reserve Assessment, which includes the North Red Mountain area. The assessment emphasizes the role of multi-stage thinning treatments to accelerate late-seral stand characteristics and identifies the North Red Mountain area as "one of the best opportunities in the LSR to increase stands with old-growth characteristics" through the use of silvicultural treatments (USDI-BLM 2000).

The proposed action is consistent with Standards and Guidelines for the Management of Habitat for Late-Successional and Old-Growth Forests Related Species within the Range of the Northern Spotted Owl (NSO) as stated in the Northwest Forest Plan. The plan addresses the need for silvicultural activities as permitted in the western and eastern portions of the northern spotted owl's range west of the Cascades as follows: **"**Thinning (pre-commercial and commercial) may occur in stands up to 80 years old regardless of the origin of the stands" (USDA-USDI 1994).

Projects proposed on lands managed under the Northwest Forest Plan (USDI 1994) are subject to the survey and management standards and guidelines in the Survey and Manage Record of Decision (USDA-USI 2001), as modified, and consistent with the 2006 Northwest Ecosystem Alliance v. Rey, Case No.04-844 exemptions. Survey requirement exemptions apply for this project as it meets Pechman exemption a. thinning projects in stands younger than 80 years old, and, d. the portions of the project involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning stands younger than 80 years old under subparagraph a. of this paragraph.

All public lands affected by an EA require an evaluation of wilderness character. A Wilderness Characteristics Inventory was completed in 2016 (CA-330-02).

Scoping and Issues

This project was scoped internally to the Arcata Field Office at a staff NEPA meeting held on March 2nd, 2020. Resource specialists indicated on a scoping sheet if they would have input to the EA describing effects to their resource area. Wildlife concerns included NSO and habitat, potential marbled murrelet habitat, nearby potential California condor introduction, as well as numerous common mammal, avian, and pollinator species. Potential riparian habitat and water quality concerns were also identified, and fish habitat was considered. Changes to forest structure and composition as well as changes to fuel loadings and fire behavior were considered, as well as potential air quality impacts. Impacts to soils in the area in the form of erosion and sediment transport were examined. Vegetation concerns included impacts to common plant species and potential introduction of non-native or invasive species, as well as an analysis to identify any potential impacts to serpentine grasslands and other threatened or endangered species in the area. Impacts to recreation opportunities in the form of wilderness access were examined as well as any visual impacts were considered. Potential issues concerning existing archeological sites and tribal concerns were also examined.

2. Proposed Action and Alternatives

Proposed Action

Vegetation and Forest Management

The Proposed Action includes a full suite of treatments, such as dead and dying tree removal, vegetation management, prescribed fire using a range of tools (e.g., manual felling, pile burning, understory burning, mechanical treatments, mastication, etc.) and some associated temporary infrastructure (i.e., landing areas, temporary roads).

The project would occur on approximately 997 BLM managed lands including acres (Appendix A). The proposed action would include the removal and/or modification of trees and shrubs using tracked equipment, hand crews, chippers and prescribed burning along roads and strategic ridgelines as shown in the map in Appendix A. Treatments would prioritize the removal of dead, decadent, damaged, or over-stocked stands of trees and shrubs. Treatments to live shrub stands and understory trees may also include limbing and pruning (up to the maximum reach of cutting tools). In open woodland areas, shrubs and other ladder fuels would be removed. In young and mid-sized stands (less than 21 inches average DBH), post treatment canopy closure would be left at greater than 40 percent. Some mature stands trees (greater than 21 inches average DBH) would be selectively thinned to meet forest health goals leaving a post treatment canopy closure greater than 60 percent.

During the removal phase, the BLM would retain down wood to meet key wildlife habitat values when possible and would only remove excess wood to prevent fuel loading. In

some situations, especially areas with high tree densities, these actions may cause damage to understory vegetation or residual live vegetation. In those situations, the BLM may address that damage by conducting subsequent or concurrent vegetation management of the remaining green trees in order to address the need to maintain or improve tree health and forest structure. Vegetation management is discussed below.

Project Design Features

Incorporation of Project Design Features (PDFs) is integral to minimize environmental effects of project activities. The proposed action will utilize PDFs, as applicable to the site-specific conditions. For example, treatments in Threatened and Endangered Northern Spotted Owl habitat will be designed according to PDF WILD-7 to avoid adverse impacts to this species.

As part of adaptive management, PDFs may be modified in the future to further reduce environmental effects and result in a lower level of effects than disclosed in this EA. A complete set of PDFs is presented in Appendix B.

Specific Management Actions

Overall Vegetation Management

Vegetation management differs from hazard removal by allowing for the thinning of trees that are not defined as dead or dying. Vegetation management also includes reducing shrub densities and reducing fuel loading through removal and/or prescribed fire. Vegetation management prescriptions would be based on the vegetation community and the treatment objectives. All treatments would be designed to provide healthy, structurally complex forests and functional plant communities that would provide for species conservation and forest and woodland health, while minimizing future hazards (either to safety, infrastructure, or ignition risk of wildfires). Heavy equipment, including feller-bunchers, masticators, and tracked chippers, will be used where slope and soil conditions permit, generally slopes <35-45% depending on equipment. Steeper slopes where equipment cannot be used will be thinned by hand crews using chainsaws. Cut material will either be piled and covered for later burning or carried to a tracked chipper and chipped. Additional specific management actions, detailed in the next three sections, will be utilized depending on the area and type of vegetation (Figure 1). Further site-specific vegetation management prescriptions will be developed at implementation to address BLM plant community goals and take into account anticipated vegetation responses based on location specific factors such as landscape position, slope, aspect, soil types, and anticipated climate change. All treatments are limited to areas shown in the map (Appendix A). All prescriptions would adhere to the PDFs listed in Appendix B.

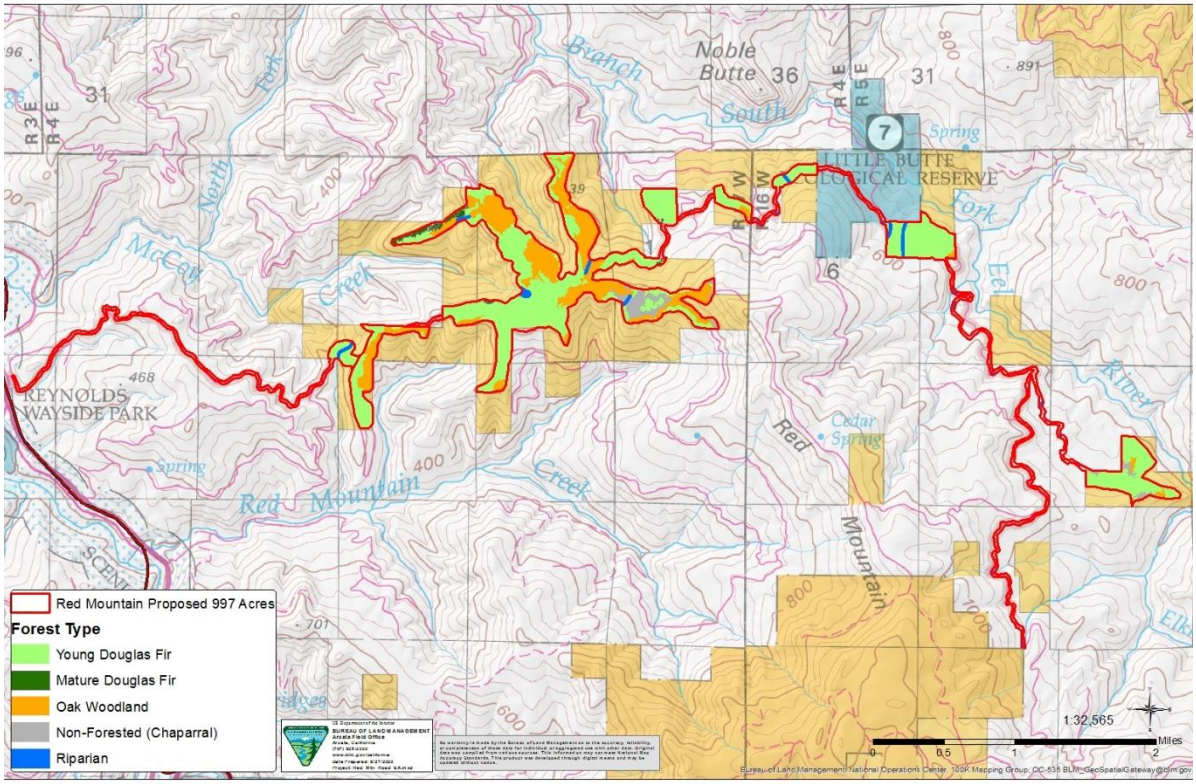

Figure 1. Approximate forest vegetation types within the project area based on CalVeg GIS data. The four forest types shown here have additional unique proposed management actions based on the stand type.

Forest Vegetation Management

Stand density, structure (vertical and horizontal), and composition are three characteristics typically manipulated in vegetative treatments to restore forest stands. Density and composition affect individual tree growth, health, and resistance to drought and disease. High density stands would be thinned mainly in the mid and lower tree layers. Some codominant/dominant trees may also be removed to meet stand heterogeneity objectives described below. Variation, arrangement, and intensity of thinning levels would be applied by carefully considering the age and developmental trajectory of the stand. For example:

1. Young and mid-sized stands (e.g., less than 21 inches average diameter breast height [dbh]) would be moderately thinned to accelerate the growth of the remaining trees, thus developing them into structurally diverse, more open stands dominated by large trees that are more resilient to fire, insects, disease, wind, etc. Post-treatment canopy closure of young and mid-sized stands would be greater than 40 percent.
2. Mature-sized stands (greater than 21 inches average dbh) would be lightly thinned to reduce fuel loads and protect the large overstory tree layer from stand replacing fire. Post-treatment canopy closure of mature sized stands would be greater than 60 percent.

The treatments would be done with the following objectives:

- Develop multi-storied stands through cultivation of both shade-tolerant and shade-intolerant species including hardwoods. Maintain a diversity of tree and shrub species.
- Develop spatial heterogeneity (fine-scale mosaic) through variable density thinning that includes a mixture of small gaps (less than 0.25-acre openings) to provide early-seral plant, fungal, and wildlife habitat.
- Decrease fuel continuity to reduce risk of large-scale fire event.
- Design treatments to prevent direct and indirect impacts to federally listed and BLM sensitive species.
- Reduce potential for nonnative plant encroachment.
- Create vertical and horizontal structural diversity that will benefit a variety of wildlife and botanical species.

Woodland Vegetation Management

Oak woodlands provide habitat for wildlife and pollinators, add landscape complexity, provide gaps that impede the spread of fire, and often provide a transition between forests and shrub/grass communities (Holland 1988). A broad range of unique stand structures and habitat types are apparent in California oak ecosystems and each requires different management. Some stands are single stemmed trees with broad canopies that are widely spaced (savannah), and others are more densely spaced, forming continuous canopies of single and multiple stemmed oaks (woodland). Oak stands that were historically dominated by white and/or black oak but now have encroachment by young conifers, young oaks, other hardwoods, or shrubs would be treated to restore historical stand densities and stand structures.

The purpose of these treatments is to improve stand growth and maintain health and vigor of existing trees by reducing moisture stress, improving structural diversity, and reintroducing fire as an ecological process. The treatments would be done with the following objectives:

- Reduce conifers and woody shrubs in areas dominated by large oaks.
- Reduce stand basal area to historic (if known) or the older cohort stand density, while retaining some younger oaks for recruitment.
- Improve habitat conditions for specific neotropical migrant birds and woodpeckers, and in some areas forage conditions for deer and elk.
- In areas where conifers are natural associates within oak woodlands, leave a wide spacing (less than 10 trees/acre) of recruitment age conifers with special consideration for ponderosa pine and sugar pine.
- Retain oaks in all age/size categories, including seedlings/saplings.
- Retain legacy conifers.
- Retain down wood, snags, and other unique legacy features.
- Restore fuel loading and arrangement to levels characteristic of low- and mixed-severity fire regimes as appropriate for the site, topography, and adjacent stand conditions.
- Decrease fuel continuity to reduce risk of large-scale fire.

- Reduce nonnative vegetation and promote fire-dependent species regeneration through prescribed fire.
- Reduce stand densities to promote shrub and herbaceous species diversity.
- Reduce potential for nonnative plant invasion and spread.
- Design treatments to prevent direct and indirect impacts to federally listed and BLM sensitive species.

Riparian Vegetation Management

When the treatment area occurs within 50 feet of ephemeral and intermittent streams and 150 feet of perennial streams, vegetation management will be designed to meet the following objectives:

- Maintain and restore physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
- Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.
- Maintain and restore water quality to meet objectives (criteria) and numeric and qualitative threshold standards established by the US EPA and Regional Water Quality Control Boards for beneficial uses designated for specific water bodies in the project area or downstream of the project area.
- Maintain and restore the sediment regime under which aquatic ecosystems evolved, including the timing, volume, rate, and character of sediment input, storage, and transport.
- Maintain and restore the species composition and structural diversity of plant communities in riparian areas, vernal pools, and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to support amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.
- Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

PDFs will be used to amend harvest prescriptions within riparian areas that intersect the proposed treatment area, including use of water bars, equipment exclusion zones within 50 feet of ephemeral and intermittent streams and 150 feet of perennial streams, limiting thinning of riparian vegetation, and restricting pile construction zones within 50 feet of ephemeral and intermittent streams and 100 feet of perennial streams. These and additional riparian protection PDFs are described in detail in Appendix B.

Prescribed Fire

Two forms of prescribed fire, pile burning and understory burning are proposed. The use of prescribed fire depends upon a wide range of variables and is specific to each situation and plant community. A written, approved Prescribed Fire Burn Plan would be completed prior to ignition of a prescribed fire. Prescribed fire can only be used within the mapped project boundary. The majority of burning under this EA is likely to be pile burning. Prescribed fire techniques are described in detail in Appendix B.

Access for Treatments

In order to facilitate the removal of wood products (e.g., logs, firewood, biomass), a suite of options are proposed to provide access, while minimizing new disturbance, correcting poor road drainage, reducing compaction, revegetating disturbed areas, and reducing current and future erosion on roads and landings. Only temporary roads would be established; no permanent new road construction is proposed. No new temporary roads would be constructed in designated critical habitat as per the species-specific PDFs as described in Appendix B. Further, no new culverts or culvert replacements are proposed, and any culvert replacement needed would require preparation of additional NEPA-compliant documentation prior to being authorized, unless such activities are allowed in conformance with established RMPs or other previously prepared NEPA documents. Best Management Practices for roads and landings used for the removal of wood products are described in detail in Appendix B.

Maintenance of Treatment Areas

Treatment areas may need future maintenance to maintain the effectiveness of the original implementation. All proposed actions would be further authorized for maintenance. Before maintenance treatment is conducted, coordination with BLM resource specialists will occur so impacts to resources can be mitigated. No methods beyond those described in this project description will be utilized. Sensitive surface and sub-surface resources should be re- flagged as part of planning for maintenance treatments.

Alternative 1 (No Action)

Vegetation Management (Including Forest Management)

Under this alternative, no vegetation management treatments would be conducted in the North Red Mountain BLM parcel.

Fire Management

Under the No Action Alternative, fuels reduction activities would not occur.

3. Affected Environment

Wildlife including Threatened and Endangered Species

The project area is home to many terrestrial wildlife species that are typical of mixed hardwoods habitat types in the region. Mammals such as black Douglas squirrel (*Tamiasciurus douglasii*), western grey squirrel (*Sciurus griseus*), spotted skunk (*Spilogale gracilis*) and non-forest obligated generalist species such as grey fox (*Urocyon cinereoargenteus*) are present in the area. Extensive remote camera surveys indicate the area contains a healthy population of black bears (*Ursus americanus*) and black-tailed deer (*Odocoileus hemionus*). Mountain lions (*Felis concolor*) and bobcat (*Lynx rufus*) have been observed by BLM staff at or near the project location.

Avian species observed in the area include Stellar's jay (*Cyanocitta stellari*), California quail (*Callipepla californica*), ruffed grouse (*Bonansa umbellus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), acorn woodpeckers (*Melanerpes formicivorous*), pileated woodpeckers (*Dryocopus pileatus*), northern flicker (*Colaptes auratus*), yellow-rumped warblers (*Denroica coronata*), varied thrush (*Ixoreus naevius*), American robin (*Turdus migratorius*), dark-eyed Oregon junco (*Junco hyemalis*), and a variety of sparrow species. Flocks of band-tailed pigeons (*Columba fasciata*) are observed at the edges of clearings. White breasted nuthatches (*Sitta carolinensis*) can be observed at the wooded edges of prairies along with bushtit (*Psaltriparus minimus*), oak titmouse (*Baeolophus inoratus*), and Bewick's wren (*Thryomanes bewickii*). Brown creepers (*Certhia Americana*) can be observed in areas of larger trees. Chestnut-backed chickadees (*Poecile rufescens*) are found throughout the area.

According to the CDFW California Natural Diversity Database, RAREFIND, rare pollinator species that have historical observation records in the area (1968-1969) include western bumble bee (*Bombus occidentalis*), a candidate for state listing; and obscure bumble bee, (*Bombus caliginosus*). Both western and obscure bumble bees are classified as S1 ranked, or critically imperiled. Critically imperiled in the state means that they are extremely rare (often 5 or fewer occurrences) or there is some factor(s) as very steep declines making it especially vulnerable to extirpation in the state. It is thought that their populations have declined precipitously due to disease.

