



United States Department  
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**Forest Service**

Pacific Southwest Region

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# Land Management Plan

## Part 3 Design Criteria for the Southern California National Forests

**Angeles National Forest**

**Cleveland National Forest**

**Los Padres National Forest**

**San Bernardino National Forest**



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# **Land Management Plan**

## **Part 3: Design Criteria for Southern California National Forests**

**Angeles National Forest  
Cleveland National Forest  
Los Padres National Forest  
San Bernardino National Forest**

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**Note:** Tables were managed in a database environment, and were assigned unique numbers as their need was identified. Over 500 tables were created. Some tables were later determined to be redundant or unnecessary. The planning team decided not to renumber the tables for publication due to the amount of work required to locate and update every reference to every table. Thus, the table numbers are not consecutive, and a careful review of all documents will reveal that all table numbers were not used in the final documents.

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## Document Format Protocols

The following format protocols (font type, size, and strength, as well as indentation) are used throughout the Land Management Plan.

**All headings are Arial bold, in varying font sizes and indentation.**

Text is generally Times New Roman, 12 point regular.

**Table Titles are Arial, bold, 11 point.**

Table column headings are in Arial Narrow, 10 pt, with a shaded background.
Table cell contents are Times New Roman, 12 point.
<b>Note:</b> Tables were managed in a database environment, and were assigned unique numbers as their need was identified. During the lifetime of the analysis, over 500 tables were created for potential use. Some tables were later determined to be redundant or unnecessary. The planning team decided not to renumber the tables for publication due to the amount of work required to locate and update every reference to every table. Thus, the table numbers are not consecutive, and all table numbers were not used in the final documents.



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Photograph captions have a top and bottom border to separate them from regular text, and are 12 point Arial font. For example, this is a clip-art butterfly.

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References to websites (URLs) are in OCR B MT, 10 point in the printed version. In the electronic version, these are live links. The electronic version is posted at:

- <http://www.fs.fed.us/r5/angel es/projects/lmp>
- <http://www.fs.fed.us/r5/cl evel and/projects/lmp>
- <http://www.fs.fed.us/r5/l ospadres/projects/lmp>
- <http://www.fs.fed.us/r5/sanbernardi no/projects/lmp>

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## Introduction

This document is Part 3 of the three-part forest plans for the southern California national forests. Part 3 is the design criteria or 'the rules' that managers will operate with as we work toward the realization of the desired conditions described in Part 1 (Vision). Part 3 includes two components. The first component contains the forest plan standards and guidelines, and the second component contains the laws, policy or other direction that may be applicable to proposed activities. The standards are the fundamental requirements that define the parameters for the activities that the Forest Service anticipates. Standards can be changed by a forest plan amendment. The Forest Service's intent is to use these standards in combination with other guidance that will be identified based on project analysis and planning. Other guidance means using information specific to the various resources that is described in Forest Service Manuals and Handbooks, Best Management Practices (BMPs), the Built Image Guide, Species Accounts, Soil and Water Conservation Handbooks, and more. The design criteria offer managers the flexibility to use the appropriate guidance according to the conditions on the ground. The criteria are expected to enable sustainable resource use and conservation. The design criteria are used in combination with the description of desired conditions (Part 1), the objectives, program emphasis and strategies (Part 2), and the land management zoning map to define the strategic direction and guide the management of the southern California national forests.

The first component or section of the design criteria includes the standards that are legally required and described in 36 CFR 219 and the other standards that are required for sustainable forest management. Many of the standards include the use of the term 'mitigate'. Mitigation is defined in the National Environmental Policy Act at 40 CFR 1508.20(a) through (e). The definition states that:

"Mitigation" includes:

- a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- e) Compensating for the impact by replacing or providing substitute resources or environments.

The implementation of the design criteria will be evaluated annually using the implementation monitoring strategies (such as monitoring sample projects) that are described in this section.

Please note that standards that only apply to certain areas on the individual national forests are described in Part 2 of the individual forest plan.

The second component or section is Appendix A through K and references the other design criteria or guidance that will be referenced and incorporated as projects are designed to implement the direction in the forest plan, and move along the pathway toward the realization of desired conditions over time. The laws and policy specific to public land management are listed in Appendix A and constitute the overarching legal context for the management of the national

forests. The laws are very specific in describing the legal requirement for managing natural resources. Appendix B through M includes a glossary of terms (Appendix L) and reference to other guidance, such as minimum impact suppression tactics (MIST), riparian management, weed management, monitoring and more. Managers are required to reference this and other applicable guidance, and to use the information that is appropriate to the situation they are working with on the ground.

## Plan Standards Required by (36 CFR 219)

### Vegetation Management Standards

**S1:** Long-Term Sustained Yield (36 CFR 219.27 (c) (2)). No land is currently identified as suitable for timber sale production in southern California, and the allowable sale quantity (ASQ) is zero. Harvest may occur to meet wildlife, fuels, watershed or other needs.

**S2:** Appropriate Vegetation Management Practices (Including Limitations on Even-Aged Timber Harvest Methods) (36 CFR 219.27 (c) (6)). The silvicultural systems shown, by forest and rangeland cover-types in table 3.1: Appropriate Silviculture Systems and Vegetation Treatments by General Forest Type, which meet the management objectives for the landscape or individual stands of trees within a landscape setting are acceptable. These silvicultural systems are to be applied in a manner that will favor natural regeneration when possible. Artificial regeneration will be necessary following uncharacteristic wildland fires, insect and disease attacks, and damaging weather events. Ground based harvest systems will normally operate on slopes up to 35 percent, and on short steep pitches up to 50 percent. Ground based equipment will be used on steep slopes when supported by site and operation specific analysis. Cable or aerial systems will generally be used on sustained slopes greater than 35 percent.

**Table 3.1. Appropriate Silviculture Systems and Vegetation Treatments by General Forest Type**

Management Activity	Subalpine	Mixed Conifer Yellow Pine	Closed Cone Conifer	Big-Cone Douglas-Fir and Canyon Oak	Coast Redwood	Pinyon /Juniper	Oak Woodland
Maximum size of openings	N/A	1/4-3 ac.	1/4-3 ac.	1/4-3 ac.	1/4-3 ac.	1/4-1 ac.	N/A
Even-Aged	Not Acceptable	Not Acceptable	When Justified	Not Acceptable	Not Acceptable	When Justified	Not Acceptable
Uneven-Aged Group Selection	Not Acceptable	Acceptable	When Justified	When Justified	When Justified	Not Acceptable	Not Acceptable
Uneven-Aged Single-tree Selection	Not Acceptable	Acceptable	When Justified	When Justified	When Justified	When Justified	When Justified
Stocking Control: (thinning)	Not Acceptable	Acceptable	Acceptable	When Justified	When Justified	When Justified	When Justified
Stocking Control: (thinning)Rx fire	Not Acceptable	Acceptable	Acceptable	When Justified	When Justified	When Justified	When Justified
Salvage of Dead Material	Not Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Site Preparation	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Management Activity	Subalpine	Mixed Conifer Yellow Pine	Closed Cone Conifer	Big-Cone Douglas-Fir and Canyon Oak	Coast Redwood	Pinyon /Juniper	Oak Woodland
Reforestation / Restoration	When Justified	Acceptable	When Justified	When Justified	Acceptable	When Justified	When Justified
Regeneration Protection	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Tree Improvement	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

**S3:** Maximum Size Openings Created by Timber Harvest (36 CFR 219.27 (d) (2)). Table 3.1: Appropriate Silviculture Systems and Vegetation Treatments by General Forest Type identifies the maximum allowable opening acreage for forest types. This limit shall not apply where harvests are necessary as a result of catastrophic conditions, such as fire, insect and disease attack, windstorm, or drought.




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This forest stand has had thinning and slash burning treatments (Los Padres NF photo)

**S4:** Design fuelbreaks in forests to be open; averaging no more than 40 percent crown closure along the center corridor with an understory of grasses, forbs, and small shrubs. Thinning of forests should favor retention of large-diameter trees. Crown closure and understory vegetation increase gradually, moving from the inside toward the outside of the shaded fuelbreak.

**S5:** Treat all freshly cut live or recently dead conifer stumps with a registered fungicide to prevent the establishment of annosus root disease.

**S6:** Seed to be used on National Forest System lands will be certified to be free of noxious weeds. Where available, only locally collected native seed will be used, or seeds will be used from species that are noninvasive and nonpersistent. When available, wattles, mulch and livestock feed to be used on National Forest System lands will be certified to be free of noxious weeds.

**S7:** There are extensive areas within and adjacent to the national forests of southern California meeting the definition of Wildland/Urban Interface (WUI) as described in the Healthy Forests Restoration Act of 2003. WUI (as defined by the Act) is a variable width up to 1.5 miles from communities at risk or as defined in individual community fire protection plans. This forest plan further identifies a direct protection buffer (WUI Defense Zone) and an indirect protection buffer (WUI Threat Zone) that fall within the broader definition WUI. A WUI Defense Zone is the area directly adjoining structures and evacuation routes that is converted to a less-flammable state to increase defensible space and firefighter safety. The WUI Threat Zone is an additional strip of vegetation modified to reduce flame heights and radiant heat. The Threat Zone generally extends approximately 1.25 miles out from the Defense Zone boundary. Yet, actual extents of Threat Zones are based on fire history, local fuel conditions, weather, topography, existing and proposed fuel treatments, and natural barriers to fire and community protection plans, and therefore could extend well beyond the 1.25 mile. The two zones together are designed to make most structures more defensible. Following are the minimum and maximum widths for the WUI Defense Zone by general vegetation type:

#### **WUI Defense Zone Widths**

Vegetation	Min Width (ft) WUI Defense Zone	Max Width (ft) WUI Defense Zone
<b>Grass</b>	50	100
<b>Chaparral</b>	100	300
<b>Forests</b>	300	1,500

**S8:** Community protection needs within the WUI Defense Zone take precedence over the requirements of other forest plan direction, including other standards identified in Part 3 of the forest plan. If expansion beyond the 300-foot minimum width of the defense zone is needed due to site-specific conditions, projects will be designed to mitigate effects to other resources to the extent possible.

## **Aesthetic Management Standards**

**S9:** Design management activities to meet the Scenic Integrity Objectives (SIOs) shown on the Scenic Integrity Objectives Map.

**S10:** Scenic Integrity Objectives will be met with the following exceptions:

- Minor adjustments not to exceed a drop of one SIO level is allowable with the Forest Supervisor's approval.
- Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration.

## **Fish and Wildlife Standards**

### **When Implementing All Activities**

**S11:** When occupied or suitable habitat for a threatened, endangered, proposed, candidate or sensitive (TEPCS) species is present on an ongoing or proposed project site, consider species guidance documents (see Appendix H) to develop project-specific or activity-specific design criteria. This guidance is intended to provide a range of possible conservation measures that may be selectively applied during site-specific planning to avoid, minimize or mitigate negative long-term effects on threatened, endangered, proposed, candidate or sensitive species and habitat. Involve appropriate resource specialists in the identification of relevant design criteria. Include review of species guidance documents in fire suppression or other emergency actions when and to the extent practicable.

**S12:** When implementing new projects in areas that provide for threatened, endangered, proposed, and candidate species, use design criteria and conservation practices (see Appendix H) so that discretionary uses and facilities promote the conservation and recovery of these species and their habitats. Accept short-term impacts where long-term effects would provide a net benefit for the species and its habitat where needed to achieve multiple-use objectives.

**S13:** Manage Critical Biological land use zones so that activities and discretionary uses are either neutral or beneficial for the species and habitats for which the area was established. Accept short-term adverse impacts to threatened, endangered, and proposed species if such impacts will be compensated by the accrual of long-term benefits to habitat for threatened, endangered, and candidate species.

**S14:** Where available and within the capability of the site retain a minimum of six downed logs per acre (minimum 12 inches diameter and 120 total linear feet) and 10 to 15 hard snags per five acres (minimum 16 inches diameter at breast height and 40 feet tall, or next largest available). Exception allowed in Wildland/Urban Interface Defense Zones, fuelbreaks, and where they pose a safety hazard.

**S15:** Within riparian conservation areas retain snags and downed logs unless they are identified as a threat to life, property, or sustainability of the riparian conservation area.

**S17:** In areas outside of Wildland/Urban Interface Defense Zones and fuelbreaks, retain soft snags and acorn storage trees unless they are a safety hazard, fire threat, or impediment operability.

**S18:** Protect known active and inactive raptor nest areas. Extent of protection will be based on proposed management activities, human activities existing at the onset of nesting initiation, species, topography, vegetative cover, and other factors. When appropriate, a no-disturbance buffer around active nest sites will be required from nest-site selection to fledging.

**S19:** Protect all spotted owl territories identified in the Statewide California Department of Fish and Game database (numbered owl sites) and new sites that meet the state criteria by maintaining or enhancing habitat conditions over the long-term to the greatest extent practicable while protecting life and property. Use management guidelines in the species conservation strategy (or subsequent species guidance document; see Appendix H) to further evaluate protection needs for projects, uses and activities.

**S20:** Maintain a limited operating period (LOP) prohibiting activities within approximately .25 miles of a California spotted owl nest site, or activity center where nest site is unknown, during the breeding season (February 1 through August 15), unless surveys confirm that the owls are not nesting. Follow the USDA Forest Service (1993, 1994 or subsequent) protocol to determine whether owls are nesting. The LOP does not apply to existing road and trail use and maintenance, use of existing developed recreation sites, or existing special-uses, such as recreation residence tracts. When evaluating the need to implement a limited operating period, site- and project-specific factors need to be considered (use species management strategy or subsequent guidance; see Appendix H).

**S21:** California spotted owl habitat that is lost to development for a compelling reason should be mitigated up to a two-to-one basis considering quality of habitat lost, number of territories affected, reproductive history of pair(s) displaced, location, and related factors. Development includes ski area creation or expansion, new roads or trails, special-use sites and corridors, new recreation or administrative facilities, land exchanges, etc. Mitigation land should be sought first within the mountain range where the impacts occur; if this is not possible, mitigation land should be acquired within the San Gabriel or San Bernardino Mountains.

**S22:** Except where it may adversely affect threatened and endangered species, linear structures such as fences, major highways, utility corridors, bridge upgrades or replacements, and canals will be designed and built to allow for fish and wildlife movement.



**S23:** When it is necessary to close abandoned mines or buildings for public safety or to protect the environment, do so in a manner that will maintain habitat for bat species of concern, to the extent practicable.

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“Bat gates” bar human entry to abandoned mines but allow for continued access to bats  
(Cleveland NF photo)

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**S24:** Mitigate impacts of on-going uses and management activities on threatened, endangered, proposed, and candidate species.

**S25:** Conduct road and trail maintenance activities during the season of year that would have the least impact on threatened, endangered, and proposed wildlife species in occupied habitats, except as provided by site-specific consultation.

**S26:** Prohibit use by domestic sheep and goats within nine miles of occupied bighorn sheep habitat.

**S27:** Use seasonal closures as specified by site-specific analysis to protect occupied bald eagle wintering, breeding, or nesting habitat.

**S28:** Avoid or minimize disturbance to breeding and roosting California condors by prohibiting or restricting management activities and human uses within 1.5 miles of active California condor nest sites and within 0.5 miles of active roosts. Refer to California condor species account (or subsequent species guidance document; see Appendix H) for additional guidance.

**S29:** Avoid collection of special forest products where it may negatively affect recovery or occupied habitat of threatened, endangered and proposed species, except where it is appropriate in response to requests from Native Americans.

**S30:** Avoid activities that result in removal, crushing, burying, burning, or mowing of host plants within critical and occupied habitat for threatened, endangered, and proposed butterfly species; unless guided differently by a species-specific consultation.

**S31:** Design new facilities or expansion of existing facilities to direct public use away from occupied habitat for threatened, endangered, proposed and candidate species.

**S32:** When surveys for species presence/absence are done for threatened, endangered, and proposed species, use established survey protocols, where such protocols exist.

**S33:** Manage Special Interest Areas so that activities and discretionary uses are either neutral or beneficial for the resource values for which the area was established. Accept short-term adverse impacts to these resource values if such impacts will be compensated by the accrual of long-term benefit.

### **When Implementing Recreation Activities**

**S34:** Where a threatened, endangered, proposed, candidate, or sensitive species occurs in a recreation site or area, take steps to avoid or minimize negative impacts to the threatened, endangered, proposed, candidate or sensitive species and its habitat. Use the least restrictive action that will effectively mitigate adverse impacts to the species and habitat (refer to Appendix D).

**S35:** Manage dispersed recreation activities to ensure that environmental sustainability is maintained by utilizing the following measures:

- Discourage camping within 100 feet of sensitive resources and habitats, including meadows and bodies of water (springs, streams, ponds and lakes), or within 1/4 mile of developed recreation facilities.
- Discourage camping within 600 feet of any wildlife water source developments, such as guzzlers and water holes, in accordance with state laws.



- Motorized and non-motorized vehicle travel is restricted to National Forest System roads and trails and limited areas that are designated for vehicle use.

**S36:** Recreational target shooting will only be allowed in designated areas and ranges. Shooters shall remove their targets and spent shells when departing designated shooting areas. Shooters shall not use paintballs or other forms of ammunition that would result in visible residue except where authorized in ranges that operate under special-use permit.

#### **When Implementing Fire Management Activities**

**S37:** Design and manage fuel treatments to minimize the risk that treated areas will be used by unauthorized motorized and mechanized vehicles. Mitigate impacts where such use does occur.

**S38:** Avoid establishment of staging areas, helibases, base camps, firelines or other areas of human concentration and equipment use within threatened, endangered and proposed species suitable and occupied habitats and riparian areas to the maximum extent possible when suppression of wildland fire and human safety are not compromised.

**S39:** Avoid fuel treatments in coastal sage scrub within the range of the California gnatcatcher, except in Wildland/Urban Interface Defense Zones and on fuelbreaks.

#### **When Implementing Lands and Special-Uses Activities**

**S40:** No recreation residence lots or tracts will be approved outside of established tracts.

**S41:** When a recreation residence is destroyed, substantially damaged or becomes property of the United States, the lot must comply with, and not limited to, the following criteria to be safely occupied in the future, and be available for re-building. When a proposal is received for a recreation residence in-lieu lot, the lot must comply with criteria that include but are not limited to the following list in order to be safely occupied in the future and be available for building consideration:

- Outside of the 100 year floodplain
- Outside of the area of geologic hazards such as landslides and falling rock
- Safely accessible by emergency, passenger, and official vehicles

**S42:** Include provisions for raptor safety when issuing permits for new power lines and communication sites (see guidelines in Appendix G). Also implement these guidelines for existing permits within one year in identified high-use flyways of the California condor, and within five years in other high-use raptor flyways. Coordinate with California Department of Fish and Game, U.S. Fish & Wildlife Service, and power agencies to identify the high-use flyways.

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Raptor safe measures may include radomes (covers over the microwave dishes) as shown at Santiago communication site, Cleveland NF.

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**S43:** Do not approve new commercial mineral material operations that are likely to negatively affect occupied or critical habitat for federally listed threatened and endangered species, or occupied habitat for proposed, candidate or sensitive species.

**S44:** Perform surface use determinations for proposed locatable mining operations that are likely to cause significant surface disturbance to threatened, endangered, proposed, candidate and sensitive species habitat, and require measures to protect these species and their habitats.

### **Soil, Water, Riparian and Heritage Standards**

#### **When Implementing All Activities**

**S45:** All construction, reconstruction, operation and maintenance of tunnels on National Forest System lands shall use practices that minimize adverse effects on groundwater aquifers and their surface expressions.

**S46:** Surface water diversions and groundwater extractions, including wells and spring developments will only be authorized when it is demonstrated by the user, and/or agreed to by the Forest Service, that the water extracted is excess to the current and reasonably foreseeable future needs of forest resources.

- Consideration of beneficial uses, existing water rights, and the absence of other available water sources will be part of the water extraction application.
- Approved extractions and diversions will provide for long-term protection and reasonable use of surface water and groundwater resources.
- Feasibility and sustainability assessments should be appropriately scaled to the magnitude of the extraction or diversion proposed.



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This riparian area is within a grazing allotment (Los Padres NF).

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### Applicable Within Riparian Conservation Areas

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

**S48:** For non-hydroelectric and exempt hydroelectric surface water development proposals (such as flood control reservoirs and municipal water supplies), instream flows favorable to the maintenance and restoration of riparian dependent and aquatic resources and channel conditions will be required.

**S49:** Require fish passage instream flows associated with dams and impoundments where fish passage will enhance or restore native or selected nonnative fish distribution and not cause adverse effects to other native species.

### When Implementing Recreation Activities

**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).

### When Implementing Livestock Grazing Activities

**S51:** Allotment specific review of rangeland capability and suitability guidelines (Appendix J - Livestock Capability and Suitability Guidelines) shall occur as part of a site-specific allotment or livestock grazing area level National Environmental Policy Act (NEPA) analysis. Permits will not be issued for livestock grazing areas determined to be not suitable or have insufficient grazing areas for sustaining a livestock operation.

**S52:** Soil Cover: Maintain an effective soil cover of 60 percent to provide for soil protection, water infiltration, and reduce the risk of accelerated soil erosion within designated livestock grazing areas. Soil cover includes: living vegetation (grasses, forbs, and prostrate plants); plant litter; and surface rock fragments greater than 3/4 inch.

**S53:** Salt and Mineral Locations: Salt and/or other supplements will be located greater than 1/4 mile from all water sources including: ponds; riparian areas; meadows; springs; seeps; vernal pools; susceptible threatened, endangered, proposed, candidate and sensitive species and habitats; livestock and wildlife water developments; concentrated and developed recreation areas; and other sensitive areas including sensitive heritage resources, unless approved by the responsible Forest Service officer.



Monitoring a grazing allotment (Los Padres NF).

**S54:** Burned Areas: After a wildland fire, prior to initiating grazing, a site-specific analysis will be performed for designated livestock areas to determine the level and location(s) of livestock use, if any.

**S55:** Evaluate new proposals for concentrated stock areas (e.g., livestock handling and management facilities, pack stations, equestrian campgrounds, and corrals) located within five miles of occupied southwestern willow flycatcher and least Bell's vireo habitats. Apply broad

landscape level analysis in the biological assessment for the project to determine if such action will increase brood parasitism pressure by the brown-headed cowbird.

**S56:** Retain the following: average amounts of residual dry matter (RDM) until the onset of the rainy season; percent utilization; and percent streambank alteration on grazed rangelands. Precipitation is based on long-term averages. Streambank alteration is defined as alteration and displacement of rooted plants and physical soil structure by livestock per stream reach in wet montane meadows and Rosgen C3 channels. Percent woody browse is based on current year’s growth of shrubs, unless required to meet other vegetation management objectives. Livestock will be moved from grazing units when thresholds are met as determined by established protocols (see table 3-2. Livestock Grazing Utilization Standards).

Table 3-2. Livestock Grazing Utilization Standards

Location*	Habitat Grouping	RDM (lbs/acre)	Woody Browse percent Allowable Use	Perennial Grass and Grass-like Plants percent Allowable Use	Streambank Alteration by Livestock percent Allowable
LBV/SWWF Occupied Habitat	Nesting Season	No Grazing During Occupancy			
	Suitable Habitat Non-Nesting Season/No Occupancy	N/A	35	35	≤ 10
Riparian Areas	N/A	N/A	40	35	≤ 20
Wet Montane Meadows	N/A	N/A	40	4" - 6" Stubble Height (based on condition)	≤ 20
Uplands	Annual grasslands and oak woodlands with > 10 inches annual precipitation	700	40 (20 - On advanced oak tree regeneration)	50	N/A
	Annual grasslands and oak woodlands with ≤ 10 inches annual precipitation	400			
	Annual grassland/pinyon	200-400	40	50	
	Mixed conifer forests	600			
	Chaparral/desert scrub	200-400			
WUI/Fuelbreaks	N/A	600	N/A	N/A	N/A

\*Notes: LBV = least Bell's vireo; SWWF = southwest willow flycatcher; WUI = wildland/urban interface

### When Implementing Minerals and Energy Activities

**S57:** Free use rock, invertebrate fossil, and mineral collecting for non-commercial personal uses must be approved by the authorized officer.

**S58:** Evaluate geologic hazards and develop mitigations where risks to life, property or resources are identified when planning and implementing management activities.

### Wild and Scenic River Standards

**S59:** Manage eligible wild and scenic river segments to perpetuate their free-flowing condition and proposed classifications, and protect and enhance their outstandingly remarkable values and water quality through the suitability study period and until designated or released from consideration. When management activities are proposed that may compromise the outstandingly remarkable value(s), potential classification, or free-flowing character of an eligible wild and scenic river segment, a suitability study will be completed for that eligible river segment prior to initiating activities.

### Cultural and Historic Standards

**S60:** Until proper evaluation occurs, known heritage resource sites shall be afforded the same consideration and protection as those properties evaluated as eligible to the National Register of Historic Places.

**S61:** Leave human remains which are not under the jurisdiction of the County Coroner undisturbed unless there is an urgent reason for their disinterment. In case of accidental disturbance of human remains, excavation of human remains, or subsequent re-internment of human remains follow national forest, federal and tribal policies.

**S62:** Protect the access to and the use of sensitive traditional tribal use areas.

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Rock art on the Los Padres NF.

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### **Geographic Place Specific Standards**

Look for place-specific standards in Part 2 of the forest plan for each national forest:

- ❖ R5-MB-076, Angeles National Forest
- ❖ R5-MB-077, Cleveland National Forest
- ❖ R5-MB-078, Los Padres National Forest
- ❖ R5-MB-079, San Bernardino National Forest

## Other Design Criteria

The forest plan is a single integrated plan. The references found in **Appendix A - Relevant Laws, Regulations, Agreements and Other Management Direction**:

- Forest Service Directives (Manual and Handbook)
- Federal Statutes
- Federal Regulations
- Executive Orders and Memorandums
- Agreements
- Federal Agency Management Direction
- State and Local Laws and Regulations

These have been reviewed to assure consistency with other parts of the plan, and are incorporated by reference. As these design criteria change over time, updates are hereby incorporated by reference.

**Appendix B** - Minimum Impact Suppression Tactics (MIST) details Minimum Impact Suppression Tactics guidelines referenced by management standards.

**Appendix C** - Monitoring Requirements.

**Appendix D** - Adaptive Mitigation for Recreation Uses includes an adaptive mitigation protocol to be used for resolving resource and user conflicts with recreation activities.

**Appendix E** - Five-Step Project Screening Process for Riparian Conservation Areas includes Riparian Conservation Area Guidance.

**Appendix F** - Guidelines for Aerial Application of Retardants and Foams in Aquatic Environments.

**Appendix G** - Guidelines for Protection and Conservation of Bird Species at Mountain Top Communications Sites, USDA Forest Service

**Appendix H** - Species Guidance Summary lists species-at-risk. Conservation considerations for each species are also provided.

**Appendix I** - Land Adjustment Prioritization Guide contains criteria for **Land Adjustment Map and Guidelines**. A land adjustment map will be maintained and updated to express the desired future condition of the national forests and illustrate where acquisition may likely occur.

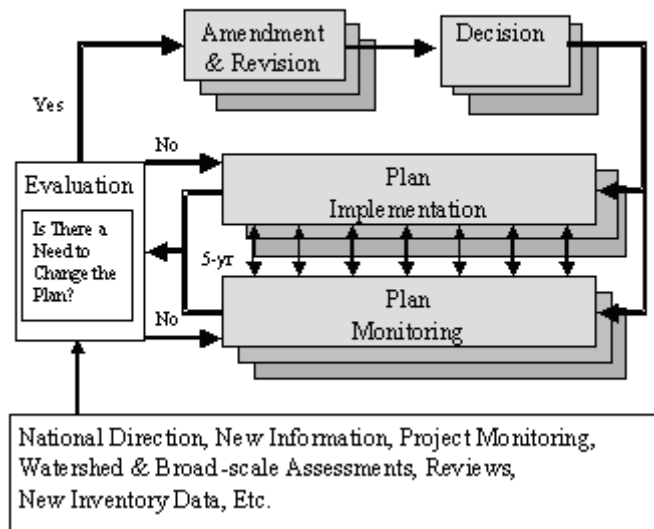
**Appendix J** - Livestock Capability and Suitability Guidelines lists project specific criteria for allotment suitability analysis.

**Appendix K** - Guidelines for Development and Maintenance of WUI Defense and Threat Zones.

### Monitoring of Design Criteria

Monitoring and evaluation are part of the Adaptive Management Cycle and are separate, sequential activities that provide information to determine whether programs and projects are meeting forest plan direction. Monitoring collects information, on a sample basis, from sources specified in the forest plan. Evaluation of monitoring results is used to determine the effectiveness of the forest plan and the need to either change the plan through amendment or revision, or to continue with the plan.

**The Three Parts of a Plan in the Adaptive Cycle**



Implementation and effectiveness monitoring for Part 3 of the forest plan are conducted at the project level. All project activities are documented in reporting systems. Annually, a randomly selected sample of projects and on-going activities (at least 10 percent) will be reviewed. A small review team will visit the selected projects to review the effectiveness of applying forest plan design criteria. If problems in implementation are detected or if the design criteria are determined to be ineffective then the team will recommend corrective actions. Corrective actions may include land management plan amendment(s) if necessary to improve the effectiveness of the design criteria. Results of this monitoring will be reported annually in the forest plan monitoring and evaluation report. In addition, design criteria (including new laws or regulations referenced in Appendix A) will be updated.



## **Appendix A - Relevant Laws, Regulations, Agreements and Other Management Direction**

This appendix contains a listing of relevant statutes, regulations, Executive Orders and Memorandums, agreements and other management direction applicable to the Forest Service or to the local Forest Service unit. (This is not an all inclusive list.) Together, they provide overarching management direction for the southern California revised land management plans. Links to websites containing the full text of the federal statutes are provided where available.

### **Forest Service Directives (Manual and Handbook)**

The following is a partial listing of national and regional Forest Service policies that apply to (but are not repeated in) this revised land management plan. A complete listing can be found in the Forest Service Manuals and Forest Service Handbooks. Together, these are known as the Forest Service Directives System. The Forest Service Directives System is available on the national website, <http://www.fs.fed.us/im/directives>.

The Directives System is the primary basis for the management and control of all internal programs and serves as the primary source of administrative direction for Forest Service employees. The system sets forth legal authorities, management objectives, policies, responsibilities, delegations, standards, procedures, and other instructions.

The Forest Service Manual (FSM) contains legal authorities, goals, objectives, policies, responsibilities, instructions, and the necessary guidance to plan and execute assigned programs and activities.

The Forest Service Handbooks (FSH) are directives that provide instructions and guidance on how to proceed with a specialized phase of a program or activity. Handbooks are either based on a part of the manual or they incorporate external directives.

A supplement is any issuance which adapts or interprets higher level or external directives for national, regional, or local application. Many supplements listed below apply to the Pacific Southwest Region of the Forest Service (Region 5).

Here follows a listing of the Forest Service Manual system and referenced Handbooks (some direction contained therein may be highlighted):

### **Forest Service Manuals and Supplements**

1010 - Laws, Regulations, and Orders

1020 - Forest Service Mission

1500 - External Relations

1563 - American Indian Tribe and Alaska Native Relations

1900 - Planning

2080 - Noxious Weed Management

Includes the following direction: When any ground disturbing action or activity is proposed, it is Forest Service policy to determine the risk of introducing or spreading noxious weeds associated with the proposed action. For projects having moderate to high risk of introducing

or spreading noxious weeds, the project decision document must identify noxious weed control measures that must be undertaken during project implementation.

2150 - Pesticide Use Management and Coordination

2200 - Range Management

Region 5 Supplement 2200-92-4 to FSM 2200 outlines the "wild free-roaming horses and burros" cooperative agreement between the Forest Service, California Dept. of Food and Agriculture, USDI, and BLM.

2300 - Recreation, Wilderness, and Related Resource Management

Region 5 Supplement 2300-94-1 allows mineral information gathering in wilderness areas only for scientific or educational purposes; a written authorization is required.

Region 5 Supplement 2300-92-2 prohibits competitive events in wilderness areas under order No. 83-1.

2320 - Wilderness

2350 - Trail, River, and Similar Recreation Opportunities

2354 - Wild and Scenic Rivers

2360 - Special Interest Areas (2361 Cultural Resources)

2370 - Special Recreation Designations

2400 - Timber Management

2460 - Uses of Timber Other Than Commercial Timber Sales (Special Forest Products)

2500 - Watershed and Air Management

Region 5 Supplement 2500-92-4 to FSM 2540 gives guidance on water uses and developments.

Region 5 Supplement 2500-92-2 to FSM 2526 discusses riparian area management.

