

CHAPTER 3 - AFFECTED ENVIRONMENT

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3. AFFECTED ENVIRONMENT

The purpose of this chapter is to describe the existing condition of the physical, biological and social aspects of the human environment that may be significantly affected by the implementation of any of the alternative scenarios for oil and gas leasing considered in detail. Separate background reports were prepared for air quality, heritage resources, biological resources, scenic resources, watershed resources, and recreational resources. These unpublished reports are located in the project files at the Forest Supervisor's Office. The information in this chapter serves as a "base line" by which to measure the potentially significant effects of the alternative leasing scenarios discussed in Chapter 4 (Environmental Consequences). Discussions focus on the forest environment related to the issues identified in scoping that may result in significant impacts. The affected environment includes the existence of the 21 oil and gas leases on 4,863 acres mentioned in Chapter 1.

3.1. *PHYSICAL ENVIRONMENT*

The physical environment issues identified in scoping relate to air quality and watershed resources. The affected environment for each is discussed below.

3.1.1. Air Quality

3.1.1.1. *Introduction*

The nine High Oil and Gas Potential Areas (HOGPAs) assessed in this report are located in five counties: Ventura, Santa Barbara, San Luis Obispo, Monterey, and Los Angeles. A small portion of the Sespe HOGPA lies within Los Angeles County; however, all of the development within the Sespe HOGPA is expected to occur within Ventura County.

The California Air Resources Board (CARB) has divided the state into air basins for air quality planning purposes. Ventura, Santa Barbara, and San Luis Obispo Counties compose the South Central Coast Air Basin (SCCAB). Monterey County is part of the North Central Coast Air Basin (NCCAB). In general, an air basin is characterized by a relatively uniform climate, geography, and air pollution potential. In addition, the CARB has further divided the state into local air pollution control districts (APCDs) or air quality management districts (AQMDs) that have permitting authority for stationary air pollution sources and serve as reviewing agencies for environmental documents. Table 3-1 lists the HOGPAs by air district and by air basin. The boundaries of the air basins are illustrated in Figures 3-1 and 3-2.

Both the NCCAB and SCCAB are composed of coastal mountain ranges, coastal plains, and inland valleys. In the NCCAB, Los Padres National Forest lies adjacent to the coast, south and

west of the major population centers. In the SCCAB, Los Padres National Forest lies in the mountainous interior portions of the air basin, north and east of the major population centers.

TABLE 3-1: HIGH OIL AND GAS POTENTIAL AREAS BY AIR DISTRICT AND AIR BASIN

Air Basin	Air District	HOGPA
<i>North Central Coast</i>	<i>Monterey Bay Unified APCD</i>	<i>Monroe Swell</i>
<i>South Central Coast</i>	<i>San Luis Obispo County APCD</i>	<i>Lopez Canyon</i>
		<i>South Cuyama (west portion)</i>
		<i>La Brea Canyon</i>
		<i>Figueroa Mountain</i>
	<i>Ventura County APCD</i>	<i>Rincon Creek (west portion)</i>
		<i>Sespe</i>
		<i>South Cuyama (east portion)</i>
		<i>San Cayetano</i>
		<i>Piedra Blanca</i>
		<i>Rincon Creek (east portion)</i>

3.1.1.2. Issues and Concerns

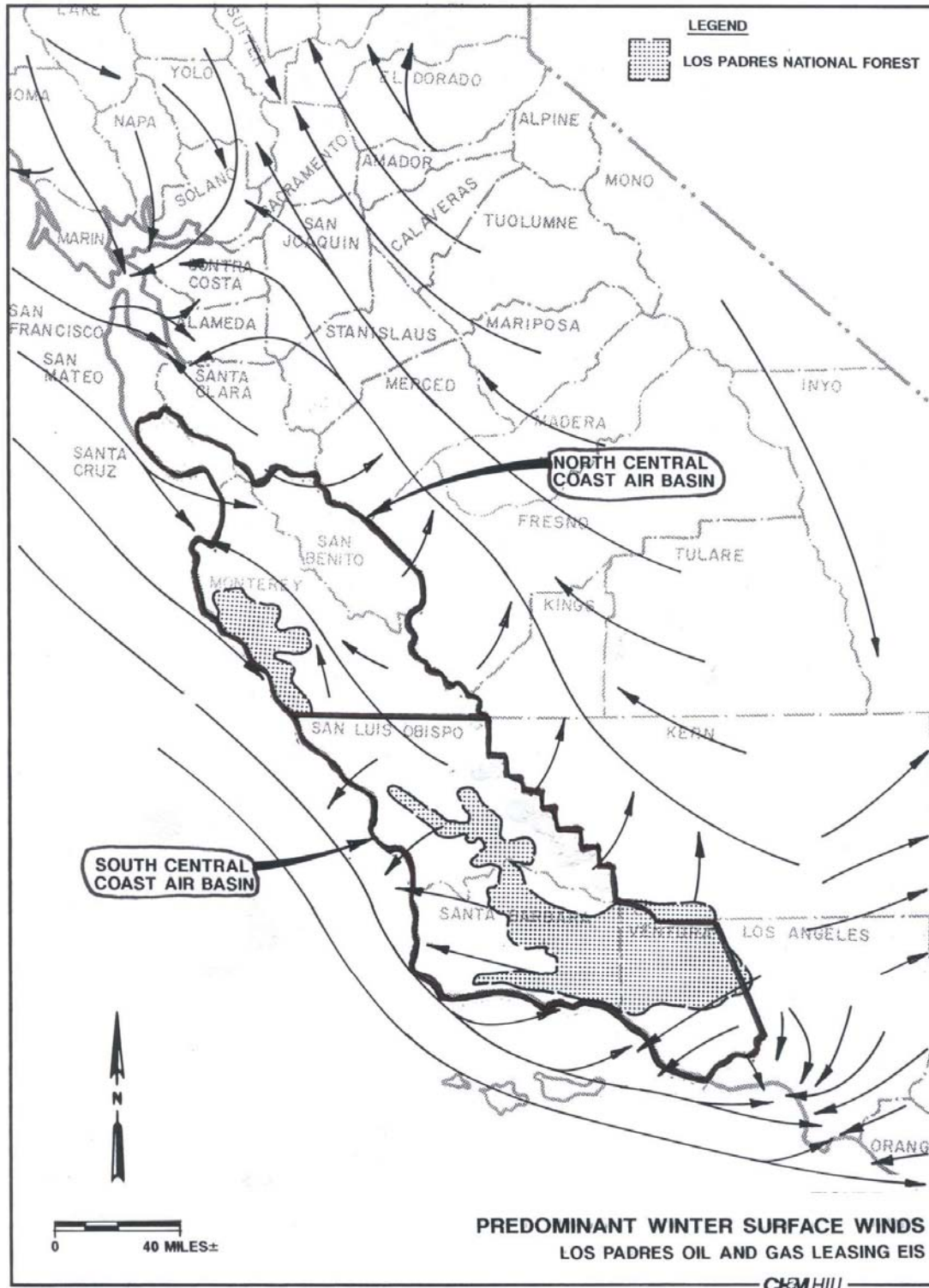
The Forest Interdisciplinary Team identified air quality as a significant issue to be addressed in this EIS. The issue was reaffirmed in feedback received during scoping.

