

# Chapter 3

## Affected Environment and Environmental Consequences

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### **3.1 INTRODUCTION**

This chapter summarizes the physical, biological, social, and economic environments that are affected by the proposed action and alternatives and the effects on that environment that would result from implementation of any of the alternatives. This chapter also presents the scientific and analytical basis for comparison of the alternatives presented in Chapter 2.

The affected environment discussion for each resource describes the existing, or baseline, condition against which environmental effects were evaluated and from which progress toward the desired condition can be measured. Environmental consequences form the scientific and analytical basis for comparison of alternatives, including the proposed action, through compliance with standards set forth in the Cleveland NF Land Management Plan and a summary of monitoring required by National Environmental Policy Act and the National Forest Management Act.

The environmental consequences discussion for each resource describes direct, indirect, and cumulative effects, as well as applicable mitigation measures. *Direct effects* are caused by the action and occur at the same time and place as the action. *Indirect effects* are caused by the action and occur later in time, or further removed in location, but are reasonably foreseeable. *Cumulative effects* result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions. Effects can be beneficial, neutral, or adverse. A section on irreversible and irretrievable commitments of resources is located at the end of this chapter.

#### **3.1.1 Analysis Process**

The environmental consequences presented in Chapter 3 address the impacts of the actions proposed under each alternative for the Cleveland NF. This effects analysis was done at the forest scale. However, the effects findings in this chapter are based on site-specific analyses of each road, trail, and area proposed for addition to the transportation system and any changes in vehicle class and/or season of use for existing National Forest System roads, trails and areas. Readers seeking information concerning the environmental effects associated with a specific road, trail, or area are directed to the specialist reports in the project record, where details concerning any mitigation measures or any other findings are documented. Road segment lengths may vary slightly between various specialist reports due to mapping changes.

#### **3.1.2 Cumulative Impacts/Effects**

A *cumulative impact* is the impact on the environment which results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions (40 CFR 1508.7).

The cumulative effects analysis area is described under each resource, but in most cases includes the entire Cleveland NF including private and other public lands that lie within the national forest boundary. Past activities are considered part of the existing condition and are discussed in the affected environment and environmental consequences sections for each resource.

To understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding all prior activities on an action-by-action basis. This approach was not taken for several reasons. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond), and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. Focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions, and one can not reasonably identify each and every action over the last century that has contributed to current conditions. Additionally, focusing on the impacts of past human actions risks ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects. Third, public scoping for this project did not identify any public interest or need for detailed information on individual past actions. Finally, the Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” For these reasons, the analysis of past actions in this section is based on current environmental conditions.

### **3.1.3 Affected Environment Overview**

Many elements of the affected environment apply to all resources. To avoid repeating these shared elements, the following general elements of the affected environment are provided.

Unmanaged OHV use has resulted in unplanned roads and trails, erosion, watershed and habitat degradation, and impacts to cultural resources. On some National Forest System lands, long managed as open to cross-country motor vehicle travel, repeated use has resulted in unplanned, unauthorized, roads and trails. These routes generally developed without environmental analysis or public involvement, and do not have the same status as NFS roads and NFS trails included in the forest transportation system.

### **3.1.4 Assumptions and limitations**

The following assumptions and limitations were applied in the effects analysis in each section:

1. No NEPA decision is necessary to continue use of the national forest transportation system (i.e., OHV and transportation) as currently managed under the no action alternative. These decisions were made previously.

2. Unauthorized travel routes are not included in the national forest transportation system. These routes are unauthorized. Proposals to add these to the transportation system require a NEPA decision.
3. Temporary roads, trails and areas built to support emergency operations or temporarily authorized in association with contracts, permits or leases are not intended for public use. They are not authorized for public use and are therefore not included in the transportation system. Proposals to add these temporary roads to the transportation system will require a NEPA decision.
4. Unauthorized routes not included in the proposed action are not precluded from consideration for addition to the transportation system in future travel management actions.
5. The Cleveland NF will continue to make changes to the transportation system as needed. It will also continue to make decisions about temporary roads or trails on as needed in association with contract, permit, lease, or other written authorization.
6. Any activity associated with contract, permit, lease or other written authorization is exempt from designation under the travel management rule (36 CFR 212.51(a)(8)) and should not be part of the proposal. These activities, which include fuelwood permits, motorized SUP permits, and mining activities, are subject to separate NEPA analysis.
7. *Designation* is an administrative act that does not trigger NEPA. Designation technically occurs with printing of the motor vehicle use map. NEPA analysis is not required for printing a map.
8. For travel management, any change to current restrictions or prohibitions regarding motorized travel by the public is the federal action that triggers NEPA analysis. Examples include prohibiting cross-country travel, changing management, changing vehicle class or season of use, and any additions or deletions of roads, trails, or areas to the national forest transportation system.
9. Previous decisions on the transportation system do not need to be revisited to implement the travel management rule or the motor vehicle use map. The transportation system contains existing roads and trails that either underwent NEPA analysis, or that predate NEPA. Allowing continued motorized use of roads and trails in the transportation system in accordance with existing laws and regulations does not require NEPA analysis.
10. Dispersed recreation activities—such as camping, hunting, fishing, and hiking—are not part of the scope of the proposed action. The analysis focuses on motor vehicle use.
11. Travel analysis is a pre-NEPA planning exercise for transportation planning which informs travel management. Until new directives are published, the agency continues to follow existing policy related to transportation planning and analysis. For example, some Roads Analysis Process requirements in FSM 7700 and 7710 are still applicable.
12. Setting road maintenance levels and changing maintenance levels are administrative and not subject to NEPA. However, changes in allowed vehicle class, season of use, access, and proposals to reconstruct facilities are subject to NEPA.
13. The system will be maintained to standard and all additions or changes to the transportation system will meet standards prior to availability for public use.

### **3.1.5 Resource Reports**

Each section in this chapter provides a summary of the project-specific reports, assessments, and input prepared by Forest Service specialists, which are incorporated by reference in this environmental assessment. The following reports and memoranda are incorporated by reference: Botanical Biological Evaluation, Botany, and Noxious Weed Risk Assessment; Biological Assessment / Biological Evaluation (BA/BE) for Fish and Wildlife; Hydrology; Soils; Recreation; Visuals; and Heritage Resources. These documents are part of the project record on file at the Cleveland National Forest Supervisor's Office in San Diego, California. Copies of these reports are available upon request by contacting Anne Carey, Project Leader, at (858) 674-2901.

### **3.1.6 Law Enforcement**

The following assumptions are associated with the proposed changes to the transportation system:

- Enforcement of the laws and regulations related to travel management will be enforced equally in authority and weight as with all other federal laws and regulations.
- As with any change in a regulation on National Forest System lands, there is usually a transitional period for the public to become accustomed to the changes. A higher number of violations to the Travel Management Rule may occur during the first few years, but the number of violations will decline as the users become accustomed to and comply with the rules. Our assumptions are that:
  - Users in communities adjacent to the Cleveland NF will comply within 1 to 2 years.
  - Frequent users who are further distance from the Cleveland NF will comply within 2 to 3 years.
  - Infrequent users, regardless of distance, may take up to 5 years to comply.
- Law enforcement officer and agency personnel presence and enforcement actions will positively affect the behavior and attitudes of OHV users.
- The Travel Management Rule and associated motor vehicle use map clearly define the designated routes, thereby making violations to the rule unequivocal.
- After the motor vehicle use map is published, the implementation of the established dedicated network of roads, trails, and areas with signs, and user education programs, will reduce the number of violations.
- Forest protection officers spend a large percentage of time on travel management issues, ranging from 30 to 50 percent, depending on the national forest. Law enforcement officers spend approximately 10 to 20 percent of their time on enforcement of off-highway vehicle issues.
- The proposal to provide additional routes to the transportation system through action alternatives is anticipated to assist enforcing the shift from two “open to cross-country motor vehicle travel” areas to one in which such use is designated in much smaller areas. These actions provide opportunities and access where such use was occurring in key popular dispersed locations based on recreation analysis and public input. Providing opportunities for recreation in popular, key areas will help relieve pressure to travel off of designated routes.

### **3.1.7 Information on Other Resource Areas**

The proposed action and alternatives do not propose actions affecting these resources. However, a brief summary on why they are not included in Chapter 3 is provided based on input received during scoping:

#### **Wilderness**

Actions proposed are in compliance with wilderness designations and with the Wilderness Act of 1964. These resources are not affected by any alternative. Motorized activity continues to be prohibited in wilderness under all the alternatives.

## **3.2 HERITAGE RESOURCES**

The authorized use of motorized vehicles on newly constructed trails and open areas, the continued use of user-created trails associated with dispersed recreation, and the construction and maintenance of new OHV roads, trails, and open areas on the Cleveland NF have the potential to affect heritage resources. This section discusses the potential for effects to heritage resources associated with the implementation of each alternative and satisfies the requirements found in Section 106 of the National Historic Preservation Act (NHPA) for the proposed undertaking, in accordance with the stipulations of the *Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region, U.S.D.A. Forest Service, Intermountain Region's Humboldt-Toiyabe National Forest, California State Historic Preservation Officer, and Advisory Council on Historic Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Designating Motor Vehicle Routes and Managing Motorized Recreation on the National Forests in California* (2006) (Motorized Recreation PA)..

Methodology used to determine the study area for effects to heritage resources for this project is based on the stipulations of the Motorized Recreation PA, in conjunction with Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR 800). Research methods include collection and review of Cleveland NF heritage records, including archaeological site records (ASRs) and archaeological reconnaissance reports (ARRs), GIS data, archival documents, and topographic site location quad maps. Fieldwork conducted in support of the undertaking included intensive pedestrian survey, relocating previously recorded sites, and updating ASRs for previously recorded sites for each alternative.

During pre-field research, Cleveland NF files were examined in order to locate ASRs and ARR documents documenting previously recorded sites and previously conducted surveys. Based on field data collected in support of the proposed undertaking, ASRs were to be prepared if site conditions appeared to have changed since the original or most recent site record or update was prepared.

Based on the stipulations contained in the Motorized Recreation PA, the study area for the proposed undertaking was determined to be a corridor 15 meters wide centered on existing or proposed linear features (i.e., roads, trails, or other OHV routes). If the study area for the existing or proposed linear feature had not been previously surveyed, a pedestrian survey was conducted to identify and record heritage resources. Newly discovered heritage resources were recorded on standard Department of Parks and Recreation ASR forms, which would be submitted to the South Coastal Information Center. Archival research and collection of site record and ARR data, survey, preparation of ASRs and updates, and preparation of ARR documents associated with the proposed undertaking was conducted and/or reviewed by the Cleveland NF heritage resources program manager, or by supervised archaeological technicians.

### **3.2.1 Existing Condition**

#### **Alternative 1**

Effects on heritage resources associated with the ongoing use and maintenance of authorized roads, trails, and open areas that would remain open as a result of the implementation of Alternative 1 were documented in the Final Environmental Impact Statement (FEIS) produced in support of the Revised Land Management Plans (LMP) for the Angeles, Cleveland, Los Padres, and San Bernardino national forests, in accordance with NEPA and a long-term Forest Service order. A final record of decision (ROD) was signed for the FEIS in 2006, and a review of the existing transportation system determined

that it is consistent with the revised LMP, and that its continued use does not represent an adverse effect to heritage resources, in accord with the stipulations of the Motorized Recreation PA.

## **Alternative 2**

The following sections document the results of archival and pre-field research, a summary of previous fieldwork, and a summary of field work (survey) conducted in support of Alternative 2. For lengths of road and trail segments under this alternative, please refer to the tables in section 2.1.2.2.

### *User-Created Motorized Trails*

Alternative 2 would include the addition of some portions of existing, user-created motorized trails for vehicles 50 inches or less in width into the transportation system. The portions of existing user-created motorized trails that would be added to the transportation system are all within the boundaries of the Corral Canyon OHV area. Portions of the area of potential effects (APE) of this component of Alternative 2 have been previously surveyed during the course of heritage survey conducted in support of the development of Corral Canyon as an OHV area.

Due to the moderately dense distribution of sites in the area and the fact that previous surveys were not conducted in heavily vegetated or sloped areas, the portions of motorized trails in Corral Canyon that would be added to the transportation system as part of Alternative 2 were subjected to intensive pedestrian survey. Pre-field research indicated that no heritage resources were previously identified in the APE of the proposed trail segments. No heritage resources were identified in the APE of this component of Alternative 2 as a result of pedestrian survey of proposed trail segments completed in support of this alternative.

### *Construction of New Motorized Trails*

Alternative 2 would include addition of new trails, some intended for motorcycle use only and some intended for use by all vehicles, to the transportation system within the boundaries of the existing Corral Canyon OHV area. Portions of the APE of this component of Alternative 2 may have been previously surveyed during the course of heritage survey conducted in support of the development of Corral Canyon as an open OHV area.

Due to the moderately dense distribution of sites in the area and the fact that previous surveys were not conducted in heavily vegetated or sloped areas, all alignments of the new motorized trails in Corral Canyon that would be constructed as part of Alternative 2 were subjected to intensive pedestrian survey. Pre-field research indicated that no heritage resources were previously identified in the APE of the proposed new trails. No heritage resources were identified in the APE of this component of Alternative 2 as a result of pedestrian survey of proposed new trail alignments completed in support of this alternative.

### *Open Motorized Use Areas*

Alternative 2 would include the addition of two OHV open areas to the transportation system, including a 2.0-acre open motorized use area adjacent to Corral Canyon OHV campground and a 0.2-acre open motorized use area adjacent to the Wildomar OHV trailhead, both of which are within areas currently open to authorized OHV use. The proposed Corral Canyon open area may have been previously surveyed during the course of heritage survey conducted in support of the development of Corral Canyon as an open OHV area. The proposed Wildomar open area had not been previously subjected to archaeological survey. Both proposed open motorized use areas were subjected to intensive pedestrian survey in support of this alternative. Pre-field archival research indicated that no previously recorded heritage resources are in the APE of either of these areas, and none were identified as a result of pedestrian survey completed in support this alternative.

### *User-Created, Dispersed Recreation Roads*

Alternative 2 would include the addition of portions of user-created, unpaved roads associated with dispersed recreation access to the transportation system as public motorized access for highway legal vehicles only. These roads are currently being used for access to dispersed recreation activities. Some of these existing, user-created, unpaved roads were subjected to pedestrian surveys in support of previous projects over the course of the past 20 years. A review of the ARRs and ASRs for sites identified during the course of previous surveys indicated that the APEs of five of the proposed road additions intersect with the boundaries of five previously recorded, unevaluated, and therefore potentially eligible archaeological sites.

All portions of user-created, dispersed recreation access roads that would be added to the transportation system as part of this alternative that appeared to bisect heritage resources according to the Cleveland NF heritage site database, as well as previously unsurveyed roads, were subjected to intensive pedestrian survey in support of this alternative. In addition, the entirety of the previously mapped archaeological site boundaries that appeared to be intersected by existing user-created access roads that would be added to the transportation system as part of Alternative 2 were intensively surveyed, even if the mapped site boundary extended out of the APE for the road, or the site was found to be located entirely outside the APE of the proposed road addition.

No visible surface components or features that may contribute to potential eligibility of previously recorded archaeological sites were found to be within the proposed APE of any of the portions of existing, user-created dispersed recreation roads that would be added to the transportation system as part of this alternative. The apparent intersection of previously recorded site boundaries on the heritage site database appears to be the result of plotting error, map projection disparities, and/or incomplete or incorrectly recorded data regarding surface artifact and/or feature distribution. Four of these sites appeared to be located near, but not within, the APE of the various existing road segments, and one site contained features that are outside the APE of the proposed road addition.

The fact that cultural resources were not identified in the APE of these user-created road segments does not appear to be a result of site disturbance associated with the construction, use, or maintenance of these roads. These issues are clarified in the heritage resources survey report produced in support of this component of Alternative 2. Site record forms reflecting the updated site boundary and/or site location revisions were prepared and will be submitted to the South Coastal Information Center (SCIC) for official filing as necessary.

### **Alternative 3**

Alternative 3 would include the addition of selected portions of some user-created, dispersed recreation access roads to the transportation system that are proposed under Alternative 2. Portions of the user-created, dispersed recreation access roads that would be added to the transportation system as part of Alternative 2 would be decommissioned and restored to a natural state as part of this alternative. In addition to the 2.2 acres of open OHV use area proposed as part of Alternative 2, several rock outcrops totaling 12.8 acres adjacent to designated trails in the existing Corral Canyon OHV area would be added to the transportation system for motorcycle and bike trail riding as part of Alternative 3, for a total of approximately 15 acres of areas proposed for open OHV use. For lengths of road and trail segments under this alternative, please refer to the tables in section 2.1.2.3.

Portions of some of the user-created, unpaved access roads that would be added to the transportation system as part of Alternative 3 had been subjected to some degree of pedestrian survey in support of previous projects over the course of the past 20 years. A review of the ARRs for previous surveys indicated that the APEs of some of these roads intersect with the boundaries of previously recorded,

unevaluated, and therefore potentially eligible archaeological sites, and this information is also reflected in the heritage site database. As previously noted, all user-created, dispersed recreation access roads that would be added to the transportation system as part of Alternative 3 that appear to bisect heritage resources according to the heritage site database were surveyed in support of Alternative 2. Previously unsurveyed roads and the rock outcrops adjacent to designated trails in the existing Corral Canyon OHV area totaling 12.8 acres that would be designated for motorcycle and bike trail riding, were subjected to intensive pedestrian survey in support of this alternative.

The entirety of the previously mapped archaeological site boundaries that appeared to be intersected by existing user-created access roads that are proposed for designation as part of Alternative 3 were intensively surveyed in support of Alternative 2, even if the mapped location extended out of the APE for the road. As stated for Alternative 2, no visible surface components or features that may contribute to potential eligibility of previously recorded archaeological sites were found to be within the proposed APE of any of the user-created dispersed recreation roads that would be added to the transportation system as part of the proposed implementation of this alternative, and no archaeological sites were recorded within the 12.8 acres in the existing Corral Canyon OHV area that would be added to the transportation system for motorcycle and bicycle use as part of the proposed implementation of Alternative 3..

### **3.2.2 Determination of Effects**

#### **Alternative 1**

As previously noted, the effects on heritage resources associated with the ongoing use and maintenance of existing roads, trails, and open areas were previously documented and analyzed in the FEIS produced in support of the revised Land Management Plans (LMP) for the Angeles, Cleveland, Los Padres, and San Bernardino national forests, in accordance with NEPA and a long-term Forest Service order. In accord with the stipulations of the Motorized Recreation PA (Evaluation of Historic Properties), the continued use and maintenance of existing roads, trails, and open areas does not represent an adverse effect to heritage resources.

The Motorized Recreation PA states that “existing roads, trails, and specifically defined areas that bisect or contain historic properties may be used as is without NHPA evaluation if the heritage resources program manager determines that on-going use and maintenance are unlikely to further affect possible NHPA values.” Based on this guidance, the Cleveland NF heritage resources program manager has determined that the continued use of the existing unpaved access roads that would remain open as a result of the implementation of Alternative 1 is unlikely to further affect possible NRHP values of heritage sites. As a result, there would be no adverse effect to historic properties associated with the proposed implementation of Alternative 1. The Section 106 compliance for Alternative 1 is considered to be complete. No further heritage management analysis is required in association with the proposed implementation of this alternative.