2550 - Soil Management

2580 - Air Resource Management

Class I areas are listed in Region 5 Supplement 2500-92-5.

2600 - Wildlife, Fish, and Sensitive Plant Habitat Management

Region 5 Supplement 2610-96-1 to FSM 2610 outlines the FS Memorandum of Understanding with the California Department of Fish and Game.

2670 - Threatened, Endangered and Sensitive Plants and Animals

Includes the following direction: The Regional Forester identifies sensitive species, requires that management decisions do not result in a trend towards federal listing and loss of viability, and requires that a biological evaluation be prepared for all Forest Service activities to address potential impacts to sensitive species.

Region 5 Supplement 2600-97-1 discusses the consultation process. Region 5 Supplement 2600-92-3 to FSM 2672 lists the sensitive species protected by the Regional Forester.

2700 - Special-Uses Management (including Region 5 and Forest Supplements)

2720 - Special-Use Administration

2800 - Minerals and Geology (including Washington Office Amendments and Region 5 Supplements)

3400 - Forest Pest Management

4062 - Experimental Forest and Ranges

4063 - Research Natural Areas

FSM 4063.3 provides direction regarding protection and management standards for Research Natural Areas (RNAs). The standards cover a broad range of activities including the following: Do not permit roads, trails, fences, or signs on an established RNA unless they contribute to the objectives or to the protection of the area.

4500 - Integrated Pest Management

5100 - Fire Management (including Region 5 Supplements)

5300 - Law Enforcement

5400 - Landownership

5500 - Landownership Title Management

5700 - Aviation Management

7300 - Facilities

Region 5 Supplement 7300-92-1 to FSM 7310 discusses buildings and other facilities.

7400 - Public Health and Pollution Control Facilities (including Region 5 Supplements)

7500 - Water Storage and Transmission

Region 5 Supplement 7500-94-2 to FSM 7510 gives direction on the management of dams.

7700 - Transportation System

Region 5 Supplement 7700-93-1 to FSM 7720 gives direction on transportation design.

### **Forest Service Handbooks**

1909.12 - Land and Resource Management Planning Handbook

Chapter 7 directs national forests to: "... identify and inventory all roadless, undeveloped areas that satisfy the definition of wilderness found in section 2 (c) of the 1964 Wilderness Act" and also details the means by which the capability, availability, and need for potential wilderness areas are assessed.

Chapter 8 directs the Forest Service to evaluate rivers for inclusion in the National Wild and Scenic River System during the forest planning process and details the study process.

2109.14 - Pesticide-Use Management and Coordination Handbook

2209.13 - Grazing Permit Administration Handbook

2309.18 - Trails Management Handbook

2409.18 - Timber Sale Preparation Handbook

Chapter 80 (Uses of Timber Other Than Commercial Sales) contains direction on special forest products.

2509.18 - Soil Management Handbook

Region 5 Supplement 2509.18-95-1 establishes regional soil quality standards.

2509.22 - Watershed Conservation Practices Handbook (Forest Supplement for the Angeles, Cleveland, Los Padres and San Bernardino National Forests)

2709.11 - Special Uses Handbook

2709.12 - Road Rights-of-Way Grants Handbook.

5109.19 - Fire Management Analysis and Planning Handbook

5409.13 - Land Acquisition.

7509.11 - Management of Dams Handbook

3409.11 - Forest Pest Management Handbook

### **Federal Statutes**

Each Federal statute has a brief description and, if available, a website address to view the full text.

#### **Acceptance of Gifts Act of 1978**

This Act authorizes Forest Service acceptance of cash, as well as donations of real personal property.

#### **Act of May 26, 2000, Photographic Activities on Federal Lands**

<http://www.fs.fed.us/recreation/permits/pl106-206.html>

Augments the Forest Service's existing authorities (Organic Administration Act of 1897 and FLPMA of 1976) to regulate commercial filming and still photography activities on federal lands. Clarifies policy on the requirements for such permits and establishes limitations on filming activities for the protection of resources.

#### **Act of September 3, 1954, Permits for Public Buildings and Other Public Works**

This Act authorizes permits, term permits, leases, or easements at the fair market value (not to exceed 30-years duration) to states, counties, cities, municipalities, or other public agencies without acreage limitation for the construction and operation of public buildings or other public works, exclusive of rights-of-way.

#### **Age Discrimination Act of 1975**

Prohibits discrimination based on age.

#### **Alaska National Interest Lands Conservation Act of 1980**

<http://www.fws.gov/asm/ani/ca/toc.html>

Directs the Secretary of Agriculture to provide adequate access to non-Federal land within the boundaries of the National Forest System including Congressionally designated areas.

**American Indian Religious Freedom Act of 1978**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=42&sec=1996](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=42&sec=1996)

Makes it policy for the Federal Government to protect and preserve American Indians' inherent right of freedom to believe, express, and exercise traditional religions of American Indians, Eskimo, Aleut and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites. It directs federal agencies to assess their policies and procedures, in consultation with tribes, on ways to ensure this use.

**Americans with Disabilities Act of 1990**

<http://www.usdoj.gov/crt/ada/statute.html>

Provides a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities; for clear, strong, consistent enforceable standards addressing discrimination against individuals with disabilities; to ensure that the Federal Government plays a central role in enforcing the standards established in this Act on behalf of individuals with disabilities; and to invoke the sweep of congressional authority, including the power to enforce the fourteenth amendment and to regulate commerce, in order to address the major areas of discrimination faced by people with disabilities. Provides additional standards so that disabled persons will not be discriminated against and have opportunities for access and use of facilities, services and programs.

**Anderson-Mansfield Reforestation and Revegetation Act of 1949**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=16&sec=581j](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=16&sec=581j)

Provides for the reforestation and revegetation of National Forest System lands and other lands under the administration or control of the Forest Service.

**Animal Damage Control Act of 1931, as amended**

<http://laws.fws.gov/lawsdigest/andamag.html>

Provided broad authority for investigation, demonstrations and control of mammalian predators, rodents and birds.

**Antiquities Act of 1906**

[http://www.cr.nps.gov/local-law/FHPL\\_AntiAct.pdf](http://www.cr.nps.gov/local-law/FHPL_AntiAct.pdf)

As implemented by the Uniform Rules and Regulations, the Act has the purpose of protecting any historic or prehistoric ruin or monument, or any object of antiquity on federal lands. It authorizes the President to designate historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest as national monuments; regulates public archaeological activities; and provides penalties for people who damage these sites and ruins. Includes both heritage resources and paleontological resources.

**Archaeological Resources Protection Act of 1979, as amended**

<http://www2.cr.nps.gov/laws/archprotect.htm>

This Act secures the protection of archaeological resources and sites on public and tribal lands and to foster increased cooperation and exchange of information between governmental

authorities, the professional archaeological community and private individuals having access to and information related to these resources. It provides civil and criminal penalties for the unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources. The Act also authorizes the use and protection of National Forest System lands for paleontological resources associated with archeological resources. Collection of rocks, minerals and fossils for non-commercial use is allowed without a permit.

#### **Architectural Barriers Act of 1968, as amended**

<http://www.access-board.gov/about/ABA.htm>

Establishes that buildings, facilities and vehicles meet standards suitable for persons with disabilities. This Act requires that buildings and facilities that are designed, constructed, or altered with federal funds, or leased by a federal agency, comply with federal standards for physical accessibility. Requirements are limited to architectural standards in new and altered buildings and in newly leased facilities.

#### **Bald Eagle Protection Act of 1940, as amended**

<http://www.nwi.org/Laws/EagleProtAct.html>

Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds.

#### **Bankhead-Jones Farm Tenant Act of 1937**

<http://laws.fws.gov/lawsdigest/bankjon.html>

Directs the Secretary of Agriculture to develop a program of land conservation and utilization in order to correct maladjustments in land use and thus assist in such things as control of soil erosion, reforestation, preservation of natural resources, and protection of fish and wildlife.

#### **Big Sur Wilderness and Conservation Act of 2002**

[http://data2.itc.nps.gov/parks/pinn/ppdocuments/Big percent20Sur percent20Wilderness percent20and percent20Conservation percent20Act percent20of percent202002.doc](http://data2.itc.nps.gov/parks/pinn/ppdocuments/Big%20percent20Sur%20percent20Wilderness%20and%20percent20Conservation%20Act%20of%202002.doc)

Designates certain lands in the State of California as components of the National Wilderness Preservation System, and for other purposes. Includes the Pinnacles and Silver Peak Wildernesses.

#### **Cabin User Fee Fairness Act of 2000**

Establishes procedures for appraising recreation residence lots and determining fees for recreation residence lots located on National Forest System lands.

#### **California Desert Protection Act of 1994**

[http://www.ca.blm.gov/caso/ca\\_desert\\_protection\\_act.html](http://www.ca.blm.gov/caso/ca_desert_protection_act.html)

Designates certain lands in the State of California as components of the National Wilderness Preservation System including the Bighorn Wilderness.

**California Wilderness Act of 1984**

Designates certain lands in the State of California as components of the National Wilderness Preservation System including: Dick Smith Wilderness, Machesna Mountain Wilderness, Sheep Mountain Wilderness, Pine Creek Wilderness and San Mateo Canyon Wilderness. Enlarges: Cucamonga Wilderness, San Rafael Wilderness, San Geronio Wilderness, San Jacinto Wilderness and Ventana Wilderness.

**Civil Rights Act of 1964, as amended**

<http://usinfo.state.gov/usa/infousa/laws/majorlaw/civilr19.htm>

Prohibits racial discrimination in public accommodations, publicly owned or operated facilities, employment and union membership, and voter registration. Title VI prohibits discrimination on the basis of race, color, or national origin in all federally-assisted programs. Title VII forbids employers with 15 or more employees to discriminate on the basis of race, color, sex, religion or national origin. The law applies to federal, state and local employers. It also prohibits an employer from discriminating against an employee or applicant who makes a discrimination charge or testifies, assists, or participates in an investigation, proceeding, or hearing.

**Clarke-McNary Act of 1924**

<http://agriculture.senate.gov/Legislation/Compilations/Forests/cma.pdf>

Authorizes cooperative agreements with the States, and expands on the Weeks Act land purchase authority.

**Clean Air Act of 1977, as amended**

<http://www.epa.gov/oar/caa/contents.html>

Enacted to protect and enhance the quality of the nation's air resources; to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution; to provide technical and financial assistance to state and local governments in connection with the development and execution of their air pollution prevention and control programs; and, to assist the development and operation of regional air pollution prevention and control programs. Areas of the country were designated as Class I, II, and III airsheds for the prevention of significant deterioration purposes. Class I areas include National Parks and wilderness areas designated before 1977 and over 5,000 acres in size. Class I provides protection to designated wilderness lands by severely limiting the amount of additional human-caused air pollution from stationary sources that can be added to these areas. General Conformity Regulation (November 1993). These regulations require federal agencies to determine if their actions will adversely affect the NAAQS attainment status of the state air pollution control districts.

**Clean Water Act (Federal Water Pollution Control Act ) of 1948, as revised and reenacted by the Federal Water Pollution Control Act Amendments of 1972, by the Water Quality Act of 1987 and other laws.**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=33&sec=1251](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=33&sec=1251)

Passed to maintain and restore the chemical, physical, and biological integrity of the nation's waters. It requires compliance with state and federal pollution control measures; no degradation of instream water quality needed to support designated uses; control of nonpoint sources of water

pollution through conservation or best management practices; federal agency leadership in controlling nonpoint pollution from managed land; and rigorous criteria for controlling pollution discharges into waters of the United States.

### **Color of Title Act of 1928**

<http://www4.law.cornell.edu/uscode/43/ch25A.html>

Granted the Secretary of the Interior the authority to issue patents up to 160 acres to claimants that had held a tract of public land in good faith and in peaceful, adverse possession and had made valuable improvements on the land or reduced it to cultivation. The Act reserved the rights to coal and all other minerals contained therein to the United States. It authorizes the Secretary of Agriculture to recognize an adverse possession of public land under claim or color of title based on designated conditions.

### **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and as otherwise amended.**

<http://www4.law.cornell.edu/uscode/42/ch103.html>

Commonly known as Superfund, this law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. This act provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment. It also provides for the cleanup of inactive waste disposal sites, as well as requires federal agencies to provide information and certain warranties to purchasers of federal lands concerning the presence of hazardous materials.

### **Cooperative Forestry Assistance Act of 1978**

<http://www4.law.cornell.edu/uscode/16/2101.html>

Authorizes the Secretary of Agriculture, to assist in the establishment of a coordinated and cooperative federal, state, and local forest stewardship program for the management of non-federal forest lands and forest lands in foreign countries.

### **Cooperative Funds Act of 1914**

Authorizes the Forest Service to accept money received as contributions toward cooperative work in forest investigations or protection and improvement of the national forests.

### **Department of Agriculture Organic Act of 1956**

Provides additional land purchase authority.

### **Disaster Relief Act of 1974**

<http://www4.law.cornell.edu/uscode/42/ch68.html>

Provides an orderly and continuing means of assistance by the Federal Government to state and local governments in developing, coordinating, and carrying out their disaster relief programs, and provides federal assistance programs for both public and private losses sustained in disasters.



**Economy Act of 1932**

<http://www4.law.cornell.edu/uscode/31/1535.html>

Section 601 of this Act authorizes one federal agency to requisition work, services, supplies, materials, or equipment within the same agency or another agency as outlined.

**Educational Land Grant Act of 2000**

<http://agriculture.senate.gov/Legislation/Compilations/Forests/elga.pdf>

Provides for conveyance of National Forest System lands for educational purposes.

**Emergency Flood Prevention Act (Agricultural Credit Act) of 1978**

<http://www4.law.cornell.edu/uscode/16/2201.html>

Authorizes the Secretary of Agriculture to undertake emergency measures for runoff retardation and soil-erosion prevention, in cooperation with land owners and users, as the Secretary deems necessary to safeguard lives and property from floods, drought, and the products of erosion on any watershed whenever fire, flood, or other natural occurrence is causing or has caused a sudden impairment of that watershed.

**Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986**

<http://www4.law.cornell.edu/uscode/42/ch116.html>

Provides for emergency response planning to cope with the accidental release of toxic substances into the air, land and water. This includes hazardous chemical inventory disclosure and emergency spill response planning and training. The Act also helps to increase the public's knowledge and access to information on the presence of hazardous substances in their communities, as well as information concerning the release of these substances into the environment.

**Endangered American Wilderness Act of 1978**

Designated certain endangered public lands for preservation as wilderness, and for other purposes. The Act added 13 new wilderness areas and expanded four others (including Ventana Wilderness) in ten western states for a total addition of 1.3 million acres of National Forest System lands to the National Wilderness Preservation System, including the Santa Lucia Wilderness.

**Endangered Species Act of 1973**

<http://endangered.fws.gov/esa.html> ;

<http://laws.fws.gov/lawsdigest/esact.html>

Authorizes the determination and listing of species as endangered and threatened; prohibits unauthorized taking, possession, sale, and transport of endangered species; provides authority to acquire land for the conservation of listed species, using Land and Water Conservation Funds; authorizes establishment of cooperative agreements and grants-in-aid to states that establish and maintain programs for endangered and threatened wildlife and plants; authorizes the assessment of civil and criminal penalties for violating the Act or regulations; and, authorizes the payment of rewards to anyone furnishing information leading to arrest and conviction for any violation of the Act or any regulation issued there under. Section 7 of the Act requires federal agencies to insure

that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Section 7(a)(1) of the Act identifies the affirmative conservation duties of agencies and requires all federal agencies to carry out programs aimed at recovery of listed species.

### **Energy Policy Act of 1992**

Prescribes energy conservation standards for efficiency in buildings, industries, and transport, and for certain major household appliances. It increases conservation and energy-efficiency requirements for government, energy, and consumers.

### **Energy Security Act of 1980**

Authorizes the Secretary of Agriculture to make available timber resources of the National Forest System, in accordance with appropriate timber appraisal and sale procedures, for use by biomass energy projects. Directs the Secretary of Agriculture to process applications for leases and permits to explore, drill, and develop resources on National Forest System lands, notwithstanding the current status of any management plan being prepared.

### **Federal Advisory Committee Act of 1972**

<http://www.fda.gov/opacom/laws/fedadvca.htm>

Sets standards and uniform procedures to govern the establishment, operation, administration, and duration of advisory committees.

### **Federal-Aid Highway Act of 1968, as amended**

Establishes the National Bridge Inspection Standards and the requirement that each state have a current inventory of bridges on all public roads, including those on National Forest System roads open to public travel.

### **Federal Cave Resources Protection Act of 1988**

<http://www4.law.cornell.edu/uscode/16/4302.html>

Requires the Secretary of Agriculture to consider significant caves in the preparation of any land management plan and keep the locations of significant caves confidential unless it is determined that disclosure will not create a risk of harm, theft, or destruction to caves' resources.

### **Federal Coastal Zone Management Act of 1972, as amended**

[http://coastalmanagement.noaa.gov/czm/czm\\_act.html](http://coastalmanagement.noaa.gov/czm/czm_act.html)

Requires that federal actions in the coastal zone of a state shall be consistent to the maximum extent practicable with enforceable policies of approved State management plans, including: California Coastal Act of 1976; and Big Sur Coast Land Use Plan.

### **Federal Insecticide, Fungicide, and Rodenticide Act of 1972, as amended**

<http://www.epa.gov/region5/defs/html/fi fra.htm>

Requires the Administrator of the Environmental Protection Agency to prescribe standards for the certification of individuals authorized to use or supervise the use of any pesticide that is classified for restricted use; regulates the sale of restricted use pesticides; and provides penalties for the unauthorized use or sale of restricted use pesticides. Also affects the use of herbicides.

Through later amendments to the law, users must also take exams for certification as applicators of pesticides.

### **Federal Land Policy and Management Act (FLPMA) of 1976, as amended**

<http://www.blm.gov/flpma/FLPMA.pdf>

Requires that public land be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public land in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use. Also states that the United States shall receive fair market value of the use of the public land and their resources unless otherwise provided for by law. It provides authority for the majority of non-recreation special-use authorizations on National Forest System lands. In 1986, Title V of FLPMA was amended by the Colorado Ditch Bill to authorize the Secretary of Agriculture to issue permanent easements (Ditch Bill easements) without charge for qualifying water conveyance systems used for agriculture irrigation or livestock watering.

### **Federal Lands Recreation Enhancement Act of 2004**

This 10-year Act, passed in the 2005 Consolidated Appropriations Act (PL 108-447), authorizes the Secretaries of the Interior and Agriculture to establish, modify, charge and collect recreation fees at federal recreation lands and waters as provided for in the Act.

### **Federal Noxious Weed Act of 1975**

<http://www.aphis.usda.gov/ppq/weeds/sec2814.PDF>

The Federal Noxious Weed Act is superseded by the Plant Protection Act, except for the section 2814, Management of Undesirable Plants on Federal Lands. Authorizes the Secretary of Agriculture to designate plants as noxious weeds by regulation; to prohibit the movement of all such weeds in interstate or foreign commerce except under permit; to inspect, seize and destroy products, and to quarantine areas, if necessary to prevent the spread of such weeds; and to cooperate with other federal, state and local agencies in the application and enforcement of all laws and regulations relating to the management and control of noxious weeds.

### **Federal Onshore Oil And Gas Leasing Reform Act of 1987**

Amended the Minerals Lands Leasing Act of 1920 regarding competitive leasing of oil and gas for onshore federal lands. Expands the authority of the Secretary of Agriculture in the management of oil and gas resources on National Forest System lands. Sets forth guidelines for the promulgation of regulations regarding lease sales, and prohibits the issuance of oil or gas leases upon certain lands allocated or designated as wilderness areas. Without the Forest Service's approval, the BLM cannot issue leases for oil and gas on National Forest System lands. The Forest Service must also approve all surface-disturbing activities on National Forest System lands before operations commence.

### **Federal Power Act of 1920**

<http://laws.fws.gov/lawsdigest/fedpowr.html>

Provides for cooperation between the Federal Energy Regulatory Commission, and other federal agencies, including resource agencies, and licensing and relicensing power projects.

**Federal Seed Act of 1939**

<http://www.invasivespecies.gov/laws/fedacts.shtml#fsa>

Prohibits importation and movement of adulterated or misbranded seeds.

**Federal-State Cooperation for Soil Conservation Act of 1944**

Authorized the adoption of eleven watershed improvement programs in various states for the improvement of water runoff, water flow retardation, and soil erosion prevention.

**Federal Water Project Recreation Act of 1965**

Requires that recreation and fish and wildlife enhancement opportunities be considered in the planning and execution of federal water development.

**Fish and Wildlife Conservation Act of 1960**

Requires the Secretaries of the Interior and Agriculture, in cooperation with state agencies, to plan, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish, and game on public lands under their jurisdiction.

**Fish and Wildlife Coordination Act of 1934**

<http://laws.fws.gov/lawsdigest/fwcoord.html>

Authorizes the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with other federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The Act also authorizes the preparation of plans to protect wildlife resources, the completion of wildlife surveys on public lands, and the acceptance by federal agencies of funds or lands for related purposes provided that land donations receive the consent of the state in which they are located.

**Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976**

<http://www4.law.cornell.edu/uscode/16/ch36.html>

Directs the Secretary of Agriculture to prepare a Renewable Resource Assessment every ten years; to transmit a recommended Renewable Resources Program to the President every five years; to develop, maintain, and, as appropriate, revise land and resource management plans for units of the National Forest System; and to ensure that the development and administration of the resources of the National Forest System are in full accord with the concepts of multiple-use and sustained yield. Includes direction to "...recognize the fundamental need to protect and, where appropriate, improve the quality of soil, water and air resources." The Act includes recreation among resources for which forest planning is required.

**Forest and Rangeland Renewable Resources Research Act of 1978, as amended**

<http://ipl.unm.edu/cwl/fedbook/frrrra.html>

This Act authorizes the Secretary of Agriculture to conduct renewable resources research activities on national forests and rangelands, including research relating to fish and wildlife and their habitats.

### **Freedom of Information Act of 1974**

<http://www4.law.cornell.edu/uscode/5/552.html>

Governs which government records are released to the public either automatically or upon request.

### **General Exchange Act of 1922**

Authorizes land adjustments within national forest boundaries.

### **Geothermal Steam Act of 1970**

<http://www4.law.cornell.edu/uscode/30/1001.html>

Authorizes the Secretary of the Interior to issue leases for the development and utilization of geothermal steam and associated geothermal resources in any lands administered by the Secretary of the Interior, or by the Department of Agriculture, and to prescribe such rules and regulations as the Secretary of the Interior deems appropriate to carry out the provisions of the Act.

### **Government Performance and Results Act of 1993**

<http://www.whitehouse.gov/omb/mgmt-gpra/gplaw2m.html#h2>

Holds federal agencies accountable for using resources wisely and achieving program results. The Act requires agencies to develop plans for what they intend to accomplish, measure how well they are doing, make appropriate decisions based on the information they have gathered, and communicate information about their performance to Congress and to the public.

### **Granger-Thye Act of 1950**

<http://www4.law.cornell.edu/uscode/16/581i-1.html>

Authorizes the use of grazing fee receipts for rangeland improvement; the issuance of grazing permits for terms up to 10 years; Forest Service participation in funding cooperative forestry and rangeland resource improvements; and special-use permits not to exceed 30 years duration for the use of structures or improvements under the administrative control of the Forest Service and for the use of land in connection therewith, without acreage limitation.

### **Healthy Forests Restoration Act of 2003**

<http://thomas.loc.gov/cgi-bin/bdquery/z?d108:H.R.1904>:

Improves the capacity of the Secretary of Agriculture and the Secretary of the Interior to plan and conduct hazardous fuels reduction projects on National Forest System land and Bureau of Land Management land aimed at protecting communities, watersheds, and certain other at-risk land from catastrophic wildland fire, to enhance efforts to protect watersheds and address threats to forest and rangeland health, including catastrophic wildland fire, across the landscape, and for other purposes.

### **Highway Safety Act of 1966**

Authorizes state and local governments and participating federal agencies to identify and survey accident locations; to design, construct, and maintain roads in accordance with safety standards; to apply sound traffic control principles and standards; and to promote pedestrian safety.

**Historic Sites, Buildings, Objects and Antiquities Act of 1935, as amended**

[http://www.blm.gov/heritage/documents/hi\\_stsite.pdf](http://www.blm.gov/heritage/documents/hi_stsite.pdf)

Popularly known as the Historic Sites Act, this Act declared it national policy to preserve historic sites, buildings, and objects of national significance. It provided procedures for designation, acquisition, administration and protection of such sites. Among other things, National Historic and Natural Landmarks are designated under authority of this Act.

**Intermodal Surface Transportation Efficiency Act of 1991**

[http://iti.acns.nwu.edu/clear/infr/istea\\_list.html](http://iti.acns.nwu.edu/clear/infr/istea_list.html)

Provides conditions and authorization for flow of federal highway revenue to states for roads, transit, ferries, and other transportation purposes.

**Knutson-Vandenberg Act of 1930**

<http://www4.law.cornell.edu/uscode/16/576.html>

Authorizes the Secretary of Agriculture to establish forest tree nurseries; to deposit monies from timber sale purchasers to cover the costs of planting young trees, sowing seed, removing undesirable trees or other growth, and protecting and improving the future productivity of the land; and to furnish seedlings and/or young trees for the replanting of burned-over areas in any national park.

**Lacey Act of 1900, as amended**

<http://invasives.fws.gov/index.LaceyAct.html>

Prohibits import of: a) A list of designated species; b) Other vertebrates, mollusks, and crustacea that are "injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States." Declares importation or transportation of any live wildlife as injurious and prohibited, except as provided for under the Act, but allows import of almost all species for scientific, medical, education, exhibition, or propagation purposes.

**Land Acquisition Act of 1925**

<http://www4.law.cornell.edu/uscode/16/ch3.html>

Authorizes the Secretary of Agriculture to purchase land for National Forest Headquarters, Ranger Stations, dwellings, or other sites required for the effective performance of the authorized activities of the Forest Service.

**Land Acquisition - Declaration of Taking Act of 1931**

[http://caselaw.lp.findlaw.com/scripts/ts\\_search.pl?title=40&sec=258a](http://caselaw.lp.findlaw.com/scripts/ts_search.pl?title=40&sec=258a)

Provides for condemnation authority to the United States, and for just compensation for such lands.

**Land Acquisition - Title Adjustment Act of 1943**

[http://caselaw.lp.findlaw.com/scripts/ts\\_search.pl?title=7&sec=2253](http://caselaw.lp.findlaw.com/scripts/ts_search.pl?title=7&sec=2253)

Authorizes the Secretary of Agriculture to execute and deliver title adjustments, if, after the acquisition of the land, the title thereto is legally insufficient for the purposes for which the land

was acquired or if the land was acquired through mistake, misunderstanding, error, or inadvertence.

### **Land and Water Conservation Fund Act of 1964**

Authorizes the appropriation of funds for federal assistance to states in planning, acquisition, and development of needed land and water areas and facilities and for the federal acquisition and development of certain land and other areas for the purposes of preserving, developing, and assuring accessibility to outdoor recreation resources. Also defines admission and recreation fee collection guidelines, and allows the district to retain 15 percent of fees collected from recreation events, and outfitter and guide special-use permits.

### **Law Enforcement Authority Act of 1905**

<http://www4.law.cornell.edu/uscode/16/559.html>

Authorizes all Forest Service employees to make arrests for the violation of the laws and regulations relating to the national forests.

### **Leasing Act for Acquired Lands Act of 1947**

<http://www4.law.cornell.edu/uscode/30/351.html>

Extended the provisions of the “mineral leasing laws” to those lands previously acquired by the United States for which they had not been extended, and lands thereafter acquired by the United States.

### **Los Padres Condor Range and River Protection Act of 1992**

Designates certain lands in the State of California as components of the National Wilderness Preservation System: Chumash Wilderness, Garcia Wilderness, Matilija Wilderness, Sespe Wilderness and Silver Peak Wilderness. Enlarges: San Rafael and Ventana wildernesses.

### **Migratory Bird Treaty Act of 1918**

Controls the taking, killing, possessing, transportation, and importation of migratory birds.

### **Mineral Leasing Act of 1920, as amended**

<http://ipl.unm.edu/cwl/fedbook/mineral.html>

Authorizes the Secretary of the Interior to lease various minerals on land administered by the government, including national forests and grasslands. This act also gives the conditions of leases, and the procedures under which leasing occurs.

### **Mineral Materials Act of 1947**

<http://www4.law.cornell.edu/uscode/30/601.html>

Authorizes the Secretary of the Interior to dispose of mineral materials (common variety minerals) by sale or free use.

### **Mining and Minerals Policy Act of 1970**

<http://www4.law.cornell.edu/uscode/30/21a.html>

States that it is the policy of the Federal Government to foster and encourage the development of economically sound and stable domestic mining, minerals, metal, and mineral reclamation

industries; the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security, and environmental needs; mining, mineral, and metallurgical research to promote the wise and efficient use of our natural and reclaimable mineral resources; and the study and development of methods for the disposal, control, and reclamation of mineral waste products and the reclamation of mined land.

### **Multiple-Use Mining Act of 1955**

Requires the disposal of common varieties of sand, gravel, stone, and other mineral materials under provisions of the Mineral Materials Act of 1947.

### **Multiple-Use Sustained-Yield Act of 1960**

<http://ipl.unm.edu/cwl/fedbook/multiu.html>

States that it is the policy of Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes, and authorizes and directs the Secretary of Agriculture to develop and administer the renewable surface resources of the national forests for the multiple-use and sustained-yield of the products and services obtained there from. The Act adds outdoor recreation as a use for which national forests were established.

### **National Energy Conservation Policy Act of 1978**

Specifies the use of a life-cycle costing methodology as the basis for energy procurement policy and specified the rate for retrofit of federal buildings with cost-effective energy measures.

### **National Environmental Education Act of 1970**

<http://ipl.unm.edu/cwl/fedbook/natened.html>

Enacted to establish and support a program of environmental education for students and personnel working with students in schools, institutions of higher education, and related educational facilities, and to encourage postsecondary students to pursue careers related to the environment.

### **National Environmental Policy Act of 1970**

<http://ceq.eh.doe.gov/nepa/regs/nepa/nepaeqia.htm>

Directs all federal agencies to consider and report the potential environmental impacts of proposed federal actions, and establishes the Council on Environmental Quality. Also states that it is the continuing responsibility of the federal government to use all practicable means to assure for all Americans, aesthetically and culturally pleasing surroundings.

### **National Forest Management Act of 1976**

<http://ipl.unm.edu/cwl/fedbook/nfma.html>

The National Forest Management Act reorganized, expanded and otherwise amended the Forest and Rangeland Renewable Resources Planning Act of 1974, which called for the management of renewable resources on National Forest System land. The Act requires the Secretary of Agriculture to assess national forest land, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the



National Forest System. Identification of areas suitable and available for timber harvest and determination of the allowable sale quantity from those lands is required. This is the primary statute governing the administration of national forests.

#### **National Forest Roads and Trails Act of 1964**

Authorizes the road and trail systems for the national forests. Authorizes the granting of easements across Forest Service administered lands, the construction of maximum economy roads and methods for financing them, and the imposing of requirements on road users for maintaining and reconstructing roads, including cooperative deposits for such work.

#### **National Forest Ski Area Permit Act of 1986**

Allows the Forest Service to issue special-use permits to the private sector to construct and operate ski areas on an unlimited number of acres of National Forest System land for a period of up to 40 years.

#### **National Forest System Drug Control Act of 1986, as amended (16 USC 559b-g)**

Authorizes Special Agents and Law Enforcement Officers to carry firearms, make arrests, serve warrants, conduct searches, seize evidence, conduct investigations of violations, and enforce 21 USC 841, Controlled Substance Act, on National Forest System lands.

#### **National Historic Preservation Act of 1966, as amended**

<http://www4.law.cornell.edu/uscode/16/470.html>

States that it shall be the policy of the Federal Government to provide leadership in the administration of the National Preservation Program in partnership with states, tribes, Native Hawaiians, and local governments. It requires agencies to take into account the effect of management activities on significant heritage resources (Section 106). It also requires development of long-term management plans that locate and protect sites, and then integrate sites and information into overall agency programs and goals (Section 110). The implementing regulations for Section 106 (36 CFR 800) were amended in 1999 (and revised in 2004). It also established the National Register of Historic Places (36 CFR 60, 36 CFR 63), State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) whose purpose is to advise the President and the Congress on matters relating to historic preservation. It provides procedures for identifying, recording, and reporting sites for federal undertakings; outlines consultation process with SHPO, ACHP, and tribes.