3.1.1.3. Coordination With Air Districts

Forest Service staff has met with each of the affected air districts to discuss potential air quality issues of concern associated with this project. The following issues were identified:

- *Because project-level analysis will be necessary for specific development actions, this study should focus on the cumulative impacts of development at all of the identified prospect areas.*
- *The analysis should address threshold levels for best available control technology (BACT) and emission offsets established for each air district, and should include the effects of these thresholds on project emissions.*
- *Project-level analysis should assess impacts at Class I wilderness areas (Ventana and San Rafael Wildernesses).*
- *Project emissions should be assessed relative to significance thresholds established by the air districts.*

FIGURE 3.2: PREDOMINANT WINTER SURFACE WINDS



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3.1.1.4. Air Quality Resource Description

3.1.1.4.1. Meteorological Environment

In spring and summer months, when the Pacific High attains its greatest strength, onshore winds generally prevail during the day. At night, as the sea breeze dies, weak drainage winds flow down the coastal mountains and valleys to form a light land breeze. In the winter months, when the influence of the Pacific High is at a minimum, light offshore winds predominate. Figures 3-1 and 3-2 show the predominant wind flow streamlines in the NCCAB and SCCAB during the summer and winter seasons, respectively (California Air Resources Board, 1984).

During most of the year, the sea breeze is stronger than the land breeze, and the net wind flow during the day is inland. Under light land-sea breeze regimes, however, recirculation of pollutants can occur as emissions move toward the coast during morning hours, and inland again during the afternoon. This condition, which is common in the fall, can cause a build-up of pollutants over several days.

The vertical dispersion of air pollutants in the air basins is limited by the presence of persistent temperature inversions. Because of expansion cooling of the atmosphere, air temperature usually decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Inversions can exist at the surface, or at any height above the ground. The height of the base of the inversion is known as the “mixing height.” This is the highest level to which pollutants can mix vertically.

Air above and below the inversion base does not mix because of differences in air density. Warm air above the inversion is less dense than below the base. The inversion base represents an abrupt density change where little exchange of air occurs. There are two principal types of inversions that occur; a surface or radiation inversion, and a subsidence inversion.

Surface inversions are formed when the ground surface becomes cooler than the air above it during the night. The earth’s surface goes through a radiative process on clear nights, where heat energy is transferred from the ground to a cooler night sky. As the earth’s surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. Surface inversions start to break up from the bottom as the sun warms the ground. Local hot spots are created in the air just above the warm ground, and the heated air begins to rise. These thermal “bubbles” begin mixing the air, and if the heated air rises above the inversion layer, the inversion will break completely. On many days, however, inversions are so strong that they do not break up. Approximately 60 percent of all inversions measured at Point Mugu, in Ventura County, are surface-based with most occurring during morning hours.

Subsidence inversions occur as air is pushed downward by some mechanism, such as the movement of air over mountain ranges, or by differential pressure changes in the atmosphere. As this air moves downward, its pressure increases, causing its temperature to increase. The warm layer of air created by this phenomenon will descend to some relatively static elevation above the

ground, creating a low inversion layer. This type of inversion is quite persistent, since heat from the ground does not reach the inversion base to break it up. The subsidence inversion can become more persistent if a sea breeze begins to blow under the inversion base. This breeze will cause very cool air to flow under the inversion, and the inversion will strengthen. The result is a strong “marine” inversion.

Inversions can become multi-layered over several days if daily heating is not sufficient to cause them to break up. This can result in inversions, which were created by all of the processes described above. Multi-layered inversions have the greatest resistance to breaking up and result in the greatest build-up of pollutants (Ventura County APCD, 1991).

3.1.1.4.2. Existing Air Quality

Pursuant to the Federal Clean Air Act, the EPA established national ambient air quality standards (NAAQS) for the following “criteria” air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM₁₀ and PM_{2.5}), and lead. California also adopted state standards for the criteria pollutants as well as sulfates, hydrogen sulfide (H₂S), vinyl chloride, and visibility reducing particles. The California standards are generally more stringent than the NAAQS. Table 3-2 lists the California and national ambient air quality standards.

The local air districts have been delegated the responsibility for maintaining the state and national standards. They have permit authority over stationary sources of air pollution, and act as reviewers for environmental documents.

The air districts with jurisdiction in the affected counties are:

- *Ventura County - Ventura County Air Pollution Control District (APCD)*
- *Santa Barbara County - Santa Barbara County APCD*
- *San Luis Obispo County - San Luis Obispo County APCD*
- *Monterey County - Monterey Bay Unified APCD*

Following is a discussion of the characteristics and effects of the criteria pollutants and their precursors (Ventura County APCD, 1991).

3.1.1.4.2.1. Ozone

Sources. Ozone, the major constituent of smog, is formed through a complex series of chemical reactions and transformations in the presence of sunlight. Reactive organic compounds (ROC) and oxides of nitrogen (NO_x) are the principal constituents in these reactions. Ozone is formed by complex photochemical reactions in the atmosphere involving NO_x and ROC with ultraviolet energy from sunlight. Motor vehicles, power plants, the petroleum industry, pesticides, and organic solvents are the major sources of NO_x and ROC. Ozone is a pungent, colorless, toxic gas created when three oxygen molecules bond together. Ozone is known as a secondary pollutant since the gas is formed in the atmosphere, rather than emitted directly into the air. The period of highest ozone levels and greatest frequency of occurrence extends from May through October and is known as “smog season.”