Indirect effects associated with the implementation of this alternative include the potential for effects to heritage resources associated with the continued use and proliferation of unauthorized, user-created routes, and the retention of the Corral Canyon and Wildomar OHV areas. However, indirect effects would be expected to decrease over time, particularly with the development of an updated motor vehicle use map (MVUM) and the installation of informational signs related to the prohibition of the use of unauthorized OHV routes.

#### **Alternative 2**

Based on the analysis of the results of previously conducted heritage resources survey and/or survey conducted in support of the proposed implementation of Alternative 2, the Cleveland NF heritage

resources program manager has determined that there would be no adverse effects to historic properties in the cumulative APE of Alternative 2. The Section 106 analysis for Alternative 2 is considered to be complete. No further heritage management analysis is required in association with the planning or implementation of this travel management alternative.

The potential for indirect effects associated with the implementation of this alternative resulting from the continued use and proliferation of unauthorized, user-created routes would be significantly reduced in comparison to the implementation of Alternative 1, but still higher than that for Alternative 3. This reduction in the potential for indirect effects would result primarily from the limiting of OHV use to designated routes and the reduction in the size of the open OHV areas within Corral Canyon and Wildomar from a total of 2,160 to 2.2 acres.

### **Alternative 3**

Based on the determination of no potential for adverse effects to historic properties associated with the proposed implementation of Alternative 2 and the fact that Alternative 3 represents a modification of Alternative 2 that is comprised of the reduction or complete elimination of the existing or proposed new road and trail segments analyzed for Alternative 2, there is no potential for adverse effects to historic properties within the cumulative APE of Alternative 3. The closure (decommissioning) of several segments of existing unauthorized user-created OHV roads and trails does not represent a potential adverse effect to historic properties, in accordance with the stipulations of the Motorized Recreation PA. The assessment of potential effects to heritage resources associated with the restoration of decommissioned road segments will be deferred until such time that specific restoration activities are proposed. As a result of this determination, there is no potential for adverse effects to historic properties associated with the proposed implementation of Alternative 3, including the decommissioning of portions of the existing user-created, dispersed recreation roads. The Section 106 compliance aspect of Alternative 3 is considered to be complete, and no further heritage management analysis is required in association with the planning or proposed implementation of Alternative 3.

The potential for indirect effects to heritage resources associated with the implementation of this alternative resulting from the continued use and proliferation of unauthorized, user-created routes would be reduced in comparison to the implementation of alternatives 1 and 2. This reduction in the potential for indirect effects would result primarily from the limiting of OHV use to an even smaller amount of designated routes and the 14.8 acres of open areas in the Corral Canyon OHV area, and the significant reduction in size of the Wildomar open area to only 0.2 acre. The decommissioning of several dispersed recreation roads or road segments would also contribute to a reduction in the potential for indirect effects to heritage resources associated with implementation of this alternative in comparison to alternatives 1 and 2.

### **Monitoring**

In an effort to maintain current data regarding the status of documented sites in the vicinity of the APE, avoid inadvertent effects to any unrecorded heritage resources that may exist in the APE, and support the general goals and objectives of the LMP and the Motorized Recreation PA, a monitoring plan focused on identifying at-risk historic properties would be developed and implemented within one year of the implementation of a travel management alternative. Monitoring will be conducted annually for a three-year period, after which the Cleveland NF may revise the monitoring plan if results indicate that certain types of properties, routes, or specifically defined areas no longer require prescribed monitoring. If monitoring indicates that effects to historic properties are occurring in association with the OHV use within the implemented alternative, appropriate resource protection or treatment measures would be implemented to minimize or eliminate such effects.

### **3.3 WILDLIFE AND BOTANY**

Data regarding biological and botanical resources on the project area were obtained through review of existing records and thorough field investigations. Only species with known occurrences or considered to have a high likelihood of occurrence in the project areas are discussed in depth in this analysis. Species accounts for the current Cleveland NF threatened, endangered, proposed, candidate, and sensitive lists are contained in the 2006 Land Management Plan. Pre-field reviews determined which threatened, endangered, proposed, candidate, or sensitive species are known from the project area or have suitable habitat present and may occur. Data regarding biological and botanical resources in and near the project areas were obtained through literature review, existing reports, and field investigations.

Sensitive biological and botanical resources that are present, or that may be present, were identified through a literature review using the California Natural Diversity Data Base (CNDDB), Forest Service records, and the California Native Plant Society (CNPS). Use of other literature pertinent to the project area, as well as consultation with local experts, is described below where applicable.

#### **3.3.1 Wildlife Methods and Surveys**

Fish and wildlife surveys were focused on the small fraction of the action alternatives where ground-disturbing effects beyond those occurring under existing conditions would be expected. Field visits were generally limited to areas of proposed new construction and currently unclassified routes. Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded. In addition to species actually observed, expected wildlife usage of the site was determined according to the known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area.

Wildlife surveys were conducted by the Cleveland NF biologist in April and May 2007, and in February and May 2008. Previous surveys of the Wildomar OHV area were completed by a consultant in 2002. No focal species were detected during these surveys. The main focus of the faunal species surveys was to identify habitat suitability for special-status wildlife in the project area to predict those species with a higher probability of occurrence. Because a species was not detected does not mean that the species does not occur in the project area. Surveys of wildlife species have the inherent limitation that absence is difficult or impossible to determine. This is especially true for wildlife species with a nocturnal pattern of activity or those that are otherwise difficult to detect.

#### **3.3.2 Botanical Methods and Surveys**

Botanical field studies for this project were focused on the small fraction of the action alternatives where ground-disturbing effects beyond those occurring under existing conditions would be expected. Therefore, field studies were generally limited to proposed new construction and currently unclassified routes. Potential short-term ground disturbing effects associated with proposed decommissioning of classified routes and rehabilitation of unclassified routes are expected to be avoided/minimized through application of design features described below.

Field surveys were performed by the Cleveland NF biologist in April and May 2007, and in February and May 2008. Previous botanical surveys of the Wildomar OHV area were completed by a consultant in 2002. The botanical surveys were floristic in nature, and the 2007 surveys were performed during the times of year when target species would be most detectable. Because the 2007 rainfall year was below average, some focal

plant species likely were undetected. The 2008 surveys of routes proposed for rehabilitation were performed during an average rainfall year, so no focal species likely went undetected. No specific vegetation mapping was done in association with this project.

### **3.3.3 Policy and Direction**

In addition to laws, regulations, and LMP standards discussed in section 1.4, applicable requirements and direction are found in the Endangered Species Act, the National Forest Management Act, Department of Agriculture 9500-4 Regulations, the Forest Service Manual, the LMP, and the Southern California Conservation Strategy. The biological report for this project contains a full description of jurisdictions, legal requirements, and management direction that are applicable to this project.

### **3.3.4 Features Common to Action Alternatives**

The Cleveland NF already has a designated system for OHV and other motor vehicle use. OHV travel off designated routes is prohibited. The existing designated OHV system was reconfirmed, with public input, through the land management planning process and record of decision of September 2005. The LMP prohibits motor vehicle travel off designated National Forest System roads and trails and limited areas that are designated for vehicle use. Concurrently with this project, the Cleveland NF is implementing the Travel Management Rule with publication of a motor vehicle use map that defines the transportation system and can be used as an enforcement tool.

Cleveland NF employees and volunteers have responsibility, in part, to patrol and monitor the transportation system, street-legal motorized recreation, and OHV use. These employees, who provide information and education to the public, can cite motorists who violate prohibitions and/or who cause resource damage. Finally, unauthorized routes are identified and remedied as quickly as possible. The Cleveland NF has a Wildlife Habitat Protection Program and Habitat Protection Program funded as part of the Green Sticker State funding. Annual monitoring and reporting are conducted based on this annually updated plan.

### **3.3.5 Resources Design Features Incorporated into the Project Design**

These design features apply to the elements of each action alternative. Development of measures to reduce the potential effects to wildlife and plants is part of compliance with LMP standard S-11 (see section 1.4). Concerns and associated design features incorporated into all action alternatives to ensure that effects are avoided, minimized or mitigated are listed below.

**Concern:** Riparian areas, water bodies, wetlands, seeps, springs, and meadows.

**Design features:**

**R-1.** The five-step project screening process will be used to identify riparian conservation areas (RCAs) wherever designations and/or transportation management actions intersect riparian areas (LMP standard S-47).

**R-2.** New construction will avoid identified RCAs to the maximum extent possible.

**R-3.** Decommissioning of roads and rehabilitation of unclassified routes, wherever they are within identified RCAs, will be implemented with minimal effect to the RCA and associated botanical and wildlife resources. To the extent possible, snags and downed logs will be retained within the RCA.

**Concern:** Botanical resources.

**Design features:**

**B-1.** New construction will avoid effects to threatened, endangered and sensitive (TES) plant species. Prior to construction, coordination will occur with the forest botanist to ensure that route alignments are chosen that will not affect TES species.

**B-2.** All decommissioning and rehabilitation will be planned and implemented to avoid effects to TES species.

**Concern:** Invasive plants.

**Design features:**

**IP-1.** For new construction, decommissioning and rehabilitation, all mechanized heavy equipment to be used off of system roads will be cleaned prior to entering the project area. This is to reduce the likelihood of introduction or spread of non-native invasive plants. In all project-related contracts, include provisions that require equipment cleaning before project implementation.

**IP-2.** Where available, any plant materials used for decommissioning and rehabilitation will be from on-site sources. All plant material from off-site sources must be certified weed-free (LMP standard S-6).

**IP-3.** A handout will be prepared for the project administrator to use to identify target weed species and to use to educate the permittee and contractors.

**IP-4.** Information and training will be provided to field-going OHV and resources patrol employees and volunteers regarding invasive non-native plant species to help identify new introductions before they become inordinately expensive or impossible to eradicate.

**Concern:** Rehabilitation.

**Design features:**

**RE-1.** Decommissioned roads and rehabilitated routes should be restored using locally-collected plant materials and seeds (LMP standard S-6). Seed mixes and planting palettes must be approved by a Forest Service botanist prior to application

**Concern:** General wildlife.

**Design features:**

**WG-1.** For new construction, decommissioning and rehabilitation, known occurrences of Sensitive animals and/or habitat features that support sensitive animals will be flagged and avoided. These areas may be buffered to prevent indirect effects. A qualified biologist will work with the project administrator to avoid known occurrences.

**WG-2.** For new construction, decommissioning and rehabilitation, no night-time work (and use of artificial lighting) during construction will be allowed. Night-time is defined as the period between sunset and sunrise

**Concern:** Nesting birds.

**Design features:**

**B-1.** For new construction, decommissioning and rehabilitation: To comply with the Migratory Bird Treaty Act, prior to onset of implementation between March 1 and August 31, surveys will be conducted for nesting birds no more than two weeks prior. If nesting birds are found, the project administrator will work with the biologist to minimize effects and ensure consistency with the act.

**B-2.** For new construction, decommissioning and rehabilitation: active and inactive raptor nest areas will be avoided, using buffers and LOPs as needed (LMP standard S-18). Nest trees will be flagged for avoidance during implementation

**Concern:** Rare terrestrial reptiles and amphibians.

**Design features:**

**HE-1.** For new construction, decommissioning and rehabilitation: Protect rock outcrops, springs, seeps and riparian areas from mechanical disturbance where possible.

**Concern:** Monitoring.

**Design features:**

**M-1.** The project area will be monitored periodically for non-native invasive plants. If weeds are found, a plan for eradication/control will be developed as a component of the WHPP/HMP.

**M-2.** The Cleveland NF will continue to provide field staff, and well as continue to cultivate volunteers, to patrol, enforce and monitor uses of the OHV and street-legal motorized transportation system to the maximum extent possible.

**M-3.** New OHV routes added as a part of this project will be evaluated and appropriate monitoring will be carried forward to the next WHPP/HMP.

### **3.3.6 General Wildlife and Botany**

This section addresses effects and concerns that are not specifically related to management indicator species; threatened, endangered, proposed, candidate, or sensitive species; or noxious weeds. It addresses concerns regarding general wildlife and vegetation. The purpose of this section is to describe species and habitats in the project area as well as to document the types and degree of potential effects from the proposed project.

#### **3.3.6.1 Existing Condition**

The vegetation and wildlife of the Forest are generally described in the Place descriptions in the Land Management Plan (USDA Forest Service 2005, part 2, pp 35-67), and are incorporated herein by reference. The scope of this project includes such a wide range of habitats and habitat conditions that they will not all be reiterated here.

#### **3.3.6.2 Effects Common to General and Special Status Animals and Plants**

##### **Alternative 1**

Under Alternative 1, habitat conditions in the project area would remain the same as under current conditions for the foreseeable future. Wildlife and plant species in the project area will experience no changes in levels and types of disturbance with regard to individuals, populations, and habitats other than increases in use from larger numbers of users. Under this alternative, the long-term adverse effects of construction and route additions would not occur, nor would the short-term adverse effects to plants and animals that would be caused by route rehabilitation and decommissioning. However, the many adverse effects to plants and animals that would be remedied under each of the action alternatives through route rehabilitation, decommissioning and reclassification would not occur, and no progress would be made toward the desired conditions with regard to unclassified routes, off-route vehicle travel, and unmanaged recreation in general.

##### **Alternatives 2 and 3**

This is a discussion of general types of direct and indirect effects that may result from this project for all animals and plants that are present in the project area. Native species in the project area would be affected in two general ways: through habitat loss/degradation and through direct and indirect effects to

individual plants and animals. Species and habitats would also benefit from some elements of the actions alternatives.

### **3.3.6.3 General Effects to Plants and Wildlife by Action Category**

General effects to plants and wildlife are discussed for each action category below.

#### ***Action Category 1: Addition and designation of existing user-created motorized trails***

This action category would open unclassified routes to street legal or to both street-legal and OHV travel, depending on adjacent use. Uses on these routes would presumably increase relative to the existing levels of unauthorized travel as a result of a combination of signage, mapping, and maintenance.

In general, for this action category, there are expected to be benefits related to patrol and monitoring as well as possible benefits of increased compliance on a more functional road and trail system.

***Action Category 2: Construction of new motorized trails:*** This action category would entail new construction of road segments and classification of these routes as new additions to the OHV system.

***i. Plants:*** Net adverse effects of direct vegetation and plant habitat loss would be long-term but small in scale. Route alignment would be planned and implemented to avoid effects to special status plant species. The extent to which construction of these segments would improve the trail system and reduce tendencies to leave designated routes would be beneficial to general botanical resources long-term. However, this upside is impossible to predict and measure in advance, and this action would rely on monitoring for an eventual evaluation.

***ii. Wildlife:*** This activity will result in a loss of habitat and an increase in long-term wildlife effects associated with the presence of a road. Since the amount of this activity being proposed is small, the effects are relatively minor.

***Action Category 3: Addition of open motorized use areas in existing open areas:*** This action category would designate new system routes within existing open areas and would retain small open areas within existing open areas.

***i. Plants:*** Minimal effects relative to existing conditions. This evaluation is based on the assumption that adding OHV access to roads already open to public motorized travel with street legal vehicles would have no direct effects to plants, plant populations, or general vegetation beyond those occurring under existing conditions. This assumption is based on the following premises: 1) street-legal vehicles and OHV's do not differ with regard to their maximum capabilities for travel and terrain; 2) there is no indication that an operator of an OHV would be more or less likely than an operator of a street-legal vehicle to venture off of a designated route and engage in illegal/unauthorized off-route travel; 3) OHV's that are properly equipped and meet legal requirements are no more likely to start fires than are properly equipped street-legal vehicles; and 4) the extent, severity, frequency, and duration of habitat degradation and effects to plants and general vegetation caused by unauthorized off-route travel do not differ with regard to whether or not the offending vehicle is street-legal.

It is likely that this designation would increase use on these roads, simply due to the fact that the designation opens up legal access to previously-excluded users. However, there is no indication that this increased use would result in increased abuse, and more traffic on the road does not directly equate to

increased effects to plants. The improved riding opportunities, connectivity, and efficiency of the OHV system may even reduce the tendency for motorists to venture off-route.

Even if one were to assume that an overall increase in use would lead to proportionally more individuals venturing off-route and causing damage to vegetation, this would likely be offset by improved management of the system. It is likely that the designation would lead to funding for increased patrols, enforcement, restoration, and possibly a greater degree of route adoption and self-enforcement within the OHV user communities.

If monitoring does reveal a conflict between OHV use and protection of special-status plant species, Standard 34 in the Forest Plan and the associated adaptive mitigation provisions of Forest Plan Appendix D would be invoked. This Forest plan direction seeks the least-restrictive effective solution to conflicts, ranging from conservation education to closure and decommissioning of facilities.

ii. Wildlife: Designating existing system routes as legal for green sticker vehicles will increase the amount of use these routes receive. This will increase the potential for road kill. In addition, it could result in some additional avoidance of the roadway due to noise and potential for harassment. Where hunting or illegal shooting is common, some species (deer, predators, etc.) will avoid roads where this occurs. In open areas with long sight distance, the area avoided can be quite large (up to ¼ mile) Where there is good cover either provided by vegetation or topography, this distance can be much smaller.

***Action Category 4: Authorization and designation of user-created, dispersed recreation access roads***

This action category would open unclassified routes to street legal or to both street-legal and OHV travel, depending on adjacent use. Uses on these routes would presumably increase relative to the existing levels of unauthorized travel as a result of a combination of signage, mapping, and maintenance.

In general, for this action category, there are expected to be benefits related to patrol and monitoring as well as possible benefits of increased compliance on a more functional road and trail system.

### **3.3.7 Sensitive Species**

This section contains descriptions of the methods/evaluation process, proposed action, alternatives, and habitat for this project, followed by discussions on general effects to plants and animals. Many of those general effects also apply to sensitive plants and animals. Species accounts for the sensitive species discussed in this section are contained in detail in the LMP.

#### **3.3.7.1 Affected Environment and Direct and Indirect Effects on Sensitive Wildlife Species Common to all Action Alternatives**

Sensitive wildlife species that are known or expected to occur in the project area are listed in Table 3.1. Potential effects to sensitive species that are known to occur and those that have a high probability of occurring in and adjacent to the project area are discussed in detail. See the LMP for complete species accounts with citations.

In general the effects to sensitive wildlife species from motorized vehicle use on roads, trails and cross country were described in the previous section on General Wildlife and Plants. Specific conflicts and benefits from aspects of the various alternatives with sensitive fish and wildlife species will be discussed as appropriate.

**Table 3.1: Sensitive animal species that occur or that have potential habitat in the project area.**

<b>Species</b>	<b>Scientific name</b>	<b>Status in project area</b>
Large-blotched ensatina	<i>Ensatina eschscholtzii klauberi</i>	Potential habitat
Southwestern pond turtle	<i>Actinemys marmorata pallida</i>	Occurs
California legless lizard	<i>Aniella pulchra</i>	Occurs
San Diego horned lizard	<i>Phrynosoma coronatum blainvillii</i>	Occurs
Coastal rosy boa	<i>Lichanura trivirgata rosafusca</i>	Occurs
San Diego ringneck snake	<i>Diadophis punctatus similis</i>	Occurs
San Diego mountain kingsnake	<i>Lampropeltis zonata pulchra</i>	Occurs
Two-striped garter snake	<i>Thamnophis hammondi</i>	Occurs
Bald eagle	<i>Haliaeetus leucocephalus</i>	Occurs
California spotted owl	<i>Strix occidentalis occidentalis</i>	Occurs
California leaf-nosed bat	<i>Macrotus californicus</i>	Potential habitat
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Occurs
Pallid bat	<i>Antrozous pallidus</i>	Occurs
Western red bat	<i>Lasiurus blossevillii</i>	Occurs

#### **Amphibians**

The large-blotched ensatina salamander has potential habitat in the project area. The species is found in moist situations in canyons and north facing slopes, or in riparian or moist forest and woodlands. They are not likely to occur close to roads and trails. **The majority of the routes considered in the proposed**

action are in drier, more open habitats. Very little new construction is planned and it is not in situations conducive to ensatina salamanders. The greatest effect to ensatina would be the creation of eroding surfaces with gullies and waterways from cross country OHV use that would dewater a site and make it less suitable for this species. Overall, there should be little effect on this species because the proposed action avoids most of the suitable habitat for this species.

