

CHAPTER 1. INTRODUCTION

Document Structure

The USDA Forest Service (USFS) has prepared this environmental assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant state and federal laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the Quail Vegetation and Fuel Treatment Project (Proposed Action) and alternatives. The document is organized as described below.

- Chapter 1, *Introduction*. This chapter presents information on the history of the Proposed Action, the purpose of and need for the Proposed Action, and USFS's proposal for achieving that purpose and need. The Introduction also details how USFS informed the public of the proposal and how the public responded.
- Chapter 2, *Comparison of Alternatives*. This chapter provides a more detailed description of the Proposed Action in comparison with the No-Action Alternative. This discussion includes measures incorporated into the project description to avoid or minimize adverse effects.
- Chapter 3, *Environmental Consequences*. This chapter describes the environmental effects of implementing the Proposed Action and other alternatives by resource area. For each resource area, the affected environment is described, followed by effects of the No-Action Alternative (the baseline for evaluation and comparison) and the Proposed Action.
- Chapter 4, *Consultation and Coordination*. This chapter provides a list of preparers and agencies consulted during the development of the environmental assessment.
- Chapter 5, *Literature Cited*. This chapter provides bibliographic references to sources cited in the text.
- *Appendices*. The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Lake Tahoe Basin Management Unit (LTBMU) Office in South Lake Tahoe.

Background

Many forests throughout the western United States, including areas in the Lake Tahoe Basin (Basin), are excessively dense and susceptible to catastrophic wildfire as a result of past management, most notably fire suppression. More recent management direction has prioritized the need to reduce hazardous fuels and reintroduce fire into fire-adapted systems

as means of reducing threats to communities and wildlife habitat posed by large, severe wildfires (USDA Forest Service 1988, 2001a, 2004).

The wildland-urban intermix (WUI) zone, where human habitation is mixed with areas of flammable wildland vegetation, has been prioritized as a fuel reduction treatment area (USDA Forest Service 2000a, 2004). It extends from the edge of developed private land into federal and state jurisdictions, as well as onto undeveloped private land. The WUI zone comprises the defense zone (an approximately 0.25-mile buffer extending outward from areas with high densities of residences, commercial buildings, and administrative sites with facilities) and the threat zone (a buffer 1.25 miles beyond the defense zone boundary).

In 2000, LTBMU assessed forest structure and wildland fuels on National Forest System Lands within a 1.5-mile perimeter from private property boundaries. Various areas, including portions of the Quail project area, were found to have a dense forest structure created by suppressed small-diameter trees growing close to other trees and moderate to high fuel accumulations created by standing and blown-down dead trees. Because of dense forest vegetation and fuel accumulations, these areas have an increased potential for high-intensity wildfires (USDA Forest Service et al. 2000).

Purpose and Need for Action

USFS proposes to implement activities to reduce fuel loads and fire hazards that pose considerable risk of high-intensity wildfires around private property, while protecting watershed function, wildlife habitat, and heritage resources in the Quail project area on the western side of Lake Tahoe. The Quail project area encompasses the Blackwood, McKinney, Meeks, and Emerald Bay Management Areas identified under the LTBMU Land and Resource Management Plan (LRMP) (USDA Forest Service 1988).

The purpose of this initiative is to reduce fuel ladders and accumulations by modifying vegetation structure and fuel loads; restore a healthy, diverse, fire-resilient forest structure through tree thinning; and introduce prescribed fire to restore fire regimes that were historically part of the ecosystem.

This action is needed because existing forest vegetation and fuel accumulations in the Quail project area pose a heightened risk for high-intensity wildfire around private property as identified in the West Shore Watershed/Landscape Assessment (USDA Forest Service 2001b) and the Lake Tahoe Basin Watershed Assessment (USDA Forest Service et al. 2000). Moreover, USFS is directed to prioritize areas that present significant risk of wildland fire to private property and watershed and wildlife habitat for fuel reduction treatments that will restore them to a healthy, diverse, fire-resilient forest structure (USDA Forest Service 2000a).