TABLE 3-2: AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²			
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷	
Ozone (O3)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³) ⁸	Same as Primary Standard	Ultraviolet Photometry	
	8 Hour	—		0.08 ppm (157 µg/m ³) ⁸			
Respirable Particulate Matter (PM10)	24 Hour	50 µg /m ³	Gravimetric or Beta Attenuation*	150 µg /m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³ *		50 µg/m ³			
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State	Standard	65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg /m ³ *	Gravimetric or Beta Attenuation*	15 µg /m ³			
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)	
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)			
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—			
Nitrogen Dioxide (NO2)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence	
	1 Hour	0.25 ppm (470 µg/m ³)		—			
Sulfur Dioxide (SO2)	Annual Arithmetic Mean	—		0.030 ppm (80 µg/m ³)	—	Spectrophotometry (Pararosaniline Method)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)			
	3 Hour	—		—			0.5 ppm (1300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)		—			—
Lead ⁹	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	—	
	Calendar Quarter	—		1.5 µg/m ³			Same as Primary Standard
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards			
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography*				
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ⁹	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				
<p>On June 20, 2002, the Air Resources Board approved staff's recommendation to revise the PM10 annual average standard to 20 µg/m³ and to establish an annual average standard for PM2.5 of 12 µg/m³. These standards will take effect on July 5, 2003. Information regarding these revisions can be found at http://www.arb.ca.gov/research/aaqs/std-rs/std-rs.htm. California Air Resources Board (6/12/03) See also footnotes on next page</p>							

TABLE 3-2: AMBIENT AIR QUALITY STANDARDS - CONTINUED; FOOTNOTES

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.
9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Effects. Ozone is a strong irritant, which attacks the respiratory system, leading to lung tissue damage. Asthma, bronchitis, and other respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to ozone. Healthy people exposed to high ozone concentrations may become nauseated or dizzy, may develop headaches or coughs, or may experience a burning sensation in the chest. Symptoms appear to be aggravated by exercise. Ozone adversely effects vegetation, including damage to food crops, ornamental plants, and natural vegetation including forests. Ozone also affects materials such as surface coatings, fabrics, and rubber.

3.1.1.4.2.2. Oxides of Nitrogen

There are a number of NO_x compounds, but only two are important in air pollution. These are: nitric oxide (NO), a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or pressure; and nitrogen dioxide (NO₂), a reddish-brown irritating gas formed by the combination of nitric oxide with oxygen. NO_x plays a critical role in the photochemical reaction that produces ozone.

Sources. High temperature combustion causes nitrogen and oxygen to combine and form NO and NO₂. Further reaction produces additional NO_x. Combustion in motor vehicle engines, power plants, refineries, and other industrial operations all generate NO_x emissions.

Effects. Exposure to NO₂ increases the incidence of respiratory infections among children, and causes difficulty in breathing among healthy people, persons with chronic bronchitis, and in asthmatics. An increased incidence of acute respiratory disease in children and adults may occur after repeated exposure to elevated levels of NO₂ in combination with other pollutants. NO₂ also causes visibility problems. The gas creates the brownish haze often associated with smog.

3.1.1.4.2.3. Sulfur Dioxide

Sulfur dioxide (SO₂) is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. In humid conditions, some of the SO₂ may be changed to sulfur trioxide and sulfuric acid mist, with some of the latter eventually reacting with other materials to produce sulfate particulates.

Sources. This contaminant is a by-product of combustion of sulfur-containing fossil fuels. Fuel combustion is a major source of SO₂. Power plants and motor vehicles account for the majority of the SO₂ emissions.

Effects. At high concentrations, SO₂ irritates the upper respiratory tract. At lower concentrations in conjunction with particulate matter, SO₂ harms the lung tissues. SO₂ also has adverse effects on plant growth. Finally, SO₂ can form sulfate aerosols in the atmosphere, which reduce visibility.

3.1.1.4.2.4. Hydrocarbons

Any of the vast family of compounds consisting of hydrogen and carbon in various combinations are known as hydrocarbons. Fossil fuels are included in this group. Many hydrocarbon compounds are highly photochemically reactive and play an important role in ozone formation.

Sources. Motor vehicles, organic solvents, petroleum recovery operations, pesticides and herbicides, and organic solvents are all major sources of hydrocarbons. These hydrocarbons are often referred to as reactive organic compounds (ROC). The federal ambient standard for hydrocarbons was revoked by the Environmental Protection Agency in 1983.

Effects. Levels of hydrocarbons currently measured in urban areas are not known to cause adverse effects on humans. However, certain members of the hydrocarbon group are important components (precursors) in the reactions, which produce photochemical smog (ozone).

3.1.1.4.2.5. Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon-containing substances. CO concentrations are generally higher in the winter months during morning hours, when vertical mixing of the atmosphere is limited.

Sources. Motor vehicles are the primary source of CO. Combustion processes from various industrial sources also produce significant amounts of CO.

Effects. CO does not irritate the respiratory tract, but passes through the lungs directly into the blood stream and, by interfering with the transfer of fresh oxygen to the blood, deprives sensitive tissues of oxygen. CO is not known to have adverse effects on vegetation, visibility, or materials.

3.1.1.4.2.6. Particulate Matter (PM₁₀ and PM_{2.5})

Atmospheric particulates are made up of fine solids or liquids such as soot, dust, aerosols, fumes, and mists. A large portion of the particulate suspended in the atmosphere is finer than 10 microns (one micron is one millionth of a meter). These small particulates cause the greatest health risk, and have both federal and state standards.

Sources. Particulate matter consists of particles in the atmosphere resulting from many kinds of fume-producing industrial and agricultural operations, motor vehicle tires, combustion, and atmospheric photochemical reactions. Natural activities also put particulates into the atmosphere; wind-raised dust and ocean spray are two such sources of particulates.

Effects. The nose and throat are able to stop most large particles. However, very small particles can easily bypass this natural filtering system and lodge deep in the lungs. PM₁₀ and PM_{2.5} are considered a greater health risk than larger particles due to their ability to be inhaled deep into the lungs. PM₁₀ and PM_{2.5} particles cannot be removed from the lungs by exhaling, and may be carriers of toxic materials which can be absorbed by the blood and carried to other parts of the body. Suspended in the air, particulates can both scatter and absorb sunlight, producing haze and reducing visibility.