### **Reptiles**

The California legless lizard and San Diego coast horned lizard are potentially affected by this proposal. In addition, four snakes—including the coastal rosy boa, San Diego ringneck snake, San Diego mountain kingsnake, and two-striped garter snake—are found in the project area.

San Diego coast horned lizard is a species that may be affected more than the rest of these species. This species is attracted to bare areas with loose soil and an abundance of native ants. Roads and OHV trails often have loose soil on the edges with bare areas that are perfect for foraging. As a result, horned lizards are probably the species most likely to be killed by crushing as routes are used for OHV use. However, of the sensitive reptile species on the project, horned lizards appear to be the most abundant and widespread.

For two-striped garter snakes, only perennial riparian areas with fish or tree frogs appear to be used. For all of these species, cross country OHV use can be very damaging. In addition to the killing of individuals by crushing, loud noise can disrupt their behavior and even cause long term damage to their hearing. Perhaps the greatest effect of cross country use is the creation of eroding surfaces with gullies and waterways that dewater a site and make it less suitable. Since this project will only allow use on designated roads and trails which for the most part have existing use and riparian areas would be avoided, the effects are expected to be minor. There could potentially be some limited mortality to these species from roadkill where roads or trails pass through suitable habitat.

### **Birds**

Bald eagles and California spotted owls occur in the project area. Bald eagles are primarily around reservoirs that adjoin National Forest System lands. Currently, the only bald eagle pair nesting near the Cleveland NF is at Lake Henshaw, adjacent to the Palomar Ranger District. None of the proposed project areas are within known nesting or roosting habitat for bald eagles. The species may fly over some of the areas and occasionally land near an OHV route, but none of the routes are in habitat considered to be important for this species. This project should have no effect on bald eagles.

California spotted owls are present in areas adjacent to portions of the existing designated road system. A more detailed discussion can be found in the section on management indicator species. **None of the proposed project areas are within known nesting or roosting habitat for California spotted owls. They may forage in some of the areas and occasionally land near a route, but none of the routes are in habitat considered to be important for this species. There should be no effect on California spotted owls from this project.**

### **Mammals**

Townsend's big-eared bat, pallid bat, western red bat, and leaf-nosed bat potentially are present in areas planned for activities related to this project. These species roost in rock crevices, caves, mines, tree cavities and in buildings and bridges. None of these habitats are expected to be affected by the proposals

in this project. Foraging takes place over a variety of habitats, primarily at night when OHV activity is not heavy. Preferred locations for foraging are riparian areas and meadows which are avoided by project design. The effects to bats of this project are anticipated to be very small because little OHV activity occurs at night, and alternatives 2 and 3 include measures to protect riparian habitat.

### 3.3.7.2 Affected Environment and Direct and Indirect Effects on Sensitive Plant Species Common to All Action Alternatives

Species listed in Table 3.2 were considered in this analysis. It is likely that other sensitive plant occurrences are present but are undetected or unmapped in the project area. The LMP has complete species accounts with citations.

**Table 3.2: Sensitive plant species that occur in the project area.**

Species	Scientific name	Status in project area
San Bernardino aster	<i>Aster bernardinus</i>	Occurs
Dean's milkvetch	<i>Astragalus deanei</i>	Occurs
Jacumba milkvetch	<i>Astragalus douglasii v. perstrictus</i>	Occurs
San Diego milkvetch	<i>Astragalus oocarpus</i>	Occurs
Jaeger's milkvetch	<i>Astragalus pachypus v. jaegeri</i>	Occurs
Orcutt's brodiaea	<i>Brodiaea orcuttii</i>	Occurs
Dunn's mariposa lily	<i>Calochortus dunnii</i>	Occurs
Lakeside ceanothus	<i>Ceanothus cyaneus</i>	Occurs
Long-spined spineflower	<i>Chorizanthe polygonoides v longispina</i>	Occurs
Delicate clarkia	<i>Clarkia delicata</i>	Occurs
Ramona horkelia	<i>Horkelia truncata</i>	Occurs
Orcutt's linanthus	<i>Linanthus orcuttii</i>	Occurs
Laguna Mountains aster	<i>Machaeranthera asteroides v. lagunensis</i>	Occurs
Felt-leaved monardella	<i>Monardella hypoleuca v. lanata</i>	Occurs
San Felipe monardella	<i>Monardella nana v. leptosiphon</i>	Occurs
Moreno currant	<i>Ribes canthariforme</i>	Occurs
Southern skullcap	<i>Scutellaria bolanderi ssp. austromontana</i>	Occurs
Gander's butterwort	<i>Senecio ganderi</i>	Occurs
Southern jewelflower	<i>Streptanthus campestris</i>	Occurs
Velvety false-lupine	<i>Thermopsis californica v. semota</i>	Occurs

### 3.3.7.3 Direct and Indirect Effects to Sensitive Plants

A number of known sensitive plants are adjacent to existing designated roads and trails. No new sensitive plant occurrences were detected along unauthorized routes that are proposed for addition. There are no changes to designated routes in these areas. No new sensitive plant occurrences were detected along the

new routes that are proposed for construction. There is no difference between alternatives in terms of effects on sensitive plant species. There should be no change in conditions for these species under any alternative.

#### **3.3.7.4 Cumulative Effects to Sensitive Species**

**Cumulative effects to sensitive wildlife species.** Sensitive wildlife species affected by the action alternatives would experience neutral or very minor effects. Selection of alternatives 2 or 3 is not expected to contribute to cumulative effects on these species.

**Cumulative effects to sensitive plant species.** Sensitive plant species affected by the action alternatives would experience neutral or very minor effects. Selection of the alternatives 2 or 3 is not expected to contribute to cumulative effects on these species.

**Forest Service Sensitive species.** Each action alternative, as described, may affect individuals, but is not likely to result in a trend toward federal listing for any sensitive plant or animal species. The project will not interfere with maintaining viable and well-distributed populations for any sensitive species (36 CFR 219.19).

### **3.3.8 Threatened, Endangered, Proposed, and Candidate Species**

The Endangered Species Act requires that federal agencies evaluate effects to federally listed species and consult with the U.S. Fish and Wildlife Service (USFWS) when considering federal actions. The most recent species list request was sent to USFWS on January 31, 2008. A letter of response was received on February 22, 2008. All species listed in the USFWS letter are included in this evaluation.

#### **3.3.8.1 Threatened, Endangered, and Proposed Wildlife Species: Affected Environment and Direct and Indirect Effects of the Action Alternatives**

The following discussions focus on threatened, endangered, and proposed wildlife species known to occur in the vicinity of project area, or those that have a high likelihood of occurrence based on proximity to the project area. The discussion also discusses critical habitat where activities overlap.

Existing National Forest System roads are in or adjacent to occupied or critical habitat for the Laguna Mountains skipper. No changes to designated routes are proposed in these areas, so no difference exists between alternatives in terms of effects on this species. There should be no change in conditions for this species under any alternative. Roads that are adjacent to Laguna Mountain skipper are not expected to affect this species or its critical habitat due to the distance between the existing roads and the suitable habitat.

Existing National Forest System roads are in or adjacent to occupied habitat for the arroyo toad. These roads have been addressed in previous consultations with the USFWS. Under alternatives 1 and 3, no new trails or roads would be built or added to the transportation system in occupied arroyo toad habitat. Alternative 1 would have no effects beyond those currently occurring. Under Alternative 2, 1.07 Miles of new roads would be added to the transportation system in occupied arroyo road habitat. Alternative 2 would adversely affect arroyo toads by increasing the probability of road kill and damage to the species or its habitat resulting from motorized vehicle use. Alternative 3 would have no net effect on arroyo toad.

**Table 3.3: Threatened, endangered, proposed, and candidate species that occur in the project area.**

Species	Scientific name	Habitat	Critical habitat on CNF
Arroyo toad	<i>Bufo californicus</i>	Riparian	Designated, none on CNF

### **3.3.8.2 Threatened, Endangered, Proposed, and Candidate Plants - Affected Environment and Direct and Indirect Effects Common to All Action Alternatives**

Table 3.4 contains the current threatened, endangered, and proposed plants for the Cleveland NF. All species were considered in this analysis; only San Bernardino bluegrass is known to occur in or have potential habitat near the project area. See the LMP for complete species accounts with citations. The earlier discussions on general wildlife and plant species also applies to plants known to occur as well as any that were undetected during surveys. Direct and indirect effects to threatened and endangered plants and their designated or proposed critical habitat are discussed below for each species.

**San Bernardino bluegrass.** This species occurs in mountain meadows. There is a known occurrence of San Bernardino bluegrass in Bear Valley and there is potential habitat present near Kitchen Creek Road. Some populations occur adjacent to existing, designated National Forest System roads. There are no proposed additions to the road or trail system in these areas, so there is no difference between any of the alternatives in terms of effects on this species. There should be no change in conditions for this species under any alternative.

### **3.3.8.3 Cumulative Effects to TEP Species (ESA Definition)**

This section addresses two legal definitions for cumulative effects/effects analysis. Under NEPA, “cumulative effects” are those effects caused by past, present, and future federal, state, and private activities within or onto special status species and their habitats. Under the Endangered Species Act (ESA), “cumulative effects” only consider future non-federal activities. Future federal activities or activities permitted by federal agencies are not included under ESA “cumulative effects” because any proposed future federal activities or federally permitted activities must undergo Section 7 consultation with the USFWS.

**Cumulative Effects to TEP Animals.** Under Alternative 2, there are no adverse effects to listed animals from this project, thus there are no cumulative effects to listed animals.

**2.4.3 Cumulative Effects to TEP Plants.** Under Alternative 2, there are no adverse effects to listed plants from this project, thus there are no cumulative effects to listed plants.

**Table 3.4: Threatened and endangered plant species that occur in the project area.**

Species	Scientific name	Habitat	Critical habitat on CNF
San Bernardino bluegrass	<i>Poa atropurpurea</i>	Meadows	Proposed

### **3.3.8.4 Effects on Threatened, Endangered, and Proposed Species and Critical Habitat**

**Threatened or endangered plant species and designated critical habitat.** Implementation of any alternative will not adversely affect listed threatened or endangered plant species or designated critical habitat.

**Plant species proposed for federal listing or proposed critical habitat.** There are no plants proposed for listing under the Endangered Species Act and no proposed critical habitat in the project area.

**Threatened or endangered animal species and designated critical habitat.** Implementation of Alternative 1 will have no effect on the arroyo road. Implementation of Alternative 2 will not adversely affect the Laguna Mountains skipper or its designated critical habitat. Implementation of Alternative 2 will adversely affect arroyo toad due to the addition of new routes within occupied habitat into the transportation system. Implementation of Alternative 3 will not adversely affect listed threatened or endangered wildlife species or designated critical habitat.

**Wildlife species proposed for federal listing or proposed critical habitat.** There are no animals proposed for listing under the Endangered Species Act and no proposed critical habitat in the project area.

### **3.3.9 Management Indicator Species (MIS)**

MIS are animal or plant species identified in the Cleveland NF LRMP (USDA 2005, Part 1, page 45), which was developed under the 1982 National Forest System Land and Resource Management Planning Rule (1982 Planning Rule) (36 CFR 219). The current rule applicable to project decisions is the 2004 Interpretive Rule, which states “Projects implementing land management plans...must be developed considering the best available science in accordance with §219.36(a)...and must be consistent with the provisions of the governing plan.” (Appendix B to §219.35). Guidance regarding MIS set forth in the Cleveland NF LRMP directs Forest Service resource managers to (1) at project scale, analyze the effects of proposed projects on the habitats of each MIS affected by such projects, and (2) at the national forest scale, monitor populations and/or habitat trends of forest MIS, as identified by the LRMP.

#### **3.3.9.1 Direction Regarding the Analysis of Project-Level Effects on MIS**

Project-level effects on MIS are analyzed and disclosed as part of environmental analysis under the National Environmental Policy Act (NEPA). This involves examining the effects of the proposed project alternatives on MIS habitat by discussing how direct, indirect, and cumulative effects will change the quantity and/or quality of habitat in the analysis area. These project-level effects to habitat are then related to broader scale population and/or habitat trends. The appropriate approach for relating project-level effects to broader scale trends depends on the terms in the LMP. For certain MIS, the LMP does not require population monitoring or surveys. For these MIS, project-level effects analysis can be informed by forest-scale habitat monitoring and analysis alone. Therefore, adequately analyzing project effects to MIS, including threatened, endangered, and sensitive (TES) species that are also MIS, involves five steps:

1. Identifying which MIS have habitat that would be either directly or indirectly affected by the project alternatives. These MIS are potentially affected by the project.
2. Identifying the LMP forest-level monitoring requirements for this subset of MIS.
3. Analyzing project-level effects on MIS habitats or habitat components for this subset of MIS.
4. Discussing forest scale habitat and/or population trends for this subset of MIS.
5. Relating project-level effects on MIS habitat to habitat and/or population trends for the affected MIS at the forest scale.

**Direction Regarding Monitoring of MIS Population and Habitat Trends at the Forest Scale.** Forest scale monitoring requirements for the Cleveland National Forest’s MIS are found in the Monitoring Plan of the LRMP (USDA 2005), Part 3, Appendix C, page 59. The monitoring question for MIS is “Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend?” The specified monitoring frequency is every 5 years.

**Habitat Status and Trend.** The LMP requires forest-scale monitoring of habitat status and trend for MIS. Habitat status is the current amount of habitat on the Cleveland NF. Habitat trend is the direction

of change in the amount of habitat between the time the LMP was approved and the present. Habitats are the vegetation types (e.g., mixed conifer forest) and/or ecosystem components (e.g., cliffs or lakes) and any special habitat elements (e.g., snags) required by an MIS for breeding, cover, and/or feeding. Habitat relationships for plant MIS are identified individually. MIS habitat trend is monitored using ecological and vegetation data. These data include spatial ecological and vegetation layers created from remote-sensing imagery obtained at various points in time, which are verified using photo-imagery, on-the-ground measurements, and tracking of vegetation-changing actions or events.

**Population Status and Trend.** Population monitoring requirements for the MIS of the Cleveland NF are identified in the Monitoring Plan of the LMP. This document requires monitoring of population status and trend for select MIS. There are many types of population data, and this document also identifies the type of population monitoring data required for each MIS. All population monitoring data are collected and/or compiled at the forest scale, consistent with the LMP. Population status is the current condition of the MIS related to the type of population monitoring data (population measure) required in the LMP for that MIS. Population trend is the direction of change in that population measure over time.

Population data for MIS are collected and consolidated in cooperation with state and federal agency partners (e.g, the California Department of Fish and Game, U.S. Geological Survey, and USDI Fish and Wildlife Service) or conservation partners (e.g., Partners in Flight and various avian joint ventures). Population data includes presence data, which is collected using a number of direct and indirect methods, including population surveys, bird point counts, tracking number of hunter kills, and counts of species sign, such as deer pellets.

### 3.3.9.2 Selection of Project level MIS

Management indicator species are identified in the LMP (USDA Forest Service 2005, Part 1, page 45). The MIS analyzed for the project were selected from this list of MIS identified in the LMP, as indicated in Table 3.5.

**Table 3.5: Management indicator species (MIS) found in the project area**

Species	Status	Habitat Indicator
Mountain lion	MIS	Fragmentation
Mule deer	MIS	Healthy diverse habitats
Arroyo toad	Federally-listed endangered, MIS	Aquatic
Song sparrow	MIS	Riparian
Engelmann oak	MIS	Oak regeneration
Coulter pine	MIS	Coulter pine forest
California spotted owl	Regional Forester’s Sensitive List, MIS	Montane conifer forest
California black oak	MIS	California black oak forest
White fir	MIS	Montane conifer forest

Valley and Blue oaks also appear on the MIS list for the province. However these species do not occur on the Cleveland NF so they will not be addressed. Engelmann oak is the species selected to monitor the health of oak woodlands on the Cleveland NF.

MIS whose habitat would be either directly or indirectly affected by the transportation management project are carried forward in this analysis, which will evaluate the direct, indirect, and cumulative effects of the proposed action and alternatives on the habitat of these MIS.

### **3.3.9.3 Affected Environment and Effects of Proposed Project on Selected MIS**

Detailed background information and trend information on MIS is documented in the Cleveland NF MIS Report, which is hereby incorporated by reference.

**Species:** Mountain Lion

**Key Habitat Factor(s) for the Analysis:** Mountain lion was designated as an MIS to provide an index for habitat fragmentation.

**Analysis Area for Project-level Effects Analysis:** The project area includes parts of the Descanso and Palomar Ranger Districts, excluding Wildernesses. The project analysis area will be the Palomar and Descanso Ranger Districts.

**Current Condition of the Key Habitat Factor(s) in the Analysis Area:** All of the analysis area is suitable habitat. The current condition of lion habitat in the project area is a mixture of large blocks of undisturbed habitat separated by private inholdings and developments, and by Forest Service roads or facilities such as campgrounds and fire stations and the existing roads and trails. Overall, habitat fragmentation is at a low level on National Forest System lands in the analysis area.

**Habitat Status and Trend.** Mountain lion habitat condition on the Cleveland National Forest appears to be stable or improving. “The Cleveland National Forest has good habitat for the mountain lion.” Deer herds have declined from historic times for many reasons. “Current fuels management emphasis on the Forest should be a benefit to the mountain lion through the creation of more edge and early successional habitat for deer. ... The recent large burns on the Cleveland National Forest should benefit deer and mountain lion for some years to come.”

**Population Status and Trend.** Mountain lion populations on the Cleveland NF appear to be declining. “Populations of mountain lions in southern California are becoming fragmented at an increasing rate due to freeways and urbanization. Based on the review of studies and contacts with mountain lion experts, it appears that long-term viability of mountain lions in southern California may be at risk due to existing and planned developments and freeway construction on and off National Forest System land.

#### **Alternative 1**

Alternative 1 would not contribute to habitat fragmentation and would not reduce the amount of habitat available for this species.

#### **Alternatives 2 and 3**

**Direct and Indirect Effects to Habitat.** The action alternatives are not expected to contribute to habitat fragmentation. Alternatives 2 or 3 would add up to 12.34 miles or an increment of about 4 percent to the road and motorized trail system, and would reduce open areas by about 2150 acres, which is about a 99 percent reduction. Since deer are so important to mountain lions as their primary food source, the discussion of the effects of this project on deer largely describes the effect on lions.

**Cumulative Effects to Habitat.** The spatial scale for the cumulative effects of the project on mountain lion habitat is the analysis area identified above. The temporal scale for the analysis is the date of the LMP (2005) to 2013, which is the period of time the direct effects of the project should occur and for which there is information on reasonably foreseeable future actions in the analysis area.