The Red Mountain Road Corridor provides suitable habitat for northern spotted owls (*Strix caurina occidentalis*) (NSO), a federally threatened species, and the project passes through several occupied activity centers. Surveys in recent years have found pairs and individuals on BLM managed areas of the project. The most consistent location is in the McCoy Creek area which has a large area of suitable habitat including nesting/ roosting habitat. Most of the other areas where NSO have been located are smaller stands of second growth timber bordering oak woodlands. The NSO in these areas are believed to be young birds dispersing or prospecting new areas as they are found infrequently, and the individuals found in those areas appear to have not been habituated to monitoring. Surveys completed in 2019 on the privately owned portions of the project were negative.

The project area lies within designated critical habitat for NSO. All portions of the project area containing suitable habitat are considered occupied with exception of the privately owned sections. Due to Covid-19 minimal surveys were conducted.

There is a reasonable chance that federally endangered California condors (*Gymnogyps californicus*) will be reintroduced into the region during the implementation phase of the project. The current reintroduction plan is to release the condors at Redwood National Park near Orick, CA. The potential release site is approximately 65 miles north of the King Range NCA. Condors can easily travel more than 65 miles in a day.

Although the project is within marbled murrelet (*Brachyramphus marmoratus)* designated critical habitat, trees in the project area do not have the horizontal limb

structure to support a nesting platform for marbled murrelets (MAMU). Extensive surveys in the 1990s confirmed the absence of marbled murrelets in North Red Mountain.

Fish and Essential Fish Habitat

The project is located in the South Fork Eel River watershed, which supports populations of the California Coastal Chinook salmon Evolutionarily Significant Unit (ESU), the Southern Oregon-Northern California Coast coho salmon ESU, and the Northern California steelhead Distinct Population Segment (DPS). All are listed as "Threatened" under the federal Endangered Species Act. Coho salmon are not known to occupy streams within the project area, but Chinook salmon and steelhead may occur within the vicinity of project activities. The nearest designated critical habitat for each species occurs approximately 350 feet downslope of the project area in the mainstem East Branch South Fork Eel River.

Red Mountain Road traverses the McCoy Creek, Red Mountain Creek, and East Branch South Fork Eel River sub-watersheds in the larger South Fork Eel River watershed. The large majority of the road length and vegetation treatment areas lie within the East Branch South Fork Eel River sub-watershed. The East Branch South Fork Eel River provides potential spawning and rearing habitat for all three listed salmonids. No recent summer water temperature data is known to exist for streams in the project area, but the USFS NorWeST temperature model (Isaak et al. 2017) suggests the small non-fish-bearing tributaries within the project area provide a source of cold water (14-16 °C) compared to the warmer (18-20 °C) rearing habitat downstream in the South Fork Eel River and East Branch South Fork Eel River.

No Essential Fish Habitat occurs within the project area. However, the East Branch South Fork Eel River, approximately 350-ft downslope from the nearest project activity, is Essential Fish Habitat for Chinook and coho salmon.

Riparian

Portions of the project area are within riparian habitat associated with small intermittent tributaries of the East Branch South Fork Eel River. Riparian areas within the project area provide food resources for the aquatic ecosystem, contribute woody vegetation for instream habitat functions, buffer sediment supply, provide shade and thermal buffering to the channel, and provide bank and channel stability. A mix of Douglas fir, red alder, and willows characterize the riparian vegetation within the project area.

Water Quality

The South Fork Eel River watershed is listed as both sediment and temperature impaired under section 303(d) of the Clean Water Act. The primary cause of each listing was the excessive sediment delivery from land-use practices (e.g., logging, road building), which resulted in widened and shallowed streams.

Forest Management

In general, northwestern California is characterized by highly productive forest sites. Much of the project area is dominated by young to mid-age Douglas-fir-mixed hardwood stands comprised of a single story and a dense, closed canopy. These stands contain a mix of medium (<20" dbh) to pole size (<10" dbh) Douglas-fir along with smaller diameter (<15" dbh) hardwoods, predominately tanoak with a lesser component of madrone. Widespread areas of dense small diameter tanoak stands are found throughout the project area, especially in the Noble Fire scar, which consists of very dense tanoak regeneration. Some pockets of mature, multi-storied and multi-aged, Douglas-fir dominated stands are located mostly on northwestern slopes in the western side of the project area. Small sections of open, white and/or black oak woodlands as well as chaparral and scrub oak woodlands are found across the project area.

Fire and Fuels Management

The forest/woodland types located within the project can be described as mostly California Mixed Evergreen with some California Oak Woodlands. These forest types provide a frame of reference to describe forest composition and the role wildfire and other disturbances played in the ecosystem located within the project area.

The forest types located within the project area historically saw frequent wildfire (as often as every three years and up to every thirty years), with low to moderate severity fires. This means the forests and woodlands located within the project would usually have low severity fire return every decade, with fire spreading mostly on the surface of the forest floor. This type of fire would result in little to no mortality of the overstory vegetation and would generally consume a significant amount of the woody surface fuels, decreasing the severity of future fires on the landscape. As with all fire prone forest types, some isolated areas (drainages, previously disturbed sites, areas of blowdown, etc.) would burn with moderate severity, mostly surface fire (90-95%) with small groups of trees torching and short duration crown fires (less than 10%). This mixed severity fire behavior would result in areas of high overstory tree mortality and a transition to early successional classes.

The composition and structure of the forest lands within the project area have been heavily modified by fire suppression and timber production activities resulting in fewer fire tolerant older trees, forests with multiple canopy layers, high surface woody fuel loading, and stands that are highly susceptible to stand-replacement wildfires and other epidemics (Franklin and Johnson 2012). Land Fire, an application used to predict fire severity and behavior, calculates that at least 25% of the project area could be expected to burn with passive crown fire behavior (Figure 2). Crown fire of any type leads to difficulty controlling wildfire and significantly impacts all resources within the project area. After a crown fire, the land returns to an early seral stage dominated by dense hardwoods and shrubs and has abnormally high surface and ground fuel loads in the form of fallen snags and limb wood from fire-killed trees. Due to these conditions, post-crown fire management is very difficult, especially over large areas as is predicted by Land Fire under current conditions in the project area. This process was observed in the summer of 2020 in the Noble Fire footprint where a large area within the project area has been

turned into an overly dense, hardwood dominated vegetation type with very high levels of woody fuels.

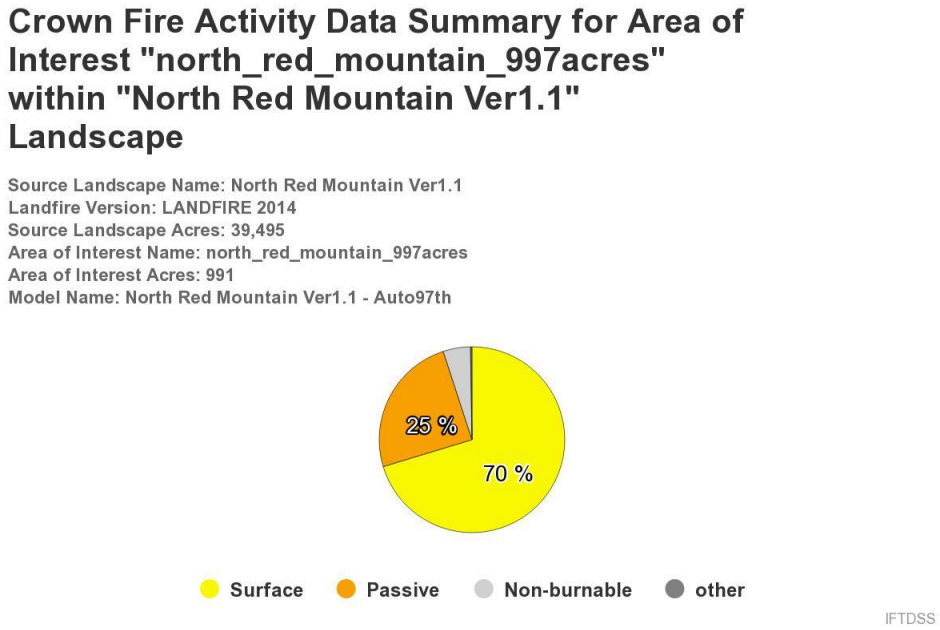

Figure 2. Projected percentage of the project area experiencing passive crown fire and surface fire under current conditions based on Landfire crown fire calculations.

In summary, the vegetation within the project area has become much less resilient to fire, and due to lack of fire and other disturbances, has much higher accumulations of woody fuels, greatly increasing the severity and intensity expected in a wildfire. Historically, this area saw frequent wildfire, which helped to minimize fire severity and its impact to the land. Decades of fire exclusion have allowed for heavy accumulations of woody fuel, greatly increasing predicted fire severity from mostly beneficial to its current condition where control of wildfire will be very difficult, the potential spatial footprint of the fire will continue to increase and the effects of wildfire on the land may be very harmful and difficult to repair.

Air Quality

The project area is rated under the North Coast Air Quality Management District (NCAQMD). At the current time, NCAQMD air is generally considered very good and pollutant levels are regularly below National Ambient Air Quality (NAAQ) violation levels. Large fires that have occurred in adjacent watersheds have resulted in numerous air quality problems. Summer fire weather conditions frequently include long periods of stable air and inversion layers that prevent smoke from being dispersed when it is generated.

Soils and Geology

Geologically, the project area lies within the coastal and central belts of the Franciscan formation (McLaughlin et al. 2000). Rocks in this zone are largely sedimentary with minor components of igneous and metamorphic rocks. Landscapes developed on the central belt Franciscan terrain are often notable by the presence of massive earthflow

complexes with oak woodlands and grasslands being common. The eastern portions of the project area, south of Noble Butte, are dominated by such landforms and vegetation. Many of the deep-seated slides along the eastern project area are now relatively dormant with the resulting benched topography hosting mature conifer forests which belie the catastrophic movements this landscape has endured over the recent geologic past. In contrast, the coastal belt topography in the project area is dominated more by shallow landslide processes. Road cut slopes in argillaceous turbidite beds are especially prone to shallow slides and ravelling. In addition, the overall erosive nature of the landscape is prone to delivering deleterious amounts of sediment to area watercourses. Several regulatory and policy guidelines have identified road-related erosion as a primary source of this sediment.

Vegetation including Threatened and Endangered Plants

Common, early to mid-mature, Douglas-fir-tanoak-mixed hardwood forest and California chaparral shrub stands dominate the proposed action area. California annual and mixed, semi-natural grasslands occur in a limited, patchy fashion throughout; and oak woodlands (*Quercus* spps.) are also present. One serpentine grassland (T.24N, R16W, Section 9) is dominated by Idaho fescue (*Festuca idahohensis*) and herbs typical of serpentine influenced soils, such as Wailaki lomatium (*Lomatium kogholiini*), and lace fern (*Aspitdotus densa*).

State or Federal species listed as endangered, candidate or are species of concern, that are associated with the ultramafic soils that occur in the broader vicinity of this proposed action area are outside the area of direct or indirect impact and are not affected by this project (Table 1). The serpentine grassland referenced above in Section 9 was surveyed June 17, 2020 and does not contain rare or endangered plants. Plant species that occur on soils of sedimentary origin, or ultramafic soil types with other rarity status, such as BLM Sensitive, State, California Native Plant Society (CNPS), or Northwest Forest Plan Survey and Manage species with known sites in the project area are shown in Tables 2 and 3, respectively.

With respect to Survey and Manage requirements, any stands or individual trees not meeting Judge Pechman exemptions are subject to compliance with the full species list as of the 2003 annual species review. However, the North Red Mountain Forest Health Fuels Reduction Project, in consideration of Judge Pechman's October 11, 2006, order (below), meets exemptions a and d and therefore no new surveys are required.

Judge Pechman's Order from October 11, 2006 directs:
"Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

a. Thinning projects in stands younger than 80 years old;
b. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;

c. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and
d. The portions of projects involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph."

Table 1. Federal or state listed species in the greater project vicinity that occur on ultramafic soils, but do not occur within the proposed project area(s).

Scientific name	Common name	State ESA	Federal ESA
Arabis mcdonaldiana	McDonald's rockcress	Endangered	Endangered
Eriogonum kelloggii	Kellogg's buckwheat	Endangered	Species of Concern
Sedum laxum ssp. eastwoodiae	Red Mountain stonecrop		Species of Concern
Silene campanulata ssp. campantulata	Red Mountain catchfly	Endangered	

Table 2. BLM Sensitive and California Native Plant Society (CNPS) ranked species or California Sensitive Natural Communities that are known to occur both in the proposed project quadrangle (Noble Butte), and on ultrmafic, or sedimentary, non-ultramafic soils.

Scientific name	Common name	State rank	CNPS rank	BLM rank
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	S2		Sensitive
Ceanothus foliosus var. vineatus	Vine hill ceanothus	S1	1B.1	Sensitive
Coptis lacinata	Oregon goldthread	S3	4.2	
Erythronium revolutum	Coast fawn lily	S3	2B.2	
Gentiana setigera	Mendocino gentian	S2		Sensitive
Northern Interior Cypress Forest		S2.2		
Piperia candida	White-flowered orchid	S3	1B.2	Sensitive

Usnea longissima	Methuselah's beard lichen		4.2	
Upland Douglas fir forest		S3.1		

Table 3. Northwest Forest Plan Survey and Manage species with known sites from long-term strategic survey permanent plot monitoring in the South Fork Eel Late Seral Reserve (LSR) in or near the proposed project area.

Scientific Name	S&M Category ASR 2003 list	Permanent Plot ID(s)
Chalciporus piperatus	D	NB
Clavariadelphus occidentalis	B	SSC
Cantharellus subalbidus	D	SSC
Galerina cerina	B	NB, BR1
Phaecollybia californica	E	OD
Phaecollybia olivacea	B	OD

Invasive, Non-Native Species

French broom (*Genista monspessulana*) and Scotch broom (*Cytisus scoparius*) are upright, evergreen, and invasive, perennial shrubs that produce prolific amounts of long-lived seed. Seeds mature in pods from June and July. Seeds remain viable in the soil from five years to decades. One medium-sized shrub can produce over 12,000 seeds per year. Seed banks have been found to contain over 2,000 seeds per square foot. French and Scotch broom shrubs are common in disturbed places, such as riverbanks, road cuts, clearcuts within forested settings, and easily colonizes undisturbed grassland and open canopy forest (Bossard et al. 2000). French and Scotch broom burns readily and carries fire to the tree canopy, increasing both the frequency and intensity of fires (Parsons 1992). Infestations of broom degrade the quality of habitat for wildlife by displacing native forage species and changing microclimate conditions near the ground surface. The first two miles of Red Mountain Road are infested along the roadsides. Over the past several years, manual eradication efforts in the spring have reduced cover and new contributions of seed to the soil seed bank, although annual seed bank flushing recurs.

A 713-acre wildfire occurred in the project area in the fall of 2006. The area was monitored and treated from 2007 and 2009 through early detection and rapid response protocols following the fire. Approximately 5.42 miles of dozer line were also surveyed. Incidental weeds that were discovered and eradicated include yellow star thistle (*Centaurea solstitalis*), bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnostachys*), and fennel (*Foeniculum vulgare*).

Over the years of monitoring, incidental weed infestation sites were relocated, and were found to be free of weeds. Infestation risk decreased as shade increased from native tree and shrub resprouting (Figures 3 and 4) by species including as tan oak (*Lithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*) as well as by native, fire-resilient shrub species such as California coffee berry (*Rhamnus californica*), manzanita (*Arctostaphylos canescens*), yerba santa (*Eriodictyon californica*), golden fleece (*Ericameria arborescens*), gooseberry (*Ribes roezlii*), coyote brush(*Bacharris pilularis*), whitethorn (*Ceanothus incanus*), wavyleaf ceanothus (*Ceanothus foliosus*), and poison oak (*Toxicodendron diversilobum*).

Figure 3. Resprouting of tan oak in severely burned area of 2006 Noble Fire. Native plants (yerba santa, golden fleece, and California coffeeberry) protect majority of ground. Photo taken September 9, 2009.

Figure 4. Trees, shrubs, and shade showing increase following September 2006 Noble Fire. Photo taken September 9, 2009.

Recreation

The proposed project area is open to dispersed recreation including hiking, hunting, dispersed camping and non-motorized use, except along designated vehicle corridors. There are no facilities or installations in the project area. There is no data depicting visitor use levels for the area. Discussions with neighbors and local landowners reveal that the area is used very little by the public. The area is not well marked, the terrain is steep and vegetation is thick, so is not ideal for cross country hiking. At the end of Red Mountain Road is the single access point for the adjacent Red Mountain Wilderness. The access point is difficult to find and heavily grown in with brush.

Visual Resources

An inventory of visual resource scenic quality has been conducted for the project area. Scenic quality classes were assigned to areas with relatively homogeneous landscapes – Class A being the most scenic, Class B somewhat scenic, and Class C unattractive. The project area is mainly class A and B scenic quality, consisting of dense forest stands with small sections of oak woodland and areas of dense low lying brush that offer scenic qualities for the casual observer. The few open forest stands offer opportunities for views of the South Fork Eel River watershed. Activities would retain the landscape's existing character and not attract the attention of the casual observer. Any changes would repeat the basic elements of form, line, color, and texture in the predominant natural features of the characteristic landscape.

Cultural Resources

A review of the cultural literature at the BLM-Arcata Field Office and at the Northwest Information Center at Sonoma State University indicates that there has been much interest and work in the north Red Mountain area for decades. Numerous archaeological surveys have been completed, mainly in advance of timber management (harvest or rehabilitation projects), right-of-way easements, Red Mountain road repairs, and land exchange proposals (Table 4). As a result of the cultural investigation work done thus far within the proposed project area, five archaeological sites have been documented on public land: four pre-Contact lithic scatters and a dual component site with a collapsed historic shed and associated artifacts atop a pre-Contact lithic scatter.