3.1.1.4.3. Attainment Status of the Project Area

The California Air Resources Board (CARB) and local air districts maintain a network of ambient air monitoring stations throughout California. The monitoring stations measure actual criteria pollutant concentrations for comparison to the state and national standards.

Based on the pollutant levels recorded at the monitoring stations, the EPA and CARB classify the status of air quality in the various air basins for air quality planning purposes. The current area designations for the state and national standards are listed in Tables 3-3 and 3-4, respectively.

An attainment designation means that all of the monitoring stations in the air basin have been meeting the standards over the past several years. A nonattainment designation means that violations of the air quality standards have been recorded at one or more stations over the past several years.

TABLE 3-3: AREA DESIGNATIONS FOR THE CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Air Basin	County	Ozone	CO	NO ₂	SO ₂	PM ₁₀
North Central Coast	Monterey	Nonattainment	Attainment	Attainment	Attainment	Nonattainment
South Central Coast	San Luis Obispo	Nonattainment	Attainment	Attainment	Attainment	Nonattainment
	Santa Barbara	Nonattainment	Attainment	Attainment	Attainment	Nonattainment
	Ventura	Nonattainment	Attainment	Attainment	Attainment	Nonattainment

Source: California Air Resources Board, 2000.

TABLE 3-4: AREA DESIGNATIONS FOR THE NATIONAL AMBIENT AIR QUALITY STANDARDS

Air Basin	County	Ozone	CO	NO ₂	SO ₂	PM ₁₀
North Central Coast	Monterey	Maintenance	Attainment	Attainment	Attainment	Attainment
South Central Coast	San Luis Obispo	Attainment	Attainment	Attainment	Attainment	Attainment
	Santa Barbara	Nonattainment	Attainment	Attainment	Attainment	Attainment
	Ventura	Nonattainment	Attainment	Attainment	Attainment	Attainment

Source: California Air Resources Board, 2000.

Note: The national standards for PM_{2.5} and 8-hour ozone were adopted by the EPA in July 1997. As a result, attainment designations will not be made until at least 2002 for PM_{2.5} and 2000 for 8-hour ozone. The designations for ozone in this table reflect the 1-hour ozone standard only.

As shown in Tables 3-3 and 3-4, ozone and PM₁₀ are the pollutants of concern in the NCCAB and SCCAB. All counties in both air basins are nonattainment for the state ozone standard. Santa Barbara and Ventura Counties are nonattainment for the national ozone standard. For PM₁₀, all counties in both air basins are nonattainment for the state standard. For the national PM₁₀ standards, the air basins are attainment. For all other pollutants, the air basins are attainment.

The Federal Clean Air Act and the California Clean Air Act both require designated regional agencies to prepare air quality management plans for nonattainment pollutants. The plans must set forth strategies for reaching attainment of the standards according to specific schedules. Attainment is projected based on regional emission inventories conducted for future milestone years.

3.1.1.4.3.1. Sensitive Receptor Locations

At the time of project-level analysis, it will be important to consider sensitive receptors and the locations of the receptor sites near the project areas. From an air quality perspective, sensitive receptor sites are defined as locations where adverse air quality levels could affect (a) a relatively large number of people, such as a nearby community or popular recreation area; or (b) a Class I wilderness area. The Ventana and San Rafael (see map entitled *Roadless Areas and ROS Classes* in the DEIS map packet) are both Class I wilderness areas. Some, but not all Forest recreation areas are identified on the map entitled *Recreation Stipulations Alternative 3*.

3.1.1.4.4. Forest Plan Direction

The Forest Plan (USFS, 1987) contains an air quality element. Although the air quality element focuses primarily on prescribed fire, it does contain some general guidelines for other types of actions. Namely, the Plan calls for compliance with California air quality guidelines and other local restrictions in order to protect air quality in the Forest's Class I and Class II airsheds. Such

compliance is to be achieved through cooperation with appropriate federal, state, and county regulatory agencies.

3.1.1.5. *Applicable Air Quality Rules and Regulations*

The EPA, CARB, and local air districts have established air quality rules and regulations, which would apply to a proposed project, independent of NEPA. Following is a summary of the rules and regulations, which would potentially have the greatest effect on the proposed project. These rules will need to be addressed at the project level, at such time that an applicant proposes specific development of a prospect area.

3.1.1.5.1. General Conformity Rule

The Clean Air Act Amendment of 1990 require the EPA to promulgate rules to ensure that federal actions conform to appropriate State Implementation Plans (SIPs). The EPA published General Conformity regulations in the Federal Register (40 CFR Part 6, 51, and 93) dated November 30, 1993. The conformity provisions of the Clean Air Act, Section 176(c), prohibit federal agencies from taking any action that causes or contributes to any new violation of the NAAQS, increases the frequency or severity of an existing violation, or delays the timely attainment of a standard. Conformity to a SIP is defined in the Act as meaning conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards (USDA Forest Service, 1995).

The general conformity rule applies to criteria pollutants in nonattainment or maintenance areas. Maintenance areas are formerly nonattainment areas that have been brought back into compliance with the NAAQS. In general, a project conforms to the SIP if the total of its direct and indirect emissions are either included in the SIP's emission inventory or are less than the *de minimus* emission thresholds (Table 3-5). If project emissions exceed the *de minimus* emission thresholds, conformity can also be demonstrated through dispersion modeling if the modeling results predict no new or exacerbated air quality violations. A project that does not conform can only proceed if it is mitigated to the point at which it conforms. The mitigation could include changes to the project scope or emission offsets.

Because this study addresses leasing of land only and is not project-specific, it is not possible at this time to know precisely when, and to what extent, each prospect area would be developed. Further, it is not possible to know the specific number and types of emission-generating equipment that would be used at each prospect area. Because the specific project-level emissions cannot be predicted at this time, a conformity determination is not possible. A conformity determination will be required when an applicant proposes to conduct operations on a particular lease.