The Proposed Action is consistent with the goals, objectives, management practices, and prescriptions outlined in the LTBMU LRMP and helps move the project area toward desired conditions described in that plan (USDA Forest Service 1988). Specifically, the Proposed Action would achieve the desired conditions for WUI defense and threat zones within the project area¹.

Areas that encompass the WUI zone on National Forest System Lands adjacent to private property boundaries in the Quail project area have been identified through implementing LRMP Practices and Prescriptions and conducting the *West Shore Watershed/Landscape Assessment* in 2001 (USDA Forest Service 2001b). Habitat for sensitive, threatened, and endangered species and opportunities for watershed and forest health maintenance and restoration have also been identified in the project area. Maintaining visual quality and recreation values for quality recreation experiences was identified as a priority during project development.

The goals and objectives that were developed to meet the purpose of and need for the Proposed Action and to address issues related to the project are listed below.

Project Goals

- Restoration of fire-dependent ecosystem.
- Enhancement of fire suppression capabilities.
- Protection of life and property.
- Protection of watershed and forest health.
- Protection and enhancement of special-status species habitat.
- Protection of heritage resources.
- Maintenance of visual quality and recreational values.

¹ Desired conditions in Defense Zones: Stands that are fairly open and dominated primarily by larger, fire-tolerant trees; surface and ladder fuel conditions within stands that would be unlikely to result in crown fire ignition; and open, discontinuous crown fuels, both horizontally and vertically, resulting in very low probability of sustained crown fire.

Desired conditions in Threat Zones: Under high fire weather conditions, wildland fire behavior in treated areas within the threat zone is characterized as follows: (1) flame lengths at the head of the fire are less than 4 feet; (2) the rate of spread at the head of the fire is reduced to at least 50% of pre-treatment levels; (3) hazards to firefighters are reduced by managing snag levels in locations likely to be used for control of prescribed fire and fire suppression consistent with safe practices and guidelines; (4) production rates for fire line construction are doubled from pre-treatment levels; and (5) tree density has been reduced to a level consistent with the site's ability to sustain forest health during drought conditions.

Project Objectives

- Designate defense and threat zone boundaries of the WUI zone and identify overlap areas with all other land allocations.
- Modify the existing fuel profile to reduce fuel ladders, standing and down fuel loads, and vegetation so that treated areas would be able to carry a wind-driven wildfire event with flame lengths less than 4 feet in defense zones.
- Thin stands of trees so that growth and vigor of residual trees is maintained or increased to favor the development of large tree forest structure.
- Maintain or enhance visual and recreational values through varying fuel reduction treatments to create a variety of vegetation mosaics.

Proposed Action

USFS proposes to meet the Purpose and Need by implementing treatments to modify vegetation conditions for restoration of a healthy, diverse, fire-resilient forest structure and reduction of fuel accumulations. Treatments would include (1) thinning of trees and brush; (2) piling, burning, removing biomass, and chipping fuels; (3) cutting, chipping, or removing infested, diseased, and dead standing and down trees; and (4) prescribed fire subsequent to vegetation and fuel treatments.

Areas given highest priority for treatment (i.e., WUI zone) are within 1.5 miles of private property. According to the Sierra Nevada Forest Plan Amendment (SNFPA) (USDA Forest Service 2001a, 2004), areas immediately adjacent to the private property boundary (within 0.25 mile on National Forest System Lands) would be considered the urban defense zone. Areas beyond the urban defense zone (an additional 1.25 miles) would be considered the urban threat zone.

In the urban defense zone, conventional and mechanical treatments such as chainsaw thinning, cut-to-length forwarder/processor thinning, piling, pile burning, biomass removal, and chipping would be applied, where appropriate, to trees with diameters of 30 inches and less, as well as to accumulations of dead standing and down trees. Prescribed underburning would be used subsequent to vegetation and fuel treatments to further reduce fuel accumulations. There are no urban threat zones in the project area; accordingly, no treatments would occur in threat zones.

After the NEPA analysis is completed and signed, implementation of fuel treatment projects would be implemented between 2005 and 2011.