Fuels treatment projects in the Cleveland NF have likely had some effect on mountain lion population. Because of the way these treatments have been and are planned to be spread spatially across the landscape, the effects of the projects cumulatively are not likely to result in long-term negative effects to the mountain lion population. In fact, by changing the vegetation to earlier successional stages in some of the project areas and creating openings, it is likely that there have been some short-term improvements in habitat for deer, and thus resulted in increases in the prey base for mountain lions in multiple project areas. None of the recently implemented projects or currently planned vegetation treatment projects are expected to adversely affect mountain lion corridors.

Influences to prey, such as hunting or diseases that affect mule deer population numbers, probably have the greatest influences on mountain lion numbers (see mule deer discussion). Increasing urbanization and agricultural pressure outside the Cleveland NF boundary may reduce deer populations on surrounding lands. As a result, mountain lions may attack more pets and livestock or otherwise threaten local communities, leading to more depredation permits issued to kill lions.

Proposed and planned housing developments in and around the Cleveland NF will result in increased recreational uses in the project area, particularly in some of the more accessible riparian zones that are likely used as movement corridors by mountain lions. Hunting and poaching pressures in the area may also increase as human populations adjacent to the project area increase with development, affecting both deer and mountain lion populations. Additionally, associated increases in vehicle traffic will result in more injuries and deaths of deer and mountain lions and reduce the quality of movement corridors that are bisected by busier roadways.

**Cumulative Effects Conclusion:** Implementation of alternatives 2 or 3, in combination with these past, present, and reasonably foreseeable future actions, would not reduce the quality and quantity of mountain lion habitat in the analysis area. Vegetation management activities in the analysis area would provide short-term benefits to foraging habitat for deer with likely benefits to mountain lions, and grazing activities would continue to be managed to retain sufficient deer forage and other lion prey. Therefore, selection of either alternative 2 or 3 will not contribute to cumulative effects for this species.

#### **Summary of Habitat and Population Status and Trend at the Forest Scale**

The LMP requires forest-scale habitat and/or population monitoring for all MIS, so effects analysis for the project must be informed by habitat and population monitoring data. The sections below summarize the habitat status and trend data, and population trend data for Mountain Lion. This information is drawn from the detailed information on habitat and population trends in the Cleveland National Forest MIS Report (USDA 2007a), which is hereby incorporated by reference.

#### **Relationship of Project-Level Effects to Forest-Scale Habitat and Population Trends for the species.**

The proposed project is not expected to result in habitat fragmentation. The project-level habitat effects will not contribute to existing forest-wide declines for this species and its habitat.

**Species:** Mule deer

**Key Habitat Factor(s) for the Analysis:** Mule deer is an indicator of the presence of healthy, diverse habitats.

**Analysis Area for Project-level Effects Analysis:** The project area includes parts of the Descanso and Palomar Ranger Districts, excluding Wildernesses. The project analysis area will be the Palomar and Descanso Ranger Districts.

**Current Condition of the Key Habitat Factor(s) in the Analysis Area:** All of the analysis area is suitable habitat for mule deer. The current condition of deer habitat is a mixture of large blocks of

undisturbed habitat separated by private inholdings and developments, and by Forest Service roads or facilities such as campgrounds and fire stations and the existing roads and trails. Overall, healthy diverse habitats are present on National Forest System lands in the analysis area.

### **Alternative 1**

Alternative 1 would not contribute to habitat fragmentation and would not reduce the amount of habitat available for this species.

### **Alternatives 2 and 3**

#### **Direct and Indirect Effects to Habitat**

Alternatives 2 and 3 are not expected to contribute to habitat fragmentation. Alternatives 2 or 3 would add up to 12.34 miles or an increment of about 4 percent to the Cleveland NF road and motorized trail system, and would reduce the acreage of open areas by about 99 percent. Adding OHV use to an existing road may increase the disturbance to mule deer. In general, off-road vehicles must comply with noise requirements similar to street legal vehicles. However, some of these vehicles are modified from the factory standards and can be louder. The increased volume of traffic by adding OHV use would have some increased noise and disturbance effects.

Construction of new roads and trails can be damaging to mule deer habitat, especially true when done near riparian and fawning areas, winter concentration areas and areas with no current roads. It is less of a problem where there are already high road densities and deer are already avoiding the area due to disturbance. Of the action alternatives, Alternative 3 has the least mileage of new construction and 2 has the most. However, the new construction being planned is minor and is being done in rocky, brushy areas that are not key deer habitat.

Opening unclassified routes will generally have a negative effect on deer due to the increased use a route will get when added to the transportation system and made known to users.

**Cumulative Effects to Habitat.** The spatial scale for the cumulative effects of the project on deer habitat is the analysis area identified above. The temporal scale for the analysis is the date of the LMP (2005) to 2013, which is the period of time the direct effects of the project should occur and for which there is information on reasonably foreseeable future actions in the analysis area. The biggest effects on deer in this area are due to development and disturbance by roads, people, and dogs. Several other non-habitat factors, such as hunting, poaching, traffic, and diseases affect mule deer population numbers. Fuels treatment projects on the Cleveland NF have likely had short-term negative effects and longer term beneficial effects on this deer population. Because of the way these treatments have been and will be spread spatially across the landscape, the effects of the projects cumulatively are not likely to result in long-term negative effects to the deer population. In fact, by changing the vegetation to earlier successional stages in some of the project areas and creating openings, it is likely that there have been some longer-term improvements in habitat for deer.

Riparian and meadow habitat within the Cleveland NF on federal and non-federal lands has been affected by development, water diversions, and grazing over the years, reducing the amount and quality of this habitat type. As such, effects to mule deer populations likely have occurred due to reduction in habitat quality and quantity for fawning, water sources, and movement corridors. Demands on water, and thus riparian/meadow habitat, will likely continue to increase with increasing human populations.

Proposed and planned housing developments in and adjacent to the Cleveland NF will result in increased recreational uses in the project area, particularly in some of the more accessible areas and along National

Forest System roads, especially in riparian habitats. Hunting and poaching pressures in the area may also increase as human populations increase with development.

Additionally, associated increases in vehicle traffic on existing routes will likewise result in more injuries and deaths of deer and mountain lions while also reducing the quality of movement corridors that are bisected by busier roadways. This project will have some benefits where roads are decommissioned, designated for administrative use, have OHV use removed, or are rehabilitated. On the other hand, routes that have OHV use added, there is new construction, or unclassified routes become classified will adversely affect deer to some extent.

**Cumulative Effects Conclusion:** Implementation of alternatives 2 or 3, in combination with these past, present, and reasonably foreseeable future actions, would not reduce the amount of mule deer habitat in the analysis area. No contributions to cumulative effects are expected under alternatives 2 or 3.

#### **Summary of Habitat and Population Status and Trend at the Forest Scale**

The LMP requires forest-scale habitat and/or population monitoring for all MIS, so effects analysis for the project must be informed by habitat and population monitoring data. The sections below summarize the habitat status and trend data, and population trend data for mule deer. This information is drawn from the detailed information on habitat and population trends in the Cleveland NF MIS Report (USDA 2007a), which is hereby incorporated by reference.

**Habitat Status and Trend** – Mule deer habitat condition on the Cleveland NF appears to be improving, in some cases due to increased acreage of wildfire in recent years and improved management of conflicting uses in critical areas such as riparian habitats and meadows. Grazing reductions have resulted in improved riparian habitat conditions. Threats include increased recreation in riparian areas, grazing, and too-frequent fire and resulting type conversion in chaparral and coastal sage scrub.

**Population Status and Trend** – Mule deer populations on the Cleveland NF appear to be increasing. Although mule deer herd size has declined from historic times, current management under the new LMP anticipates increasing herd size over the next four decades at which time it will stabilize.

**Relationship of Project-Level Effects to Forest-Scale Habitat and Population Trends for the species.** The proposed project is not expected to affect habitat diversity and Mule Deer populations. The project-level habitat effects are not expected to alter existing forest-wide trends.

**Species:** Arroyo toad

**Key Habitat Factor(s) for the Analysis:** Arroyo toad was selected as an MIS as an indicator of the condition of aquatic habitat.

**Analysis Area for Project-level Effects Analysis:** The project area includes parts of the Descanso and Palomar Ranger Districts, excluding Wildernesses. The project analysis area will be riparian areas within the Palomar and Descanso Ranger Districts

**Current Condition of the Key Habitat Factor(s) in the Analysis Area:** All stream segments below a two-percent gradient are suitable habitat for arroyo toad. The current condition of Arroyo Toad habitat in the project analysis area is good. Habitat exists as a series of short, separate stream segments on the National Forest where suitable habitat is present, and longer stream sections on non-Federal lands.

### **Alternative 1**

Selection of Alternative 1 would not contribute to habitat degradation due to the retention of open areas within toad habitat. Alternative 1 would not contribute to cumulative effects for arroyo toads.

### **Alternatives 2 and 3**

**Direct and Indirect Effects to Habitat.** Alternative 2 would add 1.07 miles of new roads within occupied toad habitat into the transportation system. This would adversely affect aquatic habitat in these areas. Alternative 3 avoids effects because it does not add any new routes in toad habitat.

**Cumulative Effects to Habitat.** The analysis area for the project is the Cleveland NF. The scale for the analysis is the date of the LMP (2005) to 2013, which is the period of time the direct effects of the project should occur and for which there is information on reasonably foreseeable future actions in the analysis area. Recent droughts, fires, and floods have probably adversely affected arroyo toad on the Cleveland NF. Some known occupied habitat has gone for several years with no surface water for breeding during the breeding season. In addition to the fires and floods, the areas that were affected have had considerable emergency repair work done to roads, railroads, and utilities.

**Cumulative Effects Conclusion:** Implementation of Alternative 2, in combination with past, present, and reasonably foreseeable future actions, would result in a reduction in the amount and quality of toad habitat in the analysis area. Cumulative effects on habitat are expected under Alternative 2.

Under Alternative 3, effects on arroyo toad habitat would be avoided. Implementation of Alternative 3, in combination with past, present, and reasonably foreseeable future actions, would not result in a reduction in the amount and quality of toad habitat in the analysis area. Cumulative effects on habitat are not expected under Alternative 3.

### **Summary of Habitat and Population Status and Trend at the Forest Scale**

The LMP requires forest-scale habitat and/or population monitoring for all MIS, so effects analysis for the project must be informed by habitat and population monitoring data. The sections below summarize the habitat status and trend data, and population trend data for arroyo toads. This information is drawn from the detailed information on habitat and population trends in the Cleveland NF MIS Report (USDA 2007a), which is hereby incorporated by reference.

**Habitat Status and Trend.** Arroyo toad habitat on the Forest is generally in good condition and the trend has been toward improvement in riparian habitat. Conservation of riparian areas has been a top priority for the Cleveland NF since at least the 1980s. The Cleveland NF has implemented measures to enhance and protect these areas, including reducing or excluding livestock grazing, re-routing roads and trails away from streams, and replanting streamside areas with willows. Because of the emphasis on protecting and enhancing riparian habitat, in general riparian habitat is in stable or improving condition.

**Population Status and Trend.** The population of arroyo toads on the Cleveland NF is small and the detectability of populations and their reproductive success in any given year is highly dependent on the timing and amount of rainfall. The population trend for arroyo toad appears to be stable.

### **Relationship of Project-Level Effects to Forest-Scale Habitat and Population Trends for the species.**

Alternative 2 is expected to affect aquatic habitat and arroyo toad populations. The project-level habitat effects may alter forest-wide trends for this species or its habitat. Alternative 3 is not expected to affect aquatic habitat and arroyo toad populations. The project-level habitat effects are not expected to alter or contribute to forest-wide trends for this species or its habitat.

**Species:** Song sparrow

**Key Habitat Factor(s) for the Analysis:** The song sparrow was selected as an MIS to track condition of riparian habitat.

**Analysis Area for Project-level Effects Analysis:** Song sparrows are a resident species and do not travel significant distances from their territories. The project area includes parts of the Descanso and Palomar Ranger Districts, excluding Wildernesses. The project analysis area will be riparian areas within the Palomar and Descanso Ranger Districts

**Current Condition of the Key Habitat Factor(s) in the Analysis Area:** Riparian habitat within the analysis is currently in good condition.

### **Alternative 1**

Selection of Alternative 1 would not contribute to habitat degradation due to the retention of open areas within riparian habitat. Alternative 1 would not contribute to cumulative effects for song sparrows.

### **Alternatives 2 and 3**

**Direct and Indirect Effects to Habitat.** Alternative 2 would add approximately 2.0 miles of new roads and trail in song sparrow habitat to the transportation system, with adverse effects on riparian habitat in these areas. Alternative 3 avoids effects on riparian habitat and would not affect the quality of habitat in the project area. Roads in or near riparian areas can negatively affect song sparrows, and other riparian-dependent species. The noise from road use and maintenance can cause birds to abandon nests or to not attempt nesting at all. In addition, roads provide access for recreation use in streams and riparian habitats. Under all alternatives, new proposals for roads or incorporation of unclassified roads in riparian areas are subject to standards and guidance for riparian conservation areas which should minimize future new effects on aquatic and riparian habitats.

**Cumulative Effects to Habitat.** The analysis area for the project will be the Cleveland NF. The temporal scale for the analysis is the date of the LMP (2005) to 2013, which is the period of time the direct effects of the project should occur and for which there is information on reasonably foreseeable future actions in the analysis area. Recent and planned vegetation treatments on the Cleveland NF have and will have the potential to affect song sparrows. However, each one of those projects also include measures to protect riparian habitat, riparian-dependent threatened and endangered, and water quality, thus effectively reducing the degree and duration of potential effects to song sparrows within those project areas.

Similar vegetation projects on private lands, however, do not generally carry the same levels of riparian protection as those on the Cleveland NF and likely have resulted in disturbance to song sparrows, in short-term and, potentially, in long-term alterations of habitat.

Riparian habitat on the Cleveland NF on federal and non-federal lands has been affected by water diversions and extractions that reduce the amount and quality of this habitat type. As such, effects on song sparrow populations likely have occurred due to reduction in habitat quality and quantity. Demands on water, and thus riparian habitat, are likely continue to increase.

Proposed and planned housing developments will result in increased recreational uses in the project area, particularly in some of the more accessible areas along National Forest System roads. The increasing population in southern California is putting more pressure on the few perennial streams for recreation. This can affect song sparrows and other riparian dependent birds when use gets so heavy that there is too much disturbance for nesting.

**Cumulative Effects Conclusion.** Implementation of Alternative 2, in combination with these past, present, and reasonably foreseeable future actions, would likely result in a slight reduction in the amount of song sparrow habitat in the analysis area. Cumulative effects are expected under the proposed action. Under Alternative 3, effects on song sparrow habitat would be avoided. Implementation of Alternative 3, in combination with these past, present, and reasonably foreseeable future actions, would likely not result in a reduction in the amount and quality of song sparrow habitat in the analysis area. Cumulative effects on habitat are not expected under the proposed action.

### **Summary of Habitat and Population Status and Trend at the Forest Scale**

The Forest Plan requires forest-scale habitat and/or population monitoring for all MIS, so effects analysis for the project must be informed by habitat and population monitoring data. The sections below summarize the habitat status and trend data, and population trend data for the Song Sparrow. This information is drawn from the detailed information on habitat and population trends in the Cleveland National Forest MIS Report (USDA 2007a), which is hereby incorporated by reference.

**Habitat Status and Trend** – Song sparrow riparian habitat condition is stable or improving.

“Conservation of riparian areas has been a top priority for the Cleveland National Forest since at least the 1980s and the Forest has implemented measures to enhance and protect these areas, including reducing or excluding livestock grazing, re-routing roads and trails away from streams, and replanting streamside areas with willows. Because of the emphasis on protecting and enhancing riparian habitat on the Forest, in general riparian habitat is in stable or improving condition.”

**Population Status and Trend** – There appears to be a nationwide decline in the abundance of song sparrows, and a negative trend in song sparrow abundance was determined from monitoring on southern California National Forests. Although not statistically significant, other surveys have shown that California populations declined 0.3 percent per year between 1966-2004, with a decline becoming more evident in the 1980-2004 sampling period.

### **Relationship of Project-Level Effects to Forest-Scale Habitat and Population Trends for the species.**

Alternative 2 is expected to have minimal effects on song sparrow habitat and populations. Alternative 2 is expected to have minimal effects on Song Sparrow habitat and populations. The project-level habitat effects are not expected to alter existing forest-wide trends toward habitat improvement, and will not contribute to existing population declines. Alternative 3 is expected to have no effect on song sparrow habitat and populations. The project level habitat effects will not contribute to existing forest-wide trends.

**Species:** Engelmann oak

**Key Habitat Factor(s) for the Analysis:** Engelmann oak was selected as an MIS to track oak regeneration.

**Analysis Area for Project-level Effects Analysis:** Engelmann Oak is found throughout the Cleveland National Forest. The project area includes parts of the Descanso and Palomar Ranger Districts, excluding Wildernesses. The project analysis area will be the Palomar and Descanso Ranger Districts.

**Current Condition of the Key Habitat Factor(s) in the Analysis Area:** Engelmann oak regeneration is a problem in some parts of the Cleveland NF, usually in areas that are being grazed by deer or cattle.

### **Alternative 1**

Selection of Alternative 1 would have no effect on the amount or quality of habitat available for this species. Alternative 1 would not contribute to cumulative effects on Engelmann oak.

### **Alternatives 2 and 3**

**Direct and Indirect Effects to Habitat.** Alternatives 2 and 3 are expected to have minimal effects on Engelmann oak. One existing trail at Corral Canyon travels through an Engelmann oak woodland, and unauthorized use associated with this trail has caused some damage to habitat.

**Cumulative Effects to Habitat.** Because the proposed action is expected to have minimal effects on Engelmann oak, it will not contribute to cumulative effects on this species.

**Cumulative Effects Conclusion.** Implementation of alternatives 2 or 3 would result in no net change in the amount of Engelmann oak habitat in the analysis area. No cumulative effects on Engelmann oak are expected to occur under the proposed action.

### **Summary of Habitat and Population Status and Trend at the Forest Scale**

The LMP requires forest-scale habitat and/or population monitoring for all MIS, so effects analysis for the project must be informed by habitat and population monitoring data. The discussion below summarizes the habitat status and trend data, and population trend data for the Engelmann oak. This information is drawn from the detailed information on habitat and population trends in the Cleveland NF MIS Report (USDA 2007a), which is hereby incorporated by reference.

**Habitat Status and Trend.** Approximately 1,749 acres of Engelmann oak woodland are found on the Cleveland NF. In general, the habitat for Engelmann oak is in good condition and the amount of habitat is stable.

**Population Status and Trend.** The Engelmann oak population on the Cleveland NF is generally healthy. Poor recruitment is a problem in some areas. Insufficient data exist to show a population trend.

**Relationship of Project-Level Effects to Forest-Scale Habitat and Population Trends for the species.** Alternatives 2 or 3 are not expected to affect Engelmann oak regeneration or habitat. The project-level habitat effects will not alter or contribute to existing forest-wide trends.

**Species:** California spotted owl

**Key Habitat Factor(s) for the Analysis:** The California spotted owl was selected as an MIS to track the condition of montane coniferous forest.