#### **National Trails System Act of 1968**

<http://ipl.unm.edu/cwl/fedbook/nattrail.html>

Established a national system of recreation, scenic, and historic trails by designating the initial components of the system and prescribing the methods and standards through which additional components may be added. Includes planning, rights-of-way acquisition, and construction of trails designated by Congress or the Secretary of Agriculture.

#### **Native American Graves Protection and Repatriation Act of 1990**

<http://www4.law.cornell.edu/uscode/25/3001.html>

This Act directs the recovery, treatment, and repatriation of human remains, sacred objects, and objects of cultural patrimony to appropriate tribes. It also calls for consultation with tribes to

develop procedures for use in the event that human remains are discovered either by intentional excavation or inadvertent discovery.

**Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990, as amended by the National Invasive Species Act of 1996**

<http://www.invasivespecies.gov/laws/fedacts.shtml>

The NANPCA, as reauthorized and amended by the National Invasive Species Act, further authorizes federal agencies to prevent and control infestations of the coastal and inland waters of the United States by nonindigenous aquatic nuisance species.

**Occupancy Permits Act of 1915, as amended**

Authorizes term permits for structures or facilities on National Forest System land, and sets maximum limits of 80 acres and 30 years.

**Occupational Safety and Health Act**

Ensures safe and healthful working conditions by encouraging efforts to reduce hazards, setting mandatory standards, requiring training programs, and requiring medical surveillance programs for hazardous materials.

**Office of Federal Procurement Policy (OFFP) Act of 1974**

Created the OFFP in the Office of Management and Budget (OMB), among other purposes, to provide Government-wide procurement policies "...which shall be followed by Executive agencies..." in the procurement activities.

**Organic Administration Act of 1897**

[http://caselaw.lp.findlaw.com/scripts/ts\\_search.pl?title=16&sec=473](http://caselaw.lp.findlaw.com/scripts/ts_search.pl?title=16&sec=473)

Authorizes the President to modify or revoke any instrument creating a national forest; states that no national forest may be established except to improve and protect the national forest within its boundaries, for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States.

Authorizes the Secretary of Agriculture to promulgate rules and regulations to regulate the use and occupancy of the national forests, to establish penalties for violating those rules and regulations, and to execute, or cause to be executed, all laws affecting the National Forest System. The authority to permit, under regulations, use of timber and stone includes the use of National Forest System lands to qualified parties for collection of vertebrate and invertebrate fossil resources. The Act also directs making provisions for the protection of national forests against destruction by fire.

**Paleontological Resource Protection Act of 1979**

Makes collecting fossilized plants and vertebrates illegal without a permit.

**Pipelines Act of 1920**

<http://www4.law.cornell.edu/uscode/30/185.html>

Authorizes the Secretary of the Interior, or appropriate agency head, to grant rights-of-way through any federal lands for pipeline purposes for the transportation of oil, natural gas, synthetic

liquid or gaseous fuels, or any refined product produced there from, to any applicants assessing the qualifications provided in the Act.

**Plant Protection Act of 2000**

<http://www.aphis.usda.gov/ppq/weeds/PPAText.PDF>

Consolidates and modernizes all major statutes pertaining to plant protection and quarantine (Federal Noxious Weed Act, Plant Quarantine Act). Permits the Department of Agriculture to address all types of weed issues.

**Pollution Prevention Act of 1990**

<http://www.epa.gov/opptintr/p2home/p2policy/act1990.htm>

Establishes a national policy that pollution should be prevented or reduced at the source whenever possible; that pollution that cannot be prevented should be recycled; and that pollution that cannot be prevented or recycled should be treated. Disposal or other release into the environment should be a last resort.

**Preservation of Historical and Archaeological Data Act of 1974**

<http://www2.cr.nps.gov/laws/archpreserv.htm>

Authorizes the Secretary of the Interior to undertake the recovery, protection, and preservation of significant scientific, prehistorical, historical, or archaeological data whenever any federal agency fines or is notified that activities in connection with any federal construction project or federally licensed project, activity, or program may cause irreparable loss or destruction of such data.

**Public Lands Surveys Act of 1899**

Provides that all standard, meander, township, and section lines of the public land surveys shall be established under the direction and supervision of the Commissioner of the General Land Office, whether the lands to be surveyed are within or without reservations, except that where the exterior boundaries of public forest reservations are required to be coincident with standard, township, or section lines, such boundaries may, if not previously established in the ordinary course of the public land surveys, be established and marked under the supervision of the Director of the United States Geological Survey. This act made the surveying of forest-reserve lands identical, in all but the establishment of boundaries, with that of the public domain.

**Public Law 90-271 of March 21, 1968**

Designates the San Rafael Wilderness.

**Public Law 90-318 of May 24, 1968**

Designates the San Gabriel Wilderness.

**Public Law 91-58 of August 18, 1969**

Designates the Ventana Wilderness.

**Public Law 101-539 of November 8, 1990**

Enlarges the Ventana Wilderness.

**Public Rangelands Improvement Act of 1978**

[http://caselaw.lpl.fndlaw.com/cascode/uscodes/43/chapters/37/sections/section\\_1901.html](http://caselaw.lpl.fndlaw.com/cascode/uscodes/43/chapters/37/sections/section_1901.html)

Establishes and reaffirms the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; charge a fee for public grazing use which is equitable; continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values.

**Receipts Act of 1938, as amended**

This purchase law applies only for purchase of lands within San Bernardino and Cleveland National Forests in Riverside County, California.

**Receipts Act of 1940**

These purchase laws apply only for purchase of lands within the Angeles National Forest, California (54 Stat. 299) and purchase of lands within the Cleveland National Forest in San Diego County, California (54 Stat. 297).

**Rehabilitation Act of 1973, as amended**

<http://www4.law.cornell.edu/uscode/29/701.html>

States that it is national policy that the federal government plays a leadership role in promoting the employment of individuals with disabilities, and in assisting states and providers of services in fulfilling the aspirations of such individuals with disabilities for meaningful and gainful employment and independent living.

**Religious Freedom Restoration Act of 1993**

Mandates that the “government should not substantially burden the free exercise of religion without compelling justification.” The Act further provides a claim or defense to persons whose religious exercise is substantially burdened by the government.

**Rescission Act of 1995**

<http://rangelandswest.org/policy/nepa/rescissionact1995.html>

Required each national forest to establish and adhere to a schedule for completing site-specific NEPA analyses and decisions on all grazing allotments within a 15 year period.

**Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Solid Waste Disposal Act Amendments (1980), Hazardous and Solid Waste Amendments (1984), and Federal Facilities Compliance Act (1992) and as otherwise amended.**

<http://www4.law.cornell.edu/uscode/42/ch82.html>

This Act makes the guidelines for solid waste management mandatory for federal agencies, and they direct federal agency compliance with all federal, state, and local requirements, both substantive and procedural. Promotes conservation of valuable material and energy resources;

provides for promulgation of guidelines for solid waste management; development of solid waste management plans (including resource recovery and resource conservation systems); regulation of the treatment, storage (e.g., underground storage tanks), transportation, and disposal of hazardous wastes; and phase out land disposal of hazardous waste; and waives sovereign immunity for the United States making federal facilities subject to civil penalties and fines from the Environmental Protection Agency, and state and local environmental agencies. RCRA (Subtitle C) replaced the Solid Waste Disposal Act of 1965.

**Right of Eminent Domain Act of 1888**

Grants the Secretary of the Treasury or any other officer of the Government, who has been authorized to procure real estate for the erection of a building or for other public uses, the authority to acquire such real estate by condemnation, provided such acquisition is otherwise authorized by statute.

**Safe Drinking Water Act of 1974, as amended**

Requires federal agencies having jurisdiction over any federally owned or maintained public water system to comply with all authorities respecting the provision of safe drinking water. The State of California has primary enforcement responsibility through its drinking water regulations.

**Santa Rosa and San Jacinto Mountains National Monument Act of 2000**

[http://www.ca.blm.gov/pdfs/palmspri ngs\\_pdfs/PL\\_106-351.pdf](http://www.ca.blm.gov/pdfs/palmspri ngs_pdfs/PL_106-351.pdf)

Establishes the Santa Rosa and San Jacinto Mountains National Monument in California.

**Sikes Act (Fish and Wildlife Conservation) of 1960, as amended**

<http://www4.law.cornell.edu/uscode/16/670a.html>

Provides for carrying out wildlife and fish conservation programs on federal lands including authority for cooperative state-federal plans and authority to enter into agreements with states to collect fees to fund the programs identified in those plans.

**Sisk Act of 1967**

Provides for the exchange of land with states and local governments.

**Small Tracts Act of 1983**

<http://www4.law.cornell.edu/uscode/16/521e.html>

Authorizes the Secretary of Agriculture to sell, exchange, or interchange by quitclaim deed all right, title and interest, including the mineral estate, of the United States in and to certain lands within the national forest when he/she determines it to be in the public interest.

**Smokey Bear Act of 1952**

[http://caselaw.lp.findlaw.com/cascode/uscodes/18/parts/i/chapters/33/sections/section\\_711.html](http://caselaw.lp.findlaw.com/cascode/uscodes/18/parts/i/chapters/33/sections/section_711.html)

Prohibits the unauthorized use of the “Smokey Bear” character or name.

**Soil and Water Resources Conservation Act of 1977**

<http://ipl.unm.edu/cwl/fedbook/soilwate.html>

Provides for a continuing appraisal of the United States' soil, water and related resources, including fish and wildlife habitats, and a soil and water conservation program to assist landowners and land users in furthering soil and water conservation.

**Supplemental National Forest Reforestation Fund Act of 1972**

<http://www4.law.cornell.edu/uscode/16/576c.html>

Directs the Secretary of Agriculture to establish a supplemental national reforestation fund, and states that money transferred to this fund shall be available to the Secretary for the purpose of supplementing programs of tree planting and seeding on national forest lands determined by the Secretary to be in need of reforestation with.

**Surface Mining Control and Reclamation Act of 1977**

Authorizes the Secretary of Agriculture to enter into agreements with landowners, providing for land stabilization, erosion, and sediment control, and reclamation through conservation treatment, including measures for the conservation and development of soil, water, woodland, wildlife, and recreation resources, and agricultural productivity of such land.

**Surface Transportation Assistance Act of 1978, as amended**

Supersedes the Forest Highway Act of 1958. Authorizes appropriations for national forest highways and public lands highways. Establishes criteria for national forest highways; defines national forest roads, National Forest System roads and trails; and limits force account project size for national forest roads. Establishes the Federal Lands Highway Program.

**Telecommunications Act of 1996**

<http://www.fcc.gov/Reports/tcom1996.txt>

Provides for a pro-competitive, de-regulatory national policy framework.

**Title 7, United States Code, Sections 2217, 2218 (Act of January 31, 1925, as amended)**

Provides authority for employees designated by the Secretary of Agriculture to administer oaths and take affidavits on matters where the Secretary has an interest (e.g., witness statements).

**Title 16, United States Code, Section 551a (Act of August 10, 1971)**

Authorizes the Secretary of Agriculture to cooperate with and provide reimbursement to any State or political subdivision for the enforcement of their laws on the National Forest System.

**Title 16, United States Code, Section 553 (Act of May 23, 1908)**

Authorizes employees to aid state, local, and other federal agencies to enforce laws in regard to livestock, to prevent and extinguish fires, to protect fish and game, and to perform duties that relate to the National Forest System.

**Title 16, United States Code, Section 559 (Act of March 3, 1905)**

Authorizes Forest Officers to make arrests for violations of federal laws and regulations relating to the National Forest System.

**Title 18, United States Code, Section 3559, Sentencing classification of offenses**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=18&sec=3559](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=18&sec=3559)

Establishes categories of offenses based on the maximum amount of imprisonment for each offense and are punishable as Class B Misdemeanors.

**Title 18, United States Code, Section 3571, Sentence of Fine**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=18&sec=3571](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=18&sec=3571)

Prescribes a wide range of fines for Class B Misdemeanors depending on specific circumstances associated with the violation.

**Title Adjustment Act of 1930**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=43&sec=872](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=43&sec=872)

Authorizes the Secretaries of the Interior and Agriculture to execute a quitclaim deed where an application for a conveyance of land has been withdrawn or rejected.

**Toxic Substances Control Act of 1976**

[http://caselaw.lp.fndlaw.com/cascode/uscodes/15/chapters/53/subchapters/i/sections/section\\_2601.html](http://caselaw.lp.fndlaw.com/cascode/uscodes/15/chapters/53/subchapters/i/sections/section_2601.html)

Grants the Administrator of the Environmental Protection Agency the authority to regulate chemical substances and mixtures that present an unreasonable risk of injury to the public health or the environment, and to take action with respect to chemical substances and mixtures, which are imminent hazards. Includes addressing lead and asbestos abatement.

**Transfer Act of 1905**

[http://caselaw.lp.fndlaw.com/scripts/ts\\_search.pl?title=16&sec=472](http://caselaw.lp.fndlaw.com/scripts/ts_search.pl?title=16&sec=472)

Transferred the management and control of the Forest Reserves from the General Land Office in the Department of the Interior to the Bureau of Forestry in the Department of Agriculture.

**Tribal Forest Protection Act of 2004**

Authorizes the Secretary of Agriculture and the Secretary of the Interior to enter into an agreement or contract with tribes meeting certain criteria to carry out projects to protect tribal forest land.

**Twenty-Five Percent Fund Act of 1908**

<http://www.wil drocki es.org/appeal s/60-136.htm>

Provides that twenty-five percent of all monies received from the sale of timber or other forest products shall be paid to the state in which such national forest is located to be expended as the state may prescribe for the benefit of public schools and roads.

**Uniform Federal Accessibility Standards U.S. Criminal Code (Title 18 USC Chapter 91-Public Lands) Act of 1948**

<http://caselaw.lp.fndlaw.com/cascode/uscodes/18/parts/i/chapters/91/to c.html>

Defines the crimes of and criminal procedure for crimes committed against public lands.

**U.S. Mining Laws (Public Domain Lands) Act of 1872**

<http://www4.law.cornell.edu/uscode/30/22.html>

Allows public land to be patented into private land and mined. Provides that all valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are free and open to exploration and purchase, and the lands in which they are found to occupation and purchase by citizens of the United States and those who have declared their intention to become such, under regulations prescribed by law, and according to the local customs or rules of miners, so far as the same are applicable and not inconsistent with the laws of the United States. There are a number of Acts which modify the mining laws as applied to local areas by prohibiting entry altogether or by limiting or restricting the use which may be made at the surface and the right, title, or interest which may pass through patent.

**Ventana Wilderness Act of 1969**

To designate the Ventana Wilderness (98,000 acres), Los Padres National Forest, in the State of California.

**Volunteers in the National Forests Act of 1972**

<http://www4.law.cornell.edu/uscode/16/558a.html>

Authorizes the Secretary of Agriculture to recruit, train, and accept without regard to the civil service classification laws, rules, or regulations the services of individuals without compensation (other than possibly incidental expenses) as volunteers for or in aid of interpretive functions, visitor services, conservation measures and development, or other activities in and related to areas administered by the Secretary through the Forest Service.

**Water Resources Development Act of 1992**

Reauthorizes the Army Corps of Engineers Civil Works Construction Program to improve the Nation's infrastructure, and provides for the "conservation and development of water and related resources."

**Watershed Protection and Flood Prevention Act of 1954**

<http://www4.law.cornell.edu/uscode/16/1001.html>

Establishes policy that the Federal Government should cooperate with states and their political subdivisions, soil or water conservation districts, flood prevention or control districts, and other local public agencies for the purposes of preventing erosion, floodwater, and sediment damages in the watersheds of the rivers and streams of the United States; furthering the conservation, development, utilization, and disposal of water, and the conservation and utilization of land; and thereby preserving, protecting, and improving the Nation's land and water resources and the quality of the environment.

**Weeks Act of 1911**

Provides for land acquisition, exchange, condemnation and rights-of-way easements. Lands acquired by the United States under this act are reserved and not subject to appropriation under mineral law except as provided by the Secretary of Agriculture. Also provides that both state and local civil and criminal jurisdiction over persons within national forests shall not be affected or



changed by reason of their existence; except for the punishment of offenses against the United States.

#### **Wild Horse Protection Act of 1959**

<http://www4.law.cornell.edu/uscode/18/47.html>

Established the use of a motor vehicle to hunt (for the purpose of capturing or killing) any wild horse, mare, colt, or burro running at large on the public lands. Also prohibits the pollution of watering holes on public lands for the purposes of trapping, killing, wounding, or maiming any of these animals.

#### **Wild Horses and Burros Act of 1971**

<http://www4.law.cornell.edu/uscode/16/1331.html>

Protects wild free-roaming horses and burros from capture, branding, harassment, or death; and states they are to be considered in the area where presently found an integral part of the natural system of the public lands. It directs the Bureau of Land Management of the Department of the Interior and Forest Service of the Department of Agriculture to manage such animals on public lands under their jurisdiction.

#### **Wild and Scenic Rivers Act of 1968**

<http://www4.law.cornell.edu/uscode/16/1271.html>

Preserves selected rivers or sections thereof in their free-flowing condition, to protect water quality of such rivers and to fulfill other vital national conservation measures. Instituted a National Wild and Scenic Rivers System by designating the initial components of that system, and by prescribing the methods by which and standards to which additional components may be added to the system. Designated rivers have requirements with time frames for preparing and implementing a Comprehensive River Management Plan and a boundary declaration.

#### **Wilderness Act of 1964**

<http://www4.law.cornell.edu/uscode/16/1131.html>

Established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas" and administered for the use and enjoyment of people in such manner as will leave them unimpaired for future use and enjoyment as wilderness. Provides for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness. States that no federal land shall be designated as "wilderness areas" except as provided for in the act or by a subsequent act. It withdrew wilderness areas from all forms of appropriation and disposition under the mining and mineral laws. The Act also: provides that livestock grazing is allowed to continue in wilderness when such grazing was established before designation; directs the Forest Service to preserve and protect the natural condition of wilderness, including the intrinsic wilderness value of air quality; authorizes taking such measures as may be necessary in the control of fire within designated wilderness; and establishes requirements for special-use authorizations in designated wilderness areas for temporary structures, commercial public services and access to valid mining claims and non-federal lands. Designated areas included: Cucamonga Wilderness, San Geronio Wilderness, and San Jacinto Wilderness.

## **Federal Regulations**

The following list is not intended to be comprehensive. Full text of the Code of Federal Regulations (CFR) may be found at the following website:  
<http://www.gpoaccess.gov/cfr/index.html>.

### **Biodiversity/Fish, Wildlife and Plants**

36 CFR 219 Planning: Part 219.19 directs the Forest Service to maintain habitat for viable populations of existing native and desired nonnative vertebrate species, to select management indicator species, to consult with biologists from other agencies, consider access and dispersal problems of hunting, fishing, and other uses, and evaluate the effects of pest and fire management.

36 CFR 241 Fish and Wildlife.

36 CFR 323 Permits for Discharges of Dredged or Fill Material into Waters of the United States.

### **Invasive Species**

40 CFR 1500-1508 Invasive Species.

### **Geological Resources and Hazards**

36 CFR 251, Subpart B, Special-Uses: Provides direction for managing special-uses including paleontological resources.

### **Special Designations**

36 CFR 219 Planning: Part 219.17(a) states that: "... roadless areas within the National Forest System shall be evaluated and considered for recommendation as potential Wilderness during the forest planning process." Part 219.25 states that forest planning shall provide for the establishment of Research Natural Areas. To be identified are examples of important forest, shrubland, grassland, alpine, aquatic, and geologic types that have special or unique characteristics of scientific interest and importance and that are needed to complete the national Research Natural Area network.

36 CFR 292 National Recreation Areas.

36 CFR 293 Wilderness and Primitive Areas.

36 CFR 297 Wild and Scenic Rivers.

### **Lands**

36 CFR 254 Landownership Adjustments.

### **Heritage Resources**

36 CFR 60 National Register of Historic Places.

36 CFR 63 Determinations of Eligibility for Inclusion in the National Register of Historic Places.

36 CFR 65 National Historic Landmarks Program.

36 CFR 67 Secretary of the Interior's Standards for Rehabilitation.

36 CFR 68 Secretary of the Interior's Standards for the Treatment of Historic Properties.

36 CFR 67 Rehabilitation.

36 CFR 79 Curation of Federally Owned Archaeological Collections.

36 CFR 219 Planning: Part 219.24 states that forest planning shall provide for the identification, protection, interpretation, and management of significant cultural resources on National Forest System lands.

36 CFR 800 Protection of Historic and Cultural Properties.

43 CFR 10 Native American Graves Protection and Repatriation Act regulations.

### **Recreation**

36 CFR 291 Occupancy and Use of Developed Sites and Areas of Concentrated Public Use.

36 CFR 294 Special Areas, Recreation.

### **Law Enforcement**

7 CFR 2.7 Delegations of Authority by the Secretary of Agriculture and General Officers of the Department: This is the basic authority for the Chief of the Forest Service to issue directives concerning Forest Service operations.

36 CFR 261 Prohibitions. (This part applies to a number of programs including fire, livestock, fish and wildlife, occupancy and use, forest development, roads and trails, use of vehicles off-roads, developed recreation sites, wilderness, Pacific Crest National Scenic Trail, special-use authorizations and more. It defines resources and describes prohibited activities, in some cases specific to Region or area).

36 CFR 262 Law Enforcement Support Activities.

### **Infrastructure (Fire, Administrative and Other; and Recreation)**

18 CFR 4 Conservation of Power and Water Resources: Licenses (Federal Energy Regulatory Commission licensing process), permits, exemptions, and determination of project costs.

29 CFR 1910 Occupational Safety and Health Standards.

29 CFR 1960 Basic Program Elements for Federal Employee Occupational Safety and Health Programs.

33 CFR 208 Dams, Flood control, Intergovernmental Relations, and Reservoirs.

36 CFR 800 - Protection of Historic Properties. (Incorporates amendments effective August 5, 2004).

### **Roads and Trails**

23 CFR 625 and 650: Establish national bridge design specifications and guides, and bridge inspection standards, and are applicable to bridges on National Forest System roads.

23 CFR 668: Set forth procedures for the Emergency Relief-Federally Owned (ERFO) program that are applicable to transportation system facilities owned by Federal agencies.

23 CFR 1230: Makes the Highway Safety Act of 1966 applicable to all federal agencies that control roads.

29 CFR 1910 Occupational Safety and Health Standards.

29 CFR 1960 Basic Program Elements for Federal Employee Occupational Safety and Health Programs.

36 CFR 212: Provides the principle regulations for administration of the forest development transportation system. Part 212.21 relates to the Pacific Crest National Scenic Trail.

36 CFR 251 Special Uses.

36 CFR 295: Establishes direction for the management and monitoring of off-road vehicle use on National Forest System land.

49 CFR 1.48 Delegations to Federal Highway Administrator.

### **Management and Administration**

36 CFR 219 - Planning. This Forest Plan revision is being issued under the 1982 planning rule.

### **Special Forest Products**

36 CFR 223 Sale and disposal of National Forest System timber.

### **Special-Uses**

36 CFR 251 Special-uses.

### **Minerals and Energy**

36 CFR Part 228, Subpart A: Describes how locatable mineral activity will be managed on lands open to operations under the General Mining Law of 1872. Provides regulations for the mining operation regarding suction dredging operations. The California Department of Fish and Game issues permits for suction dredging.

36 CFR Part 228, Subpart C: Describes how the Forest Service will manage salable minerals.

36 CFR Parts 228 and 261: These are the regulations and procedures to implement the 1987 Reform Act. They establish a staged decision process designed to accommodate the nature of oil and gas exploration and development.

### **Grazing**

36 CFR 211.18 Administrative Review Procedures.

36 CFR 213 Administration of Lands Under Title III of the Bankhead-Jones Farm Tenant Act by the Forest Service.

36 CFR 219 Planning: Part 219.3 provides detailed definitions and terminology of capability and suitability.

36 CFR 222 Range Management.

### **Executive Orders**

#### **EO 11593 Protection and Enhancement of Cultural Environment (1971)**

States that the Federal Government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation, and that federal agencies shall administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations. It institutes procedures to assure that federal plans and programs contribute to

the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance.

**EO 11644 (1972) and EO 11989 (1977) Off-Road Vehicles on Public Lands**

Establishes direction for the management of off-road vehicle use and provides for closing areas to off-road vehicles where resources would, or are, being negatively impacted.

**EO 11988 Floodplain Management (1977) and 11990 Protection of Wetlands (1977)**

Direct federal agencies to avoid to the extent possible the impacts associated with the destruction or modification of floodplains and wetlands. Agencies are directed to avoid construction and development in flood plains and wetlands whenever there are any feasible alternatives.

**EO 12088 Federal Compliance with Pollution Control Standards (1978). (Revoked in part by EO 13148 (2000)).**

[http://rc.gsa.gov/ResourceCenter/Laws\\_Regs\\_All/Execorders/eo12088.htm](http://rc.gsa.gov/ResourceCenter/Laws_Regs_All/Execorders/eo12088.htm)

Ensure federal compliance with applicable pollution control standards.

**EO 13123 Efficient Energy Management (1999)**

Directs the Federal Government to improve its energy management in order to save taxpayer dollars and reduce emissions that contribute to air pollution and global climate change.

**EO 12580 Superfund Implementation (1987), as amended**

<http://www.epa.gov/fedsite/eo12580.html>

Delegates to the Forest Service the authority to conduct all investigations and take the necessary response actions (excluding emergency response) relating to releases of hazardous substances on National Forest System lands and lands leased by the Forest Service.

**EO 12699 Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction (1993)**

Requires that all new buildings that are owned, leased, constructed, partially paid for by U.S. Government funds, or regulated by the Federal Government, be constructed to ensure that appropriate seismic design and construction requirements are applied.

**EO 12862 Setting Customer Service Standards (1993)**

<http://govinfo.library.unt.edu/npr/library/direct/orders/2222.html>

Requires all executive departments and agencies that provide significant services directly to the public to provide those services in a manner that seeks to meet the customer service standard established in the Order.

**EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994)**

<http://www.fs.fed.us/land/envjust.html>

Requires each federal agency to take action to achieve environmental justice as part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

**EO 13007 Indian Sacred Sites (1996)**

<http://hydra.gsa.gov/pbs/pt/california/13007.htm>.

Requires each executive branch agency with statutory or administrative responsibility for the management of federal lands, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.

**EO 13084 Consultation and Coordination with Indian Tribal Governments (1998)**

[http://www.cr.nps.gov/nagpra/AGENCIES/EO\\_13084.HTM](http://www.cr.nps.gov/nagpra/AGENCIES/EO_13084.HTM)

Provides direction regarding consultation and coordination with Indian Tribes relative to regulatory policy.

**EO 13112 Invasive Species (1999)**

<http://www.invasivespecies.gov/laws/eo13112.pdf>

States that each federal agency whose actions may affect the status of invasive species shall (to the extent practicable and permitted by law) take steps to control damage caused by such species.

**EO 13123 Greening the Government Through Efficient Energy Management (1999)**

Directs federal agencies to increase energy efficiency and water conservation at federal facilities, and promote the use of solar and other renewable energy sources.

**EO 13212 Actions To Expedite Energy-Related Projects (2001)**

<http://ceq.eh.doe.gov/nepa/regs/eos/eo13212.html>

Establishes policy to expedite the increased supply and availability of energy to our Nation, by expediting projects that will increase the production, transmission, or conservation of energy.

**EO 13287 Preserve America (2003)**

States that it is the policy of the Federal Government to provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of the historic properties owned by the Federal Government, and by promoting intergovernmental cooperation and partnerships for the preservation and use of historic properties.

**EO 13327 Federal Real Property Asset Management (2004)**

Promotes the efficient and economical use of Federal real property resources.

**Executive Memorandums****Dam Safety (October 4, 1979)**

Directs federal agencies to implement "Federal Guidelines for Dam Safety."

**Government-to-Government Relations (April 29, 1994)**

States that each executive department and agency shall consult with tribal governments prior to taking actions that affect federally recognized tribal governments on a government-to-

government basis. All such consultations are to be open and candid so that all interested parties may evaluate for themselves the potential impact of proposals.

### **Agreements**

#### **Administration of Emergency Relief-Federally Owned (ERFO) Program for Federal Roads Off the Federal-Aid System**

Federal Highway Administration and the USDA Forest Service, Memorandum of Understanding (MOU) of 1979. Establishes procedures through which the agencies administer emergency relief for federal roads under the jurisdiction of the Forest Service.

#### **Carbonate Habitat Management Strategy**

USDA Forest Service, San Bernardino National Forest, USDI Bureau of Land Management, San Bernardino County, OMYA, Inc., Specialty Minerals Incorporated, Mitsubishi, California Native Plant Society, and Cushenbury Mine Trust, MOU of 2003. This agreement states that the signatories will implement the Carbonate Habitat Management Strategy dated April 2003, for the dual purpose of conserving threatened and endangered carbonate plants and streamlining mining operations.

#### **Cooperative Relationships**

San Manuel Band of Mission Indians and USDA Forest Service, Angeles and San Bernardino National Forests, MOU of February 1, 2001. This agreement between the San Manuel Band of Serrano Mission Indians and the Angeles and San Bernardino National Forests provides for increased cooperation between the national forests and the tribe in order to develop community opportunities and partnerships in the areas of mutual interests.

Salinan Tribe and USDA Forest Service, Los Padres National Forest, MOU of August 11, 2001. This agreement between the Salinan Tribe and the Los Padres National Forest commits to continue to enhance their mutually beneficial relationship for including Native American Cultural and Ancestral Concerns as part of the management of the Los Padres National Forest.

Santa Ynez Band of Chumash Indians and USDA Forest Service, Los Padres National Forest, MOU of September 5, 2002. This agreement between the Santa Ynez Band of Chumash Indians and the Los Padres National Forest commits to continue to enhance their mutually beneficial relationship for including Native American Cultural and Ancestral Concerns as part of the management of the Los Padres National Forest.

#### **Endangered Species Act application to proposals for access to non-federal lands**

USDI Bureau of Land Management, U.S. Fish and Wildlife Service, and USDA Forest Service, MOU of January 30, 2003.

#### **Pacific Crest Trail**

USDA Forest Service, USDI National Park Service, USDI Bureau of Land Management, California State Parks, and the Pacific Crest Trail Association, MOU of October 21, 2003.

#### **Prescribed Burning**

California Air Resources Board and the USDA Forest Service, Pacific Southwest Region, MOU of January 2003.

### **Programmatic Agreement**

USDA Forest Service, Pacific Southwest Region, the California State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP), programmatic agreement of 1996, amended 2001. Regards the process for compliance with section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, for undertakings on the national forests of the Pacific Southwest Region. Simplifies the case-by-case consultation requirements for "no effect" findings under Section 106 of the NHPA (36 CFR 800). By eliminating some of the burdensome and redundant requirements, more resources should be available for achieving greater compliance with the broader historic preservation goals found in Section 110 of the NHPA.

### **Safety standards applicable to the Forest Service**

Federal Highway Administration and the USDA Forest Service, MOU of October 17, 1975. Amendment #1 (November 16, 1982) defines roads open to public travel and passable by four-wheel standard passenger cars.

### **Federal Agency Management Direction**

This section contains a partial listing of applicable Department of Agriculture and other federal agency direction (Strategies, Guides, Initiatives, Agreements, Circulars, etc.):

### **Vegetation Condition and Forest Health**

Healthy Forest Initiative (2002): This initiative provides administrative procedures and processes governing preparation of projects to reduce hazardous fuel and restore healthy ecological conditions on federal land.

### **Biodiversity/Fish, Wildlife and Plants**

Departmental Regulation 9500-4: Provides USDA policy on wildlife, fish, and plant habitat management pertinent to public lands on 1) National Forest System land, 2) threatened and endangered species and 3) economic losses from plant and animal pests.

### **Invasive Species**

Pulling Together: A National Strategy for Invasive Plant Management (1998).

Pacific Southwest Region Noxious Weed Strategy and Action Plan (2000).

National Guide to Noxious Weed Prevention Practices (2001).

National Strategy and Implementation Plan for Invasive Species Management (FS-805, October 2004). This national strategy and proposed actions will guide Forest Service programs to employ an integrated, comprehensive, and science-based approach for addressing the invasive species problem.

### **Soil Resources**

USDA Forest Service, Region 5 letter 2350-5 of November 8, 2002: Standards and Guidelines for Mechanized OHV Trail Work.



### **Water Resources**

Water Quality Management for Forest System Lands in California - Best Management Practices Handbook (USDA Forest Service, Pacific Southwest Region, September 2000). (*Note: Public access to this website is not available. This is an intranet site accessible to Forest Service employees*).

<http://fsweb.r5.fs.fed.us/unit/ec/water/bmp.html>

### **Air Resources**

Natural Events Policy: Issued by the Environmental Protection Agency (EPA), this policy includes a provision to prevent an area from being redesignated as "non-attainment" for particulates when high concentrations result from wildland fires.