Public Involvement

LTBMU mailed a scoping letter on May 12, 2003, to 247 interested parties requesting comments and issues by June 13, 2003, for consideration in the Quail Vegetation and Fuel Treatment Project Environmental Assessment. More than 40 comment letters were received in response to this mailing. In addition, LTBMU hosted a public meeting the evening of May 29, 2003, at the Tahoe Community Center in Tahoe City, California, and a field trip the afternoon of May 30, 2003, at the entrance to Blackwood Canyon.

A scoping summary report was prepared for this initial scoping process; this report is available at the LTBMU office in South Lake Tahoe, California. The scoping summary report summarizes the comments received during the public scoping process and presents LTBMU's responses to the comments. The scoping process identified issues associated with the Proposed Action and was used by LTBMU to determine areas in the EA where additional assessment, information, or clarification would be necessary to address public concerns.

Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to address.

Issues

LTBMU separated the issues into two groups: significant and non-significant issues. Significant issues were defined as those directly or indirectly caused by implementing the Proposed Action. Non-significant issues were identified as those (1) outside the scope of the Proposed Action; (2) already decided by law, regulation, Forest Plan, or other higher-level decision; (3) irrelevant to the decision to be made; or (4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this distinction in Section 1501.7: "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review..." A list of non-significant issues and the responses validating their categorization as non-significant, in addition to the significant issues and responses, can be found in the scoping summary report, available at the LTBMU office in South Lake Tahoe.

In consideration of the public comments on the Proposed Action received during the scoping process, the following environmental issues related to the Proposed Action are described and analyzed in the Environmental Assessment.

- **Access.** Access to developed and undeveloped recreation sites, and increased off-highway vehicle (OHV) use due to opening up the forest and making closed roads more visible. These recreation-related issues are addressed in the Recreation section of Chapter 3.
- **Air Quality.** Short-term, direct impacts on air quality from prescribed fires.

- **Biological Resources.** Effects on sensitive plants and wildlife habitat, especially habitat for northern goshawk and California spotted owl.
- **Cultural Resources.** Effects on heritage resources during implementation.
- **Recreation.** Short-term impacts on recreation because of closure of the project area during project implementation.
- **Soils and Water Quality.** Effects on soil erosion attributable to equipment and vehicle use during project implementation; effects on water quality because of erosion and sedimentation resulting from project actions.
- **Vegetation, Fire, and Fuels.** Fire and fuel risks associated with the No-Action Alternative.
- **Visual Resources.** Effects on scenic quality from thinning and burning.

Decision Framework ---

The responsible official for implementation of the Proposed Action is the Forest Supervisor of the LTBMU. Based on the analysis provided in this EA, the Forest Supervisor will decide whether or not to implement the No-Action Alternative or the Proposed Action. The following discussion provides an overview of the factors the Forest Supervisor should consider in making his or her decision.

Effects Relative to Significance Issues

In 1978, the CEQ distributed regulations for implementing NEPA. These regulations include a definition of “significantly” as used in NEPA (40 CFR 1508.27). The elements of this definition are critical to reducing paperwork through use of a finding of no significant impact (FONSI) when an action would not have a significant effect on the human environment and is therefore exempt from requirements to prepare an environmental impact statement (EIS). The following discussion responds to these potentially significant issues by summarizing and referring to the appropriate sections of Chapter 3, *Environmental Consequences*, for each resource.

Context

The significance of an action must be analyzed in several contexts, such as the whole of society (e.g., ethical considerations and national interests), affected region, affected interests, and locality. Significance varies with the setting. In the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

The context of the Proposed Action and alternatives is the forest and ecosystem health and watershed quality of the Basin. Even in a local context, the Proposed Action would not pose significant short- or long-term adverse effects on forest health, water quality, or other resources. The Proposed Action is designed to minimize and avoid adverse impacts to the extent that such impacts are less than significant, even at the local level. Implementation would directly reduce the risks to forest resources, life, and property posed by uncontrolled wildfire events, and would indirectly facilitate the development of late-succession/old-growth forest characteristics. The No-Action Alternative would have no effects in the short term, but may in the long term contribute to adverse cumulative impacts associated with hazardous fuel conditions in the Basin, especially in the WUI zones. If catastrophic wildfires occurred as a result of the No-Action Alternative, there would be long-term adverse effects on the human environment. With respect to the resources evaluated in this EA, these adverse effects would include loss of habitat, damage to cultural resources, reduced recreational opportunities and visual quality, increased erosion, and increased nutrient runoff and sedimentation of waterways in the Lake Tahoe Basin.