**Analysis Area for Project-level Effects Analysis:** The California spotted owl occupies distinct territories and is a year round resident. The project area includes parts of the Descanso and Palomar Ranger Districts, excluding Wildernesses. The project analysis area will be forested riparian areas within the Palomar and Descanso Ranger Districts.

**Current Condition of the Key Habitat Factor(s) in the Analysis Area:** Montane coniferous forest within the analysis area exists primarily as vegetation associated with streams or riparian areas at higher elevations. The montane coniferous forest within the analysis area is in good condition.

### **Alternative 1**

Selection of Alternative 1 would have no effect on the amount or quality of montane coniferous forest available for this species. Alternative 1 would not contribute to cumulative effects on California spotted owl habitat.

### **Alternatives 2 and 3**

**Direct and Indirect Effects to Habitat.** Alternatives 2 and 3 are expected to have no effect on montane coniferous forest. Alternatives 2 and 3 do not include routes in suitable California spotted owl habitat.

**Cumulative Effects to Habitat.** Because alternatives 2 and 3 are expected to have no effect on montane coniferous forest, they will not contribute to cumulative effects on this species.

**Cumulative Effects Conclusion:** Implementation of alternatives 2 or 3 would result in a no net change in the amount of montane coniferous forest in the analysis area.

### **Summary of Habitat and Population Status and Trend at the Forest Scale**

The LMP requires forest-scale habitat and/or population monitoring for all MIS, so effects analysis for the project must be informed by habitat and population monitoring data. The discussions below summarize the habitat status and trend data, and population trend data for the California spotted owl. This information is drawn from the detailed information on habitat and population trends in the Cleveland NF MIS Report (USDA 2007a), which is hereby incorporated by reference.

**Habitat Status and Trend** – California spotted owl habitat condition on the Cleveland NF appears to be deteriorating. The drought has caused noticeable tree mortality in many southern California mountain ranges including the Laguna Mountains and several California spotted owl territories in the adjacent Cuyamaca Rancho State Park were damaged or destroyed by the Cedar fire in 2003.

**Population Status and Trend** – Insufficient data exist to indicate population trends for spotted owls on the Cleveland NF. However, a combined total of 30 territories (20 on and 10 off the Cleveland NF) were monitored in 2005 and/or 2006. Of these, only 8 were occupied for an occupancy rate of 27 percent. This occupancy rate is much lower than those detected in previous survey efforts (1987-1995), when occupancy rates were typically 55 to 60 percent.

### **Relationship of Project-Level Effects to Forest-Scale Habitat and Population Trends for the species.**

Alternatives 2 and 3 are not expected to affect the California spotted owl or its habitat. Project-level habitat effects will not alter or contribute to existing forest-wide trends.

**Species:** Coulter pine, black oak, and white fir

**Key Habitat Factor(s) for the Analysis:** Coulter pine, black oak, and white fir are all tree species that were selected as MIS. In every case they were chosen to monitor and guide vegetation treatments and habitat management to achieve desired conditions for the ecosystems and wildlife habitats on the Cleveland NF. See the MIS account in the LMP for these species for more detailed information regarding life history, habitat conditions, and population trends. In all cases, these species are measured and will be monitored at a much larger scale than that affected by this project. Most routes are already in existence and little new ground disturbance would occur. Effects on these species would have to be measured by the numbers of stems affected rather than as landscape effects (e.g., in acres) which was intended in their selection as MIS. The primary intention of their selection was to monitor and influence such things as forest health treatments, fuels treatments, prescribed fire, reforestation, wildfire suppression, air pollution, and climate change.

### **Alternatives 2 and 3**

Alternatives 2 and 3 will not have measurable effects on these vegetation types. This project will not affect their distribution or abundance at the national forest or province level.

### **Cumulative Effects for MIS Tree Species**

Since 2003 considerable acreage of forested habitat has been burned. The Cleveland NF has been conducting a substantial amount of fuels treatment in these forest types. Most of the work has been in mixed conifers to help protect nearby communities from wildfire. Some work has been done away from

communities to provide diversity in the vegetation to help reduce the effects of wildfire and restore more natural conditions. The work has generally involved thinning from below. The actions proposed in all alternatives will not have measurable effects on these Coulter pine, black oak, or white fir. This project will not affect their distribution or abundance at the national forest or province level.

Table 3.6 summarizes the effects of alternatives 1, 2, and 3 on MIS habitat and population trends.

**Table 3.6: Summary of effects on MIS habitat and population trends.**

Management indicator species	Alt. 1	Alt. 2	Alt. 3
Arroyo toad	None	Contributes to decline in population, may alter forest- wide trends toward habitat improvement	None
Song sparrow	None	None	None
Mountain lion	None	None	None
Mule deer			
Engelmann oak			
California spotted owl			
Coulter pine, black oak, and white fir			

### **3.3.10 Noxious Weeds**

The weed risk assessment for this project, which is summarized below, is hereby incorporated by reference. The assessment evaluates the effects of the project on California Department of Food and Agriculture (CDFA) listed noxious weeds and other invasive non-native plant species. The purpose of the assessment is to identify risks of weed invasion and spread in or along the project area and to recommend measures to offset these risks. The primary focus for noxious and other invasive plant management is on prevention of introduction, establishment, and spread. This assessment complies with the LMP and the Forest Service Manual (FSM) section 2080, Noxious Weed Management.

#### **3.3.10.1 Inventory Results and Risk Assessment**

An inventory for noxious and other invasive plant species was performed concurrently with focused rare plant surveys and floristic inventories. The surveys that were performed had a high likelihood of not detecting target species (including weeds) due to the exceptionally dry conditions. The majority of the project area was not surveyed. Weeds recorded in the surveyed area included wild oat (*Avena* sp.), red brome (*Bromus madritensis* v *rubens*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), cheatgrass (*Bromus tectorum*), and mustard (*Hirschfeldia incana*). Surveys were not sufficient to detect all noxious weeds likely present in the project area. Therefore, the risk associated with undetected weeds is considered high. All noxious weeds and invasive plants addressed in the EIS for the LMP (2006, Table 463) were considered in this analysis.

**Risk Assessment for Soil Disturbance Effects.** The weeds risk from soil disturbance associated with all action alternatives was determined to be high throughout the project area. Soil disturbance associated with construction (in the case of new construction) and long-term maintenance of all routes added to the system will likely lead to a maintained or increased prevalence of cheatgrass and the other federal weeds,

as well as a long-term risk of new introductions through the use and maintenance of roads and motorized trails.

**Risk Assessment for Travel Routes.** The risk from use and maintenance of travel routes is determined to be high overall, and increased by this project to the extent that new routes are added to the system.

**Risk of Transporting New Infestations into Project Area.** The risk of transporting new weed infestations into the project area was determined to be **high**.

**Measures to Reduce Weed Risk.** Alternatives include design features intended to reduce the potential for establishment and spread of invasive weeds during implementation of this project. Elements of decommissioning and rehabilitation under alternatives 2 and 3 pose a short-term risk of weed introduction and spread via heavy equipment use and ground disturbance, but are expected to result in a net long-term reduction of weed risk due to removal of vectors for introduction and dispersal from the landscape.

Application of design features and incorporation of decommissioning and rehabilitation elements of the action alternatives would reduce the risk of weed introduction and spread as a result of project implementation. These measures are all fully incorporated into the project description. The overall risk of weed introduction is considered **moderate** with the incorporation of the above measures.

**Risk Determination.** With the incorporation of design features and monitoring measures into the decision, the risk of noxious weed introduction and spread of weeds would be reduced from a high level of risk to a moderate level of risk. Without design features and monitoring measures, the risk would remain high.

### **3.4 AIR QUALITY**

The Cleveland NF Travel Management Plan is intended to identify a forest-wide system of routes for public motor vehicle use for the Cleveland NF, as required by Travel Management Regulations. The regulation requires that each national forest or ranger district specify the roads, trails, and areas on National Forest System lands that are open to motor vehicles, including off highway vehicles (OHV). This air quality report is based on recent draft air quality regional travel management direction and a report for a similar project prepared for the San Bernardino National Forest.

This report contains an evaluation of how air resources will be affected by the Cleveland NF Travel Management Plan. The document contains policy and direction as well as a discussion of existing air quality conditions and the potential impacts of program implementation under the different alternatives.

### **3.4.1 Policy and Direction**

**Federal Clean Air Act.** The federal Clean Air Act is the federal law passed in 1970, and last amended in 1990 (42 U.S.C. §7401 et seq.), that is the basis for national control of air pollution. The Clean Air Act was designed to protect and enhance the quality of the nation’s air resources. Basic elements of the act include national ambient air quality standards (NAAQS) for criteria air pollutants, technology based emission control standards for hazardous air pollutants (HAP), state implementation plans (SIP), a comprehensive approach to reducing motor vehicle emissions, control standards and permit requirements for stationary air pollution sources, acid rain control measures, stratospheric ozone protection, and enforcement provisions. The U.S. Environmental Protection Agency (EPA) is the agency responsible for establishing the national ambient air quality standards and for enforcement of the act.

The Clean Air Act requires that each state develop a SIP which describes the methods the state will use to ensure that air quality meets the NAAQS for criteria pollutants in non-attainment areas. Criteria air pollutants are defined as those pollutants for which the federal (and state) government has established air quality standards to protect public health, and for some pollutants also have established secondary standards designed to protect the environment (Table 3.7).

**Table 3.7: National Ambient Air Quality Standards.**

<b>Pollutant</b>	<b>Averaging time</b>	<b>Standards</b>
Ozone	8 hour	0.08 ppm
Respirable particulate matter (PM10)	24 hour	150 µg/m <sup>3</sup>
Nitrogen dioxide (NO <sub>2</sub> )	Annual arithmetic mean	0.053 ppm
Fine particulate matter (PM <sub>2.5</sub> )	8 hour	35 µg/m <sup>3</sup>
	Annual arithmetic mean	15 µg/m <sup>3</sup>
Carbon monoxide (CO)	8 hour	9 ppm
	1 hour	35 ppm
Sulfur dioxide (SO <sub>2</sub> )	Annual arithmetic mean	0.030 ppm
	24 hour	0.14 ppm
Source: CARB. Accessed online 01/16/2008 at <a href="http://www.arb.ca.gov/research/aaqs/aaqs2.pdf">http://www.arb.ca.gov/research/aaqs/aaqs2.pdf</a>		

**Regional Haze Rule (1990 Clean Air Act Amendments).** Fine particles affect visibility by absorbing and scattering light waves when the particles are suspended in the atmosphere, reducing the visual information reaching the eyes of a human observer. Particulate matter pollution, or haze, is the major cause of reduced visibility in parts of the United States, including many wilderness areas. In 1999, the EPA enacted the Regional Haze Rule, which calls for states to establish goals for improving visibility in mandatory Class I areas and to develop long-term strategies for reducing the emissions of air pollutants that cause visibility impairment.

The Regional Haze Rule requires states to demonstrate “reasonable progress” toward improving visibility in each Class I area over a sixty-year period (to 2064), during which visibility should be returned to natural conditions. Class I areas include wilderness areas or national parks greater than 5000 acres in size and which existed on August 7, 1977.

The Agua Tibia Wilderness Area, which is on the Palomar Ranger District of the Cleveland NF, is a Class I area. Because California is still developing its Regional Haze SIP, haze will not be considered further in this document.

**General Conformity Rule (1990 Clean Air Act Amendments) (Section 176 (c) of the Clean Air Act (part 51, subpart W, and part 93, subpart B).** In 1993 the EPA enacted the final General Conformity which required federal agencies to work with state and local governments in non-attainment or maintenance areas to ensure that federal actions conform to the initiatives established in the applicable SIP. A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. The rule divides the conformity process into two phases: applicability and determination. Federal agencies must first determine if an action is subject to the Conformity Rule (applicability analysis) and then if the action conforms to an applicable implementation plan (conformity determination).

**California Clean Air Act (H&S §§ 39660 et seq.).** California adopted the California Clean Air Act in 1988. The act provides the basis for air quality planning and regulation in California independent of federal regulations and establishes ambient air quality standards for the same criteria pollutants as the federal clean air legislation. Under the federal Clean Air Act states can adopt air quality standards that are more stringent than the federal NAAQS (Table 3.8). California has chosen to adopt standards for criteria pollutants that are generally more restrictive than the counterpart federal standards. The California Air Resources Board (CARB) is the agency responsible for establishing California ambient air quality standards (CAAQS), setting vehicle emission standards and fuel specifications, and regulating emissions from certain types of mobile equipment and consumer products.

**Table 3.8: California Ambient Air Quality Standards.**

Pollutant	Averaging time	Standards
Ozone	1 hour	0.09 ppm
	8 hour	0.07 ppm
Respirable particulate matter (PM10)	24 hour	50 µg/m <sup>3</sup>
	Annual arithmetic mean	20 µg/m <sup>3</sup>
Nitrogen dioxide (NO <sub>2</sub> )	Annual arithmetic mean	013 ppm
	1 hour	0.08 ppm
Fine particulate matter (PM <sub>2.5</sub> )	Annual arithmetic mean	12 ug/m <sup>3</sup>

Carbon monoxide (CO)	8 hour	9 ppm
	1 hour	20 ppm
Sulfur dioxide (SO <sub>2</sub> )	24 hour	0.04 ppm
	1 hour	0.25 ppm
Source: CARB. Accessed online 01/16/2008 at <a href="http://www.arb.ca.gov/research/aaqs/aaqs2.pdf">http://www.arb.ca.gov/research/aaqs/aaqs2.pdf</a>		

**CARB Off-Road Recreational Vehicle Emissions Standards.** In 1994, CARB approved new OHV regulations (since amended in 1998). The rulemaking established emission standards for OHVs, including off-road motorcycles and ATVs. OHV registration became contingent on vehicle compliance to California emissions standards. Off-road motorcycles and ATVs that meet emission standards are eligible for OHV Green Sticker registration and have a year-round operating period, while noncompliant vehicles fall under the OHV Red Sticker program which has a limited operational season.

**CARB Asbestos ATCM Regulation.** In 2001, the Air Resources Board adopted a regulation order for Airborne Toxic Control Measures (ATCM) for asbestos. The order applies to disturbance of ultramafic rock, naturally occurring asbestos, or serpentinite. Each air district is required to implement and enforce this order and propose control measures for the district. Because no known sources of asbestos are known to exist in the project area, no further discussion is provided.

**Local Regulations.** The project is located within the South Coast Air Quality Management District (SCAQMD) and the San Diego Air Quality Management District (SDAQMD). These air districts are the local authority and primary agency for managing pollutant emitting activities within their boundaries. The SCAQMD includes Orange County, most of Los Angeles County, and the western portions of San Bernardino and Riverside counties. The SDAQMD includes San Diego County.

**SCAQMD Rules.** *Rule 401* (Visible Emissions) prohibits discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is: (a) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or (b) of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of the rule.

*Rule 403* (Fugitive Dust) is intended to reduce the amount of particulate matter entrained in the ambient air as a result of human-caused fugitive dust sources. It prohibits the emissions of fugitive dust such that the dust remains visible in the atmosphere beyond the property line of the emission source or that dust emissions exceed 20 percent opacity, if the dust emission is the result of movement of motorized vehicle. It also requires that a person utilize the best available control measures to minimize fugitive dust emissions from each type of source that is part of the active operation.

*Rule 1186* (PM<sub>10</sub> Emissions from Paved and Unpaved Roads, and Livestock Operations) is designed to reduce the amount of particulate matter entrained in the ambient air as a result of vehicular travel on paved and unpaved public roads, and at livestock operations, and establishes the conditions under which such roads should be operated and maintained.

**SDAQMD Rules.** *Rule 50* (Visible Emissions) is the same as SCAQMD Rule 401 discussed above.

**Air Quality Management District Significance Criteria.** Both the SCAQMD and the SDAQMD have established air quality significance thresholds against which a project can judge its initial impacts to air quality against state requirements. A project is significant if it generates total emissions, either direct or indirect, in excess of the air district thresholds. Table 3.9 displays the significance criteria for both the SCAQMD and the SDAQMD.

**Table 3.9: Air quality significance criteria in pounds per day.**

	Reactive organic gases	CO	NO2/NOx	SO2/SOx	PM10	PM2.5
SCAQMD	55	550	55	150	150	55
SDAQMD	137	550	250	250	100	n/a

**Cleveland LMP Direction.** The LMP includes a program strategy to control and reduce smoke and fugitive dust to protect human health, improve safety, and/or reduce or eliminate environmental impacts. In addition, the LMP includes a program strategy to maintain and update the inventory for wildland fire emissions and other national forest resource management emissions with the current SIP. The SIP inventories establish levels of air pollution that meet the long-term federal air quality goals for bringing the non-attainment area to attainment of the NAAQSs.

### **3.4.2 Existing Condition**

The population density, topography, and climate of the SCAQMD make it an area of high air pollution potential. The coastal area of the SCAQMD (known as the South Coast Air Basin) is characterized by a Mediterranean climate with dry summers, wet winter, and mild seasonal changes. The coastal region of the SCAQMD contains the densest urban area in the western U.S. Air quality in the coastal zone is driven almost entirely by local emissions, and air quality problems are exacerbated by high population density, topography, and local meteorological conditions. During late spring, summer and early fall, light winds, low mixing heights, and sunshine combine to produce conditions favorable for the production of ozone. In the winter, the greatest pollution problems are carbon monoxide and nitrogen oxides because of extremely low level inversions and air stagnation during the night and early morning hours. Elevated PM<sub>10</sub> and PM<sub>2.5</sub> concentrations can occur throughout the year, but are most common in the fall and winter months. Prevailing winds that travel west to east transport pollutants from the heavily populated coastal zone through the Banning pass into the Coachella Valley.

The climate of the SDAQMD is dominated by a semi-permanent high pressure cell located over the Pacific Ocean, which influences the direction of prevailing winds and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality: subsidence inversions and radiation inversions. Both inversions can trap pollutants between layers of air. When the pollutants become more concentrated in the atmosphere, photochemical reactions can produce ozone, commonly known as smog.

A marked feature of the climate is the wide variation in temperature within short distances. In nearby valleys daytimes are much warmer in summer and nights noticeably cooler in winter, and freezing occurs much more frequently than in the city. Although records show unusually small daily temperature ranges, only about 15 degrees between the highest and lowest readings, a few miles inland these ranges increase to 30 degrees or more.

The seasonal rainfall is about 10 inches in the city, but increases with elevation and distance from the coast. In the mountains to the north and east the average is between 20 and 40 inches, depending on slope and elevation. Most of the precipitation falls in winter, except in the mountains where there is an occasional thunderstorm. Eighty-five percent of the rainfall occurs from November through March, but wide variations take place in monthly and seasonal totals. Infrequent measurable amounts of hail occur in San Diego, but snow is practically unknown at the Weather Service Office location. In each occurrence of snowfall only a trace was recorded officially, but in some locations amounts up to or slightly exceeding a half-inch fell, and remained on the ground for an hour or more.

As on the rest of the Pacific Coast, a dominant characteristic of spring and summer is the nighttime and early morning cloudiness. Low clouds form regularly and frequently extend inland over the coastal valleys and foothills, but they usually dissipate during the morning and the afternoons are generally clear.