TABLE 3-5: DE MINIMUS EMISSION RATES FOR CONFORMITY DETERMINATIONS

Pollutant	Emission Rate (ton/yr)
Nonattainment Areas	
Ozone (VOCs or NO _x)	
<i>Serious nonattainment area</i>	50
<i>Severe nonattainment area</i>	25
<i>Extreme nonattainment area</i>	10
<i>Other ozone nonattainment area outside an ozone transport region</i>	100
CO (all nonattainment areas)	100
SO ₂ or NO ₂ (all nonattainment areas)	100
PM ₁₀	
<i>Moderate nonattainment area</i>	100
<i>Serious nonattainment area</i>	70
Lead (all nonattainment areas)	25
Maintenance Areas	
Ozone (NO _x Limited), SO ₂ , NO ₂	100
Ozone (VOC Limited)	
<i>Maintenance area inside transport region</i>	50
<i>Maintenance area outside transport region</i>	100
CO	100
PM ₁₀	100
Lead	25

Source: CH2M HILL, 1995.

3.1.1.5.2. Prevention of Significant Deterioration

As part of the Clean Air Act, the EPA established a program, called Prevention of Significant Deterioration (PSD), which seeks to protect attainment areas from further degradation. A stationary source would trigger PSD review if its direct emissions of an attainment pollutant exceed established emission thresholds. Once PSD is triggered, the following would be required:

- *Application of Best Available Control Technology (BACT)*
- *Pre- and post-construction ambient monitoring may be required*
- *Air quality impact analysis*
- *Visibility, soils, and vegetation impact analysis*
- *Assess impact on air quality related values (AQRVs) in federal Class I areas (discussed in the following section)*

In the air quality impact analysis, an applicant must demonstrate that the NAAQS are not violated and that ambient air quality levels do not degrade beyond allowable increments. Dispersion modeling of project emissions is typically the method used in such a demonstration.

The EPA has delegated the authority to administer the PSD program to certain local air districts. The districts must develop a PSD program that is at least as stringent as the federal PSD program. In the project area, the Santa Barbara County APCD and the Monterey Bay Unified APCD have been delegated PSD authority. In Ventura and San Luis Obispo Counties, the EPA administers PSD.

None of the alternative development scenarios is expected to generate emissions that would trigger the PSD permit process. The PSD discussion is provided here to help explain Forest Service responsibility for Class I wilderness areas.

3.1.1.5.3. USDA Forest Service Air Quality Review Criteria

The Clean Air Act (CAA) of 1977 gives Federal Land Managers (FLMs), including the Forest Service, an affirmative responsibility to protect the air quality related values (AQRVs) within Class I wilderness areas. The CAA is a tool that can be implemented to meet the management goals and objectives of the Wilderness Act and the National Forest Management Act.

Authority to protect AQRVs in Class I areas is given to FLMs through the federal PSD program. A permit applicant is required to demonstrate that the proposed facility will not cause or contribute to adverse impacts to AQRVs in any Class I area. The FLMs have established thresholds for acceptable air pollution-caused changes at sensitive receptors. They must determine whether the proposed facility would cause adverse impacts to those receptors. Examples of AQRVs, sensitive receptors, and factors potentially changed by air pollution are listed in Table 3-6.

TABLE 3-6: EXAMPLES OF AQRVs, SENSITIVE RECEPTORS, AND FACTORS POTENTIALLY CHANGED BY AIR POLLUTION

AQRV	Sensitive Receptors	Factors Changed by Air Pollution
<i>Flora</i>	<i>Ponderosa pine, lichens</i>	<i>Growth, mortality, reproduction, visible injury</i>
<i>Water</i>	<i>Alpine lakes</i>	<i>Total alkalinity, pH, metal concentration, dissolved oxygen</i>
<i>Soil</i>	<i>Alpine soils</i>	<i>pH, cation exchange capacity, base saturation</i>
<i>Visibility</i>	<i>High usage vista</i>	<i>Contrast, visual range, coloration</i>
<i>Cultural/archaeological values</i>	<i>Pictographs</i>	<i>Decomposition rate</i>
<i>Odor</i>	<i>Popular hiking trail</i>	<i>Ozone odor</i>

Source: Peterson, 1992.

Class I areas are those wilderness areas more than 5,000 acres that were in existence as of August 7, 1977, or any later expansions made to these wildernesses. All other National Forest lands are Class II, including new wilderness. In Los Padres National Forest, Class I areas include the San Rafael and Ventana Wilderness areas. At the time of project-level review, the applicants will need to demonstrate that the project would not have a significant adverse effect on AQRVs in the Class I areas. Visibility and dispersion modeling are typically used in these demonstrations. At a minimum, emissions from any and all project activities within 10 km of any Class I area will be analyzed for AQRV impacts prior to being authorized. Cumulative long-term operational emissions impacts on Class I AQRVs will be analyzed prior to final approval of the associated project operating plans. The resulting cumulative effects analysis will be used to help determine the initial project monitoring requirements and the need for any additional air emissions control measures to be added to the conditions of approval.

3.1.1.5.4. AB 2588 Toxic “Hot Spots” Act

The California Air Resources Board developed regulations for Assembly Bill (AB) 2588, the Air Toxics Hot Spots Information and Assessment Act of 1987. Facilities that exceed certain thresholds for criteria pollutant and total volatile organic compound (VOC) emissions are subject to AB 2588. The purpose of AB 2588 is to require facilities to report their actual direct emissions of toxic air contaminants. Facilities are subsequently prioritized by their emissions, and “high priority” facilities may be required to conduct a human health risk assessment.

3.1.1.5.5. New Source Review Rule

The local air districts in California have been delegated authority over stationary emission sources. The districts must develop rules, which are at least as stringent as state, and federal rules. The new source review (NSR) rule is the mechanism by which each air district formally reviews and issues operating permits for new and modified sources of air emissions. Through the NSR process, an air district has the authority to require:

- *Conditions which limit a source’s operations*
- *Installation of best available control technology (BACT)*
- *Acquisition of emission offsets to negate an emission increase*
- *Demonstration of compliance with the ambient air quality standards via an air quality impact analysis*
- *Regular emission testing*

The requirements of the NSR rules vary from district to district, depending on a number of factors, including the condition of air quality. For example, the Ventura County APCD, which has the most serious ozone problem of the four affected districts, requires *any* increases in NO_x or ROC emissions from a new or modified source to be offset. By contrast, in the Santa Barbara County, Monterey Bay Unified, and San Luis Obispo County APCDs, offsets are not required for ROC or NO_x until emissions reach a specified level.

Any stationary emission sources proposed by an applicant as part of a drilling or production facility would be subject to the NSR rules of the governing air district. Such equipment includes natural gas well pumps, temporary flares, production tanks, fugitive VOC emissions (in the Santa Barbara County APCD only), and drill rigs (in the Ventura County APCD only).