Intensity

Intensity refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. Thresholds of significance established by the appropriate regulatory agencies in the Basin were used to evaluate potential impacts of the Proposed Action. Responsible officials should consider the following issues in evaluating intensity.

1. Impacts may be both beneficial and adverse

Actions can result in both beneficial and adverse effects. The effects of the Proposed Action and the No-Action Alternative are described in detail for each resource area in Chapter 3. The Proposed Action would not result in significant adverse short-term or long-term effects. The Proposed Action is designed to avoid or minimize potential short-term adverse effects on soil and water quality, vegetation, wildlife and fisheries, recreation, air quality, visual resources, and cultural resources during implementation of fuel reduction treatments. Chapter 2 describes measures incorporated into the Proposed Action to avoid or minimize potentially adverse effects during implementation. Implementation of the Proposed Action would indirectly result in long-term beneficial effects on forest and ecosystem health, soil and water quality, wildlife habitat, visual resources, and air quality in the Basin by reducing the probability of catastrophic losses from wildfire.

2. The degree of effects on public health or safety

The Proposed Action has the potential to result in short-term impacts on public health resulting from smoke generated by prescribed burning or pile burning. Implementation consistent with an approved Burn Plan and Smoke Management Plan is expected to result in minor effects on sensitive receptors in the project vicinity. The Proposed Action is also

expected to have a direct, beneficial effect on public health and safety by reducing the risks of uncontrolled wildfire occurrence. Implementation would directly reduce the risks to life and property from catastrophic or uncontrolled wildfire events by removing hazardous fuel conditions in the WUI zone. The fuel reduction treatments are designed to alter fire behavior such that fire suppression activities can be more effective and firefighter safety is not compromised. The No-Action Alternative would have no effects in the short term, but may in the long term contribute to adverse cumulative impacts on public health and safety associated with hazardous fuel conditions in the Lake Tahoe Basin, especially in the WUI zones. The No-Action Alternative would also have adverse soil and water impacts in the event of fire.

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

The Proposed Action would be implemented in areas with known cultural resource sites; numerous streams, seeps, and meadows; and ecologically critical areas. With respect to cultural resources, there are several known heritage resource sites in the project area. These sites would be flagged and avoided during implementation, thereby avoiding all project-related impacts.

With respect to wetland areas, the LRMP as amended by the SNFPA allows fuel reduction treatments within Riparian Conservation Areas (RCAs), provided that the treatments are consistent with applicable Riparian Conservation Objectives (RCOs) listed in the SNFPA and applicable soil and water quality standards established by the Tahoe Regional Planning Agency (TRPA), Lahontan Regional Water Quality Control Board (LRWQCB), and USFS Pacific Southwest Region. *The Soils and Hydrology Report and Cumulative Watershed Effects Analysis* (Jones & Stokes 2004a) (Soils and Hydrology Report) indicated that all the proposed treatments are consistent with these objectives. In order to protect streams, riparian areas, wetlands, soil quality, and water quality, the Proposed Action includes mandatory setbacks for stream environment zones (SEZs) and other best management practices (BMPs) designed to minimize detrimental soil disturbance and to control runoff, erosion, and sedimentation during project implementation. These measures are described in detail in the Soils and Hydrology Report and are summarized in Appendix A. Implementation of these BMPs would ensure that the direct effects of the Proposed Action on soil quality, water quality, and watershed conditions and processes remain less than significant.

In addition to cultural resources and wetland areas, the project area also contains ecologically important wildlife habitat. Observation of limited operating periods (LOPs) and protected activity centers (PACs) for sensitive wildlife would avoid or minimize potential short-term, implementation-related effects on wildlife species (PACs and LOPs are defined in Chapter 2).