In 2020, small portions of the proposed project area that cross public and private land that have not been previously surveyed were examined for cultural resources. Attempts were made to relocate the known archaeological sites in order to assess current condition and update site documentation.

Table 4. Red Mountain archeological surveys.

Project Title (Within the Proposed APE)	Project No.	Year	Author(s)	Findings
Reconnaissance Level Cultural Inventory of the Red Mountain Road in advance of road repairs	BLM-CA-N030-2018-0004	2018	Kinnear-Ferris, S.	Relocated CA-MEN-1667H
CRI of Red Mountain Road Repairs (EA-AR-98-12)	EA-AR-98-12	1998	Greenway, Marlene	Relocated CA-MEN-1667H
Confidential Archaeological and Historical Resources Survey and Impact Assessment, A Supplemental Report for a THP #1-95-369-MEN	S-33167	1995	Lee, Susan	none
Noble Fire, CA MEU 007298, Cultural Resources Narrative	S-32489	2006	Whatford, J. Charles	none
Archaeological and Historical Resources Survey and Impact Assessment, McCoy Creek THP	S-13655	1992	Munoz, Richard M.	none

Red Mountain Hardwood Conversion Inventory	S-8188	1981	Rumph, Leslie	none
Archaeological Field Examination, Red Mountain Ridge Survey, Mendocino County	S-8056	1984	Francis Berg	none
Archaeological Reconnaissance Report Form: Red Mountain Sale #2 Slash Removal Survey	S-8050	1978	Hinkle, Jerry	none
Class III Inventory of Northwestern CA Timber Tracts within Sustained Yield Unit 13 Del Norte, Humboldt, Trinity and Mendocino Counties	I-98, S-2542	1980	Levulett, Valerie, Talbot Ruhstaller, and Linda Bell	CA-MEN-1666 CA-MEN-1667H CA-MEN-1668 CA-MEN-1669
Archaeological Field Examination Sample Unit Record, Harwood Right-of-Way Survey	S-2798	1979	Rumph, Leslie	none
Archaeological Assessment of the Red Mountain Timber Sale, Mendocino County, CA	S-1065	1975	French, Nancy L	CA-MEN-1104

Overall, these cultural resource investigations provide a context about the pre-Contact and historic use of the area. One finding is that lithic tool making activity occurred in areas where the terrain was more gently sloped and overlooked the Eel River. Waechter (1991) presents several predictive models of site types and locations in the North Coast, and specifically the Red Mountain area. The majority of the models agree that (1) people who lived in the North Coast ranges prior to European American contact lived in permanent or semi-permanent villages, yet at times lived in seasonal camps, (2) base villages were mainly located in flat terrain areas with good sun exposure, near reliable sources of water, and in proximity to food resources, and (3) temporary camps were often located in less desirable locations and used for a particular set of activities.

Recently, Far Western Anthropological Research Group prepared an inductive and deductive approach GIS predictive model as part of the preparation of a broad Class I

Cultural Overview for the Redding and Arcata BLM field offices (King et al. 2016). This predictive model suggests that across the proposed project area there is a normal (or average) probability of finding historic age cultural resources. In terms of pre-Contact age resources, the model reveals a zoned result with most of the project area falling within the low to moderate probability zone, and one small area falling within the high probability zone of encountering resources.

The Red Mountain area lies within the ancestral territory of the Eel River Wailaki, who are, according to some researchers, one of the Southern Athapascan groups who occupied what is now southern Humboldt and northern Mendocino counties. One ethnographer (Gifford 1926) describes the Wailaki as Yukian people who spoke the Athapaskan language. According to early ethnographic reports (e.g. Kroeber 1925), the Wailaki subsisted on salmon runs, by hunting a variety of game animals, and by collecting a variety of plants (seeds, bulbs, and acorns).

The first European Americans to northwest California are thought to be mariners, followed by explorers and fur trappers. The passage of the Homestead Act in 1862 resulted in settlers traveling to northwestern California to claim land. Waechter (2016) describes the years between 1853 and 1865 as being particularly violent. The "Mendocino War" in 1859-1860 resulted in the deaths of hundreds of Yuki and other Native people in the Round Valley vicinity, to the southeast of the current project area. As a consequence, there were sudden, major shifts in settlement from open habitats to remote areas with difficult access. Of particular interest to the current project area is the theory that the "archaeological signature" of these refuges may include habitation sites in remote and inaccessible locations, living spaces that are hidden from view, and sites that contain lithic scatters (including obsidian flakes with hydration readings of less than 1.0 microns) combined with historic artifacts that might represent a refuge site occupied by Native people fleeing the U.S. Army or hostile settlers.

In sum, the proposed project area contains five known archaeological sites that demonstrate limited or seasonal use of the area across time. No new cultural resources were found during the reconnaissance level survey that was conducted in 2020 for the proposed project.

Native American Concerns

BLM invited government-to-government consultation with the Round Valley Indian Tribe about the proposed project by certified letter, dated 3/15/2020. The letter provided a detailed summary about the project and asked the tribe to identify any issues of concern. To date, the tribe has not requested consultation, and no issues of concern have been raised.

4. Environmental Effects – Direct, Indirect and Cumulative

Proposed Action

Terrestrial Wildlife

Direct Effects

Although there are PDFs in place to protect wildlife habitat there will be noise, habitat disturbance and temporary habitat loss for some species. Similar nearby projects have demonstrated that vegetation response occurs within weeks and regrowth should be available as forage and cover within 2-6 months.

Migratory birds will be impacted by the removal of the understory and tree thinning. Songbirds often flock to newly treated areas as insects are displaced by the project become easier prey for several days after the treatment. The period between the flush of insect activity and vegetation regrowth is likely to have reduced foraging opportunities. To help mitigate the diminished foraging pockets and strings of vegetation will be left untreated to provide vertical habitat and habitat connectivity. To protect migratory birds, activities will be minimized during the nesting season.

Approximately 10 percent of piles will be retained during pile burning to provide habitat for ground nesting birds such as California quail and ruffed grouse.

The proposed project will substantially reduce the understory vegetation and partially open up the canopy in treatment areas allowing sunlight to reach the forest floor. As a result, there will be new growth that is more nutritious and palatable for deer, elk, bear, and other species that graze or browse. Areas of undisturbed habitat will remain to provide cover, allow for habitat connectivity, and provide seasonal foraging opportunities.

Removing the understory and opening the canopy will also result in a warmer drier forest floor that may be less suitable for salamanders such as California slender (*Batrachoseps attenuatus*), northwestern salamander (*Ambystoma gracile*), and arboreal salamander (*Aneides lugubris*). Salamanders need cool, moist conditions when above ground. When those conditions are not present, they will go underground until conditions are suitable. Due to the terrain and water quality considerations vegetation in the drainage will be left untreated and provide extensive areas of refuge.

Indirect Effects

Implementation of the proposed action could add additional hunter pressure due to easier movement through the opened forest floor. In addition to increased pressure, hunters may be more successful due to the increased visibility. Increased recreational use also leads to increased traffic on the roads and increased potential for trash which attract ravens and other wildlife.

Threatened or Endangered Wildlife

Direct Effects

Due to the PDFs listed in Appendix B there will no effects on NSO. There is a potential beneficial effect if the treatment prevents a beneficial understory burn from becoming a catastrophic stand replacing fire such as the Noble Fire in 2006 which burned parts of North Red Mountain and much of the South Fork Eel River Wilderness Area. However, it is difficult to quantify events that may not occur and the extent of future wildfire damage cannot be measured.

Indirect Effects

We expect the forest to mature at a more rapid pace as a result of the project and areas will transition from foraging to roosting and nesting habitat decades sooner than if no treatment were to take place. However, the full beneficial effects to NSO will not be realized for several decades. This project does not encompass the entirety or even the majority of any one NSO territory due to the linear nature of the project and the relatively small total acreage. Typical NSO home range size in this area is approximately 560 hectares (Weisel 2015). In addition to the linear nature of the project many parts of the project area do not contain suitable NSO habitat such as oak woodlands, screefields, and areas that burned in the Noble Fire. The Noble Fire however did provide edge habitat that may be suitable foraging habitat in some areas.

Fish, Water Quality, and Riparian Resources

Direct Effects

No project activities will occur in or near streams or riparian habitat; therefore, no direct impacts to these resources are expected.

Indirect Effects

Vegetation management treatments may result in ground disturbance, particularly where heavy equipment would be used to remove biomass and create temporary access routes. Ground disturbance can result in erosion and subsequent sediment delivery to stream channels, which negatively affects water quality and aquatic habitat. However, the proposed operations will primarily use hand crews for treatments, no heavy equipment will operate within 150-ft of the nearby fish-bearing streams, and the proposed project design features (Appendix B) will significantly reduce the magnitude and likelihood of ground disturbance and subsequent sediment runoff. The likelihood of sediment entering stream networks due to these activities is low and the amount of sediment would be negligible. Riparian trees removed will be small and therefore insignificant contributors to stream shade and wood recruitment to streams. The proposed treatments in riparian zones will promote later seral conditions, which will result in a long-term improvement in stream shading and large wood recruitment.

Forest Management

Direct Effects

The proposed action would immediately reduce overall stand density, create heterogeneity, and promote a diversity of age and size classes. This reduction in density would increase resource availability for remaining trees and reduce competition within

the stand. There would be a shift in species composition due to the high percentage of shade intolerant species currently occupying the dense stands. However, this shift in composition would likely result in an immediate increase in species diversity by promoting shade intolerant species regeneration and would restore species compositions closer to what was historically observed in the area. The removal of conifers and woody shrubs from oak woodlands would limit encroachment and help restore the historic composition and structure of these woodlands. Additionally, the removal of conifers will immediately decrease composition and could promote oak regeneration.

Indirect Effects

Overall, the proposed action will decrease the vertical continuity within the stands, decreasing the likelihood of high-severity or crown fires that could replace the stands with brush fields or reset the stands trajectory towards LSR. The treatment will also accelerate the late successional characteristics of the stand and the overall area towards LSR status.

Fire and Fuels Management, including Air Quality

Direct Effects

The proposed action would have numerous positive effects on Fire, Fuels and Air Quality. The primary objectives of the proposed action are the modification of forest stand level tree densities, forest base canopy heights, retaining the most fire resilient trees and the modification of the composition of downed woody fuel loading. These objectives should be seen as the direct effects associated with Fire and Fuels Management. The combination of these direct effects act as the pillars of a proper fuels reduction treatment. First, decreasing tree densities decreases the potential for independent and passive crown fire spread, by decreasing fire line intensities and increasing the wind speed required to sustain crown fire spread. Second, by increasing canopy base heights the fireline intensity required for a surface fire to transition to the forest canopy is increased, greatly decreasing the chance for single and group tree torching. Third, the proposed action will either reduce downed woody fuel loading, or rearrange the fuel loading with a bias for 1 hr. (0-0.25" woody material) and 10 hr. (.25-1" woody material) timelag class material, greatly decreasing rates of spread and intensities (Agee and Skinner 2005).

Based on Land Fire crown fire calculations the proposed action is expected to significantly decrease overall fire behavior, most notably the proportion of fire types predicted. Based on current conditions in the North Red Mountain area, 25% of the project area would see passive crown fire and 70% of the project area would see a surface fire, with the remaining area considered unburnable (roads, rock features, and water ways). When the proposed action is included in fire behavior calculations, all forms of crown fire are eliminated and 95% of the project area is predicted to exhibit only surface fire, with the remaining 5% considered unburnable (Figure 5). The proposed action also shows a significant decrease in flame length. Flame length is an indicator for fire suppression response; it is generally accepted that flame length under four feet allows for direct line construction with firefighters using hand tools, and a high probability of effective wildfire control (limiting size of fire, and impact of suppression activities). When average flame length increases beyond four feet, you must rely on fire engines,

dozers and retardant drops to control the fire and firefighters are less likely to control the fire with direct fire line, oftentimes needing to resort to indirect fire suppression tactics, greatly increasing the size of the wildfire. Under the proposed action it is predicted that 94% of the project area would exhibit flame lengths less than four feet, compared to the no action option where only 71% of the project area would see flame lengths under four feet (Figure 5). This is a significant difference and would greatly decrease resistance to control, decrease the severity and duration of wildfire, and minimize the resource impacts resulting from the suppression activities required of higher complexity wildfire suppression.

Figure 5. Landfire predictions for fire type (top row) and flame length (bottom row) in the project area under current conditions and after implementation of the proposed action.

The proposed action should decrease the size and duration of wildfire by decreasing resistance to control, greatly reducing the amount of material consumed, particulate matter released, and other chemicals released into the airshed surrounding the project area. Impacts to air quality through the implementation of prescribed burning treatments would be mitigated by burning under the direct approval of the North Coast Air Quality Management District.

Indirect Effects

The proposed action would establish a robust containment feature which could be used as a containment feature for wildfires burning outside of the project area, potentially protecting adjacent lands from wildfire impact by decreasing any wildfire resistance to control once it burns into the project area. It may also serve as an anchor point for future

projects to build upon in the future, creating a more fire porous landscape where fire may be able to resume its ecological role on the landscape.

Soils and Geology

Direct Effects

Tracked equipment will be used to implement the proposed action. Limitations on slopes (ME-18), avoidance of riparian areas, and other Mechanized Equipment and Riparian Area PDFs (Appendix B) will reduce the extent and severity of soil disturbance as well as the potential for erosion and sedimentation of adjacent watercourses. Temporary roads used for access into the treatment units would generate sediment where they cross watercourses. Implementation of BMPs and proper decommissioning and closure of the access roads are expected to limit any sediment delivery from treatment areas to the first storms of the wet season as disturbed soils under mulch and below waterbars adjust to seasonally wet conditions. Similarly, given the limitations on equipment in riparian areas, any sediment generation from these areas would be of minor duration and extent, resulting from foot traffic in the area for hand treatments.

Indirect Effects

Based on current vegetative conditions and modeling of treatments, implementation of the proposed action is expected to reduce the severity of wildfire in the area. These expected reductions in fire extent and burn severity will reduce the erosion potential of soils in the project area following a wildfire. Thus, the primary indirect effect of the proposed action will be a reduction in soil erosion following future wildfires.

Vegetation

Direct Effects

The proposed action would remove and/or trample common vegetation in the action area. This effect is short-term in nature, and most plants and their communities will recover over time. Some light gaps created by the removal of dense trees with a canopy closure goal of 40% in the early seral areas would support early successional understory plants. In the mid-mature stands, with a canopy closure goal of 60%, less short-term understory change is expected. These changes are temporal in nature and plant communities consistent with greater forest shade are expected to increase over time.

Increased light supports colonization, flowering, and fruiting of many remaining understory plants. Retained shade would preserve soil moisture and light conditions necessary for other herbs associated with later succession stages of forest development. Overall, the mosaic of forest treatments throughout the proposed action area would provide for a high diversity of plant species and habitat requirements.

While there would be ground disturbance, and increased sunlight exposure in several areas associated with elements contained with the proposed implementation actions, invasive, non-native weeds are not expected to increase. Through inclusion of invasive weed prevention stipulations, PDFs (Appendix B), and the current condition that the proposed action area currently does not contain invasive, non-native species of concern, the risk is minimal. The nearest broom infestation are miles west of the proposed action

area and limited to the roadside. Further, there is an ongoing annual program of early detection and rapid response in this management area that is expected to continue that would address and treat and unexpected introduction of a target, invasive, non-native plant.

Indirect Effects
The proposed action would indirectly support existing plant communities and the current, unassisted pace of successional stand development outside of the proposed action area should the shaded fuel breaks be successful in suppressing the uncontrolled spread of wildfire. Whether or not this is a positive benefit or negative effect depends upon the successional stage of existing vegetation, field fuel moisture, relative air humidity, and wind conditions at the time of wildfire, available resources for suppression actions, and whether the wildlife fire is a cool, hot, or catastrophic stand-replacing type of fire.

Recreation & Visual Resources

Direct Effects
The proposed action would have little effect to recreation. Any vegetation treatments along roads would improve viewsheds and potentially create opportunities for cross country hiking. The Red Mountain Wilderness access point at the end of Red Mountain Road would be more easily located by the public and visitation could potentially become more frequent.

Indirect Effects
During project implementation it is possible that old logging roads and spur roads could be made accessible making illegal Off Highway Vehicle (OHV) use more prevalent. All non-designated roads will be made inaccessible with rocks or logs (ME6). Frequent site monitoring will be required post treatment to address any illegal OHV use or trespass.

Cultural Resources and Native American Religious Concerns

Direct Effects
The proposed project area has been subject to a variety of management proposals over the past few decades, mainly in the form of timber management. Prior to some of this earlier project work, archaeologists were able to identify five archaeological sites within the APE. Attempts to relocate the known five archaeological sites in 1998, 2018, and 2020 have all yielded the same results; that is, the successful relocation of one out of 5 sites.

The current proposed project will involve crews hand-cutting limbs and small diameter trees with little to no ground disturbance. This type of work is evaluated as having little effect on known cultural resources. Even so, in areas where known sites have been documented, a site steward can be on hand in case any cultural materials are revealed.

If any historic, archaeological, or cultural material is discovered during project implementation activities, all work would be temporarily terminated until a qualified archaeologist investigates the site and makes a determination of significance.

There are no known Native American Religious Concerns.

Indirect Effects
There are no known indirect effects. It is believed that some level of forest management has been practiced for much of the time that humans have used the area. Hence, further forest management activities will not affect the physical setting and integrity of the archaeological properties within the Red Mountain area.