A summary of NSR requirements for each district is included in Appendix C of the Air Quality Background Report.

3.1.1.5.6. Local Air Quality Rules

In addition to NSR rules, each air district has established a series of prohibitory rules, some of which would apply to the proposed project. Some of these current rules are noted here:

Santa Barbara County APCD:

Rule 304: Particulate matter (northern zone)

Rule 305: Particulate matter concentration – Southern zone

Rule 306: Dust and fumes – Northern zone

Rule 307: Particulate matter emission weight rate – Southern zone

Rule 310: Odorous organic sulfides
Rule 325: Crude oil production and separation
Rule 326: Storage of reactive organic compound liquids
Rule 327: Organic liquid cargo tank vessel loading
Rule 331: Fugitive emissions inspection and maintenance
Rule 332: Petroleum refinery vacuum producing systems, wastewater separators and process turnarounds
Rule 333: Control of emissions from reciprocating I/C engines
Rule 342: Control of oxides of nitrogen (NOx) from boilers, steam generators, and process heaters
Rule 343: Petroleum storage tank degassing
Rule 344: Petroleum sumps, pits, and well cellars
Rule 346: Loading of organic liquid cargo vessels
Proposed Rule: Oil field drilling (SBCAPCD, 1996).

Ventura County APCD:

Rule 52: Particulate matter – concentration
Rule 53: Particulate Matter – process weight
Rule 54: Sulfur compounds
Rule 57: Combustion contaminants
Rule 70: Storage and transfer of fuels
Rule 71: Crude oil and reactive organic liquids
Rule 71-1: Crude oil production and separation
Rule 71-2: Storage of reactive organic compound liquids
Rule 71-3: Transfer of reactive organic compound liquids
Rule 71-4: Petroleum sumps, pits, ponds, and well cellars
Rule 74-7: Fugitive emissions of reactive organic compounds at petroleum refineries and chemical plants
Rule 74-9: Stationary internal combustion engines
Rule 74-10: Components of crude oil and natural gas production and processing facilities
Rule 74-16: Oil field drilling operations
Rule 74-26: Crude oil storage tank degassing operations
Rule 74-27: Gasoline and ROC liquid storage tank degassing operations

Monterey Bay Unified APCD:

Rule 403: Particulate matter
Rule 404: Sulfur compounds and nitrogen oxides
Rule 417: Storage of organic liquids
Rule 418: Transfer of gasoline into stationary storage containers
Rule 419: Bulk gasoline plants and terminals
Rule 420: Effluent oil water separators
Rule 427: Steam drive crude oil production wells

San Luis Obispo County APCD:

Rule 403: Particulate matter
Rule 404: Sulfur compound emission standards
Rule 405: Nitrous oxide emission standards
Rule 407: Organic material standards
Rule 417: Control of fugitive emissions of VOCs

Rule 419: Petroleum pits, ponds, sumps, well cellars, and wastewater

Rule 422: Refinery process turnarounds

Rule 425: Storage of VOCs

Rule 427: Marine tanker loading

Rule 431: Stationary internal combustion engines

Future lessee proposed projects would be subject to each of these prohibitory rules, if applicable, in the corresponding air district.

3.1.2. Watershed Resources

3.1.2.1. *Introduction*

The watersheds of Los Padres National Forest are delineated on the *Watershed Stipulations* map in the DEIS map packet. These watersheds are composed of steep mountainous terrain with complex soil and geologic patterns. The South Coast Range and western portion of the Transverse Ranges provide the setting for most of the Forest's 1,775,744 acres. The oldest rock formation may be as much as 1.7 billion years old, but sedimentary formations less than 200 million years old underlie most of the Forest. This underlying bedrock is intensely folded, fractured, and faulted. The soils are poorly developed and are extremely susceptible to erosion when disturbed. The steepness of the terrain, the shallowness of the soils, and complex geologic faulting all contribute to landslide hazard potential. Soil erosion and landslides can be a major source of sediment, which can damage roads, pipelines and other facilities, and degrade water quality. In order to meet water quality standards, land must be used in a way that does not accelerate soil erosion and land instability. The Clean Water Act (Act of June 30, 1948 and amendments) and the National Forest Management Act of 1976 are the laws governing water quality and soil productivity standards.

3.1.2.2. *Issues and Concerns*

The Forest Interdisciplinary Team identified the following significant issue, which was reaffirmed in feedback received during scoping.

“effects of oil and gas leasing and possible subsequent exploration and development activities on water, soils, and riparian values”

3.1.2.3. *General Description of Watershed Resources*

The Los Padres National Forest watersheds are delineated using a protocol commonly known as CALWATER, which was developed by the state of California. (Note: In the CALWATER numbering system, used for the maps and tables, the first number of the numerical code designates the Water Quality Board region, and subsequent numbers to the left of the decimal represents hydrologic units within the region. The next two numbers to the right of the decimal represent hydrologic basins, and the last numbers indicating sub-basins in the hydrologic basin.) The Los Padres National Forest falls within three California Regional Water Quality Control Board areas: Central Coast Region (3), Los Angeles Region (4), and Central Valley Region (5).

These regions and hydrologic units listed in Table 3-7, are described in general below, and shown on the Watershed Stipulations map in the DEIS map packet. A more detailed discussion of the basins is given in the Watershed Background Report on file at the Forest Supervisor's office.

TABLE 3-7: WATER QUALITY BOARD REGIONS AND HYDROLOGIC UNITS THAT OCCUR ON LOS PADRES NATIONAL FOREST.