4. The degree of controversy over environmental effects

Extensive public involvement efforts (see Public Involvement below) have not revealed any significant controversies regarding environmental effects of the Proposed Action. The majority of public comments received were in support of the Proposed Action. The scoping summary report summarizes all public comments related to the Quail Vegetation and Fuel Treatment Project.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks

The Proposed Action does not involve effects on the human environment that are highly uncertain or that involve unique or unknown risks. Numerous quantitative, empirical studies have documented the effectiveness of forest fuel treatments such as those in the Proposed Action in altering wildfire behavior, such as rate of spread and flame length, in order to create a defensible fuel profile around resources. The Proposed Action incorporates treatments and techniques that have been widely applied in similar environments in the region with proven success in avoiding impacts on sensitive resources. The impact avoidance measures have been chosen on the basis of their proven effectiveness in protecting sensitive resources.

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

The Proposed Action would not establish a precedent for future actions with significant effects, nor would it represent a decision in principle about a future consideration. LTBMU would implement fuel reduction treatments as necessary based on forest fuel conditions within the WUI zones. A separate NEPA EA would be conducted for each similar future action. Each EA process would include sending a scoping letter to interested or affected agencies and individuals in order to identify issues and concerns associated with the Proposed Action. As necessary, USFS would meet with agencies and members of the public during the scoping process. Each EA would provide an independent assessment of potential effects on the human environment associated with the Proposed Action and respective project area.

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

Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Cumulative impacts are based on evaluating the direct and indirect effects of the Proposed Action and alternatives in the context of other past, current, and planned future actions in the project area and vicinity. Because of the limited availability of historic land use records for the subject watersheds, the past land management activities considered here were limited to only a few small vegetation management projects conducted by LTBMU in the Meeks Creek and Rubicon Creek watersheds during the 1990s. Proposed land use activities included in the analysis were limited to vegetation management projects proposed by LTBMU, Homewood Mountain Partners, and the California Tahoe Conservancy. These

projects are scheduled for implementation in the Blackwood Creek, Madden Creek, McKinney Creek, General Creek, and adjacent intervening watershed areas during the next 6 years (i.e., 2005 to 2010).

Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. LTBMU would implement other fuel hazard reduction and vegetation management and watershed improvement projects in the Lake Tahoe Basin as necessary. Moreover, recreation levels (e.g., hiking, biking, cross-country skiing) are expected to increase on LTBMU lands. Implementation of the Proposed Action, considered together with implementation of other reasonably foreseeable actions in the Basin, is not expected to result in any adverse cumulative effects; rather, it is expected to result in overall beneficial cumulative effects on the environment through promoting forest health and decreasing the potential for wildfire.

Cumulative Air Quality Effects

The Proposed Action would not result in adverse cumulative air quality effects; it is expected to result in a cumulative beneficial improvement to air quality within the Lake Tahoe Air Basin compared to the No-Action Alternative. Controlled burns are one of the major sources of air emissions in the Lake Tahoe Air Basin, and any controlled burn must adhere to a Burn Plan and Smoke Management Plan prepared for the individual action and approved by the appropriate Air Pollution Control District to ensure that favorable atmospheric conditions exist to minimize effects on sensitive receptors. Implementation of the Proposed Action is expected to result in cumulative beneficial effects on air quality in the long run because of the reduced risk of smoke emissions from uncontrolled wildfire.

Cumulative Effects on Biological Resources

Because the Proposed Action is primarily a thin-from-below prescription that is not expected to dramatically affect overstory forest stand structure, it is not expected to contribute significantly to adverse cumulative effects on wildlife habitats. The total amount of mature forest habitat suitable for California spotted owl, northern goshawk, and American marten in the project area is expected to increase over the long term (> 20 years). After the Proposed Action is implemented the average stand diameter would increase more quickly than if proposed treatment areas are left untreated as residual trees respond to release from competition through increased growth. Therefore, the Proposed Action is not expected to result in significant adverse cumulative effects on these species. The Proposed Action would also complement an ongoing effort to improve spotted owl habitat through restoring stream channel characteristics along a segment of Blackwood Creek. The expected long-term benefits of reducing the potential for catastrophic losses resulting from wildfire are expected to maintain or improve wildlife and plant habitat regionally over the long term. Therefore, the Proposed Action is not expected to contribute to adverse cumulative effects on wildlife or vegetation resources. BMPs would be implemented to minimize or avoid impacts on aquatic habitat. Also, the expected long-term benefits of reducing the potential for catastrophic losses due to wildfire are expected to maintain or improve aquatic habitat regionally over the

long term. Consequently, the Proposed Action is not expected to contribute to adverse cumulative effects on fisheries.