There are no known Native American Religious Concerns.

Cumulative Effects of Proposed Action

Terrestrial Wildlife

Assessment Area:
The assessment area includes lands within 0.25 miles of the treatment area.

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Past logging activity undoubtedly supported high number of blacktail deer as there was a continuous supply of new vegetative growth post timber harvests. Most timber harvest now occurs on privately owned managed timber lands. The lack of timber or harvest or other habitat disturbance (natural or manmade) has decreased the palatability of forage in the project area. This project along with similar projects in the region will provide a flush of new vegetative growth in the project area. The project will improve habitat significantly for several years for species that browse on young vegetation. The effects will diminish after 3-5 years if forest floor vegetation is allowed to regrow into a state of decadence.

Threatened or Endangered Wildlife

Assessment Area:
The action area includes all of the lands accessed by Red Mountain Road totaling approximately 9,000 acres bounded by Highway 101 to the west, McCoy Creek to the north, the East Branch of the South Fork Eel River to the east, and Red Mountain Creek to the South. The project passes through up to seven NSO territories the action area will include the territories.

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
The project area has been subject to extensive past logging and wildfire activity that have left few areas with suitable nesting/ roosting habitat. There may be pockets of high-quality nesting habitat in the draws that are adjacent to foraging habitat that make it a viable activity center. The only territory with recent nesting activity is McCoy Creek although it has been several years since the last nest was detected. The remaining NSO territories have not been consistently occupied and pairs have not been detected.

We expect NSO habitat will improve at a rapid pace with the completion of this project due to the accelerated tree growth post treatment. Yet, even with accelerated forest growth, most of the stands in the area are relatively young and will take several decades to become stand with mature characteristics.

This footprint project is not large enough to contribute to a regional level forest health directly, but plan implementation could prevent or mitigate a large high intensity fire that could have regional implications. Together with other similar projects in the King Range NCA and Gilham Butte areas there is reasonable chance that one of the projects will contribute to the containment or lowered intensity of wildfires.

The BLM, non-government organizations, and private landowners in the region have been increasing effort to improve landscape health. Additional proposals are currently underway that, if implemented, would further increase the likelihood of positive outcomes with wildfires.

The total acreage of all the current and proposed projects will exceed 10,000 acres. That much habitat work will contribute to the NSO potential for the region.

Fish, Water Quality, and Riparian Resources

Assessment Area: South Fork Eel River Watershed

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Past impacts to fish, water quality, and riparian resources in the South Fork Eel River watershed are primarily linked to industrial logging and associated road building. Riparian vegetation was destroyed or harvested, and logging activities on unstable hillslopes resulted in an overabundance of sediment delivered to stream channels. These actions diminished water quality and decreased the quantity and quality of habitat for aquatic species.

In general, land management practices in the South Fork Eel River watershed have improved over the past several decades. Improved logging and road building and maintenance practices have reduced sediment inputs both from legacy sources and ongoing road use and riparian areas are protected and are slowly recovering.

The proposed action, considered in context with the past, present, and reasonably foreseeable future actions occurring within the South Fork Eel River watershed, would have negligible short term effects on fish, water quality, and riparian resources, and would promote watershed recovery overall.

Forest Management

Assessment Area: General Red Mountain landscape

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Historic land use in the area has created overstocked, unhealthy forests with a high likelihood of high severity, stand replacing fires. These forests are highly susceptible to disease and pest outbreaks due to increased competition, lack of species diversity, and high densities in similar age classes. The proposed action, along with foreseeable future actions, would increase forest health and diversity within the project area, creating stands that are more resilient to disturbances, including fire and pests, and restoring historic oak

woodlands. Additionally, the proposed action would increase structural heterogeneity, which would continue to promote species diversity into the future, including the continued recruitment of shade tolerant and intolerant species, fire-resistant species, and hardwoods. The conditions created by the proposed action would improve overall forest health while accelerating late successional characteristics of the area.

Across the broader Red Mountain area, the proposed action could help reduce the spread of high severity fire and make fire easier to contain, which would help preserve adjacent stands.

Fire and Fuels Management, including Air Quality

Assessment Area: Cal-Fire Mendocino

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Past fire suppression and timber production activities have combined to create an increase in hazardous fuels on federally managed public lands. A similar pattern has occurred on much of the adjacent private lands. Fire suppression is allowing hazardous fuels to accumulate at an accelerated rate and previously harvested stands frequently exhibit large numbers of stems per acre resulting from re-planting and a lack of management of this unnatural condition.

These activities have resulted in conditions within the project area where high severity fire can be expected, the predicted size of wildfire has dramatically increased, impacts to air quality are high and hazard exposure to firefighting personnel has increased.

By implementing the treatments within the proposed action, we should see a significant decrease in wildfire severity, wildfire should be more easily contained, air quality impacts from wildfire should decrease, and hazard exposure to firefighting personnel should decrease.

Future impacts should be minimal and consist of prescribed fire operations and maintenance treatment to control brush. Impacts to air quality through the implementation of prescribed burning treatments would be mitigated by burning under the direct approval of the North Coast Air Quality Management District.

Soils and Geology

Assessment Area: East Branch South Fork Eel River, McCoy Creek, and Red Mountain Creek watersheds.

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Sedimentation of watercourses is the primary concern related to soils and geology. Roads, historic timber harvesting, landslides and, more recently, unregulated cannabis cultivation have all contributed to excess sediment loads in area watercourses. Against this backdrop, implementation of the proposed action will result in small, localized increases in sediment in the year following operations. This effect will be temporary and

rapidly subside. Meanwhile, the larger effect, dependent on the occurrence of future wildfires in the project area, will be a long-term reduction in fire-related sedimentation across the assessment area.

Vegetation

Assessment Area: Red Mountain, Cedar, and Big Dann Creek Watersheds

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Two fairly recent fires have occurred in the Assessment Area, the Noble Fire in 2006 that burned 1,014 acres; and the Red Mountain fire in 2008, that burned 7,515 acres. The Red Mountain fire was started as a result of lightning, and burned generally as a low heat fire with some hot spots of complete consumption; but generally benefitted forest health and created habitat conditions supporting persistence of rare and endangered herbaceous plants, such as McDonald's rockcress, and Kellogg's buckwheat. Reduction of excessive shading from dense shrub stands and knobcone pine (*Pinus attenuata*) is important for these particular plant communities. Many areas were made more fire tolerant through the fuel reduction/clean-up accomplished by the relatively cool fire. The Noble fire burned fewer acres, and was not a stand-replacing fire; however there were pockets that were very hot with high conifer kill/complete consumption. The fire stimulated early successional shrub species and triggered germination of new conifers. Present conditions in the action area are that overall vegetation persists in a mosaic of early, mid-mature, and late successional units, and that fire, or lack of fire, is likely to have an un-even impact across the landscape in the foreseeable future. Lack of fire for herbaceous plant communities requiring adequate light tends to suffer without fire. Plant communities that are over-stocked or full of dead fuels, suffer with uncontrolled wildfire and can kill trees necessary for plant and animal species needing cooler, moist and shaded conditions. Overall, the proposed action is expected to have a positive impact on forest and shrub community health by allowing for fire to occur where it starts, but allowing for an opportunity to support suppression efforts through a slowdown of its spread via the shaded fuel break system.

Increased spread of invasive, non-native weeds is not an expected impact, so there is no expected cumulative impact.

Recreation

Assessment Area: Humboldt County (northern region)

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Little to no past management activity has occurred in the project area, other than road maintenance. Decreasing hazardous fuels in the area would make recreation safer and more attractive. The area would also become more resilient to potential wildfire caused by recreation activities. Current management of the site will continue including site monitoring and prevention of illegal OHV activities.

Visual Resources

Assessment Area: Management Area Viewshed

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
There would be no cumulative effects to visual resources. The landscape and viewshed of the surrounding area would not be impacted.

Cultural Resources

Assessment Area: Broader Red Mountain area

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Within the assessment area, a variety of human management actions have occurred, with the predominant activity being timber cutting. Road maintenance of the Red Mountain access road has included blading and culvert work. Other management actions include land transfers and right-of-way permitting. In 2018, and in again in 2020, the BLM archaeologist re-located one known site in the Red Mountain area, and within the current APE, that was originally documented in 1979. The other site locations were intensively examined but yielded no evidence of cultural materials. All site locations showed some change from the original site recordation in 1979 due to vegetation growth, natural erosion, and deterioration, but there was no evidence that past management activity had negatively affected the sites. Hence, by adhering to the best management practices and stipulations recommended in this EA, the cumulative effects of past management actions combined with the proposed action are thought to be minimal.

Native American Religious Concerns

Assessment Area: Proposed North Red Mountain Forest Health project area

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
There are no known issues or concerns.

No Action Alternative

Terrestrial Wildlife

The No Action Alternative would leave limited options for treatment of forest stands. Overstocked stands would continue to provide limited habitat for wildlife. In the event of wildfire, the marginal existing wildlife habitat could be completely destroyed. Tanoak is abundant in the area and would continue to produce mast of varying quality and quantity each year.

Threatened or Endangered Wildlife

The No Action Alternative would have minimal impact on NSO. All potential nesting trees would remain intact under this alternative. Second growth stands would continue to mature at slower rate than if they were released by a thinning treatment. The forest would eventually become a mature forest if not catastrophic event were to occur.

Fish, Water Quality, and Riparian Resources

Under the No Action Alternative, fish populations and habitat, water quality, and riparian resources are expected to remain the same or improve at a slow rate. Aquatic habitat

within the South Fork Eel River watershed is in a largely natural, slow state of recovery following excess sediment input from legacy logging operations and roads. In general, current land management is directed towards improving riparian and aquatic habitat conditions. Under the No Action Alternative, there would be no treatment or thinning work, and consequently, no potential for ground disturbance. However, the objective of accelerating stand conditions to late successional forest characteristics would not be achieved, and therefore growth of riparian trees as potential instream wood sources would be inhibited. Also, the number of stems per acre would remain high, which would result in higher transpiration rates and subsequent lower summer stream flows.

Forest Management

Under the No Action Alternative, current species composition would remain unchanged, but forests would remain dense and overstocked and forest health would not improve. Hazardous fuels would not be treated and the likelihood of stand replacing, high severity fire would continue to increase. Oak woodlands would continue to be encroached by conifers and shrubs.

Fire and Fuels Management, including Air Quality

Under the No Action Alternative, fire danger would remain unchanged, and continue to increase. Effective fire suppression would also allow for an already unnatural woody fuel loading to continue to increase, resulting in more frequent wildfire exhibiting high fire intensities, larger spatial footprints and increasing resistance to control. Air Quality would be most likely be affected by higher intensity wildfires that may burn under less desirable smoke dispersal conditions for longer durations.

Soils and Geology

Under the No Action Alternative, the lack of silvicultural treatments would avoid the minor equipment-related ground disturbance. More relevant would be the persistence of hazardous fuels conditions, potentially contributing to catastrophic wildfire occurrence and widespread erosional effects.

Vegetation

Under the No Action Alternative, common vegetation would not be disturbed over the short-term. Localized forest stand improvement within the treatment zones would not occur, and broader, indirect benefits resulting from the development of shaded fuel breaks would not occur. Accelerated development of early seral stands to mid to late forest stand conditions would not occur.

Recreation and Visual Resources

Recreation user groups would be impacted to a minor degree as their access into the dense forest stands would be difficult. No impacts on the area's scenic quality would occur.

Cultural Resources

Under the No Action Alternative, there would be no treatment work, and consequently, no potential for disturbance of cultural resources.

Native American Religious Concerns

Under the No Action Alternative, there would be no treatment work, and consequently, it is anticipated that there would be no Native American Religious Concerns.

Cumulative Effects of No Action

Terrestrial Wildlife

Assessment Area:
The assessment area is all land within 0.25 miles of the project area.

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts

Negative impacts from past land management practices and fire suppression would continue to progress under the No Action Alternative. Past impacts are described in detail under the cumulative effects of the proposed actions.

Under the no action alternative, forest stands would continue developing on a slower trajectory and be at continued risk of catastrophic fire.

Threatened or Endangered Wildlife

Assessment Area:
The action area includes all of the lands accessed by Red Mountain Road totaling approximately 9,000 acres bounded by Highway 101 to the west, McCoy Creek to the north, the East Branch of the South Fork Eel River to the east, and Red Mountain Creek to the South. The project passes through up to seven NSO territories the action area will include the territories.

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Cumulative, past and present impacts are described in detail under the Cumulative Impacts of Proposed Action section.

NSO habitat will continue to improve, at a slower pace, under the no action alternative. The cumulative impacts from this projects and other similar projects as a result of the no action alternative are expected to be minimal. Previously harvested forests in the region frequently were left to grow on their own and as a result are often dominated by residual tan oak and madrone trees. Tan oaks shade the forest floor and shade out young Douglas-fir trees and slowing the regrowth of the stand into a more natural composition of mature forests. The process will continue if the no action alternative is selected.

Fish, Water Quality, and Riparian Resources

Assessment Area: South Fork Eel River Watershed

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Past impacts to fish, water quality, and riparian resources in the South Fork Eel River watershed are primarily linked to industrial logging and associated road building. Riparian vegetation was destroyed or harvested, and logging activities on unstable hillslopes resulted in an overabundance of sediment delivered to stream channels. These actions diminished water quality and decreased the quantity and quality of habitat for aquatic species.

In general, land management practices in the South Fork Eel River watershed have improved over the past several decades. Improved logging and road building and maintenance practices have reduced sediment inputs both from legacy sources and ongoing road use and riparian areas are protected and are slowly recovering.

Under the No Action Alternative, fish populations and habitat, water quality, and riparian resources are expected to remain the same or improve at a slow rate. There would be no treatment or thinning work, and consequently, no potential for ground disturbance. However, the objective of accelerating stand conditions to late successional forest characteristics would not be achieved, and therefore growth of riparian trees as potential instream wood sources would be inhibited. Also, the number of stems per acre would remain high, which would result in high transpiration rates and subsequent lower summer stream flows.

Forest Management

Assessment Area: General Red Mountain landscape

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Under the No Action Alternative, forest health would not improve, and stands would move slowly towards late successional status. Over a long period of time, the stands would thin naturally through stem exclusion, but, given the persistence and continued buildup of hazardous fuels, it is likely that the stands would be replaced by a high severity fire. Oak woodlands would eventually be replaced by conifer and hardwood stands.

Fire and Fuels Management, including Air Quality

Assessment Area: Cal-Fire Mendocino

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
Under the No Action Alternative, the impacts of management practices of the past will not be mitigated with proactive management. The continued reactionary cycle of fire suppression will continue. We will devote firefighting resources to suppress wildfire in a landscape where probability of success will continue to decrease, while potential for higher severity wildfire, resultant negative impact to air quality during large scale wildfire and resource impact will continue to increase.

Soils and Geology

Assessment Area: East Branch South Fork Eel River, McCoy Creek, and Red Mountain Creek watersheds.

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts

Under the No Action Alternative, the lack of silvicultural treatments would avoid the minor equipment related ground disturbance in the three tributary watersheds comprising the assessment area. However, the existing hazardous fuels conditions would persist, potentially contributing to catastrophic wildfire occurrence and widespread erosional effects contributing to adverse cumulative effects across the assessment area.

Vegetation

Assessment Area: Red Mountain, Cedar, and Big Dann Creek Watersheds

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
The No Action cumulative effects analysis for vegetation is similar to the Proposed Action analysis, except for that certain plant communities would clearly not benefit. White oak stands are in decline universally across the state of California due to habitat loss through fire suppression and conifer encroachment. Within the assessment area, this trend is no different. Under the No Action alternative, decline of white oak stands, and oak stands in general, would continue to decrease through displacement and shading by conifers.

Recreation

Assessment Area: Mendocino county

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
The no action alternative would have little impact to recreation. The access point for Red Mountain Wilderness would remain difficult to locate. The potential for wildfire caused from recreation activities would remain high.

Visual Resources

Assessment Area: Management Area Viewshed

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts
There would be no cumulative effects to visual resources under the no action alternative. The landscape and viewshed of the surrounding area would remain unchanged.

Cultural Resources

Assessment Area: Red Mountain Area

Past, Present and Reasonably Foreseeable Future Actions and Cumulative Impacts

Under the No Action alternative, there would be no treatment, and thus no new potential impacts to cultural resources. The BLM AFO archaeologist visited previously documented archaeological sites within the Red Mountain area in 2018 and 2020 and determined that any change to the sites' conditions was caused by natural erosion and deterioration, rather than by past cumulative management actions.

5.0 Tribes, Individuals, Organizations and Agencies Consulted

The following persons, organizations, and agencies were consulted during preparation of this analysis. Inclusion of an organization or individual's name below should not be interpreted as their endorsement of the analysis or conclusions.