Region	Hydrologic Unit	Basin	
300 - Central Coast	307 - Carmel River	307.00 - Carmel River	
	308 - Santa Lucia	308.00 - Santa Lucia	
	309 - Salinas River		309.60 - Arroyo Seco
			309.81 - Atascadero
			309.90 - Pozo
	310 - Estero Bay		310.11 - San Carpofo
			310.17 - Old
			310.18 - Toro
			310.21 - Morro
			310.22 - Chorro
			310.24 - San Luis Obispo
			310.26 - Pismo
			310.31 - Oceano
	312 - Santa Maria		312.20 - Sisquoc
			312.30 - Cuyama Valley
	314 - Santa Ynez		314.30 - Buellton
		314.40 - Santa Cruz Creek	
315 - South Coast		315.10 - Arguello	
		315.31 - Goleta	
		315.32 - Santa Barbara	
		315.33 - Montecito	
		315.34 - Carpenteria	
317 - Estrella River		317.00 - Estrella	
400 - Los Angeles	401 - Madranio	401.00 - Madranio Canyon	
	402 - Ventura River		402.20 - Upper Ventura River
			402.31 - Upper Ojai
			402.32 - Ojai Valley
	403 - Santa Clara (700)		403.21 - Sulfur Springs (703)
			403.22 - Sisar Canyon
			403.31 - Fillmore (702)
			403.32 - Topatopa (701)
			403.41 - Santa Felicia (705)
			403.42 - Upper Piru (704)
		403.43 - Hungry Valley (707)	
	403.44 - Stauffer (706)		
500 - Central Valley	556 - San Emigdio	556.30 - San Emigdio	

3.1.2.3.1. Central Coast Region

Seventy-seven percent of Los Padres National Forest falls within the Central Coast Region. The region covers the northern portion of the Forest, near Monterey, to the south and eastward near Casitas Lake, north of Ventura.

3.1.2.3.1.1. Physical Setting of the Carmel, Santa Lucia, Salinas, Estero Bay and Estrella River Hydrologic Units.

In the north, the Santa Lucia Mountain Range, running in a north-south direction, makes up the backbone of the ridge that divides the Santa Lucia and Estero Bay hydrologic units on the west, from the Carmel River and Salinas River hydrologic units on the east. The elevations along the backbone gradually descend from the north to the south. Elevations range from 4,965 feet in the north, to 3,180 midway along the ridge, to 4,050 at the south end of the hydrologic units.

Most drainages in western Santa Lucia and Estero Bay hydrologic units flow directly into the Pacific Ocean. Some of the major streams are San Luis Obispo Creek, Arroyo Grande Creek and the Huasna River-Alamo Creek. Major drainages on the eastern hydrologic units are the Carmel River, Arroyo Seco, and San Antonio River. Numerous drainages flow directly into the Salinas River. Geologic bedrock is metamorphic rock, such as serpentine, at the north end and sedimentary rocks to the south. Drainages in the north have steeper gradients than those to the south. Slopes range from 10–70 percent and generally exceed 40 percent. The soils to the north are moderately deep, with high to very high erosion hazard ratings; soils at the southern end are shallow with very high erosion hazard ratings.

The La Panza Range is a low-lying group of mountains that separates the Estrella River and Salinas River hydrologic units. The Estrella River unit drains eastward into the Carrizo Plain. Elevations range from 3,625 feet in the north, to 3,770 feet in the south. The La Panza Range is a mixture of igneous and sedimentary rocks that are moderately sloping, 20 to 50 percent, with moderately high erosion on moderately deep soils.

3.1.2.3.1.2. Physical Setting of the Santa Maria, Santa Ynez, and South Coast Hydrologic Units.

The Santa Maria and Santa Ynez hydrologic units make up a major land area in the center of the Forest and drain westward into the Pacific Ocean. The San Rafael Mountains ridgeline, lying on a northwest-southeast to east axis, separates the two hydrologic units, the Santa Maria on the north, and the Santa Ynez to the south. Elevations along the north boundary of the units range from 7,510 feet in the east, to 4,525 in the west. The Santa Ynez and South Coast hydrologic units are divided by the Santa Ynez Mountains that lie on a west-east axis. Elevations range from 4,710 at the east end of the units, to 2,360 in the west.

The two major drainages in the Santa Maria hydrologic unit are the Cuyama and the Sisquoc Rivers. The bedrock geology in the San Rafael Mountains consists of hard sandstone, shale,

siltstone and serpentine materials. Slopes are steep and very steep, 40 to 80 percent, and soils are shallow and highly erodable.

The Santa Ynez River, which flows west, is the major drainage in the Santa Ynez hydrologic unit. The South Coast unit has numerous drainages that flow south, directly into the Pacific Ocean. The rolling to steep Santa Ynez Mountains consists of sandstone, shale, and siltstone, with some metamorphosed materials intermixed. The topography is rough, with many rock outcrops, and the area is moderately erodable. The area has been uplifted and broken by several thrust faults, resulting in some unstable slopes.

3.1.2.3.2. Los Angeles Region

The Los Angeles Region makes up seventeen percent of Los Padres National Forest. The region makes up the eastern portion of the Forest, east and north of Ventura. Table 3-7 lists the three hydrologic units in the region. The Santa Clara Basin had not been numbered at the beginning of this analysis, so it and its subdivisions were designated with 700.00 numbers.

3.1.2.3.2.1. Physical Setting of Madranio and Ventura River Hydrologic Units.

These hydrologic units occur in the eastern end of the Santa Ynez Mountains, and drain southward into the Ventura River, which flows into the Pacific Ocean. The units are bounded by elevations of 4,710 feet on the west to about 6,000 feet on the north and east. The drainages consist of steep mountainsides and ridges, 40–80 percent slopes, with shallow to moderately deep soils that are highly erodable. The parent material is hard fractured siltstone and sandstone. The area has been uplifted and broken by several thrust faults, resulting in some unstable slopes.

3.1.2.3.2.2. Physical Setting of the Santa Clara Hydrologic Unit.

This hydrologic unit forms the bulk of the land in the Los Angeles Valley Region. Two major drainages, Sespe Creek and Piru Creek, flow east and then turn south to Santa Clara River. Elevations that bound the unit range from 6,600 feet on the northwest, 8,800 feet in the north and 8,000 feet on the northeast. The mountains consist of hard sandstone, siltstone and shale with shallow soils that are highly erodable on 30 to 80 percent slopes. Numerous thrust faults have broken the landscape and drainage patterns. Many areas have unstable slopes. The San Andreas Fault Zone lies to the east and northeast of this hydrologic unit.

3.1.2.3.3. Central Valley Region

Six percent of the Forest occurs in the Central Valley Region along the northeastern boundary of the Forest, near Frazier Park. The San Emigdio hydrologic unit drains to the north from the mountains that form the divide between the San Emigdio, Santa Clara and Santa Maria hydrologic units. Mount Pinos, forming the divide between these hydrologic units, is over 8,800 feet in elevation, and consists of granite, gneiss, and schist. Mountain slopes range from 45–90 percent, and have shallow soils that are highly erodable. The unit lies southwest of the San Andreas Fault.