Interim Air Quality Policy on Wildland and Prescribed Fires (1998): Issued by the EPA, this policy provides guidance on mitigating air pollution impacts caused by wildland and prescribed fires while recognizing the current role of fire in wildland management.

### **Regional Haze Rule (EPA 1999).**

Forest Service Region 5 Guidelines For Evaluating Air Pollution Impacts on Class I Wilderness Areas in California (1992).

### **Special Designations**

Interagency National Wild and Scenic Rivers System: Final Revised Guidelines for Eligibility (1982) (USDA and USDI) provides guidance on Wild and Scenic River eligibility.

Research Natural Areas: National Strategy of July 19, 1993.

Region 5 policy on fire suppression in Research Natural Areas.

### **Heritage Resources**

The Secretary of the Interior provides published standards and guidelines for Archaeology and Historic Preservation including Professional Qualifications.

### **Landscape Management**

Landscape Aesthetics Handbook, USDA Forest Service Agriculture Handbook No. 701, 1995. This handbook replaced the Visual Management System, Agriculture Handbook No. 462, which provided direction for the current forest plans.

The Scenery Management System (SMS) presents a vocabulary for managing scenery and a systematic approach for determining the relative value and importance of scenery on National Forest System land.

Best Environmental Design Practices - The following references constitute the Landscape Management Best Environmental Design Practices for utilities, range, roads, timber, fire, ski areas, and recreation activities:

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 1. Agriculture Handbook 434. Washington, DC: U.S. Department of Agriculture; 1973. 76 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 2: "Utilities." Agriculture Handbook 478. Washington, DC: U.S. Department of Agriculture; 1975. 147 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 3: "Range." Agriculture Handbook 484. Washington, DC: U.S. Department of Agriculture; 1977. 44 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 4: "Roads." Agriculture Handbook 483. Washington, DC: U.S. Department of Agriculture; 1977. 62 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 5: "Timber." Agriculture Handbook 559. Washington, DC: U.S. Department of Agriculture; 1980. 223 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 6: "Fire." Agriculture Handbook 608. Washington, DC: U.S. Department of Agriculture; 1985. 89 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 7: "Ski Areas." Agriculture Handbook 617. Washington, DC: U.S. Department of Agriculture; 1984. 71 pages.

U.S. Department of Agriculture, Forest Service. National Forest Landscape Management: Volume 2, Chapter 8: "Recreation." Agriculture Handbook 666. Washington, DC: U.S. Department of Agriculture; 1987. 86 pages.

### **Administrative Infrastructure**

Departmental Regulation 1043-18: Establishes policies, standards, and criteria for the investigation, design, construction, emergency planning and response, maintenance, and operation of water storage and transmission structures administered or permitted by the Forest Service. Water storage structures include class A, B, C, and D dams, including settling ponds and tailing dams. Water transmission structures include ditches, flumes, tunnels and penstocks.

Office of Management and Budget (OMB) Circular A-45: Employee Housing Design Criteria.

The Built Environment Image Guide (BEIG) establishes guidelines for sustainability, fitting the landscape, and National consistency for facilities within the national forests.

### **Roads and Trails**

Forest Order No. 88-4, Pacific Crest National Scenic Trail, Pacific Southwest Region, Pacific Northwest Region, Intermountain Region, August 1988.

The National Forest System Road Management and Transportation System; Final Rule and Policy, approved January 12, 2001, provides direction for a road system that is safe, responsive to public needs, environmentally sound, and affordable and efficient to manage. The purpose is to help ensure that additions to the National Forest System network of roads are those deemed essential for resource management and use; that construction, reconstruction, and maintenance of roads minimize adverse environmental impact; and that unneeded roads are decommissioned and restored.

Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (USDA Forest Service 1999) is an integrated ecological, social and economic approach to transportation planning based on science that provides a process to analyze existing and future road needs and management.

Comprehensive Plan for the Pacific Crest National Scenic Trail, January 1982.

USDA Forest Service Trail Accessibility Guidelines, March 2003 (Draft).

USDA Standard Specifications for Construction and Maintenance of Trails, September 1996.

### **Social and Economic**

Departmental Regulation 5600-2: Provides direction for integrating environmental justice into programs and activities.

### **Tribal Relations and Interests**

American Indian/Alaska Native Policy Statement (USDA Forest Service): Promulgates Executive Memorandum of April 29, 1994. It states that the Forest Service will maintain a governmental relationship with federally recognized tribal governments, implement programs and activities honoring Indian treaty rights and fulfill legally mandated trust responsibilities to the extent they are applicable to National Forest System lands, as well as to address and be sensitive to traditional native religious beliefs and practices; and provide research, transfer of technology, and technical assistance to Indian governments.

### **Minerals and Energy**

National Energy Plan, May 2001.

### **Fire and Aviation Management**

The Federal Wildland Fire Policy (1995, 1998, and reviewed in 2001) outlines policies on fire suppression and integrating fire on the landscape. The policy is being integrated into FSM 5100.

The National Fire Plan (2000) provides guidance and direction for firefighting, restoration and rehabilitation of burned lands, hazardous fuels reduction, and community assistance.

## **State and Local Laws and Regulations**

### **Air Resources**

California Clean Air Act of 1988: This Act clearly spells out in statute California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress, providing the State with a comprehensive framework for air quality planning regulation.

California's Agricultural Burning Guidelines in Title 17 of the California Code of Regulations.

Air Pollution Control District Significance Criteria.

Grand Canyon Visibility Transport Commission.

Pertinent Air Pollution Control District Rules:

San Diego County

Rule 50 - Visible Emissions

Rule 101 - Burning Control

South Coast Air Quality Management District

Rule 401 - Visible Emissions

Rule 444 - Open Burning

Rule 1186 - PM<sub>10</sub> Emissions from Paved and Unpaved Roads, and Livestock Operations

Rule 403 - Fugitive Dust

Ventura County

Rule 50 - Opacity

Rule 56 - Open Fires

Santa Barbara County

Rule 401 - Agricultural and Prescribed Burning

Rule 312 - Open Fires

San Luis Obispo County

Rule 401 - Visible Emissions

Rule 502 - Agricultural Burning

Monterey Bay Unified

Rule 438 - Open Outdoor Fires

Rule 400 - Visible Emissions

San Joaquin Valley Unified

Rule 3160 - Prescribed Burning Fee

Rule 4101 - Visible Emissions

Rule 4103 - Open Burning

Rule 4106 - Prescribed Burning and Hazard Reduction Burning

Antelope Valley Air Quality Management District

Rule 1186 - PM<sub>10</sub> Emissions from Paved and Unpaved Roads, and Livestock Operations

Rule 401 - Visible Emissions

Rule 403 - Fugitive Dust

Rule 444 - Open Fires

Mojave Desert Air Quality Management District

Rule 208 - Permit for Open Burning

Rule 401 - Visible Emissions

Rule 403 - Fugitive Dust

Rule 444 - Open Fires

**Big Sur Coast Land Use Plan**

Provides guidance for land uses in the jurisdiction of the Monterey County coastal zone (see Federal Coastal Zone Management Act).

**California Coastal Act of 1976**

Provides for protection of California coastal resources (see Federal Coastal Zone Management Act).

**Fire and Aviation Management**

California State Fire Law is applicable to facilities on National Forest System lands.



## Appendix B - Minimum Impact Suppression Tactics (MIST)

The intent of MIST is to suppress a wildland fire with the least impact to the land. Fire conditions and good judgment dictate the actions taken. Consider what is necessary to halt fire spread and contain it within the fireline or designated perimeter boundary (Interagency Standards for Fire and Fire Aviation Operations "Redbook").

### A. Safety

Safety is of utmost importance. Constantly review and apply the "Watch Out Situations" and "Fire Orders." Be particularly cautious with:

- Unburned fuel between you and the fire.
- Burning snags allowed to burn.
- Burning or partially burned live and dead trees.

Be constantly aware of surroundings; anticipate fire behavior and possible fire perimeter one or two days hence.

### B. Fire Line Phase

Select procedures, tools, and equipment that have the least amount of impact on the environment. Seriously consider use of water as a fireline tactic; fireline constructed with nozzle pressure, wetlining.

#### In light fuels consider:

- Coldtrail line.
- Allowing fire to burn to natural barrier.
- Burning out and use of "gunny" sack or swatter.
- Constantly rechecking coldtrailed fireline.
- If constructed fireline is necessary, using minimum width and depth to check fire spread.

#### In medium/heavy fuels consider:

- Using natural barriers and coldtrailing.
- Cooling with dirt and water, and coldtrailing.
- If constructed fireline is necessary, using minimum width and depth to check fire spread.
- Minimizing bucking to establish fireline. Preferably move or roll downed material out of the intended constructed fireline area. If moving or rolling out is not possible, or the downed bole is already on fire, build line around and let material be consumed.

#### In aerial fuels—brush, trees, snags:

- Adjacent to fireline: limb only enough to prevent additional fire spread.
- Inside fireline: remove or limb only those that if ignited would have potential to spread fire outside the fireline.

- Brush or small trees that are necessary to cut during fireline construction will be cut flush with the ground.

**In trees, burned trees, and snags:**

- Minimize cutting of trees, burned trees and snags.
- Live trees will not be cut, unless determined they will cause fire spread across the fireline or endanger workers. If tree cutting occurs, cut the stumps flush with the ground.
- Scrape around tree bases near fireline if hot and likely to cause fire spread.
- Identify hazardous trees with an observer (i.e., flagging, and/or glow sticks).

**When using indirect attack:**

Do not fall snags on the intended unburned side of the constructed fireline, unless they are a safety hazard to crews.



## Appendix C - Monitoring Requirements

Monitoring requirements are found in all three parts of the forest plans. Part 1 monitoring is focused on measuring movement toward desired conditions over the long-term. Part 2 documents individual program accomplishments and is reported annually. Finally, Part 3 measures how well project implementation follows forest plan direction. All three parts use an adaptive management approach designed to lead to continuous improvement in the national forests' environmental performance.

### Part 1 Monitoring

Monitoring and evaluation provide knowledge and information to keep the forest plan viable. Appropriate selection of indicators, and monitoring and evaluation of key results helps the Forest Service determine if the desired conditions identified in the forest plan are being met. Monitoring and evaluation also help the Forest Service determine if there should be changes to goals and objectives, or monitoring methods.

Adaptive management is the foundation for planning and management. The planning regulations require that forest plans be revised every 10-15 years after forest plan approval (36 CFR 219.10(g)). Forest plans need to be dynamic to account for changed resource conditions, such as large-scale wildland fire or listing of additional species under the Endangered Species Act; new information and science such as taking a systems approach, and changed regulation; and policies such as the Roads Analysis Policy.

Monitoring and evaluation are critical to adaptive management. Other component parts include inventory, assessment, planning, and implementation. No single component can be isolated from the whole of adaptive management.

Monitoring and evaluation processes begin by identifying key questions Forest Service managers need to answer about forest plan implementation. Understanding the questions help to identify information needs, data collection designs, and tools needed to turn data into information and knowledge. Managers must also have a clear understanding of baseline conditions (current resource condition at the time of signing the ROD) versus desired conditions and the evaluation strategies that will help determine if movement towards desired conditions is occurring. Appropriate selection of indicators help assess resource status and trends, and progress towards meeting the desired conditions identified in the forest plan.

The aggregated outcome of project level work reflects progress towards achieving the desired conditions of the forest plan and the contribution to agencies priorities. This emphasizes the importance of using the National Strategic Plan desired conditions, goals and objectives that apply to the planning area in the forest plan and to use common criteria and indicators as appropriate in the forest plan. This approach will enable monitoring and evaluation efficiencies and provide critical information on the national forests' contribution to the agency's mission, goals, and objectives (see table 3-3. Part 1 Monitoring Summary).

**Table 3-3. Part 1 Monitoring Summary**

Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question	Indicators	Data Reliability	Measuring Frequency (Years)	Report Period (Years)
1.1	Vegetation Treatments in WUI	Has the forest made progress in reducing the number of acres that are adjacent to development within WUI defense zones that are classified as high risk?	Fire Hazard/Risk	High	1	5
1.2.1	Vegetation Condition	Is the forest making progress toward increasing the percentage of montane conifer forests in Condition Class 1?	Condition Class	Mod	5	5
1.2.2	Vegetation Condition	Is the forest making progress toward maintaining or increasing the percentage of chaparral and coastal sage scrub in Condition Class 1?	Condition Class	Mod	5	5
1.2.3	Vegetation Condition	Has the forest been successful at maintaining long fire-free intervals in habitats where fire is naturally uncommon?	Veg. Type Extent Fire	Mod	5	5
2.1	Invasive species	Are the national forests' inventory of invasive plants and animals showing a stable or decreasing trend in acres of invasives?	Invasive Plants and Animals	Mod	1	5
3.1	Visitor Use of the Forest	Are trends in indicators and visitor satisfaction surveys indicating that the forest has provided quality, sustainable recreation opportunities that result in increased visitor satisfaction?	Visitor Satisfaction	Mod	5	5
3.2	Wilderness Use	Are trends in indicators and visitor satisfaction surveys depicting the forest has provided solitude and challenge in an environment where human influences do not impede the free play of natural forces?	Natural Processes Wilderness	Mod	5	5
4.1a	Mineral and Energy Development	Has the forest been successful at protecting ecosystem health while providing mineral and energy resources for development?	Energy Success at protecting Ecosystem Health	Mod	1	5

Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question	Indicators	Data Reliability	Measuring Frequency (Years)	Report Period (Years)
4.1b	Mineral and Energy Development	Has the forest been successful at protecting ecosystem health while providing renewable resources for development?	Renewable Resources Success at protecting Ecosystem Health	Mod	1	5
4.2	Energy Infrastructure Support	Are designated utility corridors being fully utilized prior to designation of new corridors serving similar market needs?	Utility Corridors	Mod	1	5
5.1	Watershed	Is the forest making progress toward sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 and 3 watersheds?	Sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 & 3 watersheds	High	1	5
5.2	General Forest Activities	Is the forest making progress toward reducing the number of streams with poor water quality or aquatic habitat conditions?	Stream Condition—in Impaired State listed 303(d) streams	Mod	5	5
6.1	Livestock Grazing	Is forest rangeland management maintaining or improving progress towards sustainable rangelands and ecosystem health by increasing the number of key areas in good and fair condition?	Rangeland Condition	Mod	1	5
6.2	General Forest Activities	Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend?	MIS	Mod	5	5

Goal	Activity, Practice Or Effect To Be Measured	Monitoring Question	Indicators	Data Reliability	Measuring Frequency (Years)	Report Period (Years)
7.1	Built Landscape Extent Land Adjustment	Is the forest balancing the need for new infrastructure with restoration opportunities or land ownership adjustment to meet the desired conditions?	Road Density Inventories Road Miles Land Ownership Complexity	High	5	5

**Forest Land and Resource Management Plan Evaluation and Reports**

Evaluation is more than reporting facts and figures. Forest plan evaluation tells how decisions have been implemented, how effective the implementation has proved to be in accomplishing desired conditions, what was learned along the way, and how valid management assumptions are that led to forest plan decisions.

The Forest Supervisor will maintain monitoring information, including internet-based reports, for public reviews, and will evaluate such information on a periodic basis to determine, among other things, need for amendment or revision of the forest plan. Formal evaluation and reporting will occur every five years, unless the Forest Supervisor deems it necessary that a shorter timeframe is warranted for some evaluations. The five-year review will provide a comprehensive evaluation of information in response to monitoring questions and regulatory review requirements.

**Part 2 Monitoring**

Monitoring in Part 2 of the forest plan is focused on program implementation including inventory. The national forests currently use the budget formulation and evaluation system (BFES) performance indicators for tracking program accomplishments. The current system is expected to be replaced by a performance accountability system integrating annual budgets with programs of work and linking these to tracking of strategic plan performance indicators (see table 3-4. Part 2 Monitoring Summary).

Table 3-4. Part 2 Monitoring Summary

Monitoring Question: Are Projects Being Implemented As Planned?

Indicators	Data Reliability	Measuring Frequency (Years)	Report Period (Years)
Acres of Terrestrial Habitat Enhanced	High	1	1
Miles of Aquatic Habitat Enhanced	High	1	1
Acres of Noxious Weeds Treated	High	1	1
Acres of Vegetation Improved (also see Hazardous Fuels Reduction)	High	1	1
Acres of Watershed Improved	High	1	1
Acres of Land Ownership Adjusted	High	1	1
Number of Heritage Resources Managed to Standard	Mod	1	1
Products Provided to Standard (Interpretation and Education)	Mod	1	1
Recreation Special Use Authorizations Administered to Standard	Mod	1	1
PAOT Days Managed to Standard (Developed Sites)	Mod	1	1
Recreation Days Managed to Standard (General Forest Areas)	Mod	1	1
Land Use Authorizations Administered to Standard	Mod	1	1
Number of Mineral Operations Administered	High	1	1
Manage Grazing Allotments	High	1	1
Acres of Hazardous Fuel Reduction	High	1	1
Miles of Passenger Car Roads Maintained to Objective Maintenance Level	High	1	1
Miles of High Clearance & Back Country Roads Maintained to Objective Maintenance Level	High	1	1
Miles of Road Decommissioned	High	1	1
Miles of Trail Operated and Maintained to Standard	Mod	1	1

Actual performance is tracked over time through annual documentation of accomplishment and these trends are evaluated periodically to determine if the national forests need to shift program strategies. These data are reported in the annual monitoring and evaluation report as part of the national forests' implementation monitoring efforts.

Additional forest-specific monitoring questions are included in Part 2 of the forest plan for the San Bernardino National Forest. These two questions are:

Outcome Evaluation Question(s): Is pebble plain habitat being conserved over the long-term through the implementation of conservation strategies? Are resource conditions at pebble plain complexes indicating a stable or upward trend towards meeting desired conditions?

Outcome Evaluation Question(s): Is carbonate habitat being conserved over the long-term through the implementation of the Carbonate Habitat Management Strategy (CHMS) actions?

### Part 3 Monitoring

Implementation and effectiveness monitoring for Part 3 of the forest plan are conducted at the project level. All project activities are documented in reporting systems. Annually, a randomly selected sample of projects and on-going activities (at least 10 percent) will be reviewed. A small review team will visit the selected projects to review the effectiveness of applying forest plan design criteria. If problems in implementation are detected, or if the design criteria are determined to be ineffective, then the team will recommend corrective actions. Corrective actions may include forest plan amendment(s) if necessary to improve the effectiveness of the

design criteria. Results of this monitoring will be reported annually in the forest plan monitoring and evaluation report. In addition, design criteria (including new laws or regulations referenced in Appendix A) will be updated (see table 3-5. Part 3 Monitoring Summary).

Table 3-5. Part 3 Monitoring Summary

Activity, Practice Or Effect To Be Measured	Monitoring Question	Indicators	Data Reliability	Measuring Frequency (Years)	Report Period (Years)
Sample of ongoing activities and projects.	Are projects being implemented consistent with forest plan direction? How well have objectives been met and how closely have management standards and guidelines been applied?	Project Design Criteria	Mod	1	1
Assigned sample of ground disturbing activities for BMPEP monitoring.	Are projects being implemented consistent with forest plan direction? Have project mitigation measures been effective at improving environmental conditions as expected?	Best Management Practices	Mod	1	1

## Appendix D - Adaptive Mitigation for Recreation Uses

### Recreation Implementation Guidelines

These guidelines apply to all existing and new recreation sites and uses whenever a conflict between uses or sensitive resources is detected. Sensitive resources include threatened, endangered, proposed, candidate, and sensitive species and habitats, riparian habitats, soil and watersheds, heritage resources, user conflicts, or other resources.

The management actions will be implemented in the order (education; perimeter control; management presence; redirection of use – if appropriate) listed below unless analysis of the conflict clearly indicates that a stronger measure is immediately necessary. The actions and practices include, but are not limited to:

#### 1. Conservation Education

- Use information networks, including public service announcements, internet sites and links, and visitor guides and newsletters to communicate information regarding sensitive resources.
- Install and maintain appropriate multilingual information boards, interpretive panels and regulatory signs at developed sites and dispersed areas within sites of sensitive resources.
- Develop interpretive and environmental education programs for the public, Forest Service personnel, concessionaires, other special-use authorization holders, and volunteers about sensitive resources and habitats. Engage the services of special-use authorization holders that provide services to the public (i.e., concessionaires, organization camps, outfitter guides) to assist in the development and delivery of these programs. Provide authorization holders with messages about sensitive resources/management issues so that they can use them to educate people. Ensure that the methods chosen do not result in unacceptable effects to sensitive resources. Coordinate efforts between the four southern California national forests for maximum results and cost efficiencies. Use existing visitor centers where appropriate.
- De-emphasize the site or area and develop an information strategy to direct visitors to national forest recreation opportunities that do not affect sensitive resources.

#### 2. Perimeter Control

- Modify visitor access to manage use. Install and maintain appropriate fencing or other barriers to protect sensitive resource areas. Limit the number of users at the site or area.
- Install and maintain appropriate multi-lingual informational, interpretive and regulatory signing in conjunction with perimeter controls to engage national forest visitors with protection of sensitive resources at recreation sites and areas.

#### 3. Presence

- Provide adequate management presence to ensure protection of sensitive resources. This presence could include Forest Service personnel, peer education, contractors, concessionaires, other permit holders, and volunteer support.

#### 4. Direct Action

- Limit visitor use of recreation sites and areas through diurnal, seasonal or temporary closures during critical life cycle periods for affected threatened, endangered, proposed, candidate, and sensitive species.
- Where visitor use is allowed - Seek opportunities to proactively rehabilitate, design, reconstruct, rehabilitate and harden the site and/or locate new facilities and areas for redistributing human use away from sensitive resources.
- Where visitor use is restricted – a) Limit or control use at developed recreation sites and areas through permit system (e.g., group campgrounds); b) When other actions are ineffective enact and enforce Forest Orders to protect sensitive resource areas through use of seasonal or temporary closures of developed recreation sites and areas; c) Seek opportunities to proactively design and locate new facilities and areas for re-distributing human use away from sensitive resources.
- Where visitor use is prohibited - When seasonal or temporary closures are ineffective, enact and enforce Forest Orders to close recreation sites or areas. If monitoring and evaluation indicate that closure is ineffective, then take steps to decommission facilities and permanently discontinue visitor use.



## Appendix E - Five-Step Project Screening Process for Riparian Conservation Areas

The *Five-Step Project Screening Process for Riparian Conservation Areas* described below is used to assist in ensuring that riparian conservation areas (RCAs) are recognized, emphasized and managed appropriately during new project planning and implementation.

This screening process is used in addition to the land allocation restrictions that apply to the project area. For example, mechanized fuels treatments are allowed in riparian conservation areas (based on consistency with the riparian management objectives). However, where a riparian conservation area overlaps with a wilderness area, treatments are limited to non-mechanized and non-motorized methods.

The management objectives for riparian conservation areas are listed in Part 2 of the forest plan, Appendix B, WAT 1 - Watershed Function and WAT 2 - Water Management. The riparian management objectives serve as a check for evaluating management prescriptions to determine if a proposed activity will move an area toward the riparian desired conditions described in Part 1, Goal 5.2 - Improve Riparian Conditions, of the forest plan.

Activities are designed to protect, maintain, or restore the riparian ecosystem. In the riparian conservation areas that include perennial and intermittent streams, lakes, and wetlands allow only those actions that maintain or improve long-term aquatic and riparian ecosystem health including quantity, quality, and timing of stream flows.

### Five-Step Project Screening Process for Riparian Conservation Areas:

#### Step 1:

Determine riparian conservation area width by stream type based on the following criteria:

Stream Type	Width Of The Riparian Conservation Area
Perennial Streams	328 feet (100 meters) on each side of the stream, measured from the bank full edge of the stream
Seasonally Flowing/Intermittent Streams	98 feet (30 meters) on each side of the stream, measured from the bank full edge of the stream
Streams In Inner Gorge (*)	Top of inner gorge
Special aquatic features (**) or perennial streams with riparian conditions extending more than 164 feet (50 meters) from edge of streambank, or seasonally flowing/intermittent streams with riparian conditions extending more than 33 feet (10 meters) from edge of streambank	328 feet (100 meters) from edge of feature or riparian vegetation, whichever width is greater
Other hydrological or topographic depressions without a defined channel (meadows, vernal pools)	RCA width and protection measures determined through project level analysis

(\*) Inner gorge is defined by adjacent stream slopes greater than 70 percent gradient

(\*\*) Special Aquatic Features include: lakes, ponds, wetlands, seeps, and springs

**Step 2:**

Use the environmental GIS layer and species accounts to determine additional protective RCA widths specific to individual species or suites of species (e.g., arroyo toad has a topographical contour distance from water, etc.).

**Step 3:**

Screen new projects against the riparian and aquatic desired conditions (Part 1, Strategic Goals - Goal 5.2 - Riparian Condition and Goal 6.2 - Biological Resource Conditions), and recovery plans for federally listed riparian dependent species to determine if the proposal is either neutral or will move the area closer towards the desired conditions. If it does, then proceed to Step 4. If it does not, there is a need to modify the project proposal, deny the proposal or complete a project-driven land management plan amendment.

**Step 4:**

Screen new projects against the forest plan riparian management objectives (Part 2, Appendix B Program Strategies and Tactics, WAT-1 and WAT-2) to ensure that the project incorporates one or more of the listed strategies. As part of the analysis consider physical factors, such as soil characteristics, groundwater and surface water characteristics, geology and geologic hazards, slope, and stream characteristics; and biological factors, such as aquatic and riparian dependent species present, their habitat needs (see species guidance documents in Part 3, Appendix H), and the ability of the existing environment to provide needed habitat.

**Step 5:**

Refer to *Forest Service Handbook (FSH 2509.22) - Forest Supplement* for specific guidance about management tactics to apply when conducting activities within RCAs.

**Note:** Modification of specific RCA widths for individual projects is possible if a need is identified during the interdisciplinary team (IDT) process; an earth scientist or biologist has participated in the proposed change; and it has become part of the proposed action for Line Officer approval. Use a peer review process for vegetation treatments or other activities proposed within an RCA that are likely to significantly affect riparian or aquatic resources.

## **Appendix F - Guidelines for Aerial Application of Retardants and Foams in Aquatic Environments**

### **Definition:**

**WATERWAY** – Any body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life.

### **Guidelines:**

#### **Avoid aerial application of retardant or foam within 300 feet of waterways.**

These guidelines do not require the helicopter or airtanker pilot-in-command to fly in such a way as to endanger his or her aircraft, other aircraft, or structures or compromise ground personnel safety.

Guidance for pilots: To meet the 300-foot buffer zone guideline, implement the following:

**Medium/Heavy Airtankers:** When approaching a waterway visible to the pilot, the pilot shall terminate the application of retardant approximately 300 feet before reaching the waterway. When flying over a waterway, pilots shall wait one second after crossing the far bank or shore of a waterway before applying retardant. Pilots shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant within the 300-foot buffer zone.

**Single Engine Airtankers:** When approaching a waterway visible to the pilot, the pilot shall terminate application of retardant or foam approximately 300 feet before reaching the waterway. When flying over a waterway, the pilot shall not begin application of foam or retardant until 300 feet after crossing the far bank or shore. The pilot shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant within the 300-foot buffer zone.

**Helicopters:** When approaching a waterway visible to the pilot, the pilot shall terminate the application of retardant or foams 300 feet before reaching the waterway. When flying over a waterway, pilots shall wait five seconds after crossing the far bank or shore before applying the retardant or foam. Pilots shall make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant or foam within the 300-foot buffer zone.

### **Exceptions:**

When alternative line construction tactics are not available due to terrain constraints, congested area, life and property concerns or lack of ground personnel, it is acceptable to anchor the foam or retardant application to the waterway. When anchoring a retardant or foam line to a waterway use the most accurate method of delivery in order to minimize placement of retardant or foam in the waterway (e.g., a helicopter rather than a heavy airtanker).

Deviations from these guidelines are acceptable when life or property are threatened and the use of retardant or foam can be reasonably expected to alleviate the threat.

When potential damage to natural resources outweighs possible loss of aquatic life, the unit administrator may approve a deviation from these guidelines.

**Threatened and Endangered (T&E) Species:**

The following provisions are guidance for complying with the Emergency Section 7 Consultation Procedures of the ESA with respect to aquatic species. These provisions do not alter or diminish an action agency's responsibilities under the ESA.

1. Where aquatic threatened and endangered species or their habitats are potentially affected by aerial application of retardant or foam, the following additional procedures apply:
  - As soon as practicable after the aerial application of retardant or foam near waterways determine whether the aerial application has caused any adverse effects to a threatened and endangered species or their habitat. This can be accomplished by the following:
    - Aerial application of retardant or foam outside 300 feet of a waterway is presumed to avoid adverse effects to aquatic species and no further consultation for aquatic species is necessary.
    - Aerial application of retardant or foam within 300 feet of a waterway requires that the unit administrator determine whether there has been any adverse effects to threatened and endangered species within the waterway.

These procedures shall be documented in the initial or subsequent fire reports.

2. If there were no adverse effects to aquatic threatened and endangered species or their habitats, there is no additional requirement to consult on aquatic species with Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS).

3. If the action agency determines that there were adverse effects on threatened and endangered species or their habitats, then the action agency must consult with FWS and NMFS, as required by 50 CFR 402.05 (Emergencies). Procedures for emergency consultation are described in the Interagency Consultation Handbook, Chapter 8 (March, 1998). In the case of a long duration incident, emergency consultation should be initiated as soon as practical during the event. Otherwise, post-event consultation is appropriate. The initiation of the consultation is the responsibility of the unit administrator.

Each agency will be responsible for ensuring that the appropriate guides and training manuals reflect these guidelines.

## **Appendix G- Guidelines for Protection and Conservation of Bird Species at Mountain Top Communications Sites, USDA Forest Service**

The four southern California national forests are comprised of the Angeles, Cleveland, Los Padres and San Bernardino National Forests. A major program administered by these national forests is the issuance and administration of special-use authorizations for communication facilities at designated communication sites. The following guidelines have been developed and adopted by the four southern California national forests as a supplement to Communications Site Plans, for the protection and conservation of bird species covered by the Migratory Bird Treaty Act and/or Endangered Species Act of 1973, as amended.

### **I: Guidelines for Communication Tower Siting, Construction, Operation, Maintenance and Decommissioning**

New towers shall be the same or lesser tower height as existing towers at the site and no more than 199 feet above ground level (AGL), and shall not require guy wires.

Towers shall be unlighted if Federal Aviation Administration (FAA) regulations permit. If towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided.

Any existing tower using guy wires shall have daytime visual markers on the wires to prevent collisions by diurnally moving species. Spacing of markers should be at 10-foot intervals for smaller 'tags' and at 20-foot intervals for larger more linear 'flight diverter' structures.

In order to reduce the number of towers needed in the future, providers shall design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for multiple users.

Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.

Towers, facilities and structures no longer in use or determined to be obsolete should be removed.

Road access to mountain top communication sites must be adequate to support construction, maintenance and demolition of facilities. Communication service providers responsible for construction activities must notify the Forest Service prior to removal of equipment and structures to assess access needs.

### **II: Additional Guidelines for Other Structures Associated with Communication Towers and Sites**

Place anti-perching materials along the top of open horizontal surfaces at tower tops or protruding arms of other tall vertical structures.

Place anti-perching materials or devices along the top edge of flat rooftops or roof ridges of equipment buildings or other similar structures located within the communication site.

Cover all microwave dishes with radome covers and place anti-perching materials or devices along the top quarter-arch of the front edge of dishes capable of supporting a perching condor (approximately 20 pounds per bird).

Place anti-perching materials or devices along the top surface of horizontal coverings or tracks holding wave-guides capable of supporting a condor.

Keep all trash, garbage or excess scrap materials removed from the communication site, or placed in enclosed structures not accessible to condors or other large bird species.

Secure all loose wires or netting to prevent accidental entrapment of large birds. Placement of wires in conduit is also recommended where feasible.

Cover or otherwise protect external fiberglass type insulation or other soft materials which could be ripped apart or ingested by condors or other large birds.

Cover all spill retention or catchment basins or other open structures that may collect and hold water or other liquids, which condors or other birds may attempt to drink.

Cover or screen all large drains, conduits or other similar openings, which are large enough for a condor to walk into to prevent potential entrapment.

All doors and windows on buildings or other structures shall be designed to ensure they remain closed when not occupied by personnel to prevent accidental entry and entrapment of condors or other species.

Cyclone type fencing or other similar security fencing or walls surrounding equipment or other structures should be designed and located to avoid the potential for accidental entrapment of condors or eagles.