Persons, Agencies and Organizations Consulted

Round Valley Indian Tribe

List of Preparers

Name / Title	**Date**
Jennifer Wheeler, Botanist	
Casey Hague, Outdoor Recreation Planner	
Sharyl Kinnear-Ferris, Archaeologist	
Dan Wooden, Forester	
Sam Flanagan, Geologist	
Jesse Irwin, Wildlife Biologist	
Zane Ruddy, Fish Biologist	

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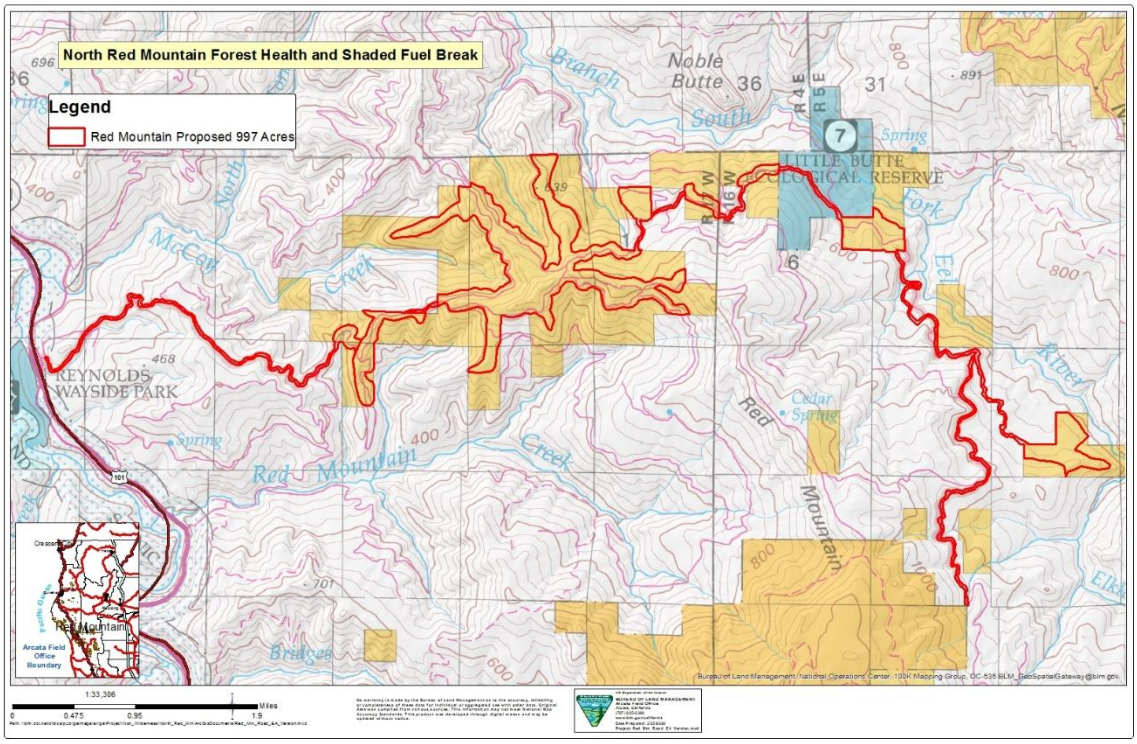
7.0 Appendices

APPENDIX A – Map



APPENDIX B – Project Design Features

Water Resources

Consider whether the proposed project needs to consult with the appropriate Regional Water Quality Board to determine the regulatory permit requirements, as applicable.

Roads and Landings - General

RL-1: Locate temporary roads and landings on stable locations, e.g., ridge tops, stable benches, or flats, and gentle-to-moderate side slopes. No temporary road construction on steep slopes (> 35 percent), unstable slopes and headwater swales. New temporary roads or landings are further restricted by species-specific PDFs for federally listed species.
RL-2: Locate temporary roads and landings at least 100 feet away from wetlands, riparian areas, floodplains, vernal pools, and streams. The only crossings allowed are during the dry season and only through ephemeral and intermittent streams when the crossing helps limit the area of ground disturbance in the treatment area. Crossings will use no-fill structures or, when that is not practicable, temporary stream crossings will be designed with the least amount of fill and constructed with coarse material to facilitate removal. Crossings will be removed upon completion according to Decommissioning PDFs. Species specific buffers will be implemented, and the most restrictive distance applies. RL-3: Temporary road and landing construction and decommissioning, and road maintenance will not occur during the wet season (generally October 15 through May 15) when the potential for soil erosion,

compaction, and water quality degradation exists. This restriction could be waived under dry conditions and a specific erosion control plan (e.g., rocking, waterbarring, seeding, mulching, barricading). All ground-disturbing activities will be suspended if projected forecasted rain will saturate soils to the extent that there is potential for movement of sediment from the road to wetlands, floodplains, or streams. Exposed soils in temporary roads and landings will be covered with clean (weed free) straw mulch or slash or temporarily stabilized during work suspension. Some variations in these dates will be permitted

RL-4: Waste material from road/landing construction and maintenance activities, or new material, will be temporarily stored in stable areas in a location where sediment laden runoff can be confined. This material will be stored a minimum of 300 feet from perennial streams, 150 feet from intermittent streams, or 100 feet from any ephemeral stream. Materials will be stored in previously disturbed areas whenever possible. Material storage areas will be approved by BLM resource specialists before they will be used. Where necessary, erosion control will be done to minimize sediment delivery to streams.

Roads and Landings – Surface Drainage and Erosion Control

RL-5: Effectively drain the road surface by using crowning, insloping or outsloping, grade reversals (rolling dips), and waterbars or a combination of these or other methods. Avoid concentrated discharge onto fill slopes unless the fill slopes are stable and erosion resistant.

RL-6: Use only broad-based drainage dips or lead-off ditches in lieu of cross drains for low volume roads. Locate these surface water drainage measures where they will not drain into wetlands, floodplains, and streams.

RL-7: Avoid use of outside road berms unless designed to protect road fills from runoff. If road berms are used, breach to accommodate drainage where fill slopes are stable.

RL-8: Divert road and landing runoff water away from headwalls, slide areas, high landslide hazard locations, or steep erodible fill slopes.

RL-9: As needed, landings will be blocked sufficiently to preclude vehicle access.

RL-10: Inspect roads and landings to ensure that vegetation stabilization measures are operating as planned, drainage structures are operational, and non-native invasive plants (weeds), are not providing erosion control. Conduct vegetation treatments and drainage structure maintenance as needed.

Roads and Landings – Decommissioning

RL-11: Decommission landings, temporary roads, and re-constructed roads upon completion of use.

RL-12: If needed for multiple operating seasons, roads will be waterbarred and blocked at the entrance, prior to the wet season, to control erosion and use until final decommissioning.

RL-13: After use, roads and landings will be decommissioned by ripping, water barring, seeding, mulching, and/or blocking. Decommissioning will include recontouring the entire length, placing logs, slash, boulders, berms, and other material so the entrance is camouflaged, the former road bed is stabilized, and vehicle use is precluded along its entire length. If road contains a stream crossing, it will be re-established to the natural stream gradient by excavating sideslopes to the natural bank profile and the natural channel width and floodplain will be re-established.

Hauling

H-1: No hauling or landing operations will be allowed on native surface or rocked roads during the wet season (generally October 15 through May 15) to protect the road from damage and decrease the potential for off-site sediment movement. Some variations in these dates will be permitted dependent upon weather and soil moisture conditions of the roads, as approved by BLM. There are further hauling restrictions specific to salmonids (WILD-25).
H-2: Allow road or landing use on adequately rocked roads during the wet season (see H-1) only during periods of dry weather (i.e., restrict use when soil moisture conditions or rain events could result in road damage or the transport of sediment to nearby stream channels). There are further hauling restrictions specific to salmonids (WILD-25).
H-3: Winter hauling will be allowed on paved roads or any road when at least 4 inches of packed frozen snow is present on hauling roads (at high elevations during snow season). Snow plowing will maintain at least 4 inches of packed snow on hauling roads. Provide drainage through the snow bank at periodic intervals to allow for snow melt to drain off the road surface.
H-4: During hauling operations, apply water or approved road surface stabilizers/dust control additives to reduce loss of surfacing material and buildup of fine sediment that can enter into waterways. Prevent entry of road surface stabilizers/dust control additives into waterways during application. No additives are allowed specific to salmonids (WILD-25).

Water Drafting

WD-1: Use a wildlife- and/or fisheries biologist-approved water source and screen if applicable in drafting water for use in prescribed fire and harvest operations in order to avoid federally listed aquatic species. When developing water drafting locations, BLM will first attempt to identify alternative water sources for projects such as lakes, ponds, area outside or above anadromous waters, or from sources such as wells or hydrants.
WD-2: Water drafting from streams, pools and ponds known or likely to be inhabited by federally listed aquatic species will follow the operating guidelines and screen criteria described in the NOAA Fisheries (2001) Water Drafting Specifications, as outlined in WD-3 through WD-7 below.
WD-3: Water drafting operations are restricted to one hour after sunrise to one hour before sunset in streams, pools, and ponds.
WD-4: The pumping rate shall not exceed 350 gallons per minute in streams, pools and ponds.
WD-5: The pumping rate shall not exceed 10% of the stream flow.
WD-6: Seek streams, pools, and ponds where water is deep and flowing (if applicable).
WD-7: All drafting hoses will have a suction strained/fish screen with holes 2 millimeters or less in size. All screen mesh must be in good repair and present a sealed, positive barrier. The surface area of the screen shall be at least 2.5 square feet to accommodate the upper pumping limit of 350 gallons per minute (see WD-4).
WD-8: Drafting will occur in the deepest portion of the stream channel, pool or pond possible with the equipment in use.
WD-9: Where streams are the sole water source, drafting will be allowed until stream flow reach 2 cubic feet per second (cfs). Below 2 cfs, drafting will only be allowed in previously developed off-site water impoundments as approved by the BLM. For streams with listed anadromous fish, the stream flow must remain above 7 cfs. For situations where the listed anadromous stream flows are between 2 and 7 cfs, BLM may consult with NOAA to

determine site specific project features would allow for drafting in a manner consistent with the NLAA determination.
WD-10: The end of the drafting hose will be placed in a clean container to avoid disturbing the sediment in the stream channel, pool, or pond.
WD-11: Drafting equipment shall be secured to prevent equipment from drifting down stream or floating about a pool or pond.
WD-12: Do not overfill tanks when collecting water as this can lead to increased sedimentation to the stream channel. Pumping shall be terminated when the tank is full.
WD-13: Do not back water trucks beyond the road or turnout surface to prevent damaging the approach to the water source.
WD-14: For monitoring purposes, water truck operators shall keep a log on the truck containing the following information: *Operators Name, Date, Time, Water Source, Pump Rate, Filling Time, Screen Cleaned (Y or N), Screen Condition, Comments*.
WD-15: Protecting listed salmonid aquatic habitat – the maximum time allowed for each water
drafting event is 60 minutes. The maximum number of drafting events per day is 5 times.
WD-16: No water drafting within the southern California steelhead DPS.

Tree Diseases – Sudden Oak Death

TD-2: Project leads/contractors will inform personnel when working in an area with Sudden Oak Death disease, unauthorized movement of plant material is prohibited, and the intent of mitigation measures is to prevent disease spread (14 CCR 1035.2). If some sites in the general operating area are found to be disease-free or have a low incidence of disease, these sites should be considered for operations on these sites before moving to more heavily infested sites.
TD-3: To the extent practical and feasible, route equipment will be kept away from host plants and trees, especially in areas with disease symptoms. Landings, log decks, logging roads, tractor roads, and other sites of equipment activity should be located away from host plants, especially areas with disease symptoms.
TD-4: Each time equipment or vehicles leave the site, the equipment or vehicles should be inspected by operations personnel for host plant debris (leaves, twigs, and branches). Host plant debris should be removed from equipment and vehicles prior to their departure. This applies to all equipment and vehicles associated with the operation, including logging equipment, log-hauling trucks, pick-up trucks, employee's personal vehicles, etc. An exception will be granted for equipment or vehicles that leave the site temporarily and will be not be traveling to uninfested areas prior to their return.
TD-5: When feasible, operations will be conducted during the dry season. Paved and rocked roads and landings will be utilized to the extent possible.
TD-6: After working in an infested area, workers will remove or wash off accumulations of soil, mud, and organic debris from shoes, boots, vehicles and heavy equipment, etc. before traveling to an area that is not infested with Sudden Oak Death. Lysol® or a bleach solution could be used to disinfect shoes and boots after cleaning.
TD-7: Loads of logs and equipment leaving the site should be inspected to ensure that no host material is being transported without a permit. This may require cleaning mud from vehicle to remove host plant material imbedded in mud depending on conditions when the timber harvest is conducted. An equipment power wash station should be considered. The cleaning station will be located at least 300 feet from threatened and endangered fish-bearing streams and/or 50 feet from intermittent streams that lead to such streams. The station should be:

located within the generally infested area; paved or rocked; well-drained so that vehicles exiting the station do not become contaminated by the wash water; located where wash water would not enter a watercourse (e.g. on ridges or flat areas disconnected from streams); pay particular attention to sites where soil and organic debris may accumulate.
TD-8: If water is drafted and used for dust control, draft water from areas upstream of known infestations or from uninfested drainages.
TD-9: If drafting from known infested watercourses, roads should not be watered with that source in areas that are not known to be infested.
TD-10: Water used in operations may require treatment with Ultra Clorox, similar to the recommended water treatment for P. lateralis, which causes Port-Orford Cedar Root Disease. The registration rate is 1 gallon of Ultra Clorox Bleach per 1,000 gallons of drafted water.
TD-11: Off-road approaches to drafting sites should be sufficiently rocked to minimize accumulating infested soil on drafting vehicles.

Mechanized Equipment – General

ME-1: Incorporate existing skid trails and landings as a priority over creating new trails and landings where feasible, into a designated trail network for ground-based harvesting equipment, consider proper spacing, skid trail direction and location relative to terrain and stream channel features. Old skid trails will not be opened or driven on without the approval of the authorized officer or contracting officer's representative.
ME-2: Ground-based equipment operations will occur during the dry season, generally May 15 through October 15, or on approval by the authorized officer or contracting officer's representative. Variations in these dates will be dependent upon review of weather and soil moisture conditions by BLM. No variations are allowed specific to federally-listed salmonids (WILD-25).
ME-3: The BLM will immediately shut down all harvest and yarding operations if there is potential for sediment movement to waterways due to weather or soil moisture conditions.
ME-4: Waterbar skid trails, tractor, and hand fire-lines based on gradient and erosion class according to following guidelines:

	Water Bar Spacing (feet)* Erosion Class**		
Gradient	**High**	**Moderate**	**Low**
2-5%	200	300	400
6-10%	150	200	300
11-15%	100	150	200
16-20%	75	100	150
21-35%	50	75	100
> 36%	50	50	50

**Spacing is determined by slope distance and is the maximum allowed for the grade*
***The following guide lists soil types according to erosion class:*
High: granite, sandstone, andesite porphyry, glacial or alluvial deposits, soft matrix conglomerate, volcanic ash, pyroclastics;
Moderate: basalt, andesite, quartzite, hard matrix conglomerate, rhyolite;
Low: metasediments, metavolcanics, hard shale

ME-5: Use the following techniques to construct waterbars:

- Open the downslope end of the waterbar to allow free passage of water.
- Construct the waterbar so that it will not deposit water where it will cause erosion.
- Compact the waterbar to prevent water from breaching the berm.
- Skew waterbars no more than 30 degrees from perpendicular to the centerline of the trailer road.

ME-6: Block main skid trails where they intersect roads and landings with an approved barricade and/or scattered slash to preclude OHV use.
ME-7: Use designated skid roads to limit soil compaction to less than 12% of the project area. Skid trails should be limited to a single width of what is operationally necessary for approved equipment and, if multiple machines are used, minimum sized pullouts will be used to allow for passing.
ME-8: Locate skid trails to minimize disturbance to coarse woody debris. Where skid trails encounter large coarse woody debris, either the log would be moved out of the way, or a section will be bucked out for equipment access. All sections will remain on site and as undisturbed as possible.
ME-9: Require low psi, wide-track vehicles, or one-pass operations (one round trip, in and out) for all mechanical harvester (includes felling and bunching) operations. For multiple passes, equipment must walk on 12 inches of slash for equipment greater than 6 pounds per square inch or 8 inches of slash for equipment less than 6 pounds per square inch. Require mechanized equipment to be capable of reaching 20 feet.
ME-11: Mechanized equipment may be allowed to operate off of designated skid trails if the conditions meet the following parameters and it will not result in detrimental compaction of over 12% of the unit area. This allowance may be achieved by several ways based on site-specific assessment and includes, but is not restricted to, operation in dry (less than 15% soil moisture) conditions; walking mechanized equipment on slash; avoiding soil series at inherent risk to detrimental compaction; or the use of "ghost trails," skid trails that have had only one or two passes. Operations will be suspended when these conditions no longer exist:

- The 15% soil moisture standard could be modified based on moisture content at which specific soil is the most resistive to compaction.
- Ground-based equipment will be allowed on snow only when the snowpack is sufficient to protect the soil. Operations will be allowed to start when there is a minimum of twenty (20) inches of snow, however no logging will be allowed once the snow depth deteriorates below eighteen inches of snow to protect soil from compaction. Designated skid trail requirements will be waived if ground-based equipment is allowed on snow.
- In the winter when average snow depths limits ground surface exposure, operations may occur if:
    - Snow depth is at least 20 inches; or
    - Soils remain frozen to a depth of 6 or more inches.

Mechanized Equipment - Riparian

ME-12: Mechanized equipment must stay at least 50 feet from ephemeral and intermittent streams, 150 feet from perennial streams. These distances may be increased if required by the RMP or if there are site specific concerns warranting more protection (e.g., species specific buffers will be implemented and the most restrictive distance applies (WILD-13, WILD-25)).
ME-13: Designate skid trails in locations that channel water from the trail surface away from waterbodies, floodplains, and wetlands, or unstable areas adjacent to them. Minimize disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow.
ME-14: Apply erosion control measures to skid trails and other disturbed areas with potential for erosion and subsequent sediment and silt delivery to waterbodies, floodplains, or wetlands. These practices may include seeding, mulching, water barring, tillage, and woody debris placement. Use guidelines from the road decommissioning section.