Considerable fog occurs along the coast, but the amount decreases with distance inland. The fall and winter months are usually the foggiest. Thunderstorms are rare, averaging about three a year in the city. Visibilities are good as a rule. The sunshine is plentiful for a marine location, with a marked increase toward the interior (accessed 4/5/08 <http://www.wrh.noaa.gov/sgx/climate/san-san.htm>)

### Emissions

Within the SCAQMD, a majority of the pollution is derived from the nearby urban areas. The largest source of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>) and reactive organics gases (ROG) in the South Coast Air Basin are on-road motor vehicles (CARB, 2005). Major sources of particulates (PM<sub>10</sub> and PM<sub>2.5</sub>) include miscellaneous processes that include activities such as construction, dust from paved and unpaved roads, fugitive dust, automobiles, waste burning, fuel combustion, cooking, industrial processes, and agricultural activities,. Emissions (daily annual average) for the major pollutants in the SCAQMD are listed below in Table 3.10.

SCAQMD emissions from recreational off-road vehicles range from 0.02 to 1.13 percent, a very small portion of total criteria pollutant emissions in the district. Travel on unpaved roads accounts for 3.7 percent of PM<sub>10</sub> emissions, and 1 percent of PM<sub>2.5</sub> emissions respectively, while travel on paved roads accounts for 44 percent of PM<sub>10</sub> and 18 percent of PM<sub>2.5</sub>.

**Table 3.10: Projected 2008 emissions for the SCAQMD in tons per day.**

Source type	VOC	CO	NO <sub>x</sub>	SO <sub>x</sub>	PM10	PM2.5
Fuel combustion	7.2	53.4	29.6	2.4	6.3	6.3
Waste disposal	7.6	1.1	1.8	0.4	0.5	0.4
Cleaning and surface coatings	37.1	0.2	0.2	0.1	0.7	0.7
Petroleum production and marketing	31.6	8.8	0.4	1.1	0.9	0.7
Industrial processes	19.4	2.6	0.2	0.1	8.7	4.8
Solvent evaporation	127.1	n/a	n/a	n/a	0.0	0.0
Mobile sources-on road	210.4	2115.7	435.3	2.1	21.9	17.8
Mobile sources-other	145.7	964.8	331.4	22.1	20.7	18.5
Mobile sources-off road recreational	6.8	15.0	0.16	0.1	0.1	0.1
Miscellaneous processes	15.1	111.3	54.6	12.6	82.2	32.7
Miscellaneous unpaved road dust	n/a	n/a	n/a	n/a	1.0	1.0
Miscellaneous paved road dust	n/a	n/a	n/a	n/a	122.2	18.5

Source type	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Total anthropogenic</b>	607.9	3273.8	853.7	40.9	277.5	101.5

Recreational off-road vehicles in the San Diego Air Basin account for 1.3 percent of VOC and 0.7 percent of CO emissions, while also producing 0.084 to 1.52 percent of NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. Travel on unpaved roads accounts for 31.3 percent of PM<sub>10</sub> emissions, and 17.4 percent of PM<sub>2.5</sub> emissions, while travel on paved roads accounts for 18.9 percent of PM<sub>10</sub> and 6.6 percent of PM<sub>2.5</sub>.

**Table 3.11: 2006 emissions for the SDAQMD in tons per day.**

Source type	VOC	CO	NOx	SOx	PM10	PM2.5
Fuel combustion	3.4	25.9	8.7	0.4	2.0	1.9
Waste disposal	2.1	0.1	0.2	0.0	0.1	0.1
Cleaning and surface coatings	15.6	n/a	n/a	n/a	n/a	n/a
Petroleum production and marketing	8.2	0.0	0.0	n/a	n/a	n/a
Industrial processes	2.6	0.3	0.2	0.0	8.4	3.9
Solvent evaporation	30.7				0.0	0.0
Mobile sources-on road	58.7	613.5	113.9	1.0	5.8	4.2
Mobile sources-other	41.4	24.6	85.2	12.2	7.8	7.2
Mobile sources-off road recreational	2.3	5.96	0.1	0.0	0.0	0.0
Miscellaneous processes	5.1	28.1	2.7	0.2	94.5	16.1
Miscellaneous unpaved road dust	n/a	n/a	n/a	n/a	37.2	5.6
Miscellaneous paved road dust	n/a	n/a	n/a	n/a	22.4	2.2
<b>Total anthropogenic</b>	167.8	914.4	211.1	13.8	118.6	33.4

### National and State Ambient Air Quality Standards

The project area is nonattainment for both State and Federal ambient air quality standards for several criteria air pollutants. Pertinent air quality designations are shown in Table 3.12.

**Table 3.12: Air quality designations for the South Coast and San Diego AQMDs.**

District	County/Area	Criteria pollutant	Non-attainment status	
			Federal	State
SCAQMD	South Coast air basin	CO	Maintenance (serious)	Attainment
	Riverside/San Bernardino	Ozone	Severe/serious (Coachella Valley)	Extreme
		PM10	Serious	Non-attainment (Coachella Valley unclassified)
		PM2.5	Non-attainment	Non-attainment
SDAQMD	San Diego	Ozone	Subpart 1	Non-attainment
		PM10		Non-attainment
		PM2.5		Non-attainment

### **3.4.3 Determination of Effects**

For purposes of meeting federal requirements, impact significance is related to federal conformity with the EPA-approved SIP and with the NAAQS. Air quality impacts would be considered significant if they are expected to cause or contribute to an air quality violation in a non-attainment or maintenance area.

However, if total direct and indirect project emissions fall below designated applicability threshold levels established under the Conformity Rule (see Appendix A in the air quality specialist report), no adverse change in attainment status is expected. For purposes of meeting state requirements, air quality management district thresholds of significance for project emissions serve the same purpose as the federal applicability thresholds.

#### **3.4.3.1 Effects Common to All Alternatives**

OHVs emit criteria pollutants such as nitrogen oxides, sulfur oxides, carbon monoxide, and volatile organic compounds (VOCs). Both NO<sub>x</sub> and VOCs are the precursors for the non-attainment pollutant O<sub>3</sub>. OHV exhaust and travel on unpaved roads and trails emits particulate matter. Inhalable coarse particles (PM<sub>10</sub>) are emitted directly from the source, such as soot from engine exhaust, windblown dusts from bare soil, and re-entrained dust from vehicle travel on unpaved roads. Fine particles (PM<sub>2.5</sub>) are associated with the products of engine exhaust including the reaction of NO<sub>x</sub> and SO<sub>2</sub> with ammonia and diesel soot. Inhalable particulate matter poses a serious health hazard, since it can be deposited in the lungs and can cause permanent damage by interfering with the body's mechanism for clearing the respiratory tract or by acting as a carrier of a toxic substance (SCAQMD, 2007). Dust from OHV can directly reduce plant photosynthesis near roads and trails by coating needles and leaves (Ouren and others, 2007). PM<sub>2.5</sub> is the major cause of reduced visibility in Southern California, including in National Forest Class I wilderness areas (U.S. EPA, 2007). The OHV travel routes lie to the south and east of the Cucamonga, San Geronio, San Jacinto and Auga Tibia Class I wilderness areas.

All alternatives will release PM<sub>10</sub>/PM<sub>2.5</sub> into the environment from recreational vehicle travel on forest roads and trails, as well as road and trail system rehabilitation and maintenance projects. Tailpipe emissions from motorized equipment will produce criteria pollutants such as carbon monoxide, as well as the precursor gases for ozone and PM<sub>2.5</sub>.

#### **3.4.3.2 Alternatives**

##### **Direct and Indirect Effects**

Under the No Action Alternative, no changes to the existing OHV road and trail system would occur and the use of currently designated routes would continue. A summary of how the Action Alternatives would impact the miles of National Forest roads and trails that are accessible to public use, as well as the acres of planned open areas are listed below in Table 3.13. Accessible road and trail miles will increase for both the South Coast and San Diego Air Districts under the action alternatives, the open ride areas will decrease for the action alternatives.

**Table 3.13: Net change in user miles and open areas.**

<b>Location</b>	<b>Net change</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
SCAQMD	User miles	0.0	0.0

Location	Net change	Alternative 2	Alternative 3
	Open acres	(358.0)	(358.0)
SDAQMD	User miles	12.2	8.4
	Open acres	(1,785)	(1,770)
Cleveland NF	User miles	12.2	8.4
	Open acres	(2,145)	(2,130)

The number of visits is assumed to generally remain the same for alternatives 2 and 3. The addition of more trails, however, is expected to result in additional miles traveled. The annual change in use by ATVs, motorcycles, and other green sticker vehicles will predominately occur on the southern end of the Cleveland NF in the SDAQMD. Both the increase in accessible road and trail miles will affect the number of vehicle miles traveled annually in the study area. Projected changes to the number of miles traveled for each Air District are listed in Table 3.14.

**Table 3.14: Vehicle miles traveled (VMT) per alternative.**

Location	Annual open area visits*	Annual visits*	Alternative 2 VMT**	Alternative 3 VMT**
SCAQMD	3,000	0	0	0
SDAQMD	12,000	1,100	300,450	210,400

\* Use rate is assumed not to change between alternatives 2 and 3.  
\*\* Each visit assumes that the whole trail system is visited.

Criteria pollutant emissions from recreational vehicle use (which includes both engine exhaust and fugitive dust) are expected to decrease for the action alternatives. The increase trail mileage is expected to be countered by the reduction in open area use. Total emissions for each alternative are in Table 3.15.

**Table 3.15: Criteria pollutant emissions by alternative.**

Alternative	Location	Tons per year*					
		CO	VOC	NOx	PM10	PM2.5	SOx
Alternative 1	SCAQMD	8.07	0.52	0.14	71.37	15.14	0.00
	SDAQMD	16.58	1.10	0.29	147.61	31.32	0.00
Alternative 2	SCAQMD	1.48	0.10	0.07	13.06	2.77	0.02
	SDAQMD	11.09	0.73	0.38	97.86	20.17	0.00
Alternative 3	SCAQMD	1.02	0.07	0.05	8.99	1.91	0.00
	SDAQMD	7.73	0.51	0.26	68.14	14.47	0.01

\* Emission rates from Air Quality San Bernardino NF Travel Route Designation Project, 1/2008.

Road decommissioning and unauthorized route rehabilitation activities are planned under alternatives 2 and 3. For the San Diego air quality management district, 14.6 miles are proposed for rehabilitation. For the South Coast air quality management district, 3.4 miles are proposed for rehabilitation. Closures in

currently open areas are counted for 2.5 miles of rehabilitation. Rehabilitation activities will include road and trailbed “ripping” with heavy equipment, revegetation, and fencing or blocking of unauthorized roads and trails. An equivalent of approximately 18 miles will be rehabilitated. The use of heavy equipment and worker vehicles will produce exhaust emissions, while travel on unpaved roads will produce fugitive dust. Small increases in short term, localized emissions will occur under the actions for rehabilitation activities. However, the permanent elimination of routes from the Forest road and trail system will result in an overall decrease in OHV traffic, and a long term concurrent decrease in emissions.

**Table 3.16: Rehabilitation emissions by alternative**

Alternative	Location	Tons*					
		CO	VOC	NOx	PM10	PM2.5	SOx
Alternative 2	SCAQMD	0.01	0.00	0.04	0.06	0.01	0.00
	SDAQMD	0.06	0.02	0.18	0.25	0.06	0.02
Alternative 3	SCAQMD	0.01	0.00	0.04	0.06	0.01	0.00
	SDAQMD	0.06	0.02	0.18	0.25	0.06	0.02

\* Emission rates from Air Quality San Bernardino NF Travel Route Designation Project, 1/2008.

### 3.4.3.3 Cumulative Effects

Actions analyzed for potential cumulative impacts include all proposed activities occurring to forest roads and trails considered under the Cleveland National Forest Route Designation program. The project is expected to have limited cumulative impacts to air quality. Route construction and rehabilitation would create localized, temporary increases in fugitive dust and emissions from motorized equipment. However, after rehabilitation and construction projects are complete, fugitive dust from vehicle travel on unauthorized routes and windblown dust would decrease, as would exhaust emissions due to reductions in VMT. Overall, the action alternatives will improve regional air quality by reducing future criteria pollutant emissions from recreational OHV use. The project also demonstrates conformity with the State Implementation Plan under the Federal Clean Air Act, and does not exceed either the SCAQMD or the SDCAPCD daily project emissions significance thresholds for any alternative.

### 3.4.3.4 Conclusions

The number of vehicle miles traveled annually by forest users is expected to increase slightly under the action alternatives, but the reduction in open area riding will create a net air quality benefit for the selected project. Route decommissioning and rehabilitation work will create minor, temporary increases in local fugitive dust emissions and emissions from motorized equipment in both the San Diego County Air Pollution Control District and the South Coast AQMD. However, once rehabilitation work is completed, emissions from windblown fugitive dust and dust from travel on unpaved roads and trails may be expected to decrease. No adverse change in attainment status is expected to occur as a result of this project.

### 3.4.3.5 General Conformity Applicability Analysis Conclusion

The proposed action has been analyzed as required under section 176(c) of the federal Clean Air Act, as amended, and 40 CFR 93.156 and has been determined to conform to the applicable State Implementation Plan for the purpose of attaining and maintaining all National Ambient Air Quality Standards. No further air quality analysis is required. For a full discussion of the general conformity applicability analysis, please see Appendix A in the air quality specialists report in the project record.

## **3.5 HYDROLOGY**

Management activities on national forest lands must be planned and implemented to protect the hydrologic functions of forest watersheds, including the volume, timing, and quality of stream flows. The use of roads and trails on national forests for public operation of motor vehicles has potential to affect these hydrologic functions through interception of runoff, compaction of soils, and detachment of sediment. Management decisions to make changes to the national forest transportation system must consider effects on watershed functions.

### **3.5.1 Policy and Direction**

**Clean Water Act of 1948, as amended.** The Clean Water Act establishes as federal policy the control of point and non-point pollution and assigns states the primary responsibility for control of water pollution. Compliance with the act by national forests in California is achieved via state law. Non-point source pollution on national forests is managed through the Regional Water Quality Management Plan, which relies on implementation of prescribed best management practices (BMP). The Water Quality Management Plan includes one BMP for OHV use (4-7) and 28 BMPs related to road construction and maintenance (2-1 to 2-28). All National Forest System roads and trails open to OHV use are required to comply with these BMPs.

BMP 4-7 requires each national forest to identify areas or routes where OHV use could cause degradation of water quality; to identify appropriate mitigation and controls; and to restrict OHV use to designated routes. This BMP further requires national forests to take immediate corrective actions if considerable adverse effects are occurring or are likely to occur.

**California Water Code.** The state water code consists of a comprehensive body of law that incorporates all state laws related to water, including water rights, water developments, and water quality. Laws related to water quality (sections 13000 to 13485) apply to waters on national forests and are designed to protect beneficial uses of water. Section 13369 deals with non-point-source pollution and BMPs.

**Porter-Cologne Water-Quality Act, as amended.** This act is included in the California Water Code and provides for the protection of water quality by the State Water Resources Control Board and the Regional Water Quality Control Boards, which are authorized by the EPA to enforce the Clean Water Act in California.

### **3.5.2 Existing Condition**

Annual precipitation in San Diego County varies from about 10 inches in the city of San Diego to between 20 and 40 inches in the mountains in the eastern part of the county. Most precipitation falls in winter, except in the mountains where thunderstorms can occur throughout the year. Eighty-five percent of the rainfall occurs from November through March, but wide variations take place in monthly and seasonal totals.

Mediterranean climates, such as those found in San Diego County, support fire-adapted vegetation where wildland fires are common. Annually nearly 12,000 acres of the Cleveland NF burn in uncontrolled wildfires. Most fires exceeding 20,000 acres burn between July and September during periods of high temperatures and low humidity.

Fire-related increases in runoff and sedimentations are well known and their impacts are managed and mitigated through infrastructure design and planning of flood control structures. Watershed peak flows and sediments yield rates can be greatly affect by wildfire. Immediately following a fire, sediment yields have been observed to increase by an order of magnitude. This is most evident in the mountain range making up the Trabuco Ranger District where sediment yields can be anticipated to increase by around 3,000 percent, from approximately 1,200 cubic yards per square mile to 35,000 cubic yards per square mile. Peak discharge can also be expected to change dramatically follow a wildfire. In the San Juan range for example the 100-year runoff event is expected to average around 210 cubic feet per second for each square mile of contributing area in the absence of a recent wildfire. That value can be expected to approach 400 cubic feet per second per square mile following a wildfire, representing an increase of nearly 200 percent.

Four areas of state impaired waters (Clean Water Act, section 303(d)) are found on the Cleveland NF: Santiago, Silverado, Aliso, and San Juan creeks. Salinity is the major impairment identified for Santiago Creek. The dominate impairment for the others is from bacteria.

Stream crossings are the source of most road and water concerns. Significant attention has been paid by the Forest Service in designing environmentally sound and cost-effect stream crossings. For this project, alternatives 2 and 3 avoid the intersection of streams with roads and trails. Drawing a very broad generality for the Cleveland NF, for each mile of stream approximately 8.56 acres of streamside riparian area has been identified. Alternative2 is expected to impact about 1.47 miles of riparian habitat while Alternative 3 is expected to impact about 0.63 miles of riparian habitat (Table 3.16). The action alternative will impact watersheds that are rated as having good to moderate hydrologic function. Substantial portions of these watersheds are within the forest, making future changes in water quantity and quality less likely. Any future changes in either flow or quality would be expected to be derived from natural conditions or management decisions.

**Table 3.17: Watershed action alternative stream channel impacts.**

		Pine Valley	Cottonwood	Temecula	Santa Ysabel	San Mateo
<b>Alt. 2</b>	Number of crossings	0	0	0	0	0
	Riparian area impacted (miles)	0.02	1.42	0	0.03	0
<b>Alt. 3</b>	Number of crossings	0	0	0	0	0
	Riparian area impacted (miles)	0.02	0.58	0	0.03	0

Forest watershed are periodically evaluated as to their condition, generally this review focuses on water quality and flow regime. Watersheds rated for improvement are in part scaled on the percentage of the headwater and total watershed area under national forest ownership, as well as access and control of runoff (Table 3.17).

**Table 3.18: General watershed condition of impacted HUCs**

	Pine Valley	Cottonwood	Temecula	Santa Ysabel	San Mateo
Priority for improvement	Yes	Yes	No	Yes	No
Properly functioning rating	Good	Poor	Good	Poor	Good
State impaired	Yes	No	No	No	No

### 3.5.3 Determination of Effects

#### 3.5.3.1 Direct and Indirect Effects

Under Alternative 1 no changes to the existing OHV road and trail system would occur and the use of currently designated routes would continue. A summary of how Alternative 2 would impact the miles of National Forest System roads and trails that are accessible to public use, as well as the acres of planned changes in open area is listed below in Table 3.18. Accessible road and trail miles will increase for both alternatives 2 and 3.

**Table 3.19: Change in accessible road and trail miles in open areas.**

Change	Alternative 2	Alternative 3
Net change user miles, percent change	12.2, 4.4%	8.4, 3.0%
Net change open acres	(2,158)	(2,145)

The number of visits is assumed to generally remain the same per year for the all alternatives. Watershed hydrologic regime change can be expected when vegetation and surface and subsurface runoff patterns are disturbed. The degree of change experienced in a watershed often directly depends on the amount of disturbance. Changes in vegetation can increase or decrease the amount of water retained and used in the watershed. The amount and duration of runoff can also be changed by altering surface and subsurface drainage patterns. Increased runoff rates can lead to increased erosion rates. Measures to mitigate these common road and trails effects have been developed, documented and evaluated under best management practices (BMPs), which are approved by the state to meet state water quality standards and are common construction and maintenance practices on the Cleveland NF.