Place raptor guards or other anti-perching materials or devices along the upper surface of the horizontal cross arms of electrical power poles at communication facilities, which could serve as perches for larger birds.

Fuel storage tanks associated with generators and other facilities shall meet current fire department, federal, state, and local safety and hazardous materials requirements. Fuel storage shall be consolidated into one tank large enough to accommodate all tenants in a facility.

(For guidance on markers and other anti-perching devices, see *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp*. Copies can be obtained via the Internet at <http://www.eei.org/resources/pubcat/enviro>, or by calling 1-800-334-5453).

## Appendix H - Species Guidance Summary

When planning projects or managing ongoing activities in areas that contain habitat for species of concern (including threatened, endangered, proposed, candidate, and sensitive species and other species identified by biologists as being in danger of population decline or habitat loss) use the information found in various types of species guidance documents to develop project-specific design criteria.

Species guidance documents include (as of December 2004):

1. Recovery plans for threatened and endangered species, prepared by U.S. Fish and Wildlife Service

Animals: Conservancy fairy shrimp, longhorn fairy shrimp, San Diego fairy shrimp, vernal pool fairy shrimp; Quino checkerspot butterfly, Smith's blue butterfly; unarmored three-spine stickleback, Mojave tui chub, tidewater goby; arroyo toad, California red-legged frog; desert tortoise; California brown pelican, California condor, California least tern, least Bell's vireo, marbled murrelet, Pacific bald eagle, southwestern willow flycatcher; giant kangaroo rat, Stephen's kangaroo rat, Peninsular bighorn sheep, San Joaquin kit fox, southern sea otter;

Plants: *Arenaria paludicola*; *Astragalus brauntonii*; *Caulanthus californicus*; *Dudleya cymosa* ssp. *ovatifolia*; *Rorippa gambellii* (now *Nasturtium gambellii*); *Sidalcea pedata*; *Thelypodium stenopetalum*; carbonate endemic plants (*Astragalus albens*; *Erigeron parishii*; *Eriogonum ovalifolium* var. *vineum*; *Lesquerella kingii* ssp. *bernardina* [now *Physaria kingii* ssp. *bernardina*]; *Oxytheca parishii* var. *goodmaniana* [now *Acanthoscyphus parishii* var. *goodmaniana*])

2. Species management guides and strategies, prepared by or for USDA Forest Service

*Acanthomintha ilicifolia* (San Diego thornmint); *Allium munzii* (Munz's onion); *Berberis nevinnii*; *Castilleja gleasonii*; *Claytonia lanceolata* var. *peirsonii*; *Cupressus forbesii*; (Tecate cypress); *Cupressus stephensonii* (Cuyamaca cypress); *Delphinium hesperium* ssp. *cuyamaca*; *Dodecahema leptoceras*; *Downingia concolor* var. *brevior*; *Dudleya densiflora*; *Eriogonum microthecum* var. *johnstonii*; *Galium grande*; *Lillium parryi*; *Macheranthera asteroides* var. *lagunensis* (now *Dieteria asteroides* var. *lagunensis*) (Laguna aster); *Opuntia basilaris* var. *brachyclada*; *Orobanche valida* ssp. *valida*

3. Species conservation strategies, prepared by or for USDA Forest Service

California spotted owl; mountain yellow-legged frog

4. Habitat management guides, plans and strategies, prepared by or for USDA Forest Service

Cleveland National Forest montane meadow (*Delphinium hesperium* ssp. *cuyamaca*, *Lillium parryi*, *Limnanthes gracilis* ssp. *parishii*, *Poa atropurpurea*);

San Bernardino National Forest meadow habitat (*Poa atropurpurea*, *Sidalcea pedata*, *Taraxacum californicum*, *Thelypodium stenopetalum*; *Androsace elongata* ssp. *acuta*, *Arabis hirsuta* var. *glabrata*, *Astragalus lentiginosus* var. *sierrae*, *Botrychium crenulatum*, *Botrychium simplex*, *Boykinia rotundifolia*, *Calochortus palmeri* var. *munzii*, *Calochortus palmeri* var. *palmeri*, *Calochortus striatus*, *Carex occidentalis*, *Castilleja lasiorhyncha*, *Delphinium hesperium* ssp. *cuyamaca*, *Epipactis gigantea*, *Fimbristylis thermalis*, *Gentiana fremontii*, *Gentianella amarella* ssp. *acuta*, *Gentianopsis simplex*, *Helianthus nuttallii* ssp.

*parishii*, *Juncus cooperi*, *Juncus duranii*, *Lewisia brachycalyx*, *Lewisia nevadensis*, *Lilium humboldtii* ssp. *ocellatum*, *Lilium parryi*, *Listera convallarioides*, *Malaxis monophyllos* var. *brachypoda*, *Mimulus exiguus*, *Mimulus purpureus*, *Muhlenbergia californica*, *Navarretia peninsularis*, *Parnassia californica*, *Perideridia parishii* ssp. *parishii*, *Phacelia exilis*, *Phacelia mohavensis*, *Plantanthera leucostachys*, *Platanthera sparsiflora*, *Polemonium occidentale*, *Pyrrocoma uniflora* ssp. *gossypina*, *Packeria bernardina*, *Scutellaria bolanderi* ssp. *austromontana*, *Sphenopholis obtusata*, *Thelypteris puberula* var. *sonorensis*, *Trichostema micranthum*; Andrew's marble [butterfly], San Gabriel Mountains blue);

MOU conservation strategy for coastal sage scrub and interdigitated habitats (coastal California gnatcatcher);

Pebble plain habitat (*Arabis dispar*, *Arabis parishii*, *Arenaria ursina*, *Castilleja lasiorhyncha*, *Castilleja cinerea*, *Castilleja montigena*, *Castilleja plagiota*, *Dudleya abramsii* ssp. *affinis*, *Eriogonum evandium*, *Eriogonum kennedyi* var. *astromontanum*, *Eriogonum kennedyi* var. *kennedyi*, *Ivesia argyrocoma*, *Linanthus killipii*, *Mimulus exiguus*, *Mimulus purpureus*, *Phacelia exilis*, *Phacelia mohavensis*, *Pyrrocoma uniflora* ssp. *gossypina*; Coxey Meadow [vernal] blue [butterfly], Baldwin Lake blue, Arrastre Creek blue, Ehrlich's checkerspot, whitish metalmark);

Southern rubber boa habitat (San Bernardino National Forest);

Carbonate Habitat Management Strategy (San Bernardino National Forest, Bureau of Land Management for *Astragalus albens*, *Erigeron parishii*, *Eriogonum ovalifolium* var. *vineum*, *Oxytheca parishii* var. *goodmaniana* [now *Acanthoscyphus parishii* var. *goodmaniana*]).

#### 5. Species accounts prepared for this planning effort or subsequent to it (USDA Forest Service)

##### Species account – invertebrates:

Any listed above, plus: August checkerspot, bright blue copper, Clemence's silverspot, Dammer's blue, Duodoroff's elfin, Harbison's dun skipper, Hermes copper, Laguna Mountains skipper, Pratt's blue, San Emigdio blue, San Gabriel Mountains elfin, San Gabriel Mountains greenish-blue, Thorne's hairstreak; San Bernardino Mountains silk moth; bicolor rain beetle, Dorhn's elegant eucnemid beetle, greenest tiger beetle; desert monkey grasshopper; California diplectronan caddisfly

##### Species account – fish:

Any listed above, plus: arroyo chub, Pacific lamprey, partially-armored three-spine stickleback, Santa Ana speckled dace, Santa Ana sucker, Shay Creek stickleback, southern steelhead

##### Species account – amphibians:

Any listed above, plus: arboreal salamander, California tiger salamander, Coast Range newt, large-blotched ensatina salamander, Monterey ensatina salamander, Pacific giant salamander, San Gabriel Mountains slender salamander, Tehachapi slender salamander, yellow-blotched ensatina salamander; foothill yellow-legged frog; western spadefoot toad

##### Species account – reptiles:

Any listed above, plus: Belding's orange-throated whiptail, California legless lizard, coast horned lizard, Coronado skink, northern sagebrush lizard, southern sagebrush lizard, small-



scaled lizard; coast patch-nosed snake, coastal rosy boa, coast mountain kingsnake, San Bernardino mountain kingsnake, San Diego mountain kingsnake, mountain garter snake, south coast red-sided garter snake, two-striped garter snake, red-diamond rattlesnake, San Bernardino ringneck snake, San Diego ringneck snake; southern Pacific pond turtle

Species account – birds:

Any listed above, plus: mountain plover, western snowy plover; American peregrine falcon, prairie falcon; Cooper's hawk, northern goshawk, sharp-shinned hawk, Swainson's hawk, zone-tailed hawk; turkey vulture; osprey, golden eagle; burrowing owl, flammulated owl, long-eared owl, northern pygmy owl, northern saw-whet owl, western screech owl; mountain quail, Mount Pinos blue grouse; common nighthawk; white-headed woodpecker, Williamson's sapsucker; calliope hummingbird; black swift, purple martin, tree swallow, Vaux's swift; yellow-breasted chat, yellow-billed cuckoo, American dipper, gray flycatcher, Lawrence's goldfinch, pinyon jay, yellow-billed magpie, American (water) pipit, loggerhead shrike, Bell's sage sparrow, Lincoln's sparrow, rufous-crowned sparrow, summer tanager, hepatic tanager, Bendire's thrasher, Le Conte's thrasher, hermit thrush, Swainson's thrush, gray vireo, Cassin's solitary vireo, plumbeus solitary vireo, warbling vireo, Macgillivray's warbler, Nashville warbler, Virginia's warbler, Wilson's warbler, yellow warbler, coastal cactus wren, common yellowthroat

Species account – mammals:

Any listed above, plus: California leaf-nosed bat, pallid bat, spotted bat, Townsend's big-eared bat, western mastiff bat, western red bat, fringed myotis, long-eared myotis, long-legged myotis, western small-footed myotis, Yuma myotis; Los Angeles pocket mouse, San Diego pocket mouse, San Bernardino white-eared pocket mouse, Tehachapi pocket mouse, Monterey dusky-footed woodrat, San Diego desert woodrat, San Bernardino kangaroo rat; California chipmunk, lodgepole chipmunk, Mt Pinos lodgepole chipmunk, Coachella Valley round-tailed ground squirrel, golden-mantled ground squirrel, Mohave ground squirrel, San Joaquin antelope squirrel, San Bernardino flying squirrel; San Bernardino dusky shrew; San Diego black-tailed jackrabbit; western spotted skunk, American badger; porcupine, ringtail; mountain lion; Nelson's bighorn sheep; Stellar's sea lion

Species account – plants:

Most listed above, plus: *Abies bracteata*, *Abronia nana* ssp. *covillei*, *Abronia villosa* var. *aurita*, *Agrostis hooveri*, *Allium hickmanii*, *Allium howellii* var. *clokeyi*, *Allium marvinii*, *Allium parishii*, *Antennaria marginata*, *Arabis breweri* var. *pecuniaria*, *Arabis johnstonii*, *Arabis shockleyi*, *Arctostaphylos cruzensis*, *Arctostaphylos edmundsii*, *Arctostaphylos hooveri*, *Arctostaphylos luciana*, *Arctostaphylos obispoensis*, *Arctostaphylos otayensis*, *Arctostaphylos peninsularis* ssp. *peninsularis*, *Arctostaphylos pilosula*, *Arctostaphylos rainbowensis*, *Arctostaphylos refugioensis*, *Arenaria languginosa* ssp. *saxosa*, *Arenaria macradenia* var. *kuschei*, *Artemisia palmeri*, *Aster greatae*, *Astragalus albens*, *Astragalus bicristatus*, *Astragalus deanei*, *Astragalus douglasii* var. *perstrictus*, *Astragalus lentiginosus* var. *antoniuss*, *Astragalus lentiginosus* var. *coachellae*, *Astragalus leucolobus*, *Astragalus oocarpus*, *Astragalus pachypus* var. *jaegeri*, *Astragalus tricarinatus*, *Atriplex parishii*, *Baccharis plummerae* ssp. *glabrata*, *Baccharis vanessae*, *Bloomeria humilis*, *Brodiaea filifolia*, *Brodiaea orcuttii*, *Calochortus clavatus* var. *gracilis*, *Calochortus dunnii*, *Calochortus obispoensis*, *Calochortus plummerae*, *Calochortus simulans*, *Calochortus*

*weedii* var. *intermedius*, *Calochortus weedii* var. *vestus*, *Calycadenia villosa*, *Calyptridium pygmaeum*, *Calystegia peirsonii*, *Calystegia subacaulis* ssp. *episcipalis*, *Camissonia hardhamiae*, *Canbya candida*, *Carex obispoensis*, *Carlquistia* [Raillardiopsis] *muirri*, *Caulanthus amplexicaulis* var. *barbarae*, *Caulanthus coulteri* var. *lemmonii*, *Caulanthus simulans*, *Ceanothus cyaneus*, *Ceanothus ophiochilus*, *Centromadia* [Hemizonia] *pungens* ssp. *laevis*, *Chaenactis parishii*, *Chlorogalum pomeridianum* var. *minus*, *Chlorogalum purpureum* var. *reductum*, *Chorizanthe blakleyi*, *Chorizanthe breweri*, *Chorizanthe parryi* var. *parryi*, *Chorizanthe polygonoides* var. *longispina*, *Chorizanthe procumbens*, *Chorizanthe rectispina*, *Chorizanthe xanti* var. *leucotheca*, *Cirsium loncholepis*, *Clarkia delicata*, *Clarkia jolonensis*, *Cordylanthus eremicus* ssp. *eremicus*, *Cupressus sargentii*, *Deinadra* [Hemizonia] *floribunda*, *Deinadra* [Hemizonia] *mohavensis*, *Delphinium hutchinsonae*, *Delphinium inopinum*, *Delphinium parryi* ssp. *purpureum*, *Delphinium umbraculorum*, *Draba corrugata* var. *saxosa*, *Dudleya cymosa* ssp. *crebrifolia*, *Dudleya multicaulis*, *Dudleya viscida*, *Eriastrum densifolium* ssp. *sanctorum*, *Eriastrum hooveri*, *Eriastrum luteum*, *Ericameria cuneata* var. *macrocephala*, *Ericameria palmeri* var. *palmeri*, *Erigeron breweri* var. *jacinteus*, *Erigeron uncialis* var. *uncialis*, *Eriogonum butterworthianum*, *Eriogonum kennedyi* var. *alpigenum*, *Eriogonum microthecum* var. *corymbosoides*, *Eriogonum umbellatum* var. *minus*, *Eriophyllum lanatum* var. *hallii*, *Eriophyllum lanatum* var. *obovatum*, *Fritillaria falcata*, *Fritillaria liliacea*, *Fritillaria ojaiensis*, *Fritillaria viridea*, *Galium angustifolium* ssp. *gabrielense*, *Galium angustifolium* ssp. *jacinticum*, *Galium californicum* ssp. *primum*, *Galium californicum* ssp. *lucianense*, *Galium clementis*, *Galium hardhamiae*, *Galium jepsonii*, *Galium johnstonii*, *Geraea viscida*, *Gilia leptantha* ssp. *leptantha*, *Githopsis diffusa* ssp. *filicaulis*, *Grindelia hirsutula* var. *hallii*, *Heuchera abramsii*, *Heuchera brevistaminea*, *Heuchera elegans*, *Heuchera hirsutissima*, *Heuchera parishii*, *Holocarpha virgata elongata*, *Horkelia cuneata* ssp. *puberula*, *Horkelia cuneata* ssp. *sericea*, *Horkelia truncata*, *Horkelia wilderae*, *Horkelia yadonii*, *Hulsea californica*, *Hulsea vestita* ssp. *callicarpha*, *Hulsea vestita* ssp. *gabrielensis*, *Hulsea vestita* ssp. *parryi*, *Hulsea vestita* ssp. *pygmaea*, *Ivesia callida*, *Juglans californica*, *Layia heterotricha*, *Layia jonesii*, *Layia ziegleri*, *Lepechinia cardiophylla*, *Lepechinia fragrans*, *Lepechinia ganderi*, *Lepidium flavum* var. *felipense*, *Lepidium virginicum* var. *robinsonii*, *Leptodactylon jaegeri*, *Lessingia glandulifera* var. *tomentosa*, *Limnanthes gracilis* ssp. *parishii*, *Linanthus concinnus*, *Linanthus floribundus* ssp. *hallii*, *Linanthus orcuttii*, *Lonicera subspicata* var. *subspicata*, *Lupinus excubitus* var. *johnstonii*, *Lupinus ludovicianus*, *Machaeranthera canescens* var. *ziegleri*, *Malacothamnus aboriginum*, *Malacothamnus davidsonii*, *Malacothamnus palmeri* var. *involucratus*, *Malacothamnus palmeri* var. *lucianus*, *Malacothamnus palmeri* var. *palmeri*, *Malacothrix saxatilis* var. *arachnoidea*, *Marina orcuttii* var. *orcuttii*, *Matelea parvifolia*, *Microseris douglasii* var. *platycharpha*, *Mimulus clevelandii*, *Mimulus diffusus*, *Monardella cinerea*, *Monardella hypoleuca* ssp. *lanata*, *Monardella linoides* ssp. *oblonga*, *Monardella macrantha* ssp. *hallii*, *Monardella nana* ssp. *leptosiphon*, *Monardella palmeri*, *Monardella viridis* ssp. *saxicola*, *Muilla coronata*, *Nolina cismontana*, *Nolina interrata*, *Oreonana vestita*, *Oxytheca caryphylloides*, *Oxytheca emarginata*, *Oxytheca parishii* var. *abramsii*, *Oxytheca parishii* var. *cienezensis*, *Oxytropis oreophila* var. *oreophila*, *Packera ganderi*, *Packera ionophylla*, *Parnassia cirrata*, *Pedicularis dudleyi*, *Penstemon californicus*, *Pentachaeta exilis* ssp. *aeolica*, *Perideridia gairdneri* ssp. *gairdneri*, *Phacelia suaveolens* ssp. *keckii*, *Phlox dolichantha*, *Pinus attenuata*, *Piperia leptopetala*, *Plagiobothrys uncinatus*, *Podistera nevadensis*, *Polygala cornuta* var. *fishiae*, *Populus*

*tremuloides*, *Potentilla rimicola*, *Quercus dumosa*, *Quercus engelmannii*, *Quercus lobata*, *Ribes canthariforme*, *Romneya coulteri*, *Rupertia rigida*, *Sanicula maritima*, *Satureja chandleri*, *Sedum niveum*, *Sibaropsis hammittii*, *Sidalcea hickmanii* ssp. *anomala*, *Sidalcea hickmanii* ssp. *hickmanii*, *Sidalcea hickmanii* ssp. *parishii*, *Streptanthus albidus* ssp. *peramoenus*, *Streptanthus bernardinus*, *Streptanthus campestris*, *Stylocline masonii*, *Swertia neglecta*, *Syntrichopappus lemmonii*, *Tetracoccus dioicus*, *Thermopsis californica* var. *semota*, *Thermopsis macrophylla*, *Triteleia ixioides* ssp. *cookii*, *Tropidocarpum capparideum*, *Viola aurea*, *Viola pinetorum* ssp. *grisea*.

These guidance documents are not static but are subject to change as new information becomes available and circumstances are altered. The most current version of these recovery plans, species management guides and strategies, habitat management guides and strategies, and species accounts shall take precedence over pre-existing documents.



## Appendix I - Land Adjustment Prioritization Guide

### Land Acquisitions

Land acquisitions will be guided by the following criteria:

#### Priority 1 Acquisitions:

- Land and associated riparian ecosystems on water frontage such as lakes, streams, and vernal pools.
- Land including water rights or land with riparian water right attributes needed to protect water or wildlife habitat.
- Critical habitat lands needed for the protection of federally listed endangered or threatened fish, wildlife, or plant species.
- Land needed for the protection of significant historical or cultural resources, when these resources are currently threatened, but may be better protected by public ownership.
- Land that enhances recreation opportunities, public access, and protection of aesthetic values.
- Land needed for protection and management of administrative and Congressionally designated areas.
- Land needed to enhance or protect watersheds and groundwater resources that affect the management of National Forest System lands.
- Environmentally sensitive land such as wetlands and old growth.
- Buffer land needed for protection of lands acquired for specific purposes listed above.

#### Priority 2 Acquisitions:

- Key tracts of an ecosystem that are not urgently needed, but will promote more effective management of the ecosystem and will meet specific needs for vegetative management, valuable watershed management, research, public recreation or other defined management objectives.
- Land or interest in land that protect Pacific Crest National Scenic Trail values and provide an unbroken public right-of-way for the trail, consistent with the current policy statement for acquisition.
- Land needed to protect resource values by eliminating or reducing fire risks and soil erosion.
- Land needed to reduce administration and utilization expenses to the Forest Service and the public. Consolidation of split estates.

#### Priority 3 Acquisitions:

- All other land desirable for inclusion in the National Forest System.

## **Land Conveyances**

Federal land conveyances by exchange or other specific authority will be guided by the following criteria:

- Land inside or adjacent to communities or intensively developed private land and chiefly valuable for non-National Forest System purposes.
- Parcels that will serve a greater public need in state, county, city, or other federal agency ownership.
- Inaccessible parcels isolated from other National Forest System land.
- Parcels within major blocks of private land, the use of which is substantially for non-National Forest System purposes.
- Parcels having boundaries, or portions of boundaries, with inefficient configurations (projecting necks or long, narrow strips of land, etc.).

## **Access**

Access should be acquired, or exchanged with other agencies, states, counties, and private interests to assure management objectives are met for all ownerships.

## Appendix J - Livestock Capability and Suitability Guidelines

The determination of rangeland suitability is an interdisciplinary two-step process.

**Step 1:** The first step is the determination of those lands that are capable or have the potential of being grazed. Rangeland capability represents the biophysical determination of those areas of land that can sustain domestic livestock grazing. Capability depends on current and potential resource and site conditions. A unit of National Forest System land is generally capable where:

1. Slopes < 60 percent;
2. Ability to produce greater than 200-700 lbs/acre of residual dry matter based on site potential;
3. Accessible to livestock; and
4. Areas where livestock can be controlled or sustained within a designated area and management system.

On the four southern California national forests, capable rangeland requires approximately 1-11 acres, depending on vegetation type and physical factors such as slope and aspect, to produce 1 Animal Unit Month (AUM). One cow on range for a month represents 1 AUM, and a cow/calf represents approximately 1.32 AUM. Based on historical and current use, 1 AUM requires approximately 4 acres of capable land.

Livestock grazing is predominantly distributed among seven capable vegetation categories for the four southern California national forests. Using existing vegetation layers from the plan revision GIS database, the Calveg vegetation types for all designated grazing areas were grouped into seven broad vegetation categories based on estimated potential capability and forage production similarities: herbaceous; hardwoods; conifer; chaparral/coastal sage scrub; riparian; desert; and non-capable. The primary palatable forage for livestock is annual herbaceous vegetation, with a smaller amount of browse on woody species.

**Step 2:** The second step identifies which of those capable lands are suitable for grazing under various management scenarios or land use zones. Assessment of suitability is conducted by an interdisciplinary team to address whether livestock grazing is compatible with other land uses; ecological, social, and economic considerations; and the ability to meet or move towards forest plan desired conditions. Determine the suitability of capable lands by considering the following guidelines:

1. Capable lands are not suitable in:
  - a) Critical Biological Land Use Zones;
  - b) Specially designated National Forest System lands excluded from grazing by legislation. In wilderness areas, where livestock grazing was not established at the time of designation and where there is no recent history of grazing use prior to wilderness designation (Section 4(d)4(2) of the 1964 Wilderness Act);
  - c) Critical Habitat for coastal California gnatcatcher;
  - d) Peninsular bighorn sheep range; and
  - e) San Dimas Experimental Forest.
2. Capable lands may not be suitable in some areas depending on the overall evaluation of potential significant adverse effects and where efforts to mitigate adverse effects have been

determined to be ineffective over the long-term based on site-specific information or analysis. Areas to be evaluated include but are not limited to:

- a) Bighorn sheep habitat (see Standard 26).
- b) Areas with significant social conflicts, developed recreation sites, special-use sites, heritage resource sites, Native American sites and traditional practices, mining, and other authorized uses.
- c) Areas where livestock grazing is in conflict with the objectives for administrative sites and research facilities or study sites, except in areas where livestock grazing is for research purposes.
- d) Areas where livestock grazing is impractical due to economic considerations, such as high agency administrative costs and where cooperative and collaborative contributions are absent. Livestock grazing may be impractical to support a small number of head or the inability to control or sustain livestock without a significant Forest Service investment to meet resource objectives and desired conditions.
- e) Areas of important wildlife habitat where suitable habitat cannot be sustained or move towards desired conditions (e.g., threatened, endangered, proposed, candidate, and sensitive species).
- f) Areas where ground cover (i.e., living vegetation, plant litter, and surface rock fragments greater than 3/4 inch) is insufficient to protect soil from erosion. The minimum percentage of effective soil cover is 60 percent unless local data are available for use in setting more specific ground cover requirements.
- g) Areas where a noxious weed risk analysis has determined that livestock use is a key limiting factor in meeting or moving towards vegetation management objectives. Exceptions could be where livestock are used as a tool for noxious and invasive weed control.
- h) Areas with unique habitats where suitable habitat cannot be maintained over the long term or move towards desired conditions (e.g., bogs, fens, vernal pools, and rare plant communities).
- i) Areas where livestock grazing would be the key limiting factor in reaching or moving towards forest plan desired conditions.
- j) Areas where existing condition or restoration needs require an extended (more than five years) rest from livestock grazing (e.g., watershed improvement projects). Exceptions could be where livestock grazing is needed to achieve desired vegetation management objectives (e.g., fuelbreak or WUI Defense or Threat Zones maintenance).
- k) Areas where livestock grazing would be a key and significant contribution to landslide and/or soil erosion, stream incisement, or other unacceptable alteration of surface and subsurface conditions.



## Appendix K - Guidelines for Development and Maintenance of WUI Defense and Threat Zones

There are extensive areas within and adjacent to the national forests of southern California meeting the definition of Wildland/Urban Interface (WUI) as described in the Healthy Forests Restoration Act of 2003. WUI (as defined by the Act) is a variable width up to 1.5 miles from communities at risk or as defined in individual community fire protection plans. This forest plan further identifies a direct protection zone (WUI Defense Zone) and an indirect protection zone (WUI Threat Zone) that fall within the broader definition of WUI. A WUI Defense Zone is the area directly adjoining structures and evacuation routes that is converted to a less-flammable state to increase defensible space and firefighter safety. The WUI Threat Zone is an additional strip of vegetation modified to reduce flame heights and radiant heat. The Threat Zone generally extends approximately 1 1/4 miles out from the Defense Zone boundary. Yet, actual extents of Threat Zones are based on fire history, local fuel conditions, weather, topography, existing and proposed fuel treatments, and natural barriers to fire and community protection plans, and therefore could extend well beyond the 1 1/4 mile. The two zones together are designed to make most structures more defensible. Following are the minimum widths for the WUI defense zone by general vegetation type.

This appendix addresses those activities directly related to the protection of structures located on National Forest System lands. These guidelines may also be useful to line officers in boundary projects with interagency partners and private landowners. National Forest System lands may be utilized as part of protecting existing communities. New developments planned on private lands adjacent to National Forest System lands must meet community protection needs without the use of National Forest System lands.

### WUI Defense Zone

This is a strip of land where planned suppression activities involve both containment of the fire perimeter and protection of structures. The intensity of the vegetation management activities varies by vegetation type and topography. Vegetation is divided into three groups for purposes of providing guidelines: grass, chaparral, and forests. Flame lengths expected from wildland fires burning in these various vegetation types are the basis for the minimum and maximum widths of planned defense zones.

**Grass:** A width of 50 to 100 feet from the edge of structures will be sufficient in some conditions to provide community safety objectives in grass types; however on steep slopes, an expanded width of defense zone may be necessary. This condition may require defense zone widths of more than 100 feet. Defense Zone management activities take precedence over all other management activities within the Defense Zone and Standard 8 would apply. Some conditions may allow for less than the 50-foot width.

The first 50 feet should be maintained in a manner that prevents fire impingement to the structure. This non-flammability can be achieved through a variety of methods, such as irrigated landscaping, complete removal of vegetation through hand or mechanical clearing, or the use of herbicides to prevent the establishment of grass near structures. The second 50 feet should exhibit low or no flammability upon completion. Irrigated landscaping is one approach to achieving this as is cutting the grass to just a few inches in height to promote low flame heights.

**Chaparral:** Chaparral fires routinely produce flame lengths over twice the height of grass. Since this is the location where the firefighters will actually conduct fire suppression operations, prevention of flame impingement on the firefighters and the structure are imperative. The same examples of achieving less-flammability as given for grass are applicable here.

Generally, a width of 100-300 feet will be sufficient in some conditions to provide community safety objectives in chaparral types, however on steep slopes or areas of significant mortality, a greatly expanded width of defense zones may be necessary. These conditions may require defense zone widths over 300 feet. Defense Zone management activities take precedence over all other management activities within the Defense Zone and Standard 8 would apply. Some conditions may allow for less than the 100-foot width.

Isolated plants can be left intact within this zone as long they are maintained in such a way as to not ignite during a wildland fire. In that portion of the defense zone greater than 100 feet from structures, chaparral vegetation should be reduced to 18 inches in height to promote low flame lengths and to minimize the potential for soil erosion.

**Forest:** Under severe burning conditions, flame lengths in forested areas can reach several hundred feet in height. The amount of radiant heat produced by these fires results in the need for much larger defense zones.

A width of 300 feet will be sufficient in some conditions to provide community safety objectives in forested areas; however on steep slopes or in areas of significant tree mortality, a greatly expanded width of defense zones will be necessary. These conditions will require defense zone widths between 300 to 1,500 feet in most cases, although a larger defense zone could be necessary in an extreme situation. Defense Zone management activities take precedence over all other management activities within the Defense Zone and Standard 8 would apply. Some conditions may allow for less than the 300-foot width.

Activities associated with development of the defense zone include: tree thinning and pruning, mechanical or hand removal of brush, and the use of prescribed fire. The forest may need to be thinned within this zone to meet the standard of no more than 40 percent crown closure in the defense zone. This allows for a substantial number of trees to exist within the defense zone, but thinned and pruned in a manner that would minimize the potential for future fires that spread through the crowns to the location of the structure. Surface fuel management would be needed annually regarding the 50-100 foot strip of land directly adjacent to structures. The remainder of the defense zone greater than 100 feet from structures would need to be maintained every three to five years to maintain low flammability within this portion of the Defense Zone.

### **WUI Threat Zone**

Activities within the Threat zone are less intensive than those implemented in the Defense Zone. There is no need to maintain any area in a less-flammable state within the Threat Zone. The object is to complete enough tree thinning and surface fuel management over time to reduce the potential for stand replacing fires in the Threat Zone. Emphasis will usually be the reduction of ladder fuels and periodic reduction of surface fuels.

In vegetation types such as grass and chaparral, there may be no need to conduct extensive treatments in the Threat Zone. In forested areas there may be significant treatment needs within the Threat Zone. In these areas, site-specific prescriptions will be jointly developed by vegetation and fire management staff and biologists to describe crown closure and forest

structure objectives. Depending on the site, thinning to achieve as low as 30 percent crown closure may occur; however, crown closure may be retained at 60 percent or higher to meet wildlife habitat objectives in some locations, such as highly productive sites, drainages and north facing slopes.

### **Maintenance**

There will generally be some annual maintenance needs in the Defense Zone. Specifically, that portion of the Defense Zone that must be maintained in a less-flammable state, hand or machine projects or the use of herbicides may be utilized to perform this maintenance work. This pertains to the first 50 feet of grasslands adjacent to structures, or the first 100 feet of chaparral or forest adjacent to structures.

### **State Fire Law, County Ordinances, and the Insurance Industry**

The State of California requires clearance around structures as a non-flammable zone for structure protection. Historically, the Forest Service has applied State Fire Law to structures located on National Forest System lands. This represents the minimum defense zone width for any structure located on National Forest System lands.

There are various ordinances in southern California that are applicable to private lands and supercede State Fire Law. Where special ordinances have been applied, State Fire Law has been superceded. Where existing developments cannot meet modern day ordinances, the Forest Service will consider use of National Forest System lands for the ordinance to be met. For new developments, the Forest Service will not allow the use of National Forest System for developers/homeowners to meet the ordinance. Developers must implement appropriate setbacks.

There have been numerous cases of insurance companies notifying homeowners that they need up to 500 feet of brush clearance to remain insured. Insurance company edicts are not a legal basis for the use of National Forest System lands.