Cumulative Heritage Resources Effects

The Proposed Action would not result in cumulative adverse effects on heritage resources. All projects implemented by the LTBM would avoid effects on all heritage resources.

Cumulative Recreation Effects

The Proposed Action is expected to contribute to minimal cumulative effects on recreation.

Cumulative Soil and Water Quality Effects

The cumulative watershed effects (CWE) analysis presented in the Soils and Hydrology Report indicated that 11 of the 21 watersheds in the project area are at risk of experiencing adverse cumulative watershed effects such as increased runoff and peak flows, accelerated erosion and sedimentation, and stream channel destabilization over the 10-year postproject evaluation period. Ten of these at-risk watersheds have equivalent roaded area (ERA) (an index of impervious ground cover) values that are substantially higher than the impervious cover thresholds for the watersheds as a result of existing land use (residential structures, roads and recreational facilities). Although the CWE analysis suggests that the Proposed Action could contribute to adverse cumulative effects in these 11 at-risk watersheds, the individual contribution of the Proposed Action would be relatively small in comparison to the more substantial and often permanent effects of existing land uses and other non-LTBMU vegetation management projects that employ less environmentally sensitive timber harvesting and site preparation techniques. Moreover, because the Proposed Action would not result in the creation of any permanent impervious ground cover, its effect on watershed conditions and processes would decrease considerably over time as a result of natural watershed recovery. The BMPs that would be implemented by LTBMU (Appendix A) would substantially lessen the short-term effects of the Proposed Action and hasten this recovery. Additionally, the Proposed Action would have a number of beneficial, long-term cumulative effects on watershed conditions, such as reduced risk of catastrophic wildfire, the restoration of healthy forest structure, and a reduction in unnaturally large volumes of woody material in SEZs and RCAs, all of which would help to offset the short-term, adverse cumulative effects of the Proposed Action on watershed conditions.

Cumulative Vegetation, Fire, and Fuels Effects

The potential cumulative effects of the Proposed Action on forest health are expected to be minor. Overall, the Proposed Action is expected to result in improved forest health in all treatment stands as individual trees are released from competition and presumably become more resistant to drought, pest, and pathogen attack. Over the long term, treatment of a greater proportion of stands within the LTBMU would result in improvements in forest health and beneficial cumulative effects on fuel conditions and fire behavior. Implementation of the Proposed Action would achieve the desired conditions for fuel and fire behavior for the urban defense zone as identified in the SNFPA Record of Decision (ROD)

(USDA Forest Service 2004). Surface fuels in all stands would be reduced from an average of 44 tons per acre to 15 tons per acre, and potential fire behavior is expected to change from active or passive crown fire to surface fire. The Proposed Action would also result in improved survivability rates of residual stands subjected to wildland fire and would reduce future wildfire suppression costs. Treatments would greatly reduce the potential for crown fire initiation and crown fire sustainability. These benefits would exist for a period of 10–20 years beyond implementation.

Cumulative Visual Resources Effects

All projects in the Basin are subject to visual quality thresholds and all projects on USFS-managed land are subject to Visual Quality Objectives (VQOs) adopted in the LTBMU LRMP. Scenic thresholds for roadway and shoreline travel routes are based on composite scores for visual quality indicators. The Proposed Action is not likely to result in a reduced score for any indicator in any of the roadway or shoreline travel units associated with the project area. Overall, the project is consistent with TRPA goals of maintaining or improving the numerical setting assigned to each Scenic Roadway or Shoreline Travel Route and maintaining and enhancing the natural-appearing landscape of the lands in the Basin. The Proposed Action and future fuel reduction projects would enhance visual quality over the long term by restoring forest views to a more open condition, maintaining viewing opportunities from vista points, and improving viewing opportunities along scenic corridors.