Surface erosion rates can be considered directly linked to changes in vegetation cover. By providing ground cover, vegetation directly influences the exposure of surface soils to wind and water erosive forces. Riparian areas and stream channels are particularly sensitive to the hydrologic regimes of the adjacent slopes and up stream and down stream channel dynamics. Road and trail stream crossings are designed to protect the integrity of floodplain and riparian areas at the stream crossing. Protecting these values is of importance in protecting both engineered stream crossing itself and the riparian ecosystem.

Table 3.20 ranks the alternatives in a subjective sense as to their relative impacts on watershed condition and changes in water quality and quantity in the affected HUCs. A “+” assumes that there will be a relative increase from no action; a “0” assumes that there will be little or no change; and a “-” assumes that there will be decrease in the effect.

**Table 3.20: Hydrology alternative comparison table.**

Alternative	Impact		
	Water quality*	Water quantity**	Watershed condition***
Alternative 1	0	0	0
Alternative 2	0	-	-
Alternative 3	-	-	-

\* Changes in surface erosion from open areas and near channel road and trail networks would directly affect water quality. Decreases surface erosion and high runoff prone areas and decreases in miles of road and trail networks near channels will decrease the OHV contribution to the water courses.  
 \*\* Peak flows are expected to increase with decreases vegetation and reduced infiltration and soil water storage. Roads and open areas reduce the capacity of the soils to absorb and store precipitation.

Alternative	Impact		
	Water quality*	Water quantity**	Watershed condition***
*** Watershed condition rating is strongly influenced by the amount and degree of disturbance occurring near stream channels.			

Rankings in Table 3.20 represent the long-term conditions following rehabilitation and stabilization of new construction. While some impacts are planned for areas adjacent to three streams—Pine Valley, Cottonwood, and Santa Ysabel—these impacts can be controlled and water quality standards can be maintained by the use of appropriate engineering and the application of BMPs. The small streamside area anticipated for impact is unlikely to change substantially the timing or sediment yields beyond those experienced under natural variation. Best management practices would be used to control these potential changes, thereby reducing them to acceptable levels. The application of the five-step project screening process for riparian conservation areas would address unique habitat conditions in these segments and reduce the impacts to acceptable levels.

Trail rehabilitation and construction of new trail is expected to have minimal short-term impacts on both water quality and possibly, but unlikely, water yield. The project's impact on sediment and runoff will be greatest with the rehabilitation of more than 2,000 acres of open areas. Sediment production and peak runoff are expected to decrease dramatically following completion of this rehabilitation effort.

### 3.5.3.2 Cumulative Effects

#### Alternative 1

Cumulative impacts are not expected to be significant but will continue in the long term to present additional maintenance and sediment mitigation costs due to lack of modern project design compatible with new recreational equipment and modern vehicle performance characteristics.

#### Alternatives 2 and 3

Cumulative impacts are not expected to be significant. Over the short term, other than routine maintenance of recreation and road infrastructure, no other construction or rehabilitation is planned in the most affected watersheds. Long-term cumulative impacts are expected to improve watershed condition, sediment yield and water quality from those presently being experienced. Alternative 3 is expected to have less impact than Alternative 2.

#### Compliance with the Land Management Plan and Other Regulatory Direction

Alternatives 2 and 3 are expected to meet all LMP requirements without amendment and satisfy all other federal, state, and regional water quality requirements when completed.

## **3.6 VISUAL RESOURCES**

This section examines the extent to which alternatives respond to visual resource management direction established in the LMP and the Travel Management Rule. The LMP visual resource direction was established under the implementing regulations of the National Forest Management Act.

In the development of the LMP, visual resources on the Cleveland NF were inventoried to determine the landscape's scenic attractiveness and the public's visual expectations. Based on these inventories, scenic integrity objectives (SIOs) were established for all forest land areas. The SIOs establish minimum acceptable thresholds for landscape alterations from an otherwise natural-appearing forest landscape. For example, areas with a high SIO are expected to retain a natural appearance. Areas with a moderate SIO may have some alterations but they remain subordinate to the characteristic landscape. Finally, areas with a low SIO can have alterations that are not natural appearing.

Linear alterations in landscapes caused by roads and trails can be mitigated by using good planning and design tactics. If these alterations are not mitigated, they present uncharacteristic line qualities in forest landscapes. Areas with dense forest canopies have the capability of masking these alterations, while sparsely covered landscapes lack this capability. The proliferation of unauthorized routes, particularly in sparsely covered landscapes, can adversely affect the visual resources of the Cleveland NF.

### **3.6.1 Policy and Direction**

Direction relevant to the alternatives as they potentially affect visual resources is summarized below.

**National Forest Management Act (NFMA).** The NFMA and its implementing regulations require the inventory and evaluation of the Cleveland NF's visual resources to address the landscape's visual attractiveness and the public's visual expectations. Management prescriptions for definitive land areas of the Cleveland NF must include scenic integrity objectives.

**Travel Management Rule (36 CFR parts 212, 251, 261, and 295).** The Travel Management Rule does not cite aesthetics specifically. However, in the addition of trails or areas it requires the responsible official to consider effects on forest resources with the objective of minimizing the effects of motor vehicle use.

**Cleveland NF Land Management Plan (LMP).** The LMP contains management direction in the form of scenic integrity objectives and specific Place-based direction for visual resources, including identification of "key places" for visual management emphasis. Part 3 of the LMP identifies the following two standards:

**S9.** Design management activities to meet the scenic integrity objectives (SIO) shown on the Scenic Integrity Objective Map. (See <http://www.fs.fed.us/r5/scfpr/projects/lmp/mapindex.htm>)

**S10.** Scenic integrity objectives will be met with the following exceptions: (1) minor adjustments not to exceed a drop of one SIO level are allowed with the forest supervisor's approval; and (2) temporary drops of more than one SIO level may be made during and immediately following project implementation providing they to not exceed three years in duration.

In addition, Part 2 of the LMP contains the following three objectives for landscape management.

**LM1, Landscape aesthetics.** Manage landscapes and built elements in order to achieve scenic integrity objectives. Use the best environmental design practices to harmonize changes in the landscape and to advance environmentally sustainable design solutions.

**LM2, Landscape restoration.** Restore landscapes to reduce visual effects of management activities and nonconforming features. Prioritize landscape restoration activities in key places (Aguanga, Elsinore, Laguna, Morena, Palomar Mountain, and Pine Creek). Integrate restoration activities with other resource restoration.

**LM3, Landscape character.** Maintain the character of National Forest System lands in order to preserve their intact nature, valued attributes, and open space. Maintain the integrity of the expansive, unencumbered landscapes and traditional cultural features that provide the distinctive character of places. Plan, design, and improve infrastructure along scenic travel routes to meet scenic integrity objectives.

### **3.6.2 Existing Condition**

The Cleveland NF provides a variety of outdoor recreation settings, ranging from the tall mixed conifer forest on Palomar Mountain and the Jeffery pine forest on Mt. Laguna to steep, boulder-covered slopes in chaparral. The most attractive landscapes are located where the highest combination of landform, water form, rock form, and vegetation variety occur. These locations are classified as scenic attractiveness class A and make up approximately 16 percent of the Cleveland NF. The more common landscapes—those classified as scenic attractiveness class B—consist of steep, chaparral-covered mountains intermixed with foothill and valley areas consisting of oak woodlands and grassland. These areas make up approximately 78 percent of the Cleveland NF. The remaining 6 percent are classified as scenic attractiveness class C, or less distinctive landscapes.

“Key Places” in the planning area represent the most picturesque national forest locations. These Key Places possess their own distinctive landscape character and are particularly valued for their scenic quality. They generally serve as urban backdrops or recreation destinations, or they contain scenic routes and byways. Scenic integrity objectives were established in the LMP. Table 3.21 displays the SIOs for Key Places in which changes to the transportation system are proposed.

**Table 3.21: Acres in Key Places and in each SIO category found in the project area.**

Key Place	Acres		Acres in SIO category		
	Total	Roaded	Very high	High	Moderate
Aguanga	47,895	14,601	845	13,329	416
Morena	49,568	31,052	165	29,007	1,860
Laguna	30,183	19,478	0	18,419	1,048
Pine Creek	33,561	13,591	5,948	5,466	2,160

### **3.6.3 Determination of Effects**

The effects analysis for visual resources was undertaken with two assumptions. First, based on review of the LMP, the basic measurement indicator for visual resources should be “compliance with the high and moderate SIOs.” Second, no additions to the transportation system that would contribute to the continuity of motor touring are proposed. All proposed additions fall within landscapes that have greater than 0.5 miles of road per square mile, based on road density analysis.

### 3.6.3.1 Alternative 1

**Direct and indirect effects.** Both open areas fall in Key Places. Both Wildomar and Corral Canyon are visible from highly traveled Cleveland NF system roads. However, Wildomar can be seen from a location above the entire open OHV area, making the trail system itself highly visible. The existing trail system has a distinctly non-natural appearance with a high density of sharply intersecting lines and large patches of bare soil that contrast with the surrounding chaparral vegetation. Continued cross-country travel is expected to continue the slow development of new routes and increase the size of bare areas at trail intersections. No additions are proposed in this alternative and no barriers to impede use of existing unauthorized routes would be evident.

**Cumulative effects.** The LMP calls for resolution of the unauthorized route issue over time. A total of approximately 6,000 acres have a road density greater than 0.5 miles per square mile due to the presence of unclassified roads. These acres also fall in areas with non-motorized recreation opportunity spectrum objectives within Key Places. In the long term, an 8 percent reduction in acres with a roaded appearance is expected.

### 3.6.3.2 Alternative 2

**Direct and indirect effects.** Prohibition of cross-country travel, installation of barriers, and restoration of vegetation are expected to reduce the visual effects of the Wildomar and Corral Canyon OHV areas, thereby increasing the acres that meet the high SIO for these areas. All proposed additions fall within Key Places. Only 0.2 miles of road are located outside areas currently mapped as having a road density greater than 0.5 miles per square mile. This is expected to increase areas with a roaded appearance by 60 acres.

**Cumulative effects.** Cumulative effects for this alternative are the same as for Alternative 1.

### 3.6.3.3 Alternative 3

**Direct and indirect effects.** Prohibition of cross-country travel, installation of barriers, and restoration of vegetation are expected to reduce the visual effects of the Wildomar and Corral Canyon OHV areas, thereby increasing the acres that meet the high SIO for these areas. All proposed additions fall within Key Places. Only 0.03 miles of road are located outside areas currently mapped as having a road density greater than 0.5 miles per square mile. This is expected to increase areas with a roaded appearance by 9 acres.

**Cumulative effects.** Cumulative effects for this alternative are the same as for Alternative 1.

## **3.7 RECREATION RESOURCES**

This section examines the extent to which alternatives conform to recreation management direction established in the LMP and the Travel Management Rule. The LMP recreation direction was established under the implementing regulations of the National Forest Management Act (NFMA).

### **3.7.1 Policy and Direction**

Direction relevant to the alternatives as they potentially affect visual resources is summarized below.

**National Forest Management Act (NFMA).** With regard to OHV use, the NFMA and its implementing regulations require such motor vehicle opportunities be planned and implemented to protect land and other resources, to promote public safety, and to minimize conflicts with other uses of national forest land.

**Travel Management Rule (36 CFR parts 212, 251, 261, and 295).** The Travel Management Rule requires that in designating National Forest System roads, trails, and areas, responsible officials consider the provision of recreational opportunities, public access needs, conflicts among uses of national forest land, and the compatibility of motor vehicle use with existing conditions in populated areas.

**Cleveland NF Land Management Plan (LMP).** Recreation resources on the Cleveland NF are classified using a “recreation opportunity spectrum” (ROS) system as a way of zoning recreation opportunities. The intent is to provide for recreation opportunities within zones to meet NFMA requirements for a broad spectrum of forest- and rangeland-related outdoor recreation that responds to current and anticipated use. The ROS system provides classes that range from “urban” to “primitive.” Motorized use falls in the motorized ROS classes, which are urban, rural, roaded-modified, roaded-natural, and semi-primitive motorized. Non-motorized ROS classes include semi-primitive non-motorized and primitive. ROS maps for the Cleveland NF can be found online at: [http://www.fs.fed.us/r5/scfpr/projects/lmp/images/maps/cnf\\_cmyk\\_pdfs\\_082405/](http://www.fs.fed.us/r5/scfpr/projects/lmp/images/maps/cnf_cmyk_pdfs_082405/)

Part 2 of the LMP contains the following objectives for recreation management.

**REC1, Recreation opportunity.** Manage national forest land to achieve recreation opportunity classes.

**TRANS3, Improve trails.** Develop an interconnected, shared-use trail network where compatible and support facilities complement local, regional, and national trails and open space, and also enhance day-use opportunities and access for the general public. Construct and maintain the trail network to levels commensurate with area objectives, sustainable resource conditions, user safety, and the type and level of use. Convert ecologically sustainable unclassified roads and trails, and other roads that meet the need for trail-based recreation.

**TRANS4, Off-highway vehicle opportunities.** Provide off-highway vehicle opportunities on designated routes within the Wildomar and Corral Canyon OHV areas, and on existing designated routes. Provide four-wheel drive opportunities in the easy, more, and most difficult route categories. Consider providing opportunities for non-highway licensed vehicles on low maintenance standard roads when traffic studies have been completed and potential for user conflict is minimal. Consider developing remote driving networks as opportunities to accommodate this experience are identified.

### **3.7.2 Existing Condition**

The Cleveland NF has offered limited motorized recreational opportunities since the 1988 forest order, which restricted motorized use to designated routes and areas (see section 1.1.1). Within the 2,160 acres of open areas comprising the Wildomar and Corral Canyon OHV areas, there are approximately 24.9 miles of designated motorized trails. In the immediate vicinity of the Corral Canyon OHV area, but outside its actual boundary, are three additional motorized trails—the Espinoza Trail (2.75 miles), the Kernan Cycle Trail (5.56 miles), and the Spur Meadow Cycle Trail (3.0 miles). Currently, these 36.2 miles of motorized trails are maintained in partnership with the California State Park Off-Highway Motor Vehicle Recreation Division and with various user groups. All these designated routes and areas are within the semi-primitive motorized ROS. Table 3.22 shows the mix-use roads, trails and areas open for public motorized use for roaded natural, semi-primitive motorized, and semi-primitive non-motorized ROS classifications.

**Table 3.22: Roads, trails, and open areas by ROS classification for each alternative.**

Alternative	Route or area type	ROS classification		
		RN	SPM	SPNM
Alternative 1	Highway legal and non-highway legal (miles)		37.8	
	Trail, all vehicles** (miles)		11.2	
	Trail, only vehicles 50" or less in width (miles)		23.2	
	Trail only, motorcycles (miles)		1.8	
	Open areas (acres)		2,160	
	Additional dispersed recreation roads (miles)	0	0	0
Alternative 2	Highway legal and non-highway legal (miles)		37.8	
	Trail, all vehicles** (miles)		13.1	
	Trail, only vehicles 50" or less in width (miles)		25.4	
	Trail only, motorcycles (miles)		5.4	
	Open areas (acres)		2.2	
	Additional dispersed recreation roads (miles)	0.91	3.77	0.19
Alternative 3	Highway legal and non-highway legal (miles)		37.8	
	Trail, all vehicles** (miles)		13.1	
	Trail, only vehicles 50" or less in width (miles)		23.8	
	Trail only, motorcycles (miles)		5.4	
	Open areas (acres)		15.0	
	Additional dispersed recreation roads (miles)	0.09	1.17	0.06
* RN = Roaded natural; SPM = Semi-primitive motorized; SPNM = Semi-primitive non-motorized.				
** Includes four-wheel drive vehicles, vehicles 50 inches or less in width, and motorcycles.				

### **3.7.3 Determination of Effects**

The effects analysis for visual resources was undertaken with two assumptions. First, unless otherwise proposed as an LMP amendment, prohibition of motorized cross-country travel is not a change to ROS

(e.g., semi-primitive motorized), it is simply a prohibition within that particular ROS zone to travel off of designated routes. The ability to add or remove routes in the future would still be guided by the NFMA—largely through ROS as found in the LMP—and is not affected by the action of prohibiting motorized cross-country travel and limiting travel to designated routes across the Cleveland NF. Second, proposed additions to the transportation system would have a beneficial effect on motor vehicle users by providing a variety of riding experiences—ranging from easy to difficult—and contributing to the continuity of the motor touring experience, including access to both motorized and non-motorized dispersed recreation activities.

### **3.7.3.1 Alternative 1**

**Direct and indirect effects.** This alternative would continue to provide the current level of OHV recreational opportunities on designated routes and in designated areas, but would decrease opportunities for dispersed recreation because none of the user-created dispersed parking or camping areas that are more than one car length off a designated road would be available for use. This alternative would not increase recreational opportunities. This alternative may increase safety concerns because it does not provide any additional riding opportunities.

**Cumulative effects.** The use of off-highway vehicles and ATVs has increased significantly over the past few decades. The 2006 California State Parks Fuel Tax Study indicated that over 25% of the registered non-street legal vehicles are within the 3 counties that surround the Cleveland National Forest. The historic increase in OHV use and possible continuation of this trend will lead to additional use of the 2160 acre open areas. By not providing additional designated OHV routes, there is a greater likelihood that users will create or re-open unauthorized routes outside the designed open areas to provide them with a broader diversity of riding opportunities. This will have negative impacts on soil, wildlife, endangered species and watershed.

### **3.7.3.2 Alternative 2**

**Direct and indirect effects.** This alternative would increase the number of miles of OHV recreational opportunities on designated routes and would provide for challenge loops for all classes of vehicles. Alternative 2 includes a trial riders trail so that skilled riders can ride to different challenging areas, as well as increasing total motorcycle single track trail length from 1.8 to 5.4 miles. By adding trails within the Corral Canyon OHV area and designing the added trails for various challenge levels, users would experience a safer and more enjoyable riding atmosphere. This alternative would decrease total open areas from 2,160 to 2.2 acres. The 2.2 acres of open areas would be managed as “tot lots” where youths could learn safe operation of OHVs. 4.87 additional miles of road would be added to the system for dispersed recreation, authorizing street-legal vehicle access to 18 areas on which traditional dispersed recreation has occurred. This alternative adds many of the most popular dispersed recreation areas to the designated road system. All new roads and trails would be maintained in accordance with Cleveland NF standards to minimize resource impacts. Short segments of three new dispersed recreation roads totaling 0.19 miles are located within the ROS classification for semi-primitive non-motorized recreation. Adding these segments to the transportation system would require a non-significant forest plan amendment.

**Cumulative effects.** The cumulative effects on recreation will be an additional 7.7 miles of designated trails for motor vehicles that are managed to provide for a variety of riding experience

for various types of motor vehicle users. This is a 21% increase in designated motorized trails for the Cleveland National Forest. Also 4.89 miles of roads will be added to the road system to provide dispersed recreation opportunities. This is a 2 % increase in the road system. These increases will help to accommodate the OHV and dispersed recreation demand on the forest. This alternative reduces the open areas from 2160 acres to 2.2 acres which reduces environmental impacts. This is a 99% decrease in open area riding opportunity. These trails will be monitored on an annual basis and problems will be corrected or the trail will be closed. Additional opportunities will be analyzed in the future and could be added to the system in accordance with the direction of the Forest Plan.