There is no correlation between Defense Zone guidelines, State Fire Law, and county ordinances. The guidelines for National Forest System lands were developed by a panel of fire management personnel including two fully qualified Fire Behavior Analysts under the principle of best science as the basis for management of National Forest System lands.



## Appendix L - Glossary

**Abiotic:** Not involving or produced by organisms.

**Acre-foot (Ac-ft):** The amount of water covering an area of one acre to a depth of one foot.

**Adaptive management:** A process for implementing management decisions that requires monitoring of management actions and adjustment of decisions based on past and present knowledge. Adaptive management applies scientific principles and methods to improve management decisions incrementally as experience is gained in response to new scientific findings and societal changes.

**Adverse Effects (Heritage Resources):** Any effect on a heritage resource that would be considered harmful to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

**Aerosol:** Can be either wet or dry small particles in the atmosphere, also known as “particulate matter.”

**Aesthetics:** The study of science, or philosophy dealing with beauty in nature with judgments concerning beauty. In scenery management, it describes landscapes that give visual and sensory pleasure.

**Aggradation:** A raise of elevation in a streambed, caused by sediment supply in excess of sediment-transport capacity.

**Aggregate:** Crushed rock material, used for road surfacing.

**Air Pollution Control District (APCD):** Is a regional government bureau responsible for attainment and management of air quality standards through permitting and regulating emission source.

**Air Quality Attainment Plan (AQAP):** Equivalent to Air Quality Management Plan, which outlines rules and regulations for improving the quality of air on the region to reach an attainment status (in attainment of standards).

**Air Quality Management Plan (AQMP):** Outlines rules and regulations for improving the quality of air on the region to reach standards.

**Air Quality Standard:** The specified average concentration of an air pollutant in ambient air during a specified period at or above which level the public health may be at risk, equivalent to Ambient Air Quality Standard.

**Airtanker:** A fixed wing aircraft that delivers fire retardant along the fire edge.

**Algae:** A collective term for several taxonomic groups of primitive chlorophyll-bearing plants, which are widely distributed in fresh, salt water and moist lands. This term includes the seaweeds, kelps, diatoms, pond scum and stoneworts.

**Alternative, Preferred Alternative, Selected Alternative:** One option for meeting the purpose and need for a proposed action (e.g., forest plan revision). Alternatives are described and analyzed in the Environmental Impact Statement (EIS).

The **Preferred Alternative** is the alternative recommended for implementation at the draft forest plan phase based on the evaluation completed in the planning process; it is not a decision. The

**Selected Alternative** is the alternative chosen by the Regional Forester for implementation in the forest plan based on the evaluation completed in the planning process. This decision is documented in the **Record of Decision (ROD)**.

**Ambient Air:** Any unconfined portion of the atmosphere; the outside air.

**Ambient Air Quality Standard (AAQS):** Federal and state measure of the level of air contamination that is not to be exceeded in order to protect human health.

**Ambient Noise Level (ANL):** Noise from all sources near and far. ANL constitutes the normal or existing level of environmental noise at a given location.

**Animal Unit Month (AUM):** Equals the tenure of one animal unit (considered to be a cow and calf, based on the average daily forage consumption of 26 pounds of dry matter per day) on range for a period of one month.

**Appropriate Management Response (AMR):** Any specific action suitable to meet Fire Management Unit (FMU) objectives. Typically, the AMR ranges across a spectrum of tactical options (from monitoring to intensive management actions). The AMR is developed by the FMU strategies and objectives identified in the Fire Management Plan.

**Aquatic Habitat:** Water within a lake, river, stream or other body of water that supports plant and animal life.

**Aquifer:** Water-bearing rock formation or other subsurface layer. A body of rock that contains sufficient saturated permeable material to conduct groundwater and to yield significant quantities of water to wells and springs.

**Arroyo:** A stream channel or gully in arid country, usually with steep banks and dry much of the time.

**Attribute:** An inherent landscape characteristic, trait or quality.

**Average:** As a measure, the sum of the measurements (over a specified period) divided by the number of measurements.

**Backfire:** A fire set along the inner edge of a fireline to consume the fuel in the path of a wildland fire and/or change the direction of force of the fire's convection column.

**Background:** The distant part of the landscape area located from 4 miles to infinity from the viewer.

**Badlands topography:** Arid landscapes characterized by intricate, sharp erosion sculptures of highly erosive soft sedimentary rocks with a very fine drainage network and little to no vegetative cover.

**Barranca:** A ravine caused by rain, or a watercourse.

**Basal area:** The cross sectional area of a tree measured at breast height (4.5 feet or 1.37 meters above the ground) by use of a wedge prism or calculated from the diameter expressed in either square feet per acre or square meters per hectare. A way of measuring how much a site is occupied by trees.

**Basal area increment (BAI):** Increase in tree basal area during a specified period usually over one year or 10 years. BAI may be calculated on per tree, per acre, or hectare basis.

**Baseline:** A set of existing conditions against which change is to be described and measured.

**Bedrock:** The solid rock that underlies loose material, such as soil, sand, clay, or gravel.

**Berm:** Native or aggregate material built up adjacent to a traveled roadway. Reasons for installation vary and can include surface water control, hazard mitigation (in lieu of guardrail) or temporary stockpiling of slide debris.

**Best Available Control Technology (BACT):** An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to refutation under the Clean Air Act, which would be emitted from any proposed major, new, or modified stationary source.

**Best Environmental Design Practices:** Environmentally sustainable landscape design solutions that improve ecosystem health and the quality of the outdoor recreation experience. These solutions provide project-level guidance for the implementation of the Chavez-Wambaugh Protocol.

**Best Management Practice (BMP):** A practice, or a combination of practices, that is determined by the State of California after problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

**Biogeochemical cycles:** Nutrient and carbon flows and pools between biotic (living, biological) and abiotic (non-living, physical and chemical) elements in an ecosystem.

**Biological diversity (biodiversity):** The variety and abundance of life and its processes, including all living organisms, the genetic differences among them, and the communities and ecosystems in which they occur. Biological diversity also refers to the composition, structure, and function of species and habitats and their interactions.

**Biomass:** The amount and type of organic matter that is contained within a given area; the total weight of all living organisms in a biological community.

**Biota:** Living organisms; all the plant and animal life of a particular region.

**Bitumens:** Any of various mixtures of hydrocarbons (as tar) often together with their nonmetallic derivatives that occur naturally or are obtained as residues after heat-refining natural substances (as petroleum); specifically: such a mixture soluble in carbon disulfide.

**Blading:** A type of road surfacing activity to improve drivability.

**Brackish:** Pertaining to water; generally estuarine in which salinity ranges from 0.5 to 17 parts per thousand by weight.

**Bridge:** A road or trail structure including supports erected over a depression or an obstruction, such as water, a road, a trail, or railway and having a deck for carrying traffic or other loads.

**Brushing:** The act of removing brush along side of the roadway to improve visibility.

**Burning index:** An estimate of the potential difficulty of fire containment as it relates to the flame length at the most rapidly spreading portion of a fire's perimeter.

**Cambial tissues:** Active growth tissues of vascular plants.

**Candidate Species:** A plant and animal species that, in the opinion of the U.S. Fish and Wildlife Service, may become endangered or threatened. These are documented in a current Federal Register Notice of Review for threatened or endangered listing.

**Canopy:** The part of any stand of plants represented by the crowns or upper layers.

**Capital Investment Program (CIP):** Forest Service infrastructure construction and reconstruction funding program.

**Carbon Monoxide (CO):** A colorless, odorless, toxic gas produced by incomplete combustion of carbon in fossil fuels.

**Catastrophic wildland fire:** An especially intense and widespread fire that usually but not always occurs in forests outside the historical range of variability in terms of forest structure and forest fuels due to fire suppression.

**Cenozoic:** The youngest geologic era, ranging from present to 66 million years ago.

**Channel Lining:** Artificial hardening of the sides and/or bed of a stream channel to prevent erosion. Concrete, soil cement and rock riprap are typical channel linings.

**Chaparral:** Dense vegetation consisting mainly of thick-leaved, evergreen shrubs and small trees characteristic of middle elevations in California and the southwestern United States.

**Characteristic:** Qualities that constitute a character or that characterizes a landscape, a distinguishing trait, feature, quality, uniqueness or attribute.

**Chip seal:** Thin layer of hard surface material that includes an emulsified material that adheres the material's particles to each other and the road surface it is placed on.

**Coarse filter management:** Land management that addresses the needs of all associated species, communities, environments and ecological processes in a land area (contrast to fine-filter management).

**Coarse woody debris:** Woody biomass that consists of snags (standing dead trees), logs and larger diameter branches (2.5 cm) on the forest floor.

**Coastal Block:** Geologic term describing area adjacent to the coast, which may be faulted or fractured.

**Coastal Zone:** That land and water area of the state of California extending seaward including all offshore islands and extending inland 1,000 yards from the mean high tide line of the ocean.

**Code of Federal Regulations (CFR):** The codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government. The Code is divided into 50 titles that represent broad areas subject to regulation.

**Cogeneration:** Production of electricity using waste heat (as in steam) from an industrial process or the use of steam from electric power generation as a source of heat.

**Commensurate:** Equal in measure or extent

**Community Noise Equivalent Level (CNEL):** Averaging of noise levels on a measurement scale of decibels that increases the actual noise measurement, to account for an increased sensitivity to noise during late evening, nighttime and morning hours (the increments are 5 dB from 7 to 10 pm and 10 dB from 10 pm to 7 am).



**Community Protection Area:** Open and collaboratively developed plan by local and state government representatives, in consultation with federal agencies and other interested parties. Includes hazardous fuel reduction and treatment of structural ignitability.

**Concern Level:** The classification of travel routes or use areas based on the public's concern over the alterations in the landscape from those viewpoints. There are three Concern Levels representing degrees of scenery importance: (1) High, (2) Moderate and (3) Low.

**Concessionaire:** A special-use permit holder who provides goods and services primarily at Forest Service developed recreation sites (excluding ski areas).

**Condition Class 1:** Fire regimes are within a historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within the historical range.

**Condition Class 2:** Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.

**Condition Class 3:** Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.

**Confine a Fire:** The least aggressive wildland fire suppression strategy, typically allowing the wildland fire to burn itself out within determined natural or existing boundaries, such as rocky ridges, streams, and possibly roads.

**Conifer:** Cone bearing tree.

**Connectivity (habitat):** the degree to which the structure of a landscape helps or hinders the movement of animal or plant species. A landscape is considered "well connected" when organisms (or natural processes) can readily move among or through habitat patches over the long-term.

**Conservation Education:** Communication strategies used to develop public awareness, appreciation and support for conservation issues and policies. Includes interpretation, environmental education and visitor information.

**Contain a Fire:** A moderately aggressive wildland fire suppression strategy, which can reasonably be expected to keep the fire within established boundaries of constructed firelines under prevailing conditions.

**Control a Fire:** The most aggressive wildland fire suppression strategy. Complete control line around a fire, any spot fire, and any interior island to be saved: burn out any unburned area adjacent to the fire side of the control lines, and cool down all hot spots that are immediate threats to the control line, until the lines can reasonably be expected to hold under foreseeable conditions.

**Corridor:** Elements of the landscape that connect similar areas, such as riparian areas.

**Crossdrains:** Drainage structure (culvert) located outside of a stream channel.

**Crown fire:** A fire that burns in the forest canopy. 'Passive' crown fires are those that are supported by surface fires with occasional burning of overstory trees, while 'active' crown fires are those that burn through overstory trees with no associated surface fire.

**Cryptogamic crust:** A thin crust on top of the soil made up of mosses, lichens, algae, and bacteria, known collectively as cryptogams. Cryptogams function as soil builders, forming a spongy layer that helps protect soil from erosion, absorbs moisture, and provides nitrogen and other nutrients for plant growth. Also referred to as cryptobiotic or microbiotic crusts.

**Cultural landscape:** A geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes (and they are not mutually exclusive): historic sites, historic designed landscapes, historic vernacular landscapes and ethnographic landscapes.

**Cultural use:** Access to areas with significant pre-historical, historical, or contemporary Native American use.

**Cutbank:** A bank on the uphill side of a road that is a result of cutting into the hillside to create a road surface.

**Cyclonic:** A large air mass (in the northern hemisphere) that circulates counterclockwise.

**Decibel (dB):** Logarithmic unit which describes the wide range of sound intensities to which the human ear is sensitive.

**Decibel-A-Weighted (dBA):** Decibel unit scale that is modified to better represent the relative insensitivity of the human ear to low-pitched sounds.

**Decommissioning:** Permanently closing a road to vehicular use and left in a hydrological maintenance free condition. Decommissioning will include activities such as water barring, out sloping, re-contouring, decompaction of road surface, removal of drainage structures, and road barricades as needed.

**Defensible Space:** An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and resources or lives at risk. In practice, defensible space is generally defined as an area of 30 feet or more around a structure that is cleared of flammable brush or vegetation or other fuels.

**Degradation:** Lowering of streambed elevation, caused by sediment-transport capacity in excess of the sediment supply. Degradation can be long-term (after the passage of many stream flows) or short-term (caused by a single stream flow).

**De minimis:** The least scope, requirement, or interpretation of a law or ruling.

**Demographic:** Relating to the dynamic balance of a population, especially with regard to density and capacity for expansion or decline.

**Dendrochronology:** The science of dating tree rings. Dendrochronology relies upon cross dating; the process of cross-matching in-common patterns of variability in ring features that are controlled by climate variability to discover calendar dates for individual growth rings.

**Department of the Interior (DOI):** A Federal Department responsible for administration of public lands not managed by other Federal Departments.

**Depauperate:** Term used to describe a biological community lacking many species found in similar habitat elsewhere.

**Design Capacity:** The maximum theoretical amount of use a developed recreation site was built to accommodate. This is usually expressed in persons at one time.

**Desired Condition:** A desired state for an ecosystem or ecosystem component that is based on its relationship with other interacting components. Usually implies a long-term goal for management.

**Desired Landscape Character:** Appearance of the landscape to be retained or created over time recognizing that a landscape is a dynamic and constantly changing community of plants and animals; the combination of landscape design attributes and opportunities, as well as biological opportunities and constraints.

**Developed Recreation:** This type of recreation is dependent upon facilities provided to enhance recreation opportunities in concentrated-use areas. Examples include campgrounds and picnic areas. Facilities in these areas might include roads, parking lots, picnic tables, drinking water, and toilets.

**Developed Recreation Sites:** Relatively small, distinctly defined areas where facilities are provided for concentrated public use, such as campgrounds, picnic areas and swimming beaches.

#### **Development Scale:**

**Development Scale 1:** Minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials excluded. Minimum controls are subtle. No obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access not provided or permitted.

**Development Scale 2:** Little site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle, little obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access provided or permitted, primary access over primitive roads. Interpretive services are informal, almost subliminal.

**Development Scale 3:** Site modification moderate, facilities about equal for protection of natural site and comfort of users. Contemporary, rustic design of improvements is usually based on use on native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density is about three family units per acre. Primary access may be over high standard roads. Interpretive services informal but generally direct.

**Development Scale 4:** Site heavily modified. Some facilities designed strictly for comfort and convenience of users. Luxury facilities not provided. Facility design may incorporate synthetic materials, extensive use of artificial surfacing of roads and trails. Vehicular traffic

control is usually obvious. Development density is about three to five family units per acre. Plant materials are usually native. Interpretive services are often formal or structured.

**Development Scale 5:** High degree of site modification. Facilities mostly designed for comfort and convenience of users and usually include flush toilets; may include showers, bathhouses, laundry facilities and electrical hook-ups. Synthetic materials commonly used. Formal walks or surfaced trails. Regimentation of users is obvious. Access is usually by high-speed highways. Development density is five or more family units per acre. Plant materials may be foreign to the environment. Formal interpretive services usually available. Designs formalized and architecture may be contemporary. Mowed lawns and clipped shrubs are not unusual.

**Diameter at breast height (DBH):** Tree diameter at a standard height of 4.5 ft (1.37 meters) above the ground surface.

**Diffusion model:** A model calculated by formula, graphs, or computer that estimates the dilution of an air pollutant as it is carried downwind. The models are based on physical principles with various simplifications to aid solvability.

**Dike:** A long mass of igneous rock that cuts across a structure of adjacent rock.

**Direct attack:** Any treatment of burning fuel: by wetting, smothering or chemically quenching the fire or by physically separating the burning from unburned fuel.

**Dispersed Campsite:** An individual/family-sized campsite that has a general size of about 500-1,000 square feet. It includes a hardened area around a fire pit, a barren area, and/or user-constructed facilities.

**Dispersed Recreation:** Those national forest-oriented outdoor recreation activities that normally take place outside of sites or areas that are developed or managed to concentrate recreation use. Dispersed recreation activities may require facilities for safeguarding visitors, protecting resources and enhancing the quality of visitor experiences.

**Distance Zones:** Landscape areas denoted by specified distances from the observer. Used as a frame of reference in which to discuss landscape attributes or the scenic effect of human activities in a landscape.

**Distinctive Landscape:** This corresponds to Scenic Attractiveness Class A. Areas where landform, vegetation patterns, water characteristics and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern and balance.

**Disturbance:** Any event that alters the structure, composition, or function of an ecosystem, including grazing, human trampling, logging, foraging by wildlife, wind, flood, insects, disease, and fire.

**Disturbed land:** Land where the surface soils or rock or vegetation has been altered.

**Diversion dips:** Constructed ditches or low spots across the road that allow water to flow across the road during high flow events or in the event that the culvert was plugged to allow the water to be diverted back into the channel (also drivable dips).

**Diversion potential:** The potential for water to be diverted away from drainage structures; causing erosion of road surface.

**Duff:** Tree, understory plant needles and leaves that constitute forest floor litter and detritus. Duff includes all soil organic horizons from undecomposed litter to very decomposed organic matter on top of mineral soil.

**Ecological processes:** The actions or events that link organisms and their environment, such as disturbance, successional development, nutrient cycling, productivity and decay.

**Ecoregion:** A continuous geographic area used as an ecological basis for management or planning.

**Ecosystem:** The dynamic complex of organisms and their environment contained within a specified area during a specified time. System elements include interaction and feedbacks between components. Ecosystems are open systems, with energy and material flowing into and out of the system.

**Ecosystem function:** The specific contribution of an ecosystem component to system behavior.

**Ecosystem health:** A condition where the parts and functions of an ecosystem are sustained over time and where the system's capacity for self-repair is maintained, such that goals for uses, values, and services of the ecosystem are met.

**Ecosystem management:** Scientifically-based land and resource management that integrates ecological capabilities with social values and economic relationships, to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values, and services over the long-term.

**Ecosystem processes:** The mechanisms by which ecosystem components interact and change across space and through time.

**Ecosystem resilience:** The ability of an ecosystem to restore or maintain biodiversity, ecosystem functions, and ecological structure and processes after a disturbance. Ecosystem resilience implies a return to some stable trajectory or stable rate or type of system dynamics after system disturbance.

**Ecosystem structure:** The living and nonliving elements of an ecosystem and their spatial arrangement.

**Ecosystem sustainability:** The ability to sustain diversity, productivity, resilience to disturbance, ecosystem health, renewability and/or yield of desired values, resource uses, products, or services from an ecosystem, while maintaining the integrity of the ecosystem over time.

**Ecotone:** The transition zone between two adjacent ecological communities, such as between a forest and grassland.

**Effects (on Heritage Resources):** Impacts to the characteristics that qualify a heritage resource for the National Register of Historic Places. These can include alterations in location, setting, use, design, materials, feeling and association. Adverse effects include physical destruction or damage, isolation from or alteration of setting, introduction of visual, audible or atmospheric elements, physical deterioration from neglect or from any action, transfer, lease or sale.

**Emission:** Unwanted substances released by human activity into air or water.

**Emission Control Device:** Any piece of equipment that reduces the release of any air pollutant into the atmosphere; see Best Available Control Technology.

**Emission Limit:** Regulatory standard that restricts the discharge of an air pollutant into atmosphere.

**Emission, primary:** An emission that is treated as inert (non-reactive).

**Emission, secondary:** Unwanted substances that are chemical byproducts of reactive primary emissions.

**Endangered Species:** An animal or plant species designated by the U.S. Fish and Wildlife Service or National Marine Fisheries Service (NOAA Fisheries) to receive federal protection because it is in danger of extinction throughout all or a significant portion of its natural range.

**Environmental Impact Report (EIR):** Environmental impact assessment document prepared in accordance with the California Environmental Quality Act.

**Environmental Impact Statement (EIS):** Environmental impact assessment document prepared in accordance with the National Environmental Policy Act.

**Estuary:** Widening area at seaward end of river where its current is met and influenced by ocean tides.

**Ethnobotanic:** Ethnological information collected from plant types and functions.

**Ethnographic landscape:** A landscape containing a variety of natural and cultural resources (e.g., contemporary settlements, sacred religious sites, massive geologic structures) that are defined as heritage resources. Small plant communities, animals, subsistence and ceremonial grounds are often components of these landscapes.

**Ethnohistoric:** Ethnological information collected during historic times for instance that from the Spanish mission registers.

**Executive Order:** An order of regulation issued by the President or some administrative authority under his or her direction.

**Existing Scenic Integrity:** This is current scenic condition of the landscape considering previous human alterations.

**Experimental Forests:** National Forest System lands used for conducting research that serves as the basis for the management of forests and grasslands.

**Exponentially:** Characterized by or being an extremely rapid increase.

**Extreme Fire Behavior:** 'Extreme' implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following are usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, a strong convection column. Predictability is difficult because such fires often exercise influence on their environment and behave erratically, sometimes dangerously.

**Fault:** A fracture or zone of fractures in rock strata which have undergone movement that displaces the sides relative to each other, usually in a direction parallel to the fracture. Abrupt movement on faults is a cause of most earthquakes.

**Feature:** A visually distinct or outstanding part, quality, or characteristic of a landscape.

**Feeder Pipeline:** A short pipeline connecting two petroleum facilities or pipelines.

**Fill:** Material brought to the site or moved within the site to build up a road surface.

**Fine filter management:** Management that focuses on the welfare of a single or only a few species rather than the broader habitat or ecosystem (contrast to coarse-filter management).

**Fire Behavior:** The manner in which a fire reacts to the influences of fuels, weather, and topography.

**Firebreak:** A natural or constructed discontinuity that is utilized to segregate, stop and control the spread of fire or to provide a control line from which to suppress a wildland fire.

**Fire Intensity:** A general term relating to the heat energy released by a fire.

**Fire Management Plan (FMP):** A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational plans, such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

**Fire regime:** The complex of temporal and spatial patterns of fires that occur over specified periods for a given area. Parameters of fire regimes include fire frequency, the amount of area burned, season of fire occurrences, fire severity, fire predictability, and relations with driving factors, such as climate and human activities.

**Fire suppression:** A coordinated effort to control or put out a fire. A resource management policy initiated in the early 1900s by the U.S. Forest Service after widespread natural occurring wildland fires burned hundreds of thousands of acres of public land. Subsequently, this policy was adapted by many other land management agencies. This policy was initiated in order to preserve forest lands and has been revised in recent decades as research has shown that fire is a necessary process in the maintenance of healthy forest ecosystems. Prescribed fire and allowing natural fires to burn when conditions are suitable are now widely used management methods.

**Firing tactics:** Any tactic using fire to help control fire. Backfiring is used to create a wide line of defense at the head of the fire to halt the forward spread of a fire. Burnout is the removal of small amounts of combustible fuel between the control line and the fire perimeter.

**Floodplains:** Are relatively flat areas adjoining a river way; which are formed by deposition of sediments during major floods and have evolved with these episodic events; every 50-100 years segments of many of the streams are 're-set' by the large flow events that remove riparian vegetation and re-arrange sandbars, channel banks, riffles and pools.

**Fluvial:** Pertaining to streams or rivers.

**Forb:** A broadleaf plant that has little or no woody material in it.

**Foreground:** Detailed landscape generally found from the observer to ½ mile away (see also immediate foreground).

**Forest canopy:** The uppermost layer of vegetation in a forest, which consists of the upper branches of trees.

**Forest floor:** The surface and ground layer beneath the forest canopy.

**Forest Road Atlas:** The Forest Road Atlas is a key component of the Forest Transportation Atlas and is consistent with the road inventory and includes all classified and unclassified roads on the forest lands. The road atlas includes (at a minimum): the location, jurisdiction and road

management objectives for classified roads and bridges; the location of unclassified roads and management actions taken to change the status of unclassified roads.

**Forest roads:** Any road wholly or partly within or adjacent to, and serving the National Forest System and which is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources.

**Forest Transportation Atlas:** The Transportation Atlas is the official repository of transportation facility decisions for the national forests. It contains a current record of forest transportation facilities. The Forest Service Infrastructure Database is used for the storage and analysis of information in the Transportation Atlas.

**Forest Transportation Facility:** A classified road, designated trail, or designated airfield, including bridges, culverts, parking lots, log transfer facilities, safety devices and other transportation network appurtenances under Forest Service jurisdiction that are wholly or partially within or adjacent to National Forest System lands.

**Forest transportation system management:** The planning, inventory, analysis, classification, record keeping, scheduling, construction, reconstruction, maintenance, decommissioning and other operations undertaken to achieve environmentally sound, safe, cost-effective, access for use, protection, administration and management of National Forest System lands.

**Franciscan rocks:** An association of sedimentary rocks and serpentine (including minor asbestos), outcropping along the Big Sur Coast roughly separating the Santa Ynez and San Rafael Mountains, and infamous for being landslide prone.

**ft/ft:** Feet of elevation change per foot of stream length.

**Fuel loading:** The oven dry weight of fuels in a given area, usually expressed in tons per acre.

**Fuel Type:** An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or difficulty of control under specified weather conditions.

**Fuelbreak:** A wide strip or block of land on which the native or preexisting vegetation has been permanently modified so that fires burning into it can be more readily extinguished.

**Fuels:** Plants and woody vegetation, both living and dead, capable of burning.

**Fuels Reduction:** Manipulation, including combustion or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control. Often includes thinning and/or prescribed burning.

**Fugitive Dust:** Airborne pulverized soil particles that drift from an area of disturbance.

**Gabbro:** A dark colored intrusive igneous rock; the coarse-grained equivalent of basalt.

**Gallons per day (gpd):** A measure of flow rate.

**Gallons per minute (gpm):** A measure of flow rate.

**Gaussian:** Diffusion model named after the mathematician Gauss for representing pollution plumes. It is a statistical formulation of pollutant concentration in a downwind direction. The lateral spreading of the pollutants based on wind speed and stability of the atmosphere modified in various ways to take into account presence of an inversion layer and gravitational settling of particles in the plume.



**General Scour:** Degradation of a channel bed as a result of imbalance of channel sediment-transport capacity and supply during a single stream flow.

**Geographic Information Systems (GIS):** GIS is both a database designed to handle geographic data, as well as a set of computer operations that can be used to analyze the data. In a sense, GIS can be thought of as a higher order map.

**Geologic hazard:** A natural geologic feature or condition that can pose risks to humans, facilities and other resources. Examples include: landslides (many different types), earthquake fault zones, areas of subsidence, collapse or liquefaction, floods, snow avalanches, rocks containing natural toxicity, acid mine drainage, dust, coastal cliff erosion, abandoned mines, abandoned landfills, contaminated groundwater, volcanic activity, etc.

**Geologic resource:** A naturally occurring geologic feature of scientific, cultural, spiritual or economic value, or a human designation of such features. Examples include: fossils, caves, groundwater, minerals (including oil and gas and geothermal resources, sand and gravel, gemstones, etc.), geologic special interest areas, etc.

**Geophysical Survey:** General term for survey of land forms using geologist mapping, trenching, soil testing, percolation testing, echo sounding, or other techniques.

**Gneiss:** Banded metamorphic rock.

**Grading:** Road surfacing activity to improve drivability, to level or smooth to a desired gradient.

**Gravities (g):** Unit of acceleration equal to that produced on free falling bodies at the earth's equator.

**Granite, Granitic:** A coarse granular igneous rock/characteristic of granite.

**Ground fire:** Fire that burns in fuels on the surface of the ground, such as litter, grasses and other non-woody plants, as well as organic material in the soil layer. Propagates largely by creeping along the ground.

**Ground litter:** The top layer of the forest floor composed of loose debris of dead branches, twigs, and recently fallen leaves or needles altered little by decomposition.

**Groundwater:** Water found beneath the surface of the earth within the zone of saturation.

**Habitat:** The local environment occupied by an organism.

**Habitat Conservation Plan (HCP):** A document required by Endangered Species Act for an incidental take permit application; also known as a Conservation Plan.

**Habitat fragmentation:** The splitting or isolating of patches of similar habitat. Habitat can be fragmented by natural events or development activities.

**Handcrew:** A crew consisting of 10 to 20 people, whose specialty is constructing fire lines by hand.

**Handline:** A containment line (along the edge of a fire) built with chainsaws, and hand-tools.

**Hardening (a recreation site):** The protection of physical resources (usually from recreational impacts) accomplished through a variety of means (such as surfacing, graveling, adding signs, improving drainage, placing barriers or metal fire rings, etc.) that allows continued recreation use of the area.

**Hazard Index:** Estimated exposure to a given substance being discharged from a facility divided by the acceptable exposure level for that substance summed over all pollutants.

**Headwall area:** Usually at the top of swales and small channels where the natural upslope progression of a channel ends at a steep vertical face.

**Healthy ecosystem:** An ecosystem in which structure and functions allow the maintenance of the desired conditions of biological diversity, biotic integrity and ecological processes over time.

**Herbicides:** Chemicals (pesticides) used to kill plants.

**Heritage Resources:** Are non-renewable evidences of our national heritage. The physical and non-physical remains of districts, sites, structures, buildings, networks, events, or objects used by humans and cultures in the past. Heritage resources are considered to be historic, prehistoric, ethnographic, architectural, or archival in nature.

**Heritage Resources Consultation:**

- An active, affirmative process that identifies issues and seeks input from appropriate American Indian governments, community groups, and individuals. Considers their interests as a necessary and integral part of the BLM and Forest Service decision-making process.
- The legal obligation requiring the federal government, through consultation, to consider the interests of American Indian tribes and account for those interests in the decision-making process. This legal obligation is based on laws and numerous Executive Orders and statutes.
- A process that involves discussions between a federal agency and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service under Section 7(a)(2) of the Endangered Species Act of 1973, as amended, regarding potential impacts on a species or critical habitat listed under Section 4 of the Act.

**Herpetofauna:** Biological term for amphibians and reptiles.

**Herpetologist:** Person who studies amphibians and reptiles.

**High Scenic Integrity:** This classification provides for conditions where human activities are not visually evident. This refers to landscapes where the valued (desired) landscape character “appears” intact. Deviations may be present but must repeat the form, line, color, texture, pattern and scale common to the landscape character. The landscape appears unaltered. This is synonymous with the Retention Visual Quality Objective under the original Visual Management System.

**Historical conditions:** Range of historical variation; range of the spatial, structural, compositional and temporal characteristics of ecosystem elements during a period specified to represent "natural" conditions.

**Historical range of variability (HRV):** The natural fluctuation of the components of a healthy ecosystem over time. A means to define the boundaries of ecosystem behavior and patterns that have remained relatively consistent over long periods. HRV is usually defined for centuries to millennia before the period of widespread human population increases and associated ecosystem changes that began in roughly the early to middle 1800s for many regions of western North America.

**Historic Property:** Any heritage resource that has been included or determined eligible for inclusion within the National Register of Historic Places.

**Holistic:** The integration of components of an ecosystem in some scale of ecological inquiry. In a holistic perspective, one ecosystem component cannot be isolated without reference to how it affects and is affected by other components in the system.

**Human Dimension:** An integral component of ecosystem management that recognizes people are part of ecosystems, that people's pursuits of past, present, and future desires, needs and values (including perceptions, beliefs, attitudes and values) have and will continue to influence ecosystems and that ecosystem management must include consideration of the physical, emotional, mental, spiritual, social, cultural and economic well-being of people and communities.

**Hydrocarbons (HC):** A mixture of hydrocarbon compounds usually referred to in the vapor state. Compounds composed principally of carbon and hydrogen; they occur in petroleum, natural gas, coal and bitumens.

**Hydrocarbons, non-methane:** Mixture or concentration of hydrocarbons with the methane fraction ignored, one of the many formulations for reactive hydrocarbons.

**Hydrocarbons, Reactive:** Mixture or concentration of hydrocarbons with fraction assumed to be non-reactive removed from consideration.

**Hydrograph:** The characteristic features (as flow or depth) of bodies of water.

**Hydrological regimes:** The spatiotemporal dynamics of water flow and associated fluvial process in an ecosystem.

**Igneous rock:** One of the three primary rock groups, composed of rocks formed by cooling of hot magma, that formed at great depth (plutonic rocks), or that extruded onto the surface (volcanic rocks).