ME-15: Dead and dying tree felling and/or topping is the only action allowed within riparian areas for trees greater than 10 inches in diameter. As much as feasible, fell these trees onto the contour and leave to provide stability to the soil.
ME-16: No removal or treatment of live riparian hardwood species such as willow, ash, maple, alder, yew, dogwood, and valley oak. For more information on tree species, refer to http://wetland-plants.usace.army.mil/nwpl_static/v33/home/home.html.
ME-17: Hand thinning of non-riparian tree species less than 10 inches in diameter is allowed within riparian areas. These trees will be piled more than 50 feet from ephemeral and intermittent streams and 100 feet from perennial streams for future burning, or distances as directed by RMPs.

Mechanized Equipment – Soils

ME-18: Soils series at inherent risk to detrimental compaction or erosion will be avoided. No ground-based equipment on these soils. Recommendations to reduce compaction:

- Snowpack of a minimum of 20 inches (for winter operations).
- Restrict non-specialized, ground-based equipment to slopes less than 35% except when using previously constructed trails.
- Mechanical harvesting equipment (e.g. excavators, loaders, forwarders, and harvesters) may be used on short pitch slopes of greater than 35% but less than 45% when necessary to access benches of lower gradient (length determined on a site-specific basis, generally less than 50 feet).
- Specialized equipment may be authorized to operate on slopes steeper than 35%.
- Use of all equipment will be limited when surface displacement creates trenches, depressions, excessive removal of organic horizons, or when disturbance would channel water and sediment as overland flow.
- Additionally, if the amount of available slash is not enough or if there is a need to reduce the percent of detrimentally compacted area in the unit, the authorized officer may stipulate mechanical decompaction of site-specific areas identified by the resource specialist. Post-harvest assessments will be conducted to determine where soil ripping is most beneficial to ameliorate compaction and improve soil productivity while minimizing root damage to residual trees.

ME-19: Ground vegetation will be retained on cut and fill slopes in order to reduce surface erosion and maintain slope stability unless it poses a safety hazard or restricts individual project activities. Cut vegetation as required for safety and maintenance, leaving the root mass and ground surface intact.
ME-20: Disturbed soils will be covered with weed free straw and/or native materials and may be seeded with native or other approved plant seed or protected by other best management practices such as straw waddles, straw matting, jute netting, riprap armoring, etc. Where soils are deeper and more likely to erode, a packed gravel base will be considered on roads and trails to help reduce soil movement.
ME-21: Damage to high shrink-swell soils will be prevented by limiting compacting activities to periods when soils are sufficiently dry to resist damage from the activity. Work will be suspended during precipitation events or when observations indicate that saturated soils exist to the extent that there is visible runoff or a potential for causing soil erosion into streams. Cover (e.g., straw mulch or slash) will be used to temporarily stabilize exposed soils during work suspension, as necessary.

ME-22: In areas with a high content of serpentinite and peridotite mineralogy, sparsely vegetated with occasional shrubs and few or no conifers, or scattered large conifers, as well as distinct clumps of small to large shrubs:

- Exclude heavy equipment from these sites. No machinery off well-established tracks, routes, or roads; No vehicle or equipment staging, log decking, skid trail, landing, or access road construction through these sites. Previously constructed landing sites that are heavily disturbed may be used after approval by BLM.
- No pile burning.
- Felled dead and dying trees will be left in place unless they can be removed from the site by full suspension or endlined by equipment that remains on well-established existing roads.
- No landing construction or use, unless approved by BLM.

ME-24: No treatments, other than dead tree felling, will occur on rare soils and hydric soils.

Fuels and Prescribed Fire – General

FIRE-1: No burning or storing materials (e.g., chips, slash, logs) in road ditchlines or on cut slopes above ditchlines, unless the material can provide bank stability and will not be transported into the ditch at the side of the road.
FIRE-2: Where individual projects use prescribed fires, localized erosion will be minimized by covering up handline sections with woody material where fire lines are constructed on steep slopes, following implementation of burns.
FIRE-4: Firelines for all prescribed fires authorized by this EA will be constructed manually and rehabilitated after the prescribed burn is declared out.
FIRE-5: Piles will be dispersed across treatment areas.
FIRE-6: No hand pile burning on fragile slope gradient and fragile surface erosion soils unless there is adequate vegetation between piles to intercept sediment displaced from piles. On these soils, ignite piles from upper slope so fire backs into pile wherever possible. Limit handpiles to slopes less than 65%.
FIRE-7: Sufficiently block fire containment lines at all access points to preclude OHV use. This will include such measures as placing boulders, logs and slash; falling trees less than 8 inches diameter breast height (dbh); or other actions as necessary.
FIRE-8: The average depth of masticated material will be less than 6 inches, in order to control erosion and suppress vegetative resprouting.

Fuels and Prescribed Fire – Riparian

FIRE-9: Limit fire lines inside riparian areas to hand lines. Construct fire lines by hand on all slopes greater than 35 percent and inside the Riparian Reserve or Stream Management Zone. Use erosion control techniques such as tilling, waterbarring, or debris placement on fire lines when there is potential for soil erosion and delivery to waterbodies, floodplains, and wetlands. Avoid placement of fire lines where water will be directed into waterbodies, floodplains, wetlands, headwalls, or areas of instability.
FIRE-10: Use erosion control techniques such as waterbarring, or debris placement on fire lines when there is potential for soil erosion and delivery to waterbodies, floodplains, and wetlands. Avoid placement of fire lines where water would be directed into waterbodies, floodplains, wetlands, headwalls, or areas of instability.
FIRE-11: No tractor firelines and no mechanical piling.
FIRE-12: Removed because redundant with FIRE-13

FIRE-13: Avoid burning of large woody material within the Riparian Reserve or Stream Management Zone. Down logs greater than 24-inch maximum diameter and 8 feet in length will be protected by constructing a handline around these logs. Furthermore, understory burning will not occur when 1000-hour fuels (3 to 8 inches in size) are less than 9% moisture content.
FIRE-14: Locate fire lines so that open meadows associated with streams do not burn.
FIRE-15: Class A retardant foams may be used to control and suppress fire during prescribed fire implementation. It may be used as part of wet line construction, mop up, and suppression. The foam is made by introducing air into a mixture of water and foam concentrate, usually as part of the pump apparatus on a firefighting engine, and then applied to the wildland fuels via the nozzle. Chemical retardant foam will not contact waterbodies, or wetlands. Leave at least a 200-foot buffer zone from the high-water line of any water body. For more information on fire retardant foams see NWCG Publication PMS 446-1 Foam vs Fire. Store and dispose of ignition devices/materials (e.g., flares and drip torches) a minimum of 200 feet from waterbodies, floodplains, and wetlands. Maintain and refuel equipment (e.g., drip torches and chainsaws) a minimum of 200 feet from waterbodies, floodplains, and wetlands. Portable pumps can be refueled on-site within a spill containment system.

Fuels and Prescribe Fire – Wildlife

FIRE-17: Approximately 10% of handpiles during handpile burn treatments units will be left unburned.

Vegetation – General

VEG-2: If special status plant species are discovered during individual project preplanning (G-2, G-3), the species will be identified, flagged, and will be avoided to the maximum extent possible. Buffer zone sizes around special status plant sites will be at least 50 feet and/or identified at the discretion of a qualified botanist.
VEG-5: **Suitable habitat** is habitat that has the potential to support federally-listed species. Habitat suitability will be initially assessed by the BLM based on species range and habitat characteristics (e.g., vegetation community, soil type, elevation). **Occupied Habitat** is habitat that is either known to be occupied by a species or is suitable habitat that has not been surveyed sufficiently to demonstrate that it is unoccupied. Therefore:

1. Prior to conducting project activities with the potential to impact listed plant species (e.g., ground disturbing activity, vegetation removal, and off-road vehicle use) and within the species range for any listed plant species, conduct a desktop habitat assessment (same as G-2) within and adjacent to the project area to determine habitat suitability for each species potentially present. If a desktop habitat assessment is inconclusive then a botanist familiar with the species will conduct a site visit to determine habitat suitability. If suitable habitat is present, follow measure #2.
2. Conduct field surveys to determine species presence; the survey period will occur when nearby reference populations are in bloom, using known blooming periods and local blooming data as a guide. The activity will be conducted in the same year following the survey, or prior to the next blooming season. If a nearby reference population is not available, a qualified botanist will conduct early-, mid-, and late-blooming period site surveys when the species is most likely to be found. If the species can be found year-round (e.g., perennial evergreen species), one survey may be appropriate. If nearby reference populations are present, perform one site survey when the reference population is in bloom. A second year of surveys may be needed

for ongoing multi-year activities, or if surveys occur during years with variable climatic conditions (e.g. below average precipitation).

Vegetation – Mechanized Equipment

VEG-3: In special status plant (SSP) populations, which includes federally listed plants, BLM sensitive plants, and rare plant communities (S1 ranked), the following applies:

- No heavy equipment will be allowed within 100 feet (including masticators) unless on an existing road.
- Dead and dying tree felling/removal will require consultation with a BLM specialist on a case-by-case basis to determine which direction they should be felled in order to avoid adverse impacts.
- Felled trees will be left on site unless they can be accessed by a self- loader from the roadway.
- No yarding of trees will be allowed through buffered sites, unless designed to maintain or improve the habitat.
- No anchor trees will be allowed within known populations.
- New landings will not be constructed within 300 feet of known populations.
- Existing landing use, construction of temporary roads, or burning of piles will not occur within 100 feet of known rare plant populations.
- Green tree thinning will not be allowed within 50 feet of boundary of population.
- Disturbed areas will be seeded with genetically appropriate native seed, when deemed appropriate by the FO botanist.
- Heavy equipment will be cleaned prior to entering BLM lands to remove all dirt and vegetation from the vehicle body, undercarriage, tires, and attachments.

Vegetation – Fuels and Prescribed Fire

VEG-4: In special status plant (SSP) populations, which includes federally listed plants, BLM sensitive plants, and rare plant communities (S1 ranked), the following applies:

- Use only chainsaws or other hand tools to cut vegetation within SSP buffers as described above.
- No mechanized equipment will be used to build fire line.
- Pile burning will only be allowed if designed to maintain or improve the habitat.
- Piles will be no larger than 8 feet by 8 feet in size and cover no more than 5% of the treatment area.
- Firelines constructed in suitable habitat will be pulled back and seeded with genetically appropriate native seed, when deemed necessary by the FO botanist.

Weeds

WEED-1: Before ground-disturbing activities begin, weed infestations would be inventoried and areas would be identified for avoidance, particularly in staging or operating areas and in areas along access routes. Any emergent infestation discovered during project work would be reported to a BLM project representative prior to new ground disturbance. When possible, high-risk sites will be pre-treated for weed establishment and spread before the implementation of individual projects or avoidance measures will be taken.
WEED-2: Where available use weed-free gravel and fill dirt for road work. Survey BLM rock quarries and storage areas that will supply gravel or fill dirt for noxious weeds.

Introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material will be avoided.
WEED-3: To prevent weed germination and establishment, native vegetation and roadside trees will be retained to the maximum extent practicable in and around individual project activity areas and soil disturbance will be kept to a minimum while still meeting project objectives.
WEED-4: If deemed appropriate by the FO botanist, burned piles or other disturbed sites will be seeded with native species or covered with native duff/litter, particularly if known or expected invasive plants species are present.
WEED-5: Each individual area will be monitored following treatment to ensure that noxious and invasive weeds do not become established.
WEED-6: Weed propagation and establishment will be minimized by avoiding driving through weed-infested areas to the maximum extent feasible.
WEED-7: Sites where equipment can be cleaned will be identified during the individual project planning phase. Equipment will be cleaned or pressure washed before entering public lands, prior to engaging in individual project activities, before transport to new work areas, and before leaving the project site if operating in areas infested with weeds to remove mud, dirt, and plant parts. Weeds that establish at designated equipment cleaning sites will be inspected and treated, as necessary.
WEED-8: To avoid the importation or spread of invasive weeds or non-native invasive plant species, all tools, equipment and materials required for project implementation will be washed prior to transport to the project site.
WEED-9: To reduce off-site spread of invasive plants, designate waste disposal areas and/or coordinate safe site removal.

Wildlife – General

The following project design features were designed to protect habitat values for individual species while conducting projects that will improve habitat for many species. These project design features were incorporated into the statewide HVRM Environmental Assessment (BLM 2018) and resulted in no effects determinations for federally listed species. The project design features included in this document reflect only those species found in the project area.

WILD-1: All Special Status Wildlife: a habitat assessment will be done by a wildlife biologist prior to implementation for special habitat features that could be used by any special status wildlife species (e.g. trees with complex structure, cavities, roosting or nesting platforms, nests). Seasonal restrictions within the PDFs for federally listed species restrict the use of manual and mechanical methods within various distances of the species and/or habitat, therefore adverse impacts will be avoided. For thinning treatments, these habitat features will be marked for retention or excluded from the thinning unit. For prescribed fire treatments, these habitat features will be excluded from the burn unit or fuels will be removed from around the habitat structure prior to burning. In federally listed suitable habitat, apply the applicable PDF's with the assumption the species occurs, unless surveys conducted in compliance with protocols determine the species does not occupy the potential habitat.
WILD-2: Survey and manage protocols will be followed in a consistent manner with current and future guidelines for areas requiring the management of these species.

WILD-4: To retain suitable microclimatic and substrate conditions in talus habitat, restrict ground disturbing activities (e.g. heavy equipment or yarding of trees) that displace or compact the substrate to 12% or less of the talus area.
WILD-5: Dead and dying trees which pose a hazard to public safety and are likely to fall on their own, will be felled at a minimum, and potentially left onsite if warranted by the following species-specific PDFs.

Wildlife – Federally Listed Species

WILD-6: In designated critical habitat, the following will occur:

- Treatments have been designed to ensure they will not directly or indirectly adversely alter the quantity or quality of the essential physical or biological features of designated critical habitat for the relevant species.
- When possible, treatments will be designed to accelerate the capacity of the designated critical habitat to provide essential physical or biological features or to develop those features over time.

WILD-7: Northern Spotted Owl (NSO)

- No noise greater than 90 decibels will occur within 0.25 miles of unsurveyed nesting/roosting or foraging habitat or know activity center from February 1 and July 9, unless surveys determine the suitable habitat or site to be unoccupied or the owls to be non-nesting. The BLM may propose reduced buffers for work in areas with moderate to high ambient (existing pre-project) noise levels based on Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California (U.S. Fish and Wildlife Service, 2006). The FWS will review the proposed changes to determine if they are acceptable. There is no restriction on noise less than 90decibels, and no noise restriction from July 10 through January 31.
- No prescribed fire (includes both pile and under burning) will occur within a 0.25 mile buffer of any unsurveyed nesting/roosting or foraging habitat or known activity center from February 1 through July 31, unless surveys determine the suitable habitat or site to be unoccupied or the owls to be non-nesting. This PDF is designed to minimize the potential effects of smoke to developing juvenile owls that are not yet sufficiently mobile to move from the area.
- No project activity (tree cutting and removal) will be implemented in unsurveyed nesting/roosting or foraging habitat from February 1 through September 15 to reduce adverse impacts associated with habitat modification. The seasonal restriction may be lifted upon completion of protocol surveys see Protocol for Surveying Proposed Management Activities that may Impact Northern Spotted Owls) indicating the northern spotted owls are not nesting.
- An experienced wildlife biologist will be consulted prior to cutting and removal of dead and dying trees that meet the description of a potential northern spotted owl nest trees within unsurveyed nesting/roosting or foraging habitat. The purpose of the assessment is to determine whether the tree may be used by nesting northern spotted owls. Large diameter trees (>20 inches dbh) with a likelihood of providing for a northern spotted owl nest (cavity, platform, broken top) will be retained and assessed for use during the nesting season before being felled, unless

the tree meets the criteria of an imminent hazard (as described in Angwin et al. 2012).

In nesting, roosting, and foraging NSO habitat, silvicultural prescriptions will maintain the following habitat features and stand characteristics:

- Moderate to high canopy cover (60 to over 80 percent).
- Multilayered, multispecies canopies with large (20–30 in or greater dbh) overstory trees.
- Retain all dominant and codominant trees to achieve desired canopy closure.
- High basal area; high quality nesting >210 ft^2, nesting/roosting 150 to 180 ft^2, foraging 120 to 180 ft^2.
- High diversity of different diameters of trees. Trees less than 8 inches (dbh) will be left at a 20 X 20 spacing to retain at least 100 trees of this size class per acre.
- Any hardwood that is greater than 12 inches (dbh) will be not be cut.
- High incidence of large live trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence).
- Create sufficient open space below the canopy for spotted owls to fly if feasible given the aforementioned canopy closure and basal area retention levels.
- Dead and dying trees that are greater than 20 inches (dbh) that are felled to protect public safety will be left onsite, with the bole completely intact, to provide for down woody structure. Dead and dying trees that are less than this size may be removed if they create excessive fuel loading (>20 tons per acre).
- No existing down wood logs or material will be removed.

In dispersal NSO habitat, silvicultural prescriptions will maintain the following habitat features and stand characteristics:

- Stands with adequate tree size and canopy cover to provide protection from avian predators and minimal foraging opportunities; in general, this may include, but is not limited to, trees at least 11 inches in diameter and a minimum 40 percent canopy cover.
- Retain residual trees (trees from previous older stands) and large diameter trees that exhibit fire resilient characteristics such as thickened, furrowed bark and well-developed crowns, unless the tree poses a hazard to public safety.
- Within riparian areas dead and dying tree felling and/or topping is the only action allowed within riparian areas for trees greater than 7 inches in diameter, therefore overstory canopy cover would not be decreased in riparian NSO habitat. These trees will be left onsite.
- No temporary roads, corridors, and skid trails will be permitted in nesting, roosting, foraging habitat. Existing roads and skid trails will be used to the extent possible.