### 3.7.3.3 Alternative 3

**Direct and indirect effects.** This alternative provides an increase in the number of miles of OHV recreational opportunities on designated routes, and it provides for challenge loops for all classes of vehicles. The 12.8 acres of open areas added to this alternative in comparison to Alternative 2 are a substitute for proposed trail additions SDTR-1 and SDTR-2. During scoping for the project, user groups indicated that they preferred to have access to rock outcrops adjacent to existing or proposed trails. These open areas would allow riders to practice their skills on challenging terrain. This alternative also increases motorcycle single-track trail from 1.8 to 5.4 miles. By adding trails within the Corral Canyon OHV area and designing the added trails for various challenge levels, users would experience a safer and more enjoyable riding atmosphere. This alternative would decrease total open areas from 2,160 to 15.0 acres. Approximately 2.2 acres of open areas would be managed as “tot lots” where youths could learn safe operation of OHVs, while the remaining 12.8 acres would be managed as challenge areas. These 12.8 acres of open areas are large rock outcroppings which are adjacent to existing or proposed trails. Providing open areas that are made up of large granite outcrops will minimize environmental impacts. Appendix D – Adaptive Mitigation for Recreation Use from the Forest Plan will be used to monitor and maintain these open areas to the designated size. Approximately 1.32 additional miles of road would be added to the system for dispersed recreation, authorizing street-legal vehicle access to 9 areas on which traditional dispersed recreation has occurred. This alternative increases the number of recreational opportunities. All new roads and trails would be maintained in accordance with Cleveland NF standards to minimize resource impacts. The Corte Madera dispersed recreation segment, totaling 0.06 miles, is located within the ROS classification for semi-primitive non-motorized recreation. Adding this segment to the transportation system would require a minor forest plan amendment.

**Cumulative effects.** The cumulative effects on recreation will an additional 6.2 miles of designated motorized trails that are managed to provide for a variety of riding experience for various types of motor vehicle users. This is a 17% increase in designated motorized trails for the Cleveland National Forest. Also 1.32 miles of roads will be added to the road system to provide dispersed recreation opportunities. This is less than 1 % increase in the road system. These increases will help to accommodate the OHV and dispersed recreation demand on the forest. This alternative reduces the open areas from 2160 acres to 15 acres. This is a 99% decrease in open area riding opportunity but 12.8 of the 15 acres are primarily rock outcroppings which will provide a variety of challenges to single track vehicles. Additional opportunities will be analyzed in the future and could be added to the system in accordance with the direction of the Forest Plan.

## **3.8 SOIL RESOURCES**

This section examines the extent to which alternatives affect the soil resource in the project area. The soil resource provides many essential functions for national forest lands, including sustaining the plant growth that provides forage, fiber, wildlife habitat, and watershed protection. Soil absorbs precipitation, stores water for plant growth, and gradually releases surplus water which attenuates runoff rates. It also sustains microorganisms that recycle nutrients for continued plant growth. The National Forest Management Act of 1976 and other acts recognized the fundamental need to protect and, where appropriate, improve the quality of soil. The proposed action could potentially impact soil productivity and its other ecosystem functions and is therefore addressed here.

### **3.8.1 Policy and Direction**

Direction relevant to the alternatives as they potentially affect soil resources is summarized below.

**National Forest Management Act (NFMA).** Renewable Resource Program. “(C) recognize the fundamental need to protect and where appropriate, improve the quality of soil, water, and air resources.”

**National Soil Management Handbook (NSMH).** The NSMH defines soil productivity and components of soil productivity, establishes guidance for measuring soil productivity, and establishes thresholds to assist in forest planning.

**Region 5 Soil Management Handbook Supplement (R5 FSH Supplement 2509.18-95-1).** The Region 5 Supplement establishes regional soil quality analysis standards. The analysis standards address three basic elements for soil: (1) soil productivity, including soil loss, porosity, and organic matter; (2) soil hydrologic function; and (3) soil buffering capacity. The analysis standards are to be used for areas dedicated to growing vegetation. They are not applied to lands with other dedicated uses, such as developed campgrounds, administrative facilities, or in this case the actual land surface authorized for travel by the public using various kinds of vehicles.

**Regional Forester’s Letter of February 5, 2007.** This letter clarified the appropriate use of the R5 Soil Management Handbook Supplement. It states that:

“Analysis or evaluation of soil condition is the intended use of the thresholds and indicators in R5 FSH Supplement 2509.18-95-1. They are not a set of mandatory standards or requirements. They should not be referred to as binding or mandatory requirements in NEPA documents. Standards and guidelines in Forest Land and Resource Management Plans provide the relevant substantive standards to comply with NFMA.”

Thresholds and indicators represent desired conditions for the soil. Utilization of the thresholds and indicators provides a consistent method to analyze, describe and report on soil condition throughout Region 5.

**Cleveland NF Land Management Plan (LMP).** The LMP provides desired conditions, objectives and specific standards for protection of soil. The following guidance is relevant to this analysis:

**S47.** When designing new projects in riparian areas, apply the Five-Step Screening Process for Riparian Conservation Areas as described in Appendix E of the LMP.

**S50.** Mitigate negative long-term impacts from recreation use to soil, watershed, riparian or heritage resources (refer to Appendix D – Adaptive Mitigation for Recreation Uses).

**WAT1, Watershed function.** Protect, maintain and restore the natural watershed functions including slope processes, surface water, and groundwater flow and retention, and riparian area sustainability. Maintain or restore soil properties and productivity to ensure ecosystem health (soil microbiota and vegetation growth), soil hydrologic function, and biological buffering capacity. Manage Riparian Conservation Areas (RCA) to maintain or improve conditions for riparian dependent resources. Riparian Conservation Areas include aquatic and terrestrial ecosystems and lands adjacent to perennial, intermittent, and ephemeral streams, as well as around meadows, lakes, reservoirs, ponds, wetlands, vernal pools, seeps, springs and other water bodies. Riparian dependent resources are those natural resources that owe their existence to the area, such as fish, amphibians, reptiles, fairy shrimp, aquatic invertebrates, plants, birds, mammals, soil and water quality. Maintain natural stream channel conductivity, connectivity and function.

### **3.8.2 Existing Condition**

A land type association-level ecological unit inventory (EUI) for the Cleveland NF was completed in 2001. The EUI found that thermic soils cover 56 percent of the area and are the dominant soils temperature regime. On the Cleveland NF, warm air temperatures coupled with often-shallow soils result in low available moisture to support plant growth and thus lower levels of cover for soil erosion protection. The range of landscape soil units in the EUI demonstrates the complexity of parent materials that occur in the area, while the wide range of soil depths provides evidence of the steepness and high rates of erosion that can occur. Many soils are predominantly coarse-textured, shallow, and highly permeable and have little profile development. These soils are typically 20 inches or less in depth. Deeper, more productive soils are generally found on more stable slopes on gently rolling hills or are located in valley bottoms. They generally have medium or fine texture at the surface layer and fine-textured subsoil with high water-holding capacity.

### **3.8.3 Determination of Effects**

#### **3.8.3.1 Alternative 1**

##### **Direct and indirect effects: OHV areas**

Cross country motorized vehicle use on a total of 2,160 acres in the Corral Canyon and Wildomar OHV areas would continue under Alternative 1. Dense shrubs cover much of the OHV areas, preventing most disturbances, except after wildfires. Over time a larger percentage of the open areas have been opened through unauthorized trails. As concerns have been identified through monitoring, erosion control measures, such as rolling dips and settlement basins, have been implemented on many trails. Several areas of concentrated use have developed, thereby creating bare open areas, especially near trailheads or staging areas. Many of these have been restored over the years. This trend is expected to continue under Alternative 1 with a slow increase in the area disturbed and the potential for a surge in disturbance following fire. After the 2006 Horse fire, a portion of the Corral Canyon OHV area was closed by a special forest order to prevent such disturbances.

Both Corral Canyon and Wildomar OHV areas fall primarily in landscape soil group T9 (Thermic Granitic and Metamorphic Mountainside Soils, shallow to deep) and with a small portion of the Corral Canyon area in T11 (Thermic Gabbro Red Clayey Upland Soils, moderately deep to deep). Small

inclusions of stream side alluvial soils are found on both areas. Site-specific review of the erosion hazards in each area are summarized as follows:

**Corral Canyon OHV area**

*La Posta and soil portion of AcG (Rockland).* Wind and water erodibility are issues on this soil. Of the two, water erodibility is much more severe and likely to be a problem especially if the soil is used for wheeled traffic. The soil has low strength and a high soil erodibility (K) factor. The potential for severe water erosion may necessitate consideration of water management structures at an undetermined number of sites along any roads that will receive significant OHV use.

*Streamside inclusions.* Although the soil survey indicates these two waypoints are within the LcE map unit, there is another alluvial soil which is mixed in with LcE. This soil is found along the small streams, on stream terraces and associated meadow areas. These low, flat areas will continue to collect sediment whether it is induced by vehicle traffic or as a result of fire. The soils on these low areas are dominated by silts and fine sands and will not stand up well to any sort of physical disturbance.

**Wildomar OHV area**

*Ramona Soil Series.* The main consideration in this soil would be the potential for soil erosion by water. This is primarily due to low soil strength. This is not as much a limitation on this soil as the slope angle is relatively low. Management measures have already been put in place at this site and appear to be working as designed. Dust may be a minor issue.

*Vista Soil Series.* The tendency of this soil to erode easily, rapidly and continuously in the presence of sufficient precipitation makes management of this area for OHV use critical. Every attempt should be made to keep vehicles on existing or approved trails to minimize damage from erosion either from direct disturbance or movement of detached sediment off disturbed areas.

*Capistrano Soil Series.* While not especially subject to erosion, they are, like the other soils discussed above, characterized by low soil strength and will still rut when used heavily. Protection of bare soil from raindrop impact is enhanced by the tree canopy which will help to alleviate any erosion likelihood.

The direct effect of this increase in disturbance by new trail development would be loss of soil productivity through accelerated erosion as vegetation is removed and unplanned trails or large open patches erode rapidly and ruts form. Indirect effects would be caused by sediment traveling to adjacent streams and moving downstream off site. Important aquatic habitat occurs downstream from both open areas (see biology section).

**Direct and indirect effects: Addition of new roads and trails**

No unauthorized roads or trails would be added to the existing system of designated routes under Alternative 1, so there is no change in the miles of roads and trails by erosion hazard class (Table 3.23).

**Table 3.23: Miles of roads and trails by erosion hazard class for Alternative 1.**

Road and trail	Moderate	High	Very high
Public motorized access roads, highway-legal vehicles	3.36	10.65	178.63
Public motorized access roads, with OHVs	0.12	0.37	37.06
Public motorized access trails	0.16	4.50	27.04
Unauthorized roads	2.08	6.77	238.73

Generally for the existing transportation system and unauthorized routes, direct effects have already occurred. The direct effects were: physical displacement of soil during construction of a transportation system road, trail, or area or caused by unauthorized motorized vehicle traffic; loss of soil productivity from the displacement and loss of soil depth; loss in soil hydrologic function due to loss of soil and loss of soil cover.

Indirect effects from unauthorized use are expected to continue. The removal of vegetation and exposure of soil in unauthorized routes will result in erosion. These unauthorized use areas were not designed and have no runoff water control to protect the soil resource. Further loss of productivity will occur and diminished soil hydrologic function

**Cumulative effects**

The Record of Decision for the LMP FEIS states that resolution of the unauthorized (unclassified routes) will occur over time. In the long run it is reasonable to assume that routes in areas with a semi-primitive non-motorized ROS class will be decommissioned (Table 3.24). Both the direct and indirect effects discussed above are expected to be reduced in the long term as these sites recover. Recovery can be expected to be rapid on forested sites and slow on chaparral sites. Fire in chaparral can accelerate recovery through germination of obligate seeding shrubs assuming the route has been stabilized to reduce excessive erosion.

**Table 3.24: Miles of unauthorized roads and trails by erosion hazard class, Alternative 1, 2, and 3.**

Road and trail	Moderate	High	Very high
Expected miles of unauthorized routes	2.10	1.11	124.42

**3.8.3.2 Alternative 2**

**Direct and indirect effects: OHV areas**

Motorized use off of designated roads or trails is currently prohibited except in the Corral Canyon and Wildomar OHV areas. Cross country motorized vehicle use would be reduced from 2,160 acres to 2.2 acres of designated OHV open areas under Alternative 2. Installation of fencing and other control measures would reduce unauthorized use of the current open areas.

Site specific assessment of the 2.0-acre proposed open area in the Corral Canyon OHV area is summarized as follows: Due to the fine nature of the sands at this site and the presence of silts, this site seems particularly prone to dust generation. The site’s location, directly adjacent to the campground, might cause significant dust issues for campers if local wind conditions would blow dust in that direction. Another concern for this particular site is the angle of the slope. Although the slope is not particularly steep (5 to 8 percent), the angle directly faces the campground. The area currently shows evidence of erosion and the angle and aspect of the slope would likely favor depositing sediment directly into the campground itself. Adding to this potential issue, is the presence of a short but steep (15 to 30 percent) slope between the proposed open area and the upper part of the campground. This area will only erode more and will also accelerate any sediment flow into the campground proper. It is likely that erosion will significantly increase if this area is intensively used by ATVs. A BMP that will allow sediment to remain on site prior to reaching the short, steep slope is recommended.

The 0.2 acre open area recommended at the Wildomar OHV area is a small extension of a large dirt staging area and it is on a Ramona fine sandy loam soil with 2 to 9 percent slopes. The main consideration in this soil would be the potential for soil erosion by water, primarily due to low soil strength. This is not as much a limitation on this soil as the slope angle is relatively low. Management measures, such as

waterbars and a sediment basin, have already been put in place at this site and appear to be working as designed. Dust may be a minor issue.

**Direct and indirect effects: Addition of new roads and trails**

Roads proposed for addition to the transportation system in Alternative 2 fall into two landscape soil groups. Group T9 (Thermic Granitic and Metamorphic Mountainside Soils, shallow to deep) includes the following roads: Buckman North, Buckman South, Corte Madera, Cottonwood, the Narrows, Upper Santa Ysabel, and Yellow Rose Spring, totaling 1.81 miles. Four trails are proposed for designation in the Corral Canyon OHV area, totaling 6.19 miles. Site specific review of the soils erosion potential is as follows:

*Mottsville soils.* A concern is dust creation on these soils, which tend to blow if exposed. Dustiness remains a factor and will possibly be exacerbated by the relatively low soil strength. Low soil strength will allow for more rapid rutting by vehicle tires. In spite of the relatively low strength, erosion by water should not be a major concern on this relatively low sloping unit.

*La Posta soils.* This soil is subject to rutting and the increased slope of this map unit, 2 to 9 percent, will increase the likelihood of erosion by water when the soil is used by OHVs. Several current erosion problems are visible on the road where erosion has already cut channels which flow into the adjacent creek. Using this area for OHVs will probably make this erosion worse.

Group M8 (Mesic Granitic and Metamorphic Mountainside Soils, moderately deep to deep) includes the following routes: Deer Flats/Knob Hill sites, Deer Park, High Point site, Kitchen Creek 1, Kitchen Creek 2, Laguna Rec., Miners Road, Old Horse Meadow, Pine Creek 1, Pine Creek 2, and Timbers Edge, totaling 4.98 miles. No trail additions are proposed for this soil group. Site specific analysis of these routes describes the erosion hazard as follows for the Crouch and Bancas Soils:

Each of these map units is characterized by low strength with the result that the potential for soil rutting is severe. These units rate as *severe* for erosion on roads and trails. This is directly associated with the low strength of the soil. A related interpretation suggests the likelihood of off-road/off-trail erosion. This is primarily a function of slope angle. The lower sloping units, even though they may rate as severe for on-trail erosion will be less likely to allow for the rate and volume of water needed to break out of the trail and flow overland thus earning a *moderate* or *slight* rating. Each of these map units has the potential to degrade when used intensively by vehicles. Only casual or low use will have little or no effect on the soils, especially if use is limited or monitored when soils are at or near their seasonal maximum wetness. One map unit, BbG, Bancas, suggests that the soil, if exposed, may have a dust problem as well. Table 3.25 summarized miles of road and trails by erosion hazard class for this alternative.

**Table 3.25: Miles of roads and trails by erosion hazard class for Alternative 2.**

Road and trail	Moderate	High	Very high
Public motorized access roads, highway-legal vehicles	3.36	10.65	185.45
Public motorized access roads, with OHVs	0.12	0.37	37.06
Public motorized access trails	0.16	4.50	31.25
Unauthorized roads	2.08	6.77	238.10

**Cumulative effects.**

Cumulative effects for Alternative 2 are the same as for Alternative 1.

### 3.8.3.3 Alternative 3

#### Direct and indirect effects: OHV areas

Motorized use off designated roads or trails is currently prohibited except in the Corral Canyon and Wildomar OHV areas. Cross country motorized vehicle use would be reduced from 2,160 acres to 15 acres of designated OHV open areas under Alternative 3. Installation of fences and other control measures would reduce unauthorized use of the current open areas. All but 2.2 acres of the 15 open acres proposed under this alternative are on large granite rock outcroppings with minimal potential for increased effects over Alternative 2.

#### Direct and indirect effects: Addition of new roads and trails

Roads proposed for addition to the transportation system in Alternative 3 fall into two landscape soil groups. Group T9 (Thermic Granitic and Metamorphic Mountainside Soils, shallow to deep) Corte Madera and Upper Santa Ysabel are proposed road additions for a total of 0.09 miles. Four trail additions are proposed for a total of 6.19 miles.

Group M8 (Mesic Granitic and Metamorphic Mountainside Soils, moderately deep to deep) includes the following routes: Deer Flats/Knob Hill sites, Deer Park, High Point site, Kitchen Creek 1, Pine Creek 1, and Timbers Edge. No new trails are proposed for this soil group.

The types of effects are the same as discussed under Alternative 2 for these routes. However, Alternative 3 affects 2.5 fewer miles. As shown on Table 2.8 in Chapter 2, the roads not added to the transportation system would be protected through installation of barriers to prevent unauthorized use. In addition, as shown on Table 2.5 in Chapter 2, 11.5 miles of unauthorized routes that intersect the OHV system would be protected through barrier maintenance and installation. In the long term these routes are expected to recover to native vegetation. The recovery is expected to be faster on Group 8 soils due to higher productivity and production of litter for ground cover from surrounding trees. Table 3.26 summarizes miles of road and trails by erosion hazard class for this alternative.

**Table 3.26: Miles of roads and trails by erosion hazard class for Alternative 3.**

Road and trail	Moderate	High	Very high
Public motorized access roads, highway-legal vehicles	3.36	10.65	185.83
Public motorized access roads, with OHVs	0.12	0.37	37.06
Public motorized access trails	0.16	4.50	28.46
Unauthorized roads	2.08	6.77	238.73

#### Cumulative effects.

Cumulative effects for Alternative 3 are the same as for Alternative 1.

### 3.8.4 Determination of Effects

Table 3.27 ranks effects to the soil resource for alternatives 1, 2, and 3.

**Table 3.27: Ranking of effects across all alternatives.**

Indicators—Soil Resource	Rankings of alternatives for each indicator*		
	Alt. 1	Alt. 2	Alt. 3