**Immediate Foreground:** The detailed feature landscape found within the first few hundred feet of the observer, generally, from the observer to 300 feet away. This distance zone is normally used in project-level planning, not broad-scale planning.

**Impoundment:** Collection or confinement.

**Inboard ditches:** Drainage ditches that are located on the uphill side of the road.

**Indicator species:** A species, the presence or absence of which is indicative of a particular habitat, community, or set of environmental conditions.

**Indistinctive Landscape:** This corresponds to Scenic Attractiveness Class C. Areas where landform, vegetation patterns, water characteristics and cultural land use have low scenic quality. Often water and rock form of any consequence are missing in these landscapes. These landscapes have weak or missing attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

**Infrastructure database (INFRA):** Forest Service corporate database application that provides for a consistent and accurate inventory and financial data of Forest Service physical assets on Forest Service lands. Each National Forest enters, manages and reports information on the inventory of their constructed features. Roads, trails, and bridges among other constructed

features associated with the transportation system are managed within the Travel Routes application of INFRA.

**In-lieu lots:** Recreation residence open lots that are made available to special-use permit holders to rebuild their structures when lost to fire or other circumstances.

**Intactness:** Untouched or unaltered, especially by anything that harms or diminishes its character.

**Integrated Weed Management (IWM):** A system for planning and implementation of a program to select a method for containing or controlling an undesirable plant species or group of species using all available methods including: education, prevention, physical or mechanical methods, biological control agents, herbicide methods, cultural methods and general land management. It uses an interdisciplinary and ecological approach to managing unwanted plants-weeds.

**Intermixed Lands:** All other lands not included in the Forest Service system lands. They include private, state, local, and other federal lands.

**Intrusive:** A rock formed at depth from magma emplaced into pre-existing rock.

**Invasive nonnative species:** Species that have been introduced into an area in which they did not evolve and in which they usually have few or no natural enemies to limit their reproduction and spread. They are animal and plant species with an extraordinary capacity for multiplication and spread at the expense of native species. These species can cause environmental harm by significantly changing ecosystem composition, structure, or processes and can cause economic harm or harm to human health. Plants in this category may or may not be designated as noxious weeds.

**Inversion:** A layer of air in the atmosphere that is warmer than the air below it, in contrast to the usual decrease in temperature with increasing altitude. Pollutants tend to be trapped below the inversion.

**Invertebrate:** Animal that lacks a spinal column (backbone).

**Isobath:** A contour line that is at equal depth along its length.

**Jurisdiction:** The limits or territory within which authority may be exercised.

**Key Area (Range):** A key area is a portion of the range, which because of its location, grazing and browsing value, and/or uses, serves as an indicative sample of rangeland condition, trend, or degree of seasonal use.

**km<sup>2</sup> or km<sup>2</sup> :** Square kilometer.

**L50 (medium):** The level of noise exceeded 50 percent of the time. Usually specified as either the daytime or the nighttime median noise level.

**Ladder fuels:** Vegetation located below the crown level of forest trees, which can carry fire from the forest floor to tree crowns. Ladder fuels may be low growing tree branches, shrubs, or smaller trees. Fire can move from surface fuels by convection into the crowns with relative ease.

**Land management plan ("forest plan"):** A strategic level document that guides all natural resource management and established management standards for a national forest, and that embodies the provisions of the National Forest Management Act of 1976.

**Landform:** One of the attributes or features that make up the Earth's surface such as a plain, mountain, or valley.

**Landscape:** An area composed of interacting ecosystems that are repeated because of geology, landform, soils, climate, biota, and human influences throughout the area. Landscapes are generally of a size, shape and pattern that are determined by interacting ecosystems.

**Landscape Character:** Particular attributes, qualities and traits of a landscape that give it an image and make it identifiable or unique.

**Landscape Character Goal:** A management prescription designed to maintain or modify the existing landscape character to a desired future state (see desired landscape character).

**Landscape Restoration:** An activity implemented to restore a landscape to achieve the landscape's assigned Scenic Integrity Objective.

**Landslide:** A general term covering a wide variety of mass; a movement landforms and processes involving a down-slope movement of rock and soil examples include: debris slide, rock fall, translational slide, block glide, avalanche, mudflow, liquefaction slide, slump, etc.

**Large Fire:**

- 1) For statistical purposes, a fire burning more than a specified area of land (e.g., 100 acres).
- 2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

**Lateral Erosion:** Horizontal movement of a channel, or a channel widening, caused by water-transport of bank material.

**Law Enforcement and Investigations Management Reporting System (LEIMARS):** The approved automated system currently in use by the Forest Service for reporting violations of law and of Title 36, Code of Federal Regulations and law violations (FSM 5330).

**Level of Service (LOS):** A measure of roadway congestion, ranging from A (free flowing) to F (highly congested).

**Limits of Acceptable Change (LAC):** A framework for establishing acceptable and appropriate resource and social conditions in recreation settings.

**Linear Feet:** Same as regular feet. If something is 20 linear feet tall, it is 20 feet tall.

**Linkage (habitat):** Areas of habitat that provide connectivity to other areas of habitat or potential dispersal routes.

**Liquefaction:** The process of making or becoming liquid (soils).

**Litter:** The freshly fallen or only slightly decomposed plant material on the forest floor. This layer includes foliage, bark fragments, twigs, flowers and fruit.

**Local Scour:** Lowering of a channel bed as a result of a local disturbance to flow, such as bridge piers, a sudden drop or a sharp channel bend.

**Logger's choice:** Also called high grading, it is the selective harvesting of the largest, most highly valued trees in a stand.

**Loop Hikes:** Paths that begin and end at the same location allowing a complete circuit.

**Low Flow:** Low rate of water flow due to scant rainfall and low runoff.

**Low-Flow Incisement:** Formation of a local, small channel inside a larger stream channel as a result of low-discharge flows.

**Low Scenic Integrity:** This classification refers to landscapes where the valued (desired) landscape characters “appears moderately altered.” Deviations begin to dominate the valued landscape character being viewed, but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative-type changes or architectural styles outside the landscape being viewed. Deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings and structures do not dominate the composition. The landscape appears moderately altered. This is synonymous with the Modification Visual Quality Objective under the original Visual Management System.

**Macroinvertebrate:** Invertebrate animal that is visible to the naked eye.

**Maintenance:** The act of keeping fixed assets in acceptable condition. It includes preventive maintenance and normal repairs; replacement of parts, and structural components; and other activities needed to preserve a fixed asset so that it continues to provide acceptable service and achieves its expected life. Maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. Maintenance includes work needed to meet laws, regulations, codes and other legal direction as long as the original intent or purpose of the fixed asset is not changed (Financial Health - Common Definitions for Maintenance and Construction Terms, July 22, 1998).

**Maintenance Levels:** Maintenance levels define the level of service provided by, and maintenance required for, a specific road. Maintenance levels must be consistent with road management objectives and maintenance criteria. Roads assigned to maintenance levels 2-5 are either constant service roads or intermittent service roads during the time they are open to traffic.

**Level 1:** Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed one year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are “prohibit” and “eliminate”.

**Level 2:** Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to discourage or prohibit passenger cars or accept or discourage high clearance vehicles.

**Level 3:** Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either “encourage” or “accept”. “Discourage” or “prohibit” strategies may be employed for certain classes of vehicles or users.

**Level 4:** Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. The most appropriate traffic management strategy is “encourage”. However, the “prohibit” strategy may apply to specific classes of vehicles or users at certain times.

**Level 5:** Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. The appropriate traffic management strategy is “encourage”.

**Major Transportation Corridor:** County, state and federal highways.

**Major Utility Corridor:** Power transmission lines, pipelines, telecommunication lines and associated right of ways.

**Management Indicator Species (MIS):** Representative species whose habitat conditions and/or population changes are used to assess the impacts of management activities on species in similar habitats in a particular area.

**Management prescription:** Management actions and treatments that are implemented under specific environmental conditions to achieve specific desired results.

**Marine sedimentary rocks:** Sedimentary rocks formed in an ocean environment.

**Mass Wasting:** Large land area erosion and failures.

**Matrix:** A style of organization that encourages cross-departmental co-operation rather than a strict hierarchy.

**Meaningful measures:** A process that helps provide quality service to recreation visitors by setting quality standards for work, prioritizing work by visitor preferences and agreeing to a plan of work consistent with program funding.

**Median:** The mid-value is a series of values, with half having greater value and half lower value, to be distinguished from “average.”

**Mercalli scale:** A scale of earthquake intensity ranging from I for an earthquake detected only by seismographs to XII for causing total destruction of all buildings.

**Merchantable:** A tree with commercial value.

**Mesozoic:** The Geologic era ranging from 66 to 245 million years ago.

**Metamorphic rock:** One of the three primary groups of rocks, whereby the rock is derived from pre-existing rocks by mineralogical, chemical, and/or structural changes, in response to marked changes in temperature, pressure, sheering stress and chemical environment, generally at depth in the earth’s crust.

**Metasedimentary:** Partially metamorphosed sedimentary rock.

**Metavolcanic:** Partially metamorphosed volcanic rock.

**Meter (m):** Length equal to 39.37 inches.

**Microclimate:** Distinctive climate within a small geographic area.

**Micron:** One millionth of a meter.

**Microwave:** Radio communications, which are of sufficiently short wavelength (or high frequency) as to be focused on a line-of-sight between sending and receiving equipment. These radio signals carry information for control purposes.

**Middleground:** The zone between the foreground and the background in a landscape, located from ½ mile to four miles from the observer.

**Millennium:** A period of 1,000 years.

**Mitigation (biological resources):** Action taken to lessen the impact of an action or activity on biological resources; includes:

- a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- e) Compensating for the impact by replacing or providing substitute resources or environments.

**Mitigation (for Heritage Resources):** To lessen or minimize an adverse effect upon a heritage resource listed on or eligible for inclusion within the National Register for Historic Places.

**Mixing Height:** The distance from the ground to a daytime (temperature) inversion layer.

**Moderate Scenic Integrity:** This classification refers to landscapes where the valued (desired) landscape characters “appears slightly altered.” Noticeable deviations must remain subordinate to the landscape character being viewed. The landscape appears slightly altered. This is synonymous with the Partial Retention Visual Quality Objective under the original Visual Management System.

**Monitoring:** The periodic evaluation of management activities to determine how well objectives were met and how management practices should be adjusted. See also, adaptive management.

**Monitoring Station:** A mobile or fixed site equipped to measure instantaneous or average ambient air pollutant concentrations.

**Montane:** A zone of relatively moist cool upland slopes below timberline dominated by large coniferous trees.

**Mortality removal:** The removal of dead vegetation including merchantable trees, non-merchantable trees and chaparral.

**Multipathway Pollutants:** Pollutants that pose a risk to public health through individual inhalation, ingestion (from food, water, or soil) or dermal absorption.

**National Fire Plan (NFP):** Developed in August 2000, following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impact to communities while ensuring sufficient firefighting capacity for the future. The NFP addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability.



**National Forest System (NFS) lands:** Federal lands designated by Executive Order or statute as National Forests, National Grasslands, or purchase units or other lands under the administration of the U.S.D.A. Forest Service.

**National Forest System road (NFSR):** A classified forest road under the jurisdiction of the Forest Service. The term “National Forest System roads” is synonymous with the term “forest development roads” as used in 23 U.S.C. 205.

**National Monument:** Areas created by law or Executive Order that have unique, ecological, geological, historical, pre-historical, cultural and scientific interest.

**National Register of Historic Places:** A register of heritage resources of national, state, or local significance that is maintained by the Department of Interior.

**National Visitor Use Monitoring (NVUM):** Provides sound and statistically reliable estimates of recreation and visitor use within national forests upon which to base land management planning decisions.

**National Wild and Scenic River System:** Rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition (see also Wild and Scenic Rivers).

**National Wilderness Preservation System:** All lands covered by the Wilderness Act and subsequent wilderness designations, irrespective of the department or agency having jurisdiction.

**Native species:** Species that have evolved in, or are indigenous to, a specific area.

**Natural-Appearing Landscape Character:** Landscape character that has resulted from human activities yet appears natural, such as historic conversion of native forests into farmlands, pastures and hedgerows that have reverted back to forests through reforestation activities or natural regeneration.

**Natural disturbance:** Periodic impact of natural events such as fire, severe drought, insect or disease attack, or wind.

**Natural environment:** The complex of biotic and abiotic factors that acts on an organism or a community in the absence of significant human intervention.

**Natural Landscape Character:** Landscape character that originated from natural disturbances, such as wildland fires, glaciations, succession of plants from pioneer to climax species, or indirect activities of humans, such as inadvertent plant succession through fire prevention.

**Niche:** A place or activity for which a thing is best fitted.

**Nitric Oxide (NO):** A molecule of one nitrogen atom and one oxygen atom. Results usually from combustion of organic substances containing nitrogen and from recombination of nitrogen decomposed in air during high temperature combustion.

**Nitrogen Dioxide (NO<sub>2</sub>):** A molecule of one nitrogen atom and two oxygen atoms. Results usually from further oxidation of nitric oxide (NO) in the atmosphere. Ozone accelerates the conversion.

**Nitrogen Oxides (NO<sub>x</sub>):** Poisonous and highly reactive gases produced when fuel is burned at high temperatures causing nitrogen in the air to combine with oxygen. A gaseous mixture: nitric oxide (NO), nitrogen dioxide (NO<sub>2</sub>), and symbolically represented as NO<sub>3</sub>.

**Noise Level (medium):** The level of noise exceeded 50 percent of the time. Usually specified as either the daytime or the nighttime median noise level. Also given the designation L50.

**Non-Native American settlement:** Extensive and widespread settlement in the western U.S. that began in response to the Homestead Act and other legislation that promoted migration to western lands in the middle to late nineteenth century. Often referred to as Euro-American settlement, also included large numbers of African Americans after the Civil War, Asian Americans from the West Coast and Hispanic Americans from the New World.

**Nonnative species:** Species that have been introduced by various means into areas where they were not originally found; also called alien or exotic species.

**Nonpoint source:** A source of pollutants that flow into surface waters from agricultural run-off from fields, urban run-off from paved streets and parking areas, mining and forestry operations, and atmospheric deposition (contrast to point source).

**Notice of Intent:** Formal notice that an EIS will be prepared and considered. Published in the Federal Register. Includes a Proposed Action, the proposed scoping activities, and a contact within the agency that can answer questions about the Proposed Action and the EIS.

**Noxious weed:** Plant species so designated by the Secretary of Agriculture or by a responsible state official; they generally possess one or more of the following characteristics: aggressive or difficult to manage; poisonous, toxic, or parasitic; a carrier or host of serious insects or disease; and generally nonnative. There are regulations and reporting requirements in place to reduce the introduction and spread of noxious weeds.

**Nutrient cycling:** The transformation of chemical elements from inorganic form in the environment to organic form in organisms and via decomposition back to inorganic form.

**Objective:** A concise, time-specific statement of measurable planned results that respond to pre-established goals or desired conditions. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals.

**Occupational Safety and Health Administration (OSHA):** A federal agency regulating the health safety of the work place.

**Off-Highway Vehicle (OHV):** Vehicles operated or used exclusively off-highway pursuant to Section 38010(a) and as defined in Sections 38006(a) and 38012(a), (b) of the California Vehicle Code. Typical vehicle types are all terrain-vehicles, "dirt bike" motorcycles, snowmobiles and dune buggies. Vehicles registered for use on State highways pursuant to Section 4000 of the California Vehicle Code and are defined as off-highway vehicles pursuant to Section 38006(b) when used off-highway; typically, all types of four-wheel drive vehicles, Sport Utility Vehicles and dual sport motorcycles.

**Off-Road Vehicle (ORV):** Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (E.O. 11644, 1972).

**Off-route impact:** The effect of unauthorized vehicle travel off roads and trails on soils, vegetation or other resources. The impact can be a linear feature, such as a single motorcycle track or may be larger in scope and can be from a few to many acres in size, such as a vehicle “play” area or a series of hill climbs. Off-route impacts are generally located immediately adjacent to the forest road and trail systems.

**Old growth:** Old forests, which often contain several canopy layers, variety in tree sizes, species, decadent old trees, and standing and dead woody material.

**Open Area:** An area that is managed for unrestricted, cross-country vehicle travel both motorized and non-motorized.

**Open Space:** An area having no enclosing or confining barrier.

**Operational Maintenance Level (OML):** The type of maintenance required for specific road conditions. Levels are from 1-5, with 5 being the highest amount of maintenance required.

**Outfitter/Guide:** A special-use permit holder that provides all commercial outfitting operations involving services for accommodating guests, transporting persons, providing equipment, supplies, and materials. The permit holder also provides guiding activities wherein the guide furnishes personal services or serves as a leader or teacher.

**Outslope:** Roads that are sloped towards the downhill side of the roadway to better match the natural drainage patterns and minimize the potential for diversion.

**Overstory:** The upper tree canopy layer; the plants below comprise the understory.

**Oxidant:** A mixture of chemically oxidizing compounds formed from ultraviolet stimulated reactions in the atmosphere, with ozone a principal fraction.

**Ozone (O<sub>3</sub>):** A molecule of three oxygen atoms; O<sub>3</sub>. A principal component of “oxidant” in photo-chemically polluted atmospheres. A colorless gas formed by a complex series of chemical and photochemical reaction of reactive organic gases, principally hydrocarbons, with the oxides of nitrogen, which is harmful to the public health, the biota and some materials.

**Paleozoic:** The geologic era ranging from 245 to 570 million years ago.

**Particulate matter:** Very fine sized solid matter or droplets, typically averaging one micron or smaller in diameter, also called “aerosol”.

**Partnerships:** Internal and external relationships that have mutual benefits, bridge communities and engage partners in meaningful ways.

**Parts per billion (ppb):** A measure of the amount of one substance in a second, which is the carrier.

**Parts per million (ppm):** Is a measure of concentration that is used where low levels of concentration are significant. The value is equivalent to the absolute fractional amount multiplied by one million.

**Parts per thousand (ppt):** A chemical concentration used to express the salinity of water.

**Pastoral Landscape Character:** Landscape character that has resulted from human activities, which contains positive cultural elements such as historic conversion of native forests into farmlands, pastures and hedgerows plus some remnants of native forests.

**Patch cut:** A silvicultural method where all trees in a localized area are harvested. Patch size varies depending upon the forest type and management goals but is typically 1 to 100 hectares in scale.

**Pebble Plains:** Remnants of a Pleistocene lakebed, with clay soils covered with quartzite. Characteristically treeless openings within the surrounding montane pinyon-juniper woodland or coniferous forest, located at elevations between 6,000 and 7,500 feet.

**Perimeter:** The exterior boundary.

**Perpetuate:** To cause to last indefinitely.

**Persons At One Time (PAOT):** A recreational capacity measurement term indicating the number of people who can use a facility or area at one time.

**Perturbation:** An event or shift in ecosystem properties that causes major disruption to or mortality of ecosystem components.

**Pesticide:** Pesticide is a general term used to describe chemicals that kill harmful organisms such as insects, fungi, plants, etc. Pesticides include herbicides (e.g., glyphosphate), insecticides (e.g., carbaryl), and fungicides (e.g., sporax).

**pH:** A measure of acidity or alkalinity.

**Phenology:** The study of the annual cycles of plants and animals and how they respond to seasonal changes in their environment. In botany, refers to the timing of flower emergence, sequence of bloom, fruiting, and leaf drop.

**Photochemical Pollutant:** Reactive organic compounds and nitrogen oxides, photochemical pollutants that absorb energy from sun and react chemically to form ozone.

**Phytoplankton:** Microscopic plants that form the base of the marine/aquatic food chain.

**Plant communities:** Assemblages of plants that grow together in space and time.

**Pluton/plutonic:** An intrusive igneous rock body formed at great depth, characteristic of a pluton.

**PM(x)/PM(x):** Standards set by the U.S. Environmental Protection Agency to control the amount of particulate matter in the atmosphere that is less than or equal to the amount in (variable indicated in parenthesis) micrometers in diameter.

**Point source:** A source of pollutants that is discernable and confined, such as a pipe, ditch, channel, conduit, or tunnel. Point sources exclude agricultural discharges (contrast to nonpoint source).

**Pounds per square inch (Psig):** A unit of pressure.

**Preferred Alternative:** The alternative recommended for implementation at the draft Forest Plan phase based on the evaluation completed in the planning process; it is not a decision.

**Prehistoric Site:** Archeology sites associated with American Indians and usually occurring before contact with Europeans.

**Prescribed Fire:** Any fire ignited by management actions under certain predetermined conditions to meet specific objectives related to hazardous fuels reduction or habitat improvement. A written approved prescribed fire plan must exist, and NEPA requirements must

be met prior to ignition. Prescribed fires are ignited and managed within a "window" of very specific conditions including winds, temperatures, humidity, and other factors specified in the burn plan.

**Prescribed thinning:** The use of mechanical treatments to remove trees from forest stands.

**Pre-suppression:** Prior to wildland fire suppression, generally speaking, prior to 1930.

**Prevention (Wildland Fire):** Activities directed at reducing the incidence of fires including public education, law enforcement, personal contact, and reduction of fuels hazards.

**Productivity:** The amount of biomass produced in an ecosystem or specific subsystems of an ecosystem (e.g., understory productivity) over a given period.

**Proposed Action:** A proposal made by the Forest Service to authorize, recommend, or implement an action on National Forest System lands to meet a specific purpose and need. The Proposed Action is subject to public notice and comment provisions.

**Proposed species:** Any species of fish, wildlife, or plant officially proposed by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (NOAA Fisheries), via a notice in the Federal Register, to be listed as threatened or endangered.

**Protected Activity Centers (PAC):** Best 300 acres of habitat, if available, around California Spotted Owl nest or center of territory.

**Public roads:** Any road or street that is under the jurisdiction and maintained by a public authority and is open to public travel.

**Q-curves:** This is the ratio of one size class in a distribution of tree diameters compared to the ratio of the next smaller tree diameters.

**Raptor:** A bird of prey, such as an eagle or hawk.

**Reactive Organic Compounds (ROC):** Organic compounds chemically sensitive to the ultraviolet light in sunlight (see Air Quality).

**Record of Decision (ROD):** A public document separate from but associated with an Environmental Impact Statement that identifies all alternatives, provides the agency's final decision, the rationale behind that decision, and the agency's commitments to monitoring and mitigation of impacts.

**Recreation (Outdoor):** Any type of conscious enjoyment that occurs during leisure time; a refreshment of strength and spirits.

**Recreation Carrying Capacity:** The level of recreation use beyond which impacts exceed social or biological levels specified by evaluative standards.

**Recreation Complex:** A concentration of developed recreation facilities.

**Recreation Opportunity:** Availability of a real choice for a user to participate in a preferred activity within a preferred setting in order to realize desired experiences.

**Recreational Opportunity Spectrum (ROS):** A framework for stratifying and defining classes of outdoor recreation environments, activities and experience opportunities. The settings, activities and opportunities for obtaining experiences are arranged along a continuum or

spectrum divided into six classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban.

**Recreation Residence:** Cabins on National Forest System land that normally were established in tracts and built for recreation purposes with Agency approval and supervision. These cabins are authorized by special-use permit and are not the primary residences of the owners.

**Recreation Visitor Day (RVD):** Equals to twelve visit hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons. Recreation visitor days are used to measure recreational production or output capacity.

**Reference conditions:** Conditions characterizing ecosystem composition, structure, and function and their variability.

**Refugia:** Areas of relatively unaltered climate inhabited by plants and animals during a period of continental climatic change (as a glaciation) that remain as a center of relict forms from which a new dispersion and speciation may take place after climatic readjustment. Also, areas of remaining habitat preserved and managed for plants and animals whose habitat has otherwise been altered by human activities.

**Regime:** A regular pattern of occurrence or action.

**Rehabilitation (Wildland Fire):** Commonly referred to as "rehab," the work necessary to repair damage or disturbance caused by wildland fire or suppression activities. Often includes restoration of firelines or dozer work, and projects such as erosion control, installation of water bars or culverts, reseeding or other rehab of fire-damaged areas.

**Renewable energy resources:** Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy available per unit of time. Renewable energy resources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

**Research Natural Area (RNA):** An area of land designated in perpetuity for research and education purposes, in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural, physical and biological processes to prevail without human intervention. However, under certain circumstances, deliberate manipulation may be utilized to maintain the unique feature(s) (target element[s]) that the RNA was established to protect.

**Resilience:** The ability of an ecosystem to restore or maintain biodiversity, ecosystem functions, and ecological structure and processes after a perturbation.

**Restoration:** The process of returning ecosystem patterns or processes to a historical range of variability or other defined reference condition.

**Right of Way (ROW):** An area or strip of land to allow access or to allow a utility to pass through public or private lands.

**Riparian:** Related to, living, or located in conjunction with a wetland, on the bank of a river or stream, or at the edge of a lake or tidewater.

**Riparian area:** Habitat area along a stream, river or other body of water, distinguished by characteristic plant and animal communities.

**Riparian-dependent resources:** Natural resources that owe their existence to the riparian area, such as fish, amphibians, reptiles, fairy shrimp and other aquatic invertebrates, plants, birds, mammals, soil and water.

**Riprap:** Large rock (generally 8" diameter or larger) used to stabilize slopes or slow down the movement of water. A foundation constructed of broken stones or boulders loosely placed or thrown together, as in deepwater, on a soft bottom, or as a seawall to protect against erosion.

**Road:** A motor vehicle travel way over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary.

**Classified Roads:** Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access including state roads, county roads, privately owned roads, National Forest System roads and other roads authorized by the Forest Service.

**Temporary Roads:** Roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be a part of the forest transportation system and not necessary for long-term resource management.

**Unclassified Roads:** Roads on National Forest System lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travel ways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization.

**Road Analysis:** An interdisciplinary science-based analysis of road system opportunities, needs and priorities that support land and resource management objectives.

**Road Decommissioning:** Activities that result in the stabilization and restoration of unneeded roads to a more natural state.

**Road Improvement:** Activity that results in an increase of an existing road's traffic service level, expands its capacity, or changes its original design function.

**Roadless Area Review and Evaluation (RARE):** In 1972, the Forest Service began a review of National Forest System roadless areas (the Roadless Area Review and Evaluation, subsequently called RARE I) to determine their suitability for inclusion in the National Wilderness Preservation System. A second review for Wilderness consideration of roadless areas at the national scale was initiated in 1978 (RARE II).

**Roadless Areas:** Substantially natural landscapes in national forests that (1) are larger than 5,000 acres or, if smaller, contiguous to a designated wilderness or primitive area, (2) contain no constructed or maintained roads and (3) have been inventoried by the Forest Service for possible inclusion in the National Wilderness Preservation System.

**Road maintenance:** The ongoing upkeep of a road that is necessary to retain, or restore the road to the approved road management objective.

**Road prism:** Cross-section of roadway including cut or fill slopes, subgrade, subbase, surfacing, ditches and other drainage structures.

**Road Reconstruction:** Activity that results in improvement or realignment of an existing classified road as defined below:

**Road Realignment:** Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway.

**Roads subject to the Highway Safety Act:** National Forest System roads open to use by the public for standard passenger cars. This includes roads with access restricted on a seasonal basis and roads closed during extreme weather conditions or for emergencies but which are otherwise open for general public use.

**Rockform:** A significant composition of mineral matter constituting the Earth's crust; one of the attributes or features that make up part of the Earth's surface, such as a mountain, cliff, peak, bluff, valley wall, or bedrock.

**Rocking:** Replacing of or adding to the road-wearing surface.

**Roosting site:** A place where birds or bats spend the night.

**Rural/Agricultural Landscape Character:** This is a landscape character that has resulted from extensive human activities and which no longer appears natural, such as conversion of native landscapes into extensively cultivated farmlands, vineyards, pastures, or an area of intensive domestic livestock production.

**Salvage logging:** Logging of dead trees prior to dead trees becoming non-merchantable.

**Savanna:** Open grassland with scattered trees, which often forms a broad ecotone between true grassland and true forest or woodland.

**Scenery:** General appearance of a place, general appearance of a landscape, or features of a landscape.

**Scenery Management:** The art and science of arranging, planning and designing landscape attributes relative to the appearance of places and expanses in outdoor settings.

**Scenery Management System:** The USDA Forest Service methodology for classifying the aesthetic values of landscapes are based upon the scenic attractiveness of the landscape, the landscape's visibility and the public's concern about changes in the landscape from a natural condition.

**Scenic:** Of or relating to landscape scenery; pertaining to natural or natural-appearing scenery; constituting or affording pleasant views of natural landscape attributes or positive cultural elements.

**Scenic Attractiveness:** The scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, rock-form, water-form, and vegetation pattern. Reflects varying visual perception attributes of variety, unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance and pattern. It is classified as: (1) Distinctive, (2) Typical and (3) Indistinctive.

**Scenic Integrity:** State of naturalness or, conversely, the state of disturbance created by human activities or alteration. Integrity is stated in degrees of deviation from the existing landscape character.

**Scenic Integrity Objectives:** The objectives that define the minimum level to which landscapes are to be managed from an aesthetics standpoint. There are six objectives that describe the



landscape in varying degrees from naturalness: Very High (Unaltered), High (Appears Unaltered), Moderate (Slightly Altered), Low (Moderately Altered), Very Low (Heavily Altered).

**Scenic Quality:** The essential attributes of the landscape that when viewed by people, elicit psychological and physiological benefits to individuals and therefore to society in general.

**Scenic Resource:** Attributes, characteristics and features of landscapes that provide varying responses from and varying degrees of benefits to humans.

**Schist:** A crystalline metamorphic rock with closely spaced linear features that tend to split into thin flakes of slabs.

**Scoping:** Determination of the significant issues to be addressed in an EIS.

**Sedimentary rock:** One of the three primary rock groups, composed of rocks formed by the deposition of sediment.

**Seed tree cut:** Removal of the mature timber crop from an area in one cut except for a certain number of trees left singly, in small groups, or in narrow strips as a source of seed for natural regeneration.

**Seen Area:** The total landscape area observed based upon landform screening. Seen areas may be divided into zones of immediate foreground, foreground, middle ground, background, and some landscapes are seldom seen by the public.

**Seldom Seen:** Remote areas of the landscape infrequently viewed by the public or only visible from aerial viewpoints.

**Selected Alternative:** The alternative chosen by the Regional Forester for implementation in the forest plan based on the evaluation completed in the planning process.

**Sensitive Receptor:** That segment of the population (because of age or weak health) more susceptible to the effects of air pollution, noise, oil spill, etc., than the population at large.

**Sensitive species:** A plant or animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density or in habitat capability that would reduce a species' existing distribution. Sensitive species are not covered under the Endangered Species Act.

**Serpentine:** A mechanically weak, green rock, which is susceptible to failure or sliding, particularly on steep slopes.

**Shrink-swell potential:** Is the expansion or contraction of primarily clay-rich soils during alternating wetting and drying cycles.

**Significance:** The meaning or value ascribed to a heritage resource based on the National Register of Historic Places evaluation criteria. It normally stems from a combination of association and integrity.

**Silviculture:** The art and science that promotes the growth of single trees and the forest as a biological unit.

**Size class:** One of the intervals of tree stem diameters used to classify timber.

**Ski Area:** A site and attendant facilities expressly developed to accommodate alpine or Nordic skiing and from which the preponderance of revenue is generated by the sale of lift tickets and

fees for ski rental, skiing instruction and trail passes, or for the use of permit holder-maintained ski trails. A ski area also may include ancillary facilities directly related to the operation and support of skiing activities. Operation of Nordic and alpine ski areas for up to 40 years and encompassing such acreage as the forest officer determines sufficient and appropriate is authorized by the National Ski Area Permit Act of 1986.

**Skiers at one time (SAOT):** The daily capacity of a ski-based resort.

**Slough:** Vertical surface layer that is loose and eroding, place of deep mud or mire, bog, a stagnant swamp, backwater, bayou inlet, or pond in which water backs up.

**Slumping:** Road section failures.

**Smoke Management:** Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed fires.

**Snags:** Standing dead trees that provide important wildlife habitat, especially for cavity-nesting birds.

**Hard Snag:** A snag composed primarily of sound wood.

**Soft Snag:** A snag composed primarily of wood in advance stages of decay and deterioration.

**Sociocultural:** Involving a combination of social and cultural factors.

**Soil compaction:** A physical change in soil properties that results in a decrease in porosity, and an increase in soil-bulk density and strength: (1) to unite firmly, the act or process of becoming compact; (2) geology, the changing of loose sediment into hard, firm rock; (3) soil engineering, the process by which the soil grains are rearranged to decrease void space and bring them into closer contact with one another, thereby increasing the bulk density; (4) solid waste disposal, the reducing of the bulk of solid waste by rolling and tamping.