WILD-10: California Condor

- To avoid and/or minimize the potential for microtrash to collect in areas used or potentially used by California condors within the treatment area, the following measures will be implemented: trash receptacles will be fitted with animal- and weatherproof lids; work areas will be cleaned daily and all trash will be collected; waste will be properly contained and removed regularly for disposal at appropriate offsite permitted disposal facilities; and signage will be posted.

- To the extent practicable, avoid work within 0.25 mile of active nests during the fledging period, which extends from August 15 through December 31.
- No work generating sound levels >90 decibels will occur within 0.25 mile of a known active nest site during the nesting season (year round), unless there is a landscape feature that attenuates sound.
- A BLM biologist or Service-approved contract biologist familiar with the species will brief employees, contractors, and other workers about the potential presence of the California condor. Briefings include prohibitions on approaching, harming, harassing, or otherwise intentionally disturbing California condors.
- Water tanks should be covered with a welded steel grate, or welded wire mesh secured toa frame to avoid drowning risk to condors.
- Workers will undergo "hazing training pursuant to the attached memo from the California condor Recovery Program (see attached memo in the Final Biological Assessment). If any California condors are attracted to the work site, the hazing measures will be implemented to avoid the possibility that the birds will become habituated to human activities, which poses a risk to their well-being.
- Limit development and disturbance, to the maximum extent practicable, in areas of designated critical habitat.
- If any helicopters are to be used in condor habitat within 0.25 miles of a known active nests, a biologist will be on the project site and will maintain radio contact with the project foreman, who will be in radio contact with the helicopter pilot. The biologist will have the authority to restrict use of any landing zones when California condors are present in the area or if there are any concerns to California condor safety. The biologist will also be authorized to assist with determining helicopter flight paths to avoid roosting or nesting individuals.
- Helicopter operations will avoid all known active nests by a minimum of 1,000 feet aboveground level; helicopter operators will transit to and from work sites at a minimum of 200feet above ground level when near nests, unless carrying loads and otherwise consistent with FAA regulations; and will minimize hover time.
- From January 15 through August 15, if there is a known active California condor nest(s)within 0.5 mile of a project, BLM will coordinate with the Service 60 days before a project begins to determine if additional project-specific effects need to be evaluated and additional project-specific conservation measures developed, such as having a biological monitor present to ensure that project activities covered under this consultation avoid all adverse effects to the species. Adverse effects include but are not limited to smoke disturbance or helicopter activity potentially leading to adult California condors abandoning an egg, or chicks fledging from the nest prematurely.

WILD-16: Western Pond Turtle

- Ground disturbing heavy equipment will not be permitted around areas of western pond turtle nesting habitat.
- Buffer size will be determined by biologists based on microsite conditions.
- Manual fuel treatment methods could be employed within these buffers, although no slash piling will be permitted.

WILD-17: Bald Eagle

- Treatment activities will avoid cutting/felling/hauling activities within 1.0 mile of active nests between January 1 and August 31 of any given year
- No cutting/felling/hauling activities will be conducted within 0.5 mile of winter roosts between December 1 and April 1 of any given year.

WILD-18: Golden Eagle

- Treatment activities will avoid cutting/felling/hauling activities within 1.0 mile of active nests between February 1 and August 31 of any given year.

WILD-21: Northern goshawk

- Project activities will avoid cutting/felling/hauling activities within 0.5 mile of active nests between March 1 and August 31 of any given year.
- Treatment activities are prohibited within 0.25 mile of active nest sites during the breeding season (February 15 through September 15) unless surveys confirm that northern goshawks are not nesting.

WILD-22: BLM Special Status Birds

- To protect nesting and fledging, project activities may only occur in BLM Special Status bird habitat September 15 to February 1; project activities may not occur February 2 to September 14.
- The timelines above may be condensed based on species specific documented nesting and fledging behavior in different parts of its range, so long as the effects remain the same as analyzed or are lessened.

WILD-23: Migratory Birds

- Migratory birds will be managed in accordance with the Migratory Bird Treaty Act(MBTA) and Migratory Bird Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.
- Activities during the breeding/nesting season (February 2 - September 14) for migratory birds should be minimized, to the extent possible.
- All mature shrubs will be inspected for active bird nests during nesting season and all active nests will be retained with a minimum 10 feet untreated buffer.

WILD-24: Bats

- Within maternity roosting habitat, treatments are limited to protection or improvement of roosting habitat.
- Within maternity roosting habitat, project activities that may impact bats may not occur between February 2 to September 14.

WILD-25: Federally Listed Salmonids:

- Project treatment areas will not exceed 1% of the total watershed in a given year. See Appendix C of the Final Biological Assessment for the cumulative 10-year treatment cap for each HUC10 watershed.
- Water drafting from streams, pools and ponds known or likely to be inhabited by federally listed salmonids will follow the operating guidelines and screen criteria described in the NOAA Fisheries (2001) Water Drafting Specifications, as outlined in WD-3 through WD-7 and WD-15.
- Hauling, cable yarding, or mechanical operations will not occur during the wet season (Oct15 to May 15) in watersheds known or likely to be inhabited by salmonids. Any operations proposed during the wet season would need to additional consultation with NOAA and further NEPA analysis.
- Mechanized equipment and cable yarding operations must stay at least 50 feet from ephemeral and intermittent streams, 150 feet from perennial streams, and 300 feet from streams known or likely to be inhabited by salmonids. These distances may be

increased if required by the RMP or if there are site specific concerns warranting more protection. Within these distances the following vegetation management restrictions also apply: Dead and dying tree felling and/or topping is the only action allowed within riparian areas for trees greater than 7 inches in diameter. As much as feasible, the trees will be felled onto the contour and left on site to provide stability to the soil.

- No removal or treatment of live riparian dependent species such as willow, ash, maple, alder, and valley oak.
- Hand thinning of non-riparian dependent tree species (e.g. Douglas-fir, tanoak, pine, etc.) less than 7 inches in diameter is allowed within riparian areas. These trees will behand piled more than 50 feet from ephemeral and intermittent streams and 150 feet from perennial and fish bearing streams for future burning, or distances as directed by RMPs.
- Locate temporary roads and landings on stable locations (e.g., ridge tops, stable benches, or flats, and gentle-to-moderate side slopes) in areas that are not connected to intermittent, perennial, or streams known or likely to be inhabited by salmonids. These features cannot be located within 300 feet of these streams.
- No temporary road or landing construction on unstable slopes and headwater swales in watersheds known or likely to be inhabited by federally-listed salmonids.
- For temporary roads that will be used for multiple seasons portions of the roads that cross ephemeral drainages will be rocked to prevent potential erosion/sedimentation affects. Additional winterizing methods/treatments are discussed in section 2.5 of the Final Biological Assessment.
- No more than 1.5 miles of temporary roads will be constructed per project.
- During hauling operations, apply only water to road surface to control dust and erosion. No dust control additives are allowed in watersheds known or likely to be inhabited by salmonids.

Cultural Resources – General

CR-1: Compliance with Section 106 of the National Historic Preservation Act (NHPA) must be completed for all projects proposed under this Environmental Assessment (EA). The extent of cultural resource field inventory, tribal consultation, cultural resource evaluation, and project design features undertaken related to this compliance will be determined by the Bureau of Land Management (BLM) FO Archaeologist in accordance with the Programmatic EA and the California Statewide Protocol Agreement (Protocol). A cultural resource/Section 106 compliance study, including all necessary field inventories and evaluations, as well as proposed project design features, will be completed prior to the Decision to implement any projects proposed under the EA.

CR-2: Project design features will be designed to avoid or minimize adverse effects to cultural resources listed on or eligible (or potentially eligible or assumed eligible) for the National Register of Historic Places (NRHP) including districts, sites, objects, structures, and buildings, as well as cultural resources that are of traditional and cultural significance to Native American Indian Tribes (i.e., traditional cultural places). The project design features will be based on results of the cultural resource compliance study and will be approved by the FO Archaeologist and incorporated into Section 106 and National Environmental Policy Act (NEPA) compliance documentation as well as the Decision for each project proposed under the EA.

CR-3: The FO Archaeologist will define the undertaking's Area of Potential Effects (APE) in consultation with the BLM project manager or lead (i.e., forestry, fuels, or vegetation management specialist) and in accordance with the Protocol and other BLM and Department of the Interior (DOI) policy. The APE will include, but will not be limited to, areas where the project will cause direct effects, particularly as a result of ground disturbing activities, to cultural resources (i.e., areas to be treated using mechanical methods, staging areas, material storage, temporary roads, control lines, etc.).

CR-4: The APE will also include areas where indirect effects may occur to NRHP-listed or -eligible cultural resources (or assumed eligible). These may be effects to physical features within the setting of cultural resources that contribute to their significance as well as effects caused later in time as result of a change in public access (leading potentially to cultural resource looting and/or vandalism). Inventory methods and project design features for identifying and avoiding or minimizing indirect effects will be developed by the FO Archaeologist on a project-by-project basis.

CR-5: All areas subject to proposed ground-disturbing activities (i.e., mechanical tree removal and vegetation treatments, etc.) must be inventoried at the BLM Class III level or have sufficient Class III level inventory coverage as determined by the FO Archaeologist in accordance with procedures in the Protocol. Areas proposed for staging areas, road improvement, etc. outside of tree removal/vegetation treatment areas will be inventoried at the BLM Class III level or must have sufficient Class III inventory coverage prior to project implementation. Cultural resources listed on or determined to be eligible (or assumed eligible) for the NRHP within the APE will be routinely avoided by project design, as described below under Mechanical Treatments (CR-13 and CR-14), unless other project design features are recommended by the FO Archaeologist.

CR-6: Certain cultural resources within the APE may not be affected by certain project activities or may be beneficially affected. The FO Archaeologist will make this determination for each NRHP-listed or -eligible (or assumed eligible) cultural resource within the APE on a project-by-project basis and will recommend an appropriate project design feature or other management approach for each cultural resource within the APE.

CR-7: The APE will include a 100 ft buffer along each side of any proposed haul route. The level of cultural resource inventory and other identification required for the buffer will be determined by the FO archaeologist, following procedures in the Protocol, and will depend on the intensity of proposed hauling use and other factors. The FO Archaeologist has discretion to increase or decrease the size of the 100 ft buffer depending on the particular circumstances of the proposed hauling and cultural resource sensitivity along the haul route. Certain NRHP-listed or -eligible (or assumed eligible) cultural resources may be adversely affected by excessive dust, emissions, sounds, vibrations, and other effects along routes related to Project use by trucks for hauling or transport of heavy equipment. The FO archaeologist will assess these potential effects on sensitive cultural resources and will recommend appropriate project design features to avoid or minimize these effects. Project design features may include, but are not limited to, decreasing truck speed or hauling frequency in the vicinity of the resource. In some cases, sensitive cultural resources along haul routes will be monitored by the FO archaeologist or BLM-approved archaeologist to determine if the level of Project-related use on the haul route is causing adverse effects to sensitive cultural resources. If the FO Archaeologist finds that the resource is being negatively impacted, FO Archaeologist-proposed project design features to avoid or minimize the effects will be immediately implemented and/or the project design features related to Post-Review Discovery and Unanticipated Effects (below) will be followed.

CR-8: The BLM project manager or lead will be apprised of all cultural resource locations within the APE before project implementation to help ensure protection.
CR-9: Cultural resources that require protection and will be subject to project design features recommended by the FO Archaeologist will be discussed with the BLM project manager and, as necessary, project proponents/contractors, to insure that project personnel understand the project design features and their required role in the implementation of these project design features.
CR-10: At the request of the FO Archaeologist, cultural resources within the APE will be monitored by a BLM-approved archaeologist during and, as necessary, and after project implementation.
CR-11: Project design features not included herein and/or tailored to specific project conditions will be recommended by the FO Archaeologist and implemented, as needed, on a project-by-project basis, to avoid or minimize adverse effects to NRHP-listed and -eligible (or assumed eligible) cultural resources within the APE. The FO Archaeologist has discretion to implement project design features (included or not included herein) to protect cultural resources with values (scientific, aesthetic, traditional cultural, etc.) not rising to the level of NRHP eligible.
CR-12: All dead or dying trees or green trees that are subject to removal and pose a threat to NRHP-listed or eligible (or assumed eligible) cultural resources will be directionally felled in order to avoid damaging those cultural resources. At the request of the FO Archaeologist, a BLM-approved archaeological monitor will be present on-site during such activities.

Cultural Resources – Mechanical Treatments

CR-13: Generally, ground disturbance resulting in soil movement or compaction caused by tree removal and other mechanical vegetation treatments (i.e., use of heavy equipment, masticators, chippers, etc.) will not be allowed to occur on cultural resources listed on or determined to be eligible (or assumed eligible) for the NRHP. Equipment such as masticators will have rubber tracks rather than metal tracks to reduce ground disturbance, whenever feasible or warranted by resource concerns, to further reduce potential for impacts.
CR-14: Prior to project implementation, cultural resources listed on or determined eligible (or assumed eligible) for the NRHP will be marked on the ground for avoidance by the FO Archaeologist or BLM-approved archaeologist. The marking to be used will be determined in consultation with the BLM project manager or lead and project personnel, prior to the implementation of the project. The APE and appropriate buffer distance will be at the discretion of the FO Archaeologist, taking into consideration project activities and potential effects.

Cultural Resources – Construction of New Roads, Temporary Roads, Skid Trails, or Fire Lines

CR-15: A BLM Class III cultural resource inventory must be completed for construction or restoration of all roads, skid trails, landings, and fire lines, as well as decommissioning of these developments. If existing Class III inventory is to be used in lieu of new inventory, the existing inventory must be determined sufficient by the FO Archaeologist, in accordance with procedures in the Protocol. Construction or restoration of temporary roads may increase public access to cultural resources susceptible to looting and vandalism. Inventory, evaluation, and project design features for cultural resources that may be indirectly affected by the change in access may be necessary as determined by the FO Archaeologist.

CR-16: For cultural resources listed on or determined eligible (or assumed eligible) for the NRHP within the APE, a minimum of a 30-meter buffer around cultural resource is encouraged but may be increased or decreased based on the discretion of the FO Archaeologist, taking into consideration project activities and potential effects.
CR-17: Hauling on roads that bisect known archaeological resources may continue if deemed appropriate by the FO Archaeologist and authorized as part of the Decision for the project. Vehicles and equipment using these roads must stay on the road prism in areas that bisect archaeological resources. Road construction, reconstruction, decommissioning or modification of the existing road prism within resource boundaries may not occur without additional review and/or consultation, including NRHP eligibility evaluation of cultural resources, as determined by the FO archaeologist. The preference will be to avoid direct effects to NRHP listed or eligible (or assumed eligible) resources. The FO Archaeologist may recommend project design features, such as capping archaeological sites in road prisms with gravel or other materials, to minimize erosion and other direct effects potentially caused by Project-related use.

Cultural Resources – Prescribed Burning

CR: 18: Areas where pile burning is proposed will require BLM Class III inventory coverage prior to project implementation. The FO archaeologist has discretion to determine if pile burning will be allowed to occur on NRHP-listed or -eligible (or assumed eligible) cultural resources. Sensitive cultural resources may include arboglyphs/silvaglyphs, pictographs, petroglyphs, and archaeological sites with artifacts that can be damaged or destroyed by pile burning. This includes avoidance of thermal alteration and damage to hydration bands in obsidian artifacts suitable for obsidian hydration studies.
CR-19: For understory or broadcast prescribed burning, BLM Class III inventory will be required for all areas that have been identified by the FO Archaeologist as being within the APE and that have high potential or sensitivity for cultural resources. Lower potential areas within the APE may be inventoried at the BLM Class II (reconnaissance) level after consultation with the State Historic Preservation Office (SHPO) staff, in accordance with procedures in the Protocol. The field inventory must be completed before the Decision to implement the burn has been made.
CR-20: NRHP-listed or -eligible (or assumed eligible) cultural resources within the APE will be protected by a project design feature recommended by the FO Archaeologist, taking into consideration the cultural resource type, environmental setting, anticipated burn conditions, and other factors. Project design features may include, but are not limited to, removal from the burn area/APE, fuel breaks and no treatment buffers around the resource, wrapping, foaming, wetting, black lines, fire lines (machine or hand dug), and raking.
CR-21: All potentially ground-disturbing activities related to the prescribed burn (fire-control lines, staging areas, and helispots) as well as all road improvement, construction or decommissioning will be included in the APE and will require BLM Class III inventory prior to project implementation; any NRHP-listed or eligible (or assumed eligible) cultural resources will be avoided as described above under project design features CUL-13 and CUL-14 for Mechanical Treatments.

Cultural Resources – Hazard Removal and Vegetation Management Treatments within the Boundaries of Cultural Resources

CR-22: Removal of hazard trees and associated vegetation through low impact methods (i.e., use of hand tools) within cultural resources boundaries will be done in a way that prevents

the formation of distinct “archaeology islands” remaining within project areas where cultural resources are present. This in turn will deter livestock from congregating within cultural resource areas for shading purposes, and also decrease the potential for members of the public to find (and potentially loot and/or vandalize) cultural resource areas based on the presence of distinct vegetation “archaeology islands.”

CR-23: At the discretion of the FO Archaeologist, hand work (involving hand tools and methods) may occur within the boundaries of cultural resource sites and districts so long as the work does not negatively affect NRHP-listed or -eligible (assumed eligible) cultural resources. Hand work as it is used herein does not involve use of mechanized equipment, though use of chainsaws to fell individual or small groups of trees or cut other vegetation posing a hazard to critical infrastrutcure is included under this project design feature.