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

The Proposed Action is designed to minimize effects on eligible heritage properties through avoiding all known cultural resource sites. Adverse effects on all sites, including those eligible for listing in the NRHP, would be avoided by using standard resource protection measures described in Chapter 2, *Alternatives, Including the Proposed Action*, in accordance with the requirements in the Regional Programmatic Agreement between USFS Pacific Southwest Region, SHPO, and the Advisory Council on Historic Preservation (ACHP).

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

The effects of the Proposed Action on vegetation, wildlife (including federally listed species), and fisheries are described in the biology section of Chapter 3. In compliance with Endangered Species Act (ESA) requirements, USFS has prepared a biological evaluation/biological assessment (BE/BA) of potential effects of the Proposed Action on sensitive and federally listed species and has determined that the Proposed Action would not adversely affect any federally listed species or designated critical habitat. USFS has also determined in the BE/BA that project implementation is not likely to result in trends toward federal listing of sensitive and special-interest species that are not currently listed. No critical habitat has been identified in the project area.

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

The Proposed Action would not threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment. The Proposed Action is consistent with the LRMP and amending documents such as the SNFPA, the National Forest Management Act, the TRPA Code of Ordinances, LRWQCB and El Dorado and Placer County Air Pollution Control District (APCD) regulations, and other applicable local codes and ordinances.

Environmental Consequences of the Proposed Action Relative to Environmental Threshold Carrying Capacities

The process for TRPA review of USFS activities at Lake Tahoe is defined in a Memorandum of Understanding (MOU) between TRPA and LTBMU. Forest fuel reduction treatments and management are consistent with tree-thinning and other applicable TRPA ordinances. The Proposed Action would comply with the environmental threshold carrying capacities (ETCCs) established by TRPA. This section assesses the effects of Proposed Action for consistency with the applicable ETCCs for the Lake Tahoe Region.

Water Quality

The Proposed Action is consistent with the ETCCs for water quality. The LRMP established numerical standards for reducing the annual input of nitrogen to Lake Tahoe from all sources by 25%, and to decrease inputs of sediment, phosphorus, iron, and other nutrients necessary for aquatic algae growth to the shallow nearshore areas of the lake. Numerical standards were also established for reducing these constituents in surface runoff and tributary inflows to the lake. The nutrients nitrogen and phosphorus are the principal constituents of concern in water quality problems associated with declining water clarity in Lake Tahoe. The Proposed Action is expected to result in long-term reductions in the quantity of eroded soil and sediment transported to the lake; such soil and sediment transport typically occurs after uncontrolled wildfire events. Eroded soil and ash from wildfires can contain nitrogen compounds and are significant sources of phosphorus and iron.

TRPA evaluates compliance with the water quality threshold by assessing data from six distinct water sinks or sources: pelagic Lake Tahoe, littoral Lake Tahoe, tributaries, surface runoff, groundwater, and other lakes. The water quality protection measures to be implemented in the Proposed Action would prevent any substantial negative effects on surface and groundwater resources. The specified treatments and mitigation measures were selected to minimize potential adverse effects on water quality. The Proposed Action would generate no discharge to groundwater. Disposal of fuel and other fluids used by vehicles and equipment is prohibited throughout the project area. All accidental fluid spills would be

required to be cleaned up by removing contaminated soils and restoring the affected area. No other lakes are expected to be adversely affected by the Proposed Action.