**Soil erosion:** The detachment and movement of soil from the land surface by gravity, water or wind.

**Soil hydrophobicity:** Soil that is water repellent, often due to dense fungal mycelial mats or hydrophobic substances vaporized and re-precipitated during fire. Hydrophobic molecules and surfaces have little or no affinity for water molecules. Also, the tendency for a soil particle or soil mass to resist hydration, usually quantified using the water drop penetration time test.

**Soil productivity:** The inherent capacity of a soil to support the growth of specified plants, plant communities or a sequence of plant communities. Soil productivity may be expressed in terms of volume or weight/unit area/year, percent plant cover, or other measures of biomass accumulation.

**Special Forest Products (SFP):** Renewable products derived from biological resources for personal, educational, commercial, and scientific use. Excludes saw-timber, pulpwood, cull logs, small round wood, house logs, utility poles, minerals, animals, animal parts, rocks, water, and soil.

**Special Interest Areas (SIA):** Areas of the national forest that are managed to protect or enhance their unique characteristics, and where appropriate, to enhance public education and recreation related to those characteristics. SIAs can be established for their botanical, cultural, zoological, paleontological, geological or other values. They can also be established to protect and manage threatened, endangered and sensitive species or other elements of biological diversity.

**Special Uses:** Improvements or activities owned or carried out by private individuals, corporations or other business entities on National Forest System lands under the authorization of a permit. Examples include organization camps, ski areas, apiaries and water systems.

**Species of special interest:** Native or nonnative species of plants and animals (e.g., rare and threatened species, invasive animals or weeds) that require special management and monitoring actions.

**Stand (forest stand):** A group of trees that occupy a specific area and are similar in species, age and condition.

**Standard:** A performance criterion indicating acceptable norms, specifications or quality that an action must meet to maintain the minimum consideration for a resource. Some standards might apply to all areas of the forest, others only to a specific area (e.g., “place”).

**Standard Cubic Foot (SCF):** A measure of volume or rate-of-flow of liquid.

**State Historic Preservation Officer (SHPO):** The SHPO is usually involved in consultation procedures associated with the National Historic Preservation Act of 1966, as amended.

**State Implementation Plan (SIP):** A document required periodically from each county by EPA that indicates the progress and the planning of the county for improving the quality of its air (see Air Quality).

**Stocking level:** The number of trees in an area as compared to the desirable number of trees for best growth and management.

**Stormproof:** Improve drainage patterns to reduce erosion during storm events.

**Stream Scour:** Lowering of a streambed during the passage of a single stream flow. Stream scour can be local in nature (see Local Scour) or more widespread (see General Scour).

**Local Scour:** Occurring at a specific site such as a bridge or other stream construction.

**General Scour:** Occurring within a stream over long distances due to changes in hydrology controls.

**Structure:** How the parts of an ecosystem are arranged, both horizontally and vertically.

**Subordinate:** Landscape features that are inferior to, or placed below, another in size, importance, brightness and so on. Those features secondary in visual impact or importance.

**Substrate:** Geologic term describing soil or geologic layers underlying a project site or construction area.

**Succession:** The replacement in time of one plant or animal community with another. The initial seral stage (community or successional stage) often creates conditions favorable for the establishment of the next seral stage, or the next stage may simply consist of longer-lived or more persistent organisms.

**Sulfates:** Compounds in air or water that contain four oxygen atoms for each sulfur atom (see sulfur Oxides).

**Sulfur Dioxide (SO<sub>2</sub>):** a corrosive and poisonous gas produced from the complete combustion of sulfur in fuels.

**Sulfur Oxides (SO<sub>x</sub>):** The group of compounds formed during combustion or thereafter in the atmosphere of sulfur compounds in the fuel, each having various levels of oxidation, ranging from two oxygen atoms for each sulfur atom to four oxygen atoms. A gaseous mixture of sulfur dioxide (SO<sub>2</sub>), sulfur trioxide (SO<sub>3</sub>) and symbolically represented as SO<sub>x</sub>. It also can include particulate species such as sulfate compounds (SO<sub>4</sub>).

**Suppression:** All the work of extinguishing or containing a fire, beginning with its discovery.

**Surface fire:** Fire that spreads through ground fuels with a flaming front.

**Sustainability:** The ability of an ecosystem to maintain ecological processes and functions, biological diversity and productivity over time.

**Sustainable ecosystem:** An ecosystem with a balance of processes and components that promote ecosystem resilience and permit the ecosystem to persist into the future in a functional and productive manner.

**Sustainable recreation:** The design and maintenance of outdoor recreation facilities and corresponding activities that promote long-term health and provide high-quality outdoor recreation opportunities.

**Sustained Yield:** Production of a biological resource under management procedures, which ensure replacement of the harvest by regrowth or reproduction before another harvest occurs.

**Tactics:** Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

**Terrestrial:** Related to or living on land.

**Thinning:** Use of mechanical treatments to remove tree biomass from forest stands.

**Thinning from below:** Removal of all trees from a stand below a certain diameter to favor larger trees in the stand.

**Threatened Species:** A plant or animal species designated by the U.S. Fish and Wildlife Service or National Marine Fisheries Service (NOAA Fisheries) as likely to become endangered within the foreseeable future throughout all or a specific portion of its range.

**Topography:** Configuration of a surface including its relief and the position of its natural and man-made features.

**Total Suspended Particulates (TSP):** Solid or liquid particles small enough to remain suspended in air. PM<sub>10</sub> is the portion of TSP that can be inhaled.

**Traditional Cultural Properties (TCPs):** An area that is eligible for inclusion in the National Register of Historic Places because of its associations with cultural practices and beliefs of a living community. They are rooted in the community's history and are important in maintaining the continuing cultural identity of the community.

**Traffic service level:** Describes the significant characteristics and operating conditions of a road.

**Transportation Facility Jurisdiction:** The legal right to control or regulate use of a transportation facility derived from fee title, an easement, an agreement, or other similar method. While jurisdiction requires authority, it does not necessarily reflect ownership.

**Troposphere ozone injury:** Effects of ozone on physiological function of plant species.

**Turbidity:** Cloudiness or muddiness of water or ocean resulting from suspended or stirred up particles.

**Typical Landscape:** This corresponds to Scenic Attractiveness Class B. Areas where landform, vegetation patterns, water characteristics and cultural features combine to provide ordinary or common scenic quality. These landscapes generally have positive yet common attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern and balance.

**Ubiquitous:** Existing or being everywhere at the same time; constantly encountered.

**ug/m<sup>3</sup>:** Millionths of a gram per cubic meter; a unit of concentration in liquids or gases.

**Ultramafic:** Extremely basic.

**Unacceptably Altered:** A scenic integrity level (never an objective) where human activities of vegetation and landform alterations are excessive and totally dominate the natural or natural-appearing landscape character. Unacceptable alterations are “what not to do to any landscape,” regardless of the distance from which the management activity may be observed.

**Uncontrolled Fire:** Any fire that threatens life, property, or natural resources.

**Understory:** Lower vegetation layers found beneath the canopy, including smaller trees, shrubs, grasses, grass-like plants and/or forbs, depending on the vegetation type.

**Undesirable plant:** Plant species classified as unwanted, noxious, harmful, exotic, injurious or poisonous pursuant to state or federal laws; including those designated by the Secretaries of Agriculture or the Interior.

**Uneven-aged tree selection:** The stand created or maintained includes three or more distinctly different age classes.

**Untrammelled:** An area with nothing impeding activity, progress, or freedom.

**Upgrade culvert:** Increase the size of a culvert to handle larger flows (storm events).

**Urban:** Landscape character that has resulted from extensive human activities; no longer appearing natural such as conversion of native landscapes into an extensively altered landscape (such as a town, city or metropolitan area).

**Urban Infrastructure:** Roads, bridges, pipelines, aqueducts, electric generation, transmission and distribution facilities, railroads, and similar public works associated with urbanized areas.

**Urban/wildland interface:** See Wildland/Urban Interface.

**Variable point sampling:** Does not require measurement of the plot radius or tree diameters to compute the basal area per acre. Stem counts are made with each tree tallied contributing equally without regard to diameter, and to the basal area estimate.

**Variable radius plots:** A method to determine tree sizes and densities in forest stands. The radius (limiting distance) of a plot varies by tree sizes and the basal area factor used.

**Vegetation:** Plant life or total plant cover.

**Vernal pools:** Seasonally flooded depressions found on soils with an impermeable layer such as a hardpan, claypan, or volcanic basalt. Vernal pools often fill and empty several times during a rainy season.

**Very High Scenic Integrity:** This classification generally provides for ecological changes only. This refers to landscapes where the valued (desired) landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level. The landscape is unaltered. This is synonymous with the Preservation Visual Quality Objective under the original Visual Management System.

**Very Low Scenic Integrity:** This classification refers to landscapes where the valued (desired) landscape character, “appears heavily altered.” Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes, such as size, shape, edge effect and pattern of natural openings, vegetative-type changes or architectural styles within or outside the landscape being viewed. However, deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings and structures do not dominate the composition. The natural landscape character should appear as natural occurrences when viewed at background distances. The landscape appears heavily altered. This is synonymous with the Maximum Modification Visual Quality Objective under the original Visual Management System.

**Viable population:** A species population that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence.

**View:** Something that is looked toward or kept in sight, especially a broad landscape or panorama. Act of looking toward this object or scene.

**Viewshed:** Total visible area from a single observer position or the total visible area from multiple observer positions. Viewsheds are accumulated seen-areas from highways, trails, campgrounds, towns, cities or other viewer locations. Examples are: corridor, feature, or basin viewsheds.

**Vista:** This is a confined view especially one seen through a long passage as between rows of trees or down a canyon which focuses on a specific feature in the landscape. Unlike a view, the vista is often human-created, and is thereby subject to design.

**Water jurisdiction:** A category of water law that falls into one of three doctrines: riparian, prior appropriation and a hybrid combination.

**Water rights:** The legal right to make use of the water from a particular water source for a federal reserved use or a state recognized beneficial use.

**Water table:** The upper surface of the zone of groundwater saturation where all the pore spaces are filled with water.

**Waterform:** One of the attributes or features that make up the Earth’s surface such as a pond, lake, stream, river, waterfall, estuary or ocean.

**Watershed:** The area contained within a drainage divide above a specified point on a stream.

**Weed:** A plant species introduced into an area unintentionally through human activities and not wanted.

**Wetland:** Land transitional between an obvious upland and an aquatic environment; an area inundated by surface or groundwater with a frequency sufficient to support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions. Wetlands generally include marshes, bogs, wet meadows, river overflows, mud flats and natural ponds; they are generally

highly productive environments with abundant fish, wildlife, and aesthetic and natural resource values.

**Wild and Scenic Rivers (WSRs):** Rivers or sections of rivers designated by Congressional actions under the 1968 Wild and Scenic Rivers Act as wild, scenic or recreational by an act of the legislature of the state or states through which they flow (see also National Wild and Scenic Rivers System). Rivers may be classified and administered under one or more of the following categories:

**Wild:** A river or a section of a river that is free of impoundments with watersheds and is still largely primitive and the shorelines largely undeveloped, but accessible in places by roads.

**Scenic:** A river or a section of a river that is free of impoundments with watersheds and is still largely undeveloped, but accessible in places by roads.

**Recreational:** A river or section of a river that is readily accessible by road or railroad that may have some development along its shoreline and that may have undergone some impoundment or diversion in the past.

**Wilderness:** An area of undeveloped federal land that Congress designated as wilderness and that retains its primeval character, and influence without permanent improvements or human habitation and is protected and managed to preserve its natural conditions. An area that; (1) generally appears to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) comprises at least 5,000 acres of land, or is of sufficient size to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value.

**Wilderness Implementation Schedule:** A document outlining how the wilderness management direction in a forest plan will be carried out; a three-to-five year schedule of actions that are needed to bring existing conditions into compliance with forest plan standards.

**Wildfire:** An unplanned unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fire where the objective is to put the fire out.

**Wildland:** Land which is uncultivated or unfit for cultivation.

**Wildland Fire:** Any non-structure fire that occurs in a wildland area. Three distinct types of wildland fire include: wildfire, wildland fire use, and prescribed fire.

**Wildland Fire Use:** The management of naturally ignited (usually lightning) wildland fires to accomplish specific pre-stated resource management objectives in predefined areas outlined in Fire Management Plans.

**Wildland/Urban Interface (WUI):** That line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Often incorrectly referred to as the "interzone" or "urban/wildland interface".

**Wildlife:** Native animal species, as well as native animal communities.

**Wildlife habitat diversity:** The distribution and abundance of different plant and animal communities and species within a specific area.

**Windthrow:** Trees uprooted by wind.

**Yellow Post Site:** Designated place to disperse camp on the San Bernardino National Forest.

**Zooplankton:** Microscopic marine/aquatic animals generally carried within a water mass.



## Appendix M - National Forests of Southern California Weed Management Strategy

### Introduction

The spread of invasive weeds on the national forests of southern California is threatening the health of forest, chaparral, and grassland ecosystems. Current inventories indicate that weeds are spreading at an increasing rate within the southern California national forests, especially along roads, trails, and stream corridors. The spread of noxious weeds and nonnative invasive plant species reduces biological diversity; impacts threatened and endangered species, wildlife habitat, modifies vegetative structure and species composition; changes fire and nutrient cycles; and degrades soil structure.

Under the National Forest Management Act (NFMA), and the Forest and Range Renewable Resource Planning Act (RPA), the national forests were given the task of preparing Land and Resource Management Plans (forest plans) to establish management direction along with long-range goals and objectives. During the development of forest plans for the national forests of southern California in the late 1980s, the problems caused by noxious weeds were not as widely recognized as they are today. Initial efforts in education, prevention, inventory, control, and monitoring were piecemeal and uncoordinated. The national forests of southern California have revised their forest plans and this strategy as an appendix to the forest plans, which provides a bridge between forest plan direction of the past and the Forest Service's vision of future conditions.

In 1995, the Forest Service revised its national policy on noxious weed management (FS Manual 2080). The new policy places stronger emphasis on integrated weed management. It outlines responsibilities for integrated pest management, prevention and control measures, cooperation, and information collection and reporting.

In 1998, the Forest Service developed, in conjunction with other federal agencies, a strategy for the management of noxious weeds. That strategy (entitled *Pulling Together: A National Strategy for Invasive Plant Management*) focused on three primary goals: effective prevention, control, and restoration. The Forest Service also developed a national strategy focusing on five areas: prevention and education; control; inventory, mapping, and monitoring; research; and administration and planning.

In response to national direction and regional needs, the Pacific Southwest Region has subsequently developed a *Noxious Weed Management Strategy and Action Plan*. Tiered to the national strategy, the Regional strategy has three primary goals:

- Increase the understanding and awareness of noxious weeds and the adverse effects they have on wildland ecosystems.
- Develop and promote implementation of a consistent integrated pest management (IPM) approach. Institutionalize consideration of noxious weeds in all planning and project analyses.
- Develop strong partnerships and cooperation with private landowners, county governments, state and federal agencies, extension services, universities, and the research community for a consolidated and united approach to managing invasive species.

The Region's strategy uses six emphasis areas to address the goals identified above. They are:

- Coordination and Cooperation
- Prevention and Education
- Control
- Inventory, Mapping, and Monitoring
- Research
- Administration and Planning

Within each emphasis area, the strategy identifies objectives and proposed action items to carry the Regional Noxious Weed Program forward.

In a similar fashion, the southern California national forests' noxious weed strategy is tiered to the regional strategy. The purpose of the strategy is to transform these region-wide goals and emphasis areas into a three to five year action plan that results in on-the-ground accomplishments on the national forests of Southern California.

In 1999, *Executive Order 13112 on Invasive Species* was developed requiring federal agencies to prevent the introduction of invasive species and not authorize or carry out actions that are likely to cause the introduction or spread of invasive species unless the agency shows that benefits of actions clearly outweigh beneficial harm and feasible and prudent measure to minimize the risk of harm will be taken in conjunction with the actions. This order promotes the prevention of introductions of invasive species, rapid response to control and monitor populations, to provide for restoration of native species and habitat conditions in ecosystems that have been invaded, and to conduct research and provide education on invasive species. A management plan entitled *Meeting the Invasive Species Challenge* was completed in 2001 to comply with the executive order.

In 2003, invasive species management was brought to the forefront of the Forest Service Strategic Plan. In the FY 2003 Strategic Plan update, one of the six Priority Goals for the USDA Forest Service for 2003 through 2008 is to "Reduce the Impacts from invasive species: Restore the health of the nation's forests and rangeland to be resilient to the effects of animal, insect, pathogen and plant species." Objectives include: 1) survey of forests, grasslands, and water bodies to detect and monitor invasive species; 2) to improve effectiveness of treating invasive species; and 3) to provide scientific information, and develop and distribute scientific strategies to improve prevention, detection, and control of invasive species (<http://www.fs.fed.us/pl an>). Baselines will be provided in June 2003 and performance measures will be tracked over the duration of the FY 2003 Strategic Plan Update.

In 2004, the National Strategy and Implementation Plan for Invasive Species Management was completed. It proposes actions to guide Forest Service programs to employ effective, integrated, comprehensive, and science-based approach for addressing the invasive species problem.

### **1. Coordination And Cooperation**

The spread of invasive weeds ignores all boundaries. The only way that the national forests of southern California can succeed in the control and prevention of noxious weeds is through coordination and cooperation with neighbors and partners. Ranger Districts within the southern

California national forests have been active in the following weed management areas (WMAs): Big Sur, Kern County, Los Angeles County, San Diego County, Santa Barbara County, San Bernardino County, and San Luis Obispo County.

**Objectives:**

- Use WMAs to consolidate and coordinate weed control across jurisdictional boundaries.
- Ensure that adequate scientific expertise, organization skill, and administrative support is available for local weed management efforts.
- Minimize barriers to noxious weed prevention and control efforts.

**Proposed Actions:**

**All National Forests**

- All national forests/districts strive to be active participants and leaders in WMAs.
- Coordinate with California Department of Transportation (Caltrans) to:
  - Control Spanish broom along California State Highways 2, 18, 33, 38, 39, 67, 74, 138, 330, and Interstate 8.
  - Inventory and monitor weeds along California State highways.
  - Coordinate with Los Angeles Department of Water and Power, Southern California Edison, and Pacific Gas and Electric to inventory and monitor weeds along their right-of-ways.
  - Work with permittees to remove invasive plants from permit areas.
  - Work with Native Americans to identify and control noxious weeds in areas of concern to tribal members and to assist in development of restoration techniques for habitats affected by noxious weeds.
  - Work with other program areas to gain support and investment in the prevention, education, and control of noxious weeds.

Coordinate with partners to:

- Implement prevention programs to prevent spread of weeds along trails and roads.
- Develop education programs for national forest visitors.
- Control arundo and tamarisk.
- Control cheatgrass or other invasive plants in restoration sites
- Release biological control agents for yellow star-thistle and spotted knapweed where applicable.

**Angeles National Forest**

- Coordinate with Los Angeles WMA to continue controlling and/or removing:
  - Spotted knapweed in Tanbark Flats; German and English ivy, *Vinca*, and Spanish broom in Santa Anita, San Dimas, Bouquet, Arroyo Seco, and Millard canyons;

yellow star-thistle on the Santa Clara Mojave Rivers Ranger District; and distaff thistle in San Francisquito Canyon.

- Tree of heaven, tamarisk, and arundo in San Francisquito, Bouquet, Soledad, Little Tujunga and Big Tujunga canyons; arundo and giant tree spurge at Chantry Flats; and tree of heaven, tamarisk, and arundo in San Gabriel, Big Dalton, and San Dimas canyons.
- Spanish broom along Rincon-Redbox Glendora Mountain and Glendora Ridge Roads, and Scotch broom in upper Chantry Flats.
- Coordinate with the Los Angeles WMA to monitor status of:
  - Dalmatian toadflax near county line in Frazier Park, halogeton along California State Highway 14 near national forest boundary, and perennial pepperweed in the Santa Clara River near national forest boundary,
  - Apiary sites for yellow star-thistle, spotted knapweed, and other invasive plants.
- Coordinate with State of California for tamarisk removal in upper Castaic Creek.

### **Cleveland National Forest**

- Coordinate with San Diego Water Utilities Department to control tamarisk in Santa Ysabel and Cottonwood Creeks.
- Coordinate with State Coastal Conservancy to control tamarisk in San Mateo Creek.
- Coordinate with California Department of Agriculture and San Diego County to control spotted knapweed in the Julian area and on Palomar Mountain.
- Coordinate with Orange County to control arundo, fig, and castor bean on the west side of the Trabuco Ranger District.

### **Los Padres National Forest**

- Coordinate with Caltrans to control French Broom at the Hwy 1 Maintenance Yard and along West Camino Cielo.
- Coordinate with Sespe Flyfishers and Keep the Sespe Wild volunteers to control tamarisk in Sespe Creek.
- Coordinate with Habitat Works of southern California volunteers to control tamarisk in Piru Creek in concert with the USFS use of Triclopyr to treat larger trees.
- Coordinate with Kern County WMA:
  - to eradicate Dalmatian toadflax on 250 acres near Frazier Park.
  - to eradicate spotted knapweed in Pine Mountain Club.
- Coordinate with Big Sur WMA:
  - and California State Parks to control five acres of French broom along the Vicente Flat Trail.
  - and National Fish and Wildlife Foundation to control two acres of Cape ivy and 80 acres of Italian thistle.

- Coordinate with Monterey County Agricultural Commissioner to eradicate five acres of pampas grass at Kirk Creek Campground.
- Continue to allow San Luis Obispo County to test yellow star-thistle control techniques at Pozo Corrales.
- Coordinate with Santa Barbara Agricultural Commission to release a rust fungus, *Puccinia jaceae* var. *solstitialis*, for use in the control of yellow star-thistle.

### **San Bernardino National Forest**

- Coordinate with San Bernardino County/Corps of Engineers to control tamarisk at Seven Oaks Dam and Spanish broom along the mountain highways.
- Work with Mojave WMA on cooperative inventories and tamarisk eradication efforts along the Mojave River/Deep Creek.
- Coordinate with Riverside County to control tamarisk in Bautista Canyon.
- Continue cooperation with the Resource Conservation District to control arundo in Cajon Wash.
- Coordinate and cooperate with the Santa Ana River WMA.
- Work with BLM and other partners on tamarisk removal in Palm Canyon and other areas in the Santa Rosa and San Jacinto Mountains National Monument.
- Coordinate with the Bear Valley Municipal Water District to control tamarisk in the Baldwin Lake and Big Bear Lake vicinity.
- Coordinate with Southern California Edison to control Spanish broom in the Mill Creek drainage, with Silverwood State Park to control Spanish broom along Hwy 138, and with Habitat Works volunteers to control Spanish broom in Deep Creek.
- Coordinate with Big Bear Green Thumbs to eradicate sweet pea and Dalmatian toadflax near Juniper Point, and with Big Bear Mountain Resorts to control the spread of *Melilotus*.

## **2. Prevention And Education**

Prevention can help slow or prevent the introduction and establishment of noxious weeds on the southern California national forests. Education is an integral part of prevention. Having an informed workforce, as well as cooperators and the public is an important part of managing invasive species.

Currently, Forest Service staff, permittees, and the public have a limited understanding of the potential impacts that noxious weeds have on forest ecology. Even fewer understand what can be done to reduce the risk. Prevention is one of the most cost effective methods to control the spread of noxious weeds.

Objectives:

- Forest Service employees are well informed on noxious weed issues.

- Prevention measures such as weed-free forage and seed, straw, and fill requirements are in use on all National Forest System lands and those under special-use authorization.
- Weed prevention practices and mitigation measures are incorporated into all Forest Service activities.
- Noxious weed prevention clauses are incorporated into Forest Service contracts, and permits
- Educational materials to increase public awareness of noxious weed issues are used in conjunction with other agencies and other resource areas within the Forest Service.
- Homeowners and permittees within and adjacent to National Forest System lands understand the relationship between invasive species used in landscaping and the monetary and ecological consequences of these species escaping and increasing within the Wildland/Urban Interface community defense zones (fuelbreaks) adjacent to their property or permitted areas.

Action Plan:

- Use regionally approved standard clauses in contracts for equipment cleaning for timber, fire, engineering, recreation, watershed improvement and other contracts.
- Educate personnel on need for standard clauses; require their use where needed.
- Implement Regional Special Order requiring the use of weed-free forage and straw as it becomes available in southern California.
- Use weed-free materials in facilities maintenance and construction: gravel, fill, straw, and seed mixes.
- Encourage the adoption of noxious weed prevention practices by other agencies.
- Develop national forest training courses for noxious weed prevention. Target employees who have field going and public contact responsibilities, as well as line officers, and key staff.
- Develop a public education program including interpretive signs in campgrounds and trailheads, brochures with maps and permits, school visits, and similar methods.
- Develop a communication strategy for the southern California national forests for invasive weeds that coordinates activities with other agencies, organizations, and volunteers.
- Develop relationships with local nurseries to inform them of the effects of sales of Spanish broom and other highly invasive plants.
- Work with the San Bernardino National Forest Association Children's Forest to produce a weed identifier pamphlet for the public showing native plant alternatives for landscaping.
- Annually post a weed prevention poster/presentation at the Big Bear Discovery Center during Earth Day activities and weed awareness week.
- Continue invasive species interpretive talks at local colleges and universities (Victor Valley and University of Redlands).

### 3. Control/Project Planning

Some Ranger Districts have instituted successful noxious weed control projects, while other units have not yet done so. Given the number of acres infested and projections for new infestations, it is clear that present funding levels are insufficient to deal with noxious weed problems. This funding level has limited the capability of the national forests of southern California to build an effective noxious weed control program.

Four of the national forests have Noxious Weed Management Coordinators and a Forest Pesticide-Use Coordinator. These duties are collateral along with other responsibilities. Currently, the southern California national forests annually treat about 59 miles of stream and 300 acres of uplands to control noxious weeds. The primary target species in these efforts are tamarisk, arundo, tree of heaven, spotted knapweed, Dalmatian toadflax, artichoke thistle, Italian thistle, Spanish broom, French broom, pampas grass, Cape ivy, yellow star-thistle, and purple star-thistle. This work is accomplished through the use of contractors, fire crews, volunteers, and Forest Service resources staff. On some units, the use of noxious weed risk assessments is increasing the amount of land being surveyed. Project planners and decision makers increasingly have information on the risk of spreading weeds and opportunities to incorporate weed control plans into project designs and decisions.

#### Objectives:

- Identify and eradicate new infestations and new species on National Forest System lands.
- Complete site-specific environmental analyses for the treatment of noxious weed infestations.
- Use an Integrated Weed Management approach to noxious weed control. Integrated weed management is an interdisciplinary pest management approach for selecting methods for preventing, containing, and controlling noxious weeds in coordination with other resource management activities to achieve optimum management goals and objectives. Methods include education; preventive measures; herbicide, cultural, physical or mechanical control methods; biological control agents; and general land management practices (such as manipulation of livestock or wildlife grazing strategies) that accomplish vegetation management objectives (FSM 2080.5).
- Have at least one individual trained on each national forest in wildland weed ecology and pesticide application.
- Noxious weed risk assessments become an integral part of project planning.

#### Action Plan:

- Encourage personnel to obtain and maintain state pesticide use certification, whether or not restricted-use chemicals will be used.
- Prepare noxious weed risk assessments for all ground disturbing projects.
- Provide outline and examples for project-level risk assessments for use by district personnel.
- Obtain training on noxious weed ecology and management.

- Annually treat 59 miles of riparian habitat (Cuyama River watershed – 5 miles; Piru Creek – 10 miles; Santa Ynez River watershed – 5 miles; Sespe Creek - 5 miles; and Sisquoc River – 12 miles; CNF – 5 miles; ANF – 15 miles; SBNF- 2 miles-Palm Canyon, Bautista Canyon, Cajon Wash, Arrastre Creek, and Mill Creek) for noxious weeds such as tamarisk and arundo.
- Annually treat 300 acres of uplands for noxious weeds, such as pampas grass, yellow star-thistle, spotted knapweed (Julian, Palomar Mountain, and San Dimas Experimental Station), artichoke thistle, Italian thistle, Cape ivy, English ivy (Arroyo Seco and San Dimas Canyon), *Euphorbia dendroides* (Chantry Flat), tree of heaven, Spanish broom (numerous locations on the national forests of southern California), and French broom.
- Use native plant materials as needed to restore disturbed sites to prevent the introduction or reintroduction of noxious weeds.

#### 4. Administration And Planning

To attain an effective Noxious Weed Management Program, there needs to be consistent direction across all the national forests of southern California. Revised forest plan direction and this appendix provide this integration, as well as a priority list of objectives.

Consideration of noxious weed issues is limited or lacking in many project plans and analyses. The omission comes from a combination of factors. One factor is the limited funds available for noxious weed management in the region. Limited funds, resources, and staffing have resulted in low visibility and priority for the Noxious Weed Management Program.

The national funding criteria favor regions that treat large infestations of noxious weeds. Many national forests within the region are relatively free of noxious weeds, but have large infestations adjacent to their boundaries. As a result, the region does not compete well for limited funds. The national forests of southern California must examine ways to become more competitive for national, regional, and local funds, and find ways to manage our existing funds more efficiently.

Objectives:

- Implement three to five year Noxious Weed Action Plans.
- Increase efforts to compete for appropriated noxious weed funding.
- Improve visibility in the management of noxious weeds; become more competitive for 'cost share' funds; and increase interaction and participation with local partners to help with funding opportunities.
- Market the program to receive additional funds based on the factors that make national forests of southern California unique.

Proposed Actions:

- Annually review potential for new invasive species and the potential for existing invaders to move into new areas; plan prevention measures accordingly.
- Annually update Noxious Weed Action Plan.
- Pursue grants and other funding sources to implement weed control measures.



## 5. Inventory, Mapping And Monitoring

Early detection and containment of noxious weeds is the most efficient method for controlling their spread. Key to early detection is the development and maintenance of an effective inventory and mapping system. The southern California national forests' noxious weed inventory is recorded in part in GIS (Geographic Information Systems) and in part on hard copy maps. Portions of the National Forest System lands (especially stream corridors with known or suspected populations of threatened and endangered species) have been thoroughly inventoried. Other areas (such as upland communities in areas of wilderness) have been poorly inventoried for noxious weeds. A complete and interactive inventory with GIS capabilities is critical for the national forests of southern California to effectively compete for national and regional funding opportunities, report and track existing infestations, and treat known populations of noxious weeds. It is equally important to share information with our neighbors and partners.

Monitoring is essential to provide information necessary for long-term planning and decision-making. A monitoring program is needed to evaluate changes in invasive plant populations and whether management activities, noxious weed control projects, and prevention programs are achieving their desired goals.

There are no consistent monitoring protocols in use to assist planners and project managers in measuring short-term or long-term effects. As a result, integrated weed management projects may or may not meet the desired goals and objectives outlined in the project plan.

### Objectives:

- Determine the distribution of noxious weed species through systematic inventories of the National Forest System lands.
- Re-inventory at set intervals to determine the rate of spread and detect new weed infestations.
- Use automated databases for the storage and retrieval of information on noxious weeds. Ensure that the national forests of southern California implement Forest Service inventory and monitoring protocols and that data is stored and maintained in the Terra module of NRIS.
- Ensure that monitoring standards across the national forests of southern California address short and long-term monitoring needs.

### Proposed Actions:

- Test survey and monitoring protocols developed by the Forest Service Washington office and the Regional office.
- Conduct inventories of project areas for noxious weeds as part of the NEPA process.
- Continue to survey for noxious weeds as part of survey and monitoring protocols for threatened and endangered plants and animals.
- Identify streams, roads, and trails needing inventory, and provide notice for volunteers to complete needed inventories.
- Conduct weed inventories after wildland fires.

- Obtain training in the use of the NRIS-TERRA database system.
- Increase participation of the national forests of southern California in the CalWeed Database.

## 6. Research

Research efforts are continually needed to examine new integrated weed management strategies for the control of noxious weeds. The Region presently cooperates with California universities by providing research sites for studies.

The Region needs to continue to encourage research on the ecology of noxious weed species, with an emphasis on practical application to management.

Objectives:

- The national forests of southern California facilitate continued research opportunities on National Forest System lands.
- Engage the Pacific Southwest Research Station in noxious weed research projects.

Proposed Actions:

- Use the Region's website to access research results.
- Facilitate research on noxious weeds on the national forests of southern California, especially in regard to management of weeds in areas managed as fuelbreaks, Wildland/Urban Interface Defense Zones, and Wildland/Urban Interface Threat Zones.
- Support local efforts as needed to promote interagency research.
- Contact local universities regarding research needs on weeds.