CR-24: At the discretion of the FO Archaeologist, woody material may be chipped within the boundaries of cultural resource sites and districts so long as the staging of chipping equipment on-site and placement of chipped material does not negatively affect NRHP-listed or -eligible (assumed eligible) cultural resources. If such resources are identified within the APE, the BLM FO Archaeologist will determine where the chipping equipment can be placed and where the chipped material can be piled or spread.

CR-25: Historic arborglyphs, generally found in aspen stands and assumed to be NRHP eligible, will be preserved in place and will not be cut or damaged. Burnable materials will be removed within a 15-foot (5-meter) radius to avoid impacts of prescribed burning. The FO Archaeologist has discretion to increase the radius surrounding the arborglyph(s), depending on slope, aspect, and other factors. Cut vegetation will not be piled within 15 feet of arborglyphs, and no more than five feet high to avoid heat damage to the tree or carving.

Cultural Resources - Adverse Effect, Post-Review Discovery, and Unanticipated Effects, and NAGPRA Inadvertent Discovery

CR-26: If an undertaking proposed under this programmatic EA results in a finding of adverse effect pursuant to Section 106, the FO will seek concurrence from the SHPO for this finding pursuant to the Protocol and, if SHPO concurrence is received, continue Section 106 review to resolve adverse effect pursuant to 36 CFR 800.6. An environmental assessment (tiering to the EA) will be prepared to determine whether the adverse effect will result in a finding of Significant Effect or No Significant Effect under NEPA.

CR-27: In the event of post-review discovery of, or unanticipated effects to, cultural resources during implementation of a project under this EA, the following procedures will be undertaken:

a. The FO Archaeologist, Field Manager, and BLM project manager or lead will be immediately notified by personnel responsible for project implementation.
b. All project work and activities with the potential to damage the cultural resource will cease immediately within 50 feet of the post-review discovery or where the unanticipated effects have occurred. This distance may be changed at the discretion of the FO Archaeologist in consultation with the Field Manager and BLM project manager, taking into account the circumstances of the specific project and discovery.
c. The FO Archaeologist will make an assessment of the situation and, in consultation with the Field Manager, prescribe a course of action consistent with the Protocol and/or the Section 106 regulations at 36 CFR 800.13 pertaining to post-review discoveries and unanticipated effects.
d. The FO Archaeologist will oversee and document implementation of the agreed-upon steps and will report the discovery event and the manner of its resolution.

e. The Field Manager has sole discretion to authorize (through a Notice to Proceed) continuation of project work and activities within the area of the discovery or anticipated effects after the situation is fully resolved.

CR-28: Inadvertent discovery of human remains and objects subject, or potentially subject, to NAGPRA as defined in 43 CFR 10.2 (d) will be handled by the BLM under the ARPA regulation at 43 CFR 7 and NAGPRA regulations at 43 CFR 10 as well as related BLM policy, including BLM California-specific policy and procedures such as those in the Protocol. The situation will be resolved to the satisfaction of the Field Manager, working in consultation with the FO Archaeologist, before project work and activities are allowed to continue in the area of the inadvertent discovery. The Field Manager has sole discretion to authorize (through a Notice to Proceed) continuation of project work and activities in the area of the discovery.

Paleontology

PALEO-1: All portions of the project area to be subjected to ground-disturbing activities (i.e., mechanical tree removal, etc.) and have potential to adversely impact significant paleontological resources will be assessed for such resources, as determined by the FO Archaeologist or FO paleontology lead, in accordance with BLM policy, including Washington Office (WO) Instructional Memorandum (IM) No. 2009-011 (Assessment and Mitigation of Potential Impacts to Paleontological Resources). Typically, only portions of the project area that contain Class 4 (high potential) or Class 5 (very high potential) formations as defined under the BLM's Potential Fossil Yield Classification (PFYC) system (pursuant to WO IM No. 2016-124) will be subject to paleontological resource assessment. Unknown (Class U) formations may also require assessment, as determined by the FO Archaeologist or FO paleontology lead.

PALEO-2: Generally, ground disturbance resulting in soil movement or compaction caused by tree removal and other mechanical vegetation treatments (i.e., use of heavy equipment, masticators, chippers, etc.), prescribed burning, and road use (i.e., construction, maintenance, decommissioning, and increased truck hauling) will not be allowed to occur within the boundaries of significant paleontological resource localities (or those resources assumed to be significant) unless the ground disturbance will clearly not affect the resource, as determined by the FO Archaeologist or FO Paleontology Lead.

PALEO-3: Prior to project implementation, significant paleontological resources (or those resources assumed to be significant) will be marked on the ground for avoidance. The marking will be determined in consultation with the BLM project manager or lead and project personnel, prior to the implementation of the project. The appropriate buffer distance will be at the discretion of the FO Archaeologist or FO Paleontology Lead, taking into consideration project activities and potential effects. The FO Archaeologist or FO Paleontology Lead also have discretion to require professional monitoring during and after project implementation, in accordance with WO IM No. 2009-011.

PALEO-4: In the event of a post-review discovery or unanticipated effects to significant paleontological resources during implementation of a project under this programmatic EA, project-related work in the area of the post-review discovery will immediately cease, project personnel will notify the Field Manager, and the FO Archaeologist or FO Paleontology Lead, in consultation with the Field Manager, Project Manager, and, as applicable, the project proponent, will immediately implement PALEO-2 and PALEO-3 to avoid or minimize adverse impacts to the post-review discovery. The Field Manager has sole discretion to

authorize (through a Notice to Proceed) continuation of project work and activities in the area of the post-discovery.
PALEO-5: In the event that a significant paleontological resource cannot be avoided and/or unanticipated effects cannot be stopped, the FO Archaeologist or FO Paleontology Lead, in consultation with the Field Manager, Project Manager, and, as applicable, the project proponent, will plan and implement mitigation (such as data recovery) appropriate to the scale of the effect to resolve the situation. Mitigation will only be planned and implemented for significant paleontological resources in accordance with WO IM No. 2009-011. Mitigation should be completed prior to the decision to implement the project. In the event that mitigation is necessary to address unanticipated effects or effects to post-review discoveries, the Field Manager has sole discretion to authorize (through a Notice to Proceed) continuation of project work and activities in the area of the unanticipated effects or post-review discovery.

Recreation

REC-1: To the extent possible, roads that provide access to developed recreation sites will be used minimally for both safety concerns and potential degradation of access roads.
REC-2: Where needed, vegetation or woody materials will be retained or deposited to inhibit creation of undesired trails by recreationist or to protect/screen sensitive resources.
REC-3: Recreation planner will be consulted for proposed hazard tree removal in recreation sites or along trails and roads to ensure recreation management objectives are met by proposed treatment.
REC-4: Vegetation treatments along dispersed use trails will only entail the falling of dead and dying trees to protect trail users from these hazards. Excessive fuel loading may need to be piled or lopped and scattered. Trails with more concentrated use that also have other critical infrastructure concerns such as nearby roads and private property are likely to need proactive tree thinning to enhance forest health and functionality.
REC-5: To the extent practical, downed wood resulting from treatments in or adjacent to campgrounds will be made available for firewood sales in the campgrounds in which the treatment occurred. Quantities will be determined in coordination with the FO recreation planner.
REC-6: If a designated off-highway-vehicle trail or non-motorized trail is damaged during treatment activities, the trail will be restored to BLM required specifications standards.

Lands and Realty

LR-1: BLM will notify the right-of-way (ROW) holder in writing when designing vegetation management projects near or adjacent to critical infrastructure. BLM will consider any written recommendations as to how the proposed use affects the integrity of, or the ability to operate the critical infrastructure. The notice will contain a time period within which the ROW holder must respond. The notice may also notify the holder of additional opportunities to comment.
LR-2: The ROW holder shall conduct all activities associated with the maintenance, operation, and termination of the ROW within the authorized limits of the ROW.
LR-3: ROW holders must contact the authorized officer and receive BLM authorization prior to conducting vegetation management treatments analyzed within this EA, unless previously authorized in their existing ROW.
LR-4: No commercial timber will be removed from any parts of the project at occur on the BLM Easment through private land.

LR-5: Specific sites as identified by the authorized officer (e.g., archeological sites, areas with threatened and endangered species, or fragile watersheds) where equipment and vehicles shall not be allowed, shall be clearly marked onsite by the holder before any surface disturbing activities begin. The holder shall be responsible for ensuring that personnel are well trained to recognize these markers and understand the equipment movement restrictions involved.
LR-6: ROW holder project activity vehicle and equipment traffic shall be restricted to routes approved by the authorized officer. New access roads or cross-county vehicle travel will not be permitted unless prior written approval is given by the authorized officer. Authorized roads used for the project shall be rehabilitated or maintained when activities are complete as approved by the authorized officer.
LR-7: During conditions of extreme fire danger, ROW operations shall be limited or suspended in specific areas, or additional measures may be required by the authorized officer.
LR-8: The ROW authorization holder shall permit free and unrestricted public access to and upon the project area for all lawful purposes except for those specific areas designated as restricted by the authorized officer to protect the public, wildlife, livestock, or facilities.
LR-9: As directed by the authorizing officer, all road segments shall be winterized by providing a well-drained roadway by water barring, maintaining drainage, and any additional measures necessary to minimize erosion and other damage to the roadway or the surrounding public lands.
LR-10: The authorization holder shall provide for the safety of the public entering the project area.

Visual Resource Management

VRM-1: Contrast Rating(s) will be conducted within sensitive viewsheds where treatments will occur within dense vegetation.
VRM-3: Roads

- Sightlines necessary for road safety should be kept open. A uniform forest edge on either side of the road appears uninteresting and oppressive and may disorient the traveler.
- Provide a more sinuous roadside space that flows from one side of the road to the other. Create variation in this space by leaving clumps of trees, giving the traveler a greater sense of movement and providing points of interest. This will provide the traveler with a sequence of enclosures and openings, which add variety to the driving experience.
- Create additional open spaces to provide opportunities for important views.
- Minimize clearing on shoulders to reduce erosion.
- Vegetation treatment debris should be kept to a minimum along the roadside.
- If road base materials are being used within sensitive viewsheds, use of materials that do not visually contrast are recommended when feasible.

VRM-5: Electric Transmission and Distribution Lines

- Trees should appear to meet across the open space in some places so that the corridor does not split the forest completely. Trees that will not present a safety or engineering hazard or otherwise interfere with operations should be left in place. If, by regulatory standards, all vegetation must be cleared, feathering the edges may be permitted. In this situation, some clearing and thinning should be considered outside of the corridor to create an irregular vegetation outline.

- Create a corridor of varying character and width, taking care to avoid irregular but parallel edges or irregular but symmetrical space.

VRM-6: Single Locations (e.g., recreation areas, communities, and private residences)

- Preserve vegetation for screening facilities or to buffer views into secure areas.
- Maximize views of natural features.
- Minimize views of parking.
- Preserve vegetation that guides access and vehicular and pedestrian circulation.
- Preserve vegetation to buffer campsites from roads and neighbors.
- Preserve vegetation to provide shade.

VRM-7: Temporary Access and Landing Construction

- Vegetation clearing should be minimized. Brush-beating, mowing, or using protective surface matting should be used. Trees should be trimmed versus cut.
- Routes should be unobtrusive and should be chosen to make as much use of landform as possible.
- Routes should not break the continuity of the canopy or ground vegetation.
- Areas with views and water edges should be crossed at the least visible point.
- Steep slopes should be avoided. The alignment should curve and blend with the landform.
- Landings and turning points should be sited where natural gradients provide space and are not positioned on prominent spurs or ridges.
- Routes and landings should be reclaimed upon the completion of a harvest with a methodology and seed mixture specified by the FO.

VRM-8: Reclamation of Existing Routes

- Routes should be reclaimed upon the completion of a harvest with a methodology and seed mixture specified by the FO.

Air Quality

AQ-1: All uses of prescribed fire during will meet the air quality standards, regulations, policies, and guidelines specified by the Federal Clean Air Act, the California Clean Air Act, the California Air Resources Board (ARB), regional Air Quality Management Districts (AQMD)/Air Pollution Control Districts (APCD), and municipal air pollution requirements and BLM Handbooks. This will be detailed in the BLM approved Prescribed Fire plan.

AQ-2: If prescribed fire is used, a BLM approved Prescribed Fire Plan will be in place prior to ignition. Air emissions will be managed by timing and atmospheric dispersal per the approved Prescribed Fire Plan.

AQ-3: The Prescribed Fire Plan will have a design, reviewed by NPS, USFS, BLM, ARB and/or AQMD/APCD that will have no adverse impact on Class I air quality areas.

AQ-4: The BLM and its collaborators will adhere to fuel standards for diesel fuel emissions established by the Air Resources Board, AQMDs, and APCDs for all on-road vehicles and off-road vehicles and equipment involved in projects.

Hazardous Materials

HM-1: During operations described in the Proposed Action, the operator will be required to have a BLM-approved spill plan or other applicable contingency plan. In the event of any release of oil or other hazardous substance into the soil, water, or air, the operator will immediately implement the site's plan. As part of the plan, the operator will be required to have spill containment kits present on the site during operations.

HM-2: Equipment refueling will not occur within 300 feet of perennial streams, 150 feet of intermittent streams, or 100 feet of any ephemeral stream to prevent toxic materials from entering waterways. Hydraulic fluid and fuel lines shall be in proper working condition in order to minimize leakage.
HM-3: All hazardous materials and petroleum products will be stored in durable containers located at least 300 feet from perennial streams, 150 feet from intermittent streams, or 100 feet from any ephemeral stream. Containers will be located so that accidental spills will be contained and will not drain into the stream system. Waste diesel, oil, hydraulic fluid and other hazardous materials will be removed from the site and disposed of at an approved site.

Safety

SAFE-1: Signs and/or road guards will be posted to warn the public about vegetation management, prescribed fire, road, trail, and facilities maintenance when and where necessary for safety.
SAFE-2: Existing telephone, transmission lines, fences, ditches, roads, trails, and other improvements will be protected while implementing the proposed treatments.
SAFE-3: Mechanized hand tools will have federal- or state-approved spark arresters.
SAFE-4: Fire staff will evaluate recommended actions in terms of safety. If the recommended treatment cannot be completed due to safety concerns, the proposal will be returned to the resource staff for other treatment options and further analysis.
SAFE-5: Tree cutting teams will carry fire extinguishers with them. One per chainsaw is required.

Appendix C. Water Quality Monitoring and Reporting Program

This Monitoring and Reporting Program (MRP) is associated with the Categorical Waiver of Waste Discharge Requirements for Nonpoint Source Discharges on National Forest Lands (Waiver). The terms and conditions of the Waiver stipulate a monitoring and reporting program that assesses water quality in upland watersheds. This appendix details the monitoring objectives and methods to evaluate both the implementation and effectiveness of Best Management Practices (BMP) associated with the North Red Mountain Forest Health and Fuels Reduction Project. The BLM is responsible for conducting monitoring as required in the Waiver MRP. The North Coast Regional Water Quality Control Board is responsible for reviewing and approving the BLM monitoring plan. Water quality monitoring activities are required in the Waiver (Monitoring and Reporting Program No. R1-2015-0021 – October 8, 2015) and focus on BMP Implementation and Effectiveness Monitoring. Details of the monitoring are described below. Specific BMPs are listed in Appendix B.

Implementation Monitoring

All projects with potential to adversely affect water quality will have BMP implementation monitoring using a "checklist" approach. Prior to project implementation, forestry and watershed staff will develop a list of site-specific BMPs to be implemented as part of project operations. This implementation list will be the primary systematic means for early detection of potential water-quality problems, and will be completed early enough to allow corrective actions to be taken, if needed, prior to any significant rainfall throughout the duration of the project. The BMP list will be completed several times during the life of most projects, including prior to ground-disturbing activities, following winter wet weather periods, and at the completion of the project. To ensure that the BMPs were applied at the appropriate locations, implementation monitoring will entail a review of the units to identify and evaluate any unanticipated erosion and sediment delivery. BLM watershed and forestry staff will develop the checklists based on BMPs identified in Appendix B of the North Red Mountain Forest Health and Fuels Reduction Project EA. BLM project staff will complete the checklists and watershed staff including geology and fisheries will coordinate and review the checklists to ensure that any deficiencies are corrected effectively.

Effectiveness Monitoring

The MRP, with random site selection, will continue to be the primary means of assessing the effectiveness of water-quality protection for current projects on BLM lands at the hillslope scale. Monitoring is focused on detection of hillslope erosion, emphasizing the location and types of sediment sources that may occur as a result of project implementation. The number of random samples selected for any specific project will depend on the overall number of BMPs implemented, the potential for adverse erosion and sedimentation from a given BMP, and ensuring that a full range of BMPs are captured within a reasonable time frame.

Corrective Actions

Follow-up monitoring for sites that were evaluated and rated as “not implemented” or “not effective” the previous year will be conducted to determine if corrective actions have been taken.

Reporting

An annual report which presents and discusses the results of the various monitoring efforts will be prepared as specified below. The annual reports shall be submitted to Regional Water Quality Staff by May 31 of each year.

Annual reports will summarize the types of monitoring that was conducted throughout the project area, including key results, findings, problems encountered, and corrective actions taken. Annual reports will summarize the types of monitoring conducted at each location. BLM will maintain findings and analysis of the collected data, and will furnish copies of raw monitoring data upon request. BLM will summarize any information pertinent to corrective actions that have been or need to be taken to ensure adequate water quality protection.