Stream Environment Zones and Soil Conservation

The Proposed Action is consistent with the ETCCs for SEZs and soil conservation. The LRMP established numerical standards for restoring the natural functioning of 25% of the existing disturbed, developed, or subdivided SEZs, and attaining a 5% total increase in the area of naturally functioning SEZs. The Proposed Action would contribute to achievement of this environmental threshold by improving the health of treated SEZs and adjacent uplands through removal of overly dense vegetation competing for limited resources and by reducing the potential for wildfire. The selected treatments and mitigation measures were chosen to minimize soil disturbance, particularly in SEZs. The fuel reduction activities of the Proposed Action would take place primarily outside SEZs, and would use established techniques to remove fuels within SEZs and RCAs at specific locations. These techniques would result in minimal to moderate ground disturbance in some instances and would include over-snow operations and hand thinning. In addition, several soil conservation BMPs have been incorporated into the Proposed Action, such as limiting mechanical treatments to slopes less than 30%, operating over slash mats, and retaining canopy and woody debris cover. Potential adverse effects from implementing the Proposed Action are expected to be minor in the short term; some soil compaction would occur, but given the nature of the soils, compaction would be minimal and therefore considered a short-term effect. The Proposed Action would benefit SEZs in the long term. Because of these considerations, the Proposed Action would meet ETCCs for SEZs and soil conservation.

Air Quality

The Proposed Action is consistent with the ETCCs for air quality. These thresholds consist of numerical and management standards for ozone, carbon monoxide, visibility, and nitrate deposition. The Proposed Action may result in temporary increases in ozone precursors and particulate matter less than 10 microns in diameter (PM10) generated by mechanical treatments, as well as PM10 emissions and visibility impacts resulting from pile burning and prescribed burning activities. However, these short-term effects are considered to be individually and cumulatively minor and would be more than offset by the expected long-term benefit of reducing potential for emissions from an uncontrolled wildfire event. Consequently, the Proposed Action would not prevent meeting air quality thresholds associated with pollutant concentrations, regional and subregional visibility, and nitrate deposition.

Vegetation Preservation

The Proposed Action is consistent with the ETCCs for vegetation preservation. Implementation of the Proposed Action would not conflict with the numerical and management standards established to maintain common vegetation, uncommon plant communities, and sensitive plant species. Short-term potential adverse effects on sensitive plant species associated with fuel reduction activities would be avoided or minimized by means of preproject surveys and avoidance of identified populations. The Proposed Action is expected to favor pine (including sugar pine and western white pine) and cedar dominance, growth, and establishment; past forest management practices, which have favored white fir, have historically reduced the dominance of these species. The Proposed Action is also expected to improve the growth rates of residual trees and hasten the development of old-growth forest characteristics, and therefore to be consistent with the development of late-successional/old-growth forest structure and composition.

Wildlife

The Proposed Action is consistent with the ETCCs for wildlife and is in concurrence with the TRPA Regional Plan. Implementation would not conflict with the numerical and management standards established to maintain Special-Interest Species and Habitats of Special Significance. Short-term potential adverse effects on wildlife associated with project activities would be avoided or minimized through LOPs; limited treatments in sensitive areas; and the retention of wildlife clumps, SEZs, and other untreated portions of existing stands. In addition, guidelines for coarse woody debris and snag retention and disturbance zones for special interest, threatened, and endangered, and rare species would be followed. The Proposed Action may result in long-term benefits to wildlife by reducing the risks of catastrophic losses of habitat from wildfire and the development of late-successional/old-growth forest characteristics.

Fisheries

The Proposed Action is consistent with the ETCCs for fisheries. Implementation would not conflict with numerical and management standards established to maintain stream and lake habitat, instream flows, and Lahontan cutthroat trout populations. Short-term potential adverse effects on fisheries associated with project activities would be avoided or minimized through measures to protect watershed resources. The Proposed Action may result in long-term improvements to fish habitat as a result of reduced potential for erosion and associated runoff of contaminants and sediment following an uncontrolled wildfire event.

Scenic Resources

The Proposed Action is consistent with the ETCCs for scenic resources. The Proposed Action would thin small, suppressed, and intermediate trees, and therefore would not adversely affect visual resources in the Basin. The Proposed Action would result in improvement of visual quality as stands are opened up, views along scenic corridors are enhanced, and visually desirable old-growth forest characteristics are developed. Additional benefits to scenic quality would likely be realized over the long term as a result of reduced potential for catastrophic losses due to uncontrolled wildfire occurrence. Overall, the project is consistent with TRPA goals of maintaining or improving the numerical setting assigned to each Scenic Roadway or Shoreline Travel Route and maintaining and enhancing the natural-appearing landscape of the lands in the Basin.