3.1.2.4. Soils, Riparian and Water Resources

3.1.2.4.1. Soils

Soils on Los Padres National Forest are diverse and are a reflection of the soil parent material and landform processes. Climate is characterized by variable precipitation and temperature extremes. The major water quality problem is associated with downstream sedimentation and its effects on reservoir water storage life, and fish and wildlife habitat.

Soils influence the type of vegetation and many of the management opportunities and needs. About half of the soils of the Forest have relatively low productive capabilities and generally occur on steep slopes over hard bedrock. Highly productive soils occur on only 7% of the Forest; these typically occur in the valley bottoms, on gently rolling hills. The rest of the Forest is rated as moderately productive.

Earthquakes and slope failures on the Forest can endanger both lives and property. Although the well-known San Andreas Fault crosses portions of Los Padres National Forest, many other major faults and associated secondary faults are either active or potentially active. Unstable slopes occur widely across the Forest: more than 50 percent of the surface is either extremely or highly sensitive to slope failure.

3.1.2.4.2. Wetland-Riparian Areas

Wetlands consist of riverine and lacustrine systems. Riverine systems include the streams that occur in most of the valleys. Lacustrine systems contain mostly open water and consist of lakes and reservoirs. Because of the dry climate and steep topography of this region, wetlands in this area are typically small and are primarily restricted to the narrow bands bordering streams, small lakes and ponds, and reservoirs. Wetlands that meet criteria of U.S. Army Corps of Engineers (1987) are considered to be subject to Section 404 of the Clean Water Act, and require a permit prior to dredging and filling activities.

Los Padres National Forest covers 1.75 million acres. Riparian habitat is only one percent of the total Forest land base. There are about 19,000 acres of riparian habitat, 3,100 acres of lakes and reservoirs, and 400 miles of intermittent and perennial streams in Los Padres National Forest.

Many riparian areas are currently considered to be below their potential in terms of vegetative structure, density, and species diversity (LPNF Forest Plan). This condition is considered to be a result of past grazing, wildfires, and recreation use. Stream habitat is presently degraded in some areas due to lack of streamside cover, poor bank stability, high sediment load, and lack of pool areas. However, improvements have been made in recent years due to closures and other measures taken to protect threatened, endangered, proposed, and sensitive species.

Management practices related to oil and gas activities currently used for riparian areas in Los Padres National Forest are shown in Table 3-8.

3.1.2.4.3. Water Resources (Surface And Ground)

The Los Padres National Forest area exhibits distinct differences in climate between the coastal and inland sections. The climate in the coastal area has long, dry, cool summer seasons with frequent ocean fogs, followed by a shorter wet winter period with cooler temperatures. Much of the coastal area has average July temperatures in the upper 60s or low 70 degrees F. In January the average low temperature is in the 40s and 50s.

Warm dry summers and relatively cool, wet winters characterize the climate in the inland area. Temperatures below freezing are common in winter. In January, the average low temperatures are in the 30s, and in July the average maximum temperatures, in the valleys, are in the 90s. More than 90 percent of the precipitation occurs between November and April. Precipitation falls mostly as rain, with some snow falling in the upper elevations.

Annual precipitation ranges from less than 10 inches in portions of the Cuyama valley to more than 35 inches at the higher elevations of the Santa Lucia Range and San Rafael Mountains. Generally, the annual precipitation is 20–30 inches in the northern and eastern mountains and 15–20 inches in the most western portion. Thundershowers sometimes occur in the mountains during the summer months.

National Forest System (NFS) lands are a major surface water source for 37 reservoirs within and near the project area that are used for municipal and agricultural water supplies. In most cases, runoff from NFS lands provides the only water source for this water-limited area. While 715,000 acre-feet of water are produced on the Forest, only 25 percent of that is currently available for consumptive use. The rest provides water for instream flow needs and other non-consumptive uses. An estimated 25 percent of the consumptive water use is for domestic and 75 percent for agricultural uses.

Cachuma, Gibraltar, and Juncal dams supply water for municipal and agricultural needs. The Cuyama River flows into Twitchell Reservoir, where the water is released to the Santa Maria River to recharge the Santa Maria and Guadalupe areas. The runoff from the Sisquoc River enters the Santa Maria River and is also used for groundwater recharge in this area, where heavy demand is being put on the groundwater supply for municipal and extensive agricultural development. Lopez Reservoir, which receives its water from Lopez and Arroyo Grande creeks, supplies the water needs of the coastal communities of Arroyo Grande, Grover Beach, and Pismo Beach. Santa Margarita Lake, on the upper Salinas River, supplies water to the city of San Luis Obispo. Lake Casitas provides water for the cities of Ventura and Ojai.

Groundwater is used within the Forest for domestic purposes by private landowners and for administrative purposes (e.g., fire management, wildlife, and campgrounds). The total amount used for these purposes is unknown. There are no Forest-wide estimates of the total groundwater supply, due to the complexities of hydrogeology. Local water agencies have expressed an interest in developing Forest groundwater supplies.

Surface water on the Forest generally meets state water quality standards. The major water quality problem is associated with sedimentation and its effects on life of reservoirs for water storage, and fish and wildlife habitat.

3.1.2.5. *Forest Plan Management Direction*

The Forest Plan provides management direction related to oil and gas development. Table 3-8 provides a listing of current watershed management direction and stipulation measures from the Forest Plan.

3.1.2.6. *Current Cumulative Watershed Effects*

This section describes the current condition and sensitivity of the watershed resources within the lease study area. Watersheds that are potentially available for entry for oil and gas exploration and development on the Forest, that is, those outside of Wilderness or other congressionally withdrawn areas, were analyzed to determine the current status of Cumulative Watershed Effects (CWE). The CWE procedure, described below, is used to describe the combined condition and sensitivity of soils, water and riparian resources as a single rating.

3.1.2.6.1. Cumulative Watershed Effects Analysis Procedure (CWE)

The Los Padres National Forest Land and Resource Management Plan (Forest Plan or Plan) directs that a cumulative watershed impact assessment will be made on Order III and greater watersheds at the time of environmental analysis. This analysis is based on the Cumulative Watershed Effects (CWE) analysis methodology developed by the Pacific Southwest Region, USDA Forest Service. The CWE analysis is a systematic process of evaluating the risk of adverse impacts that disturbances, caused by land use, have on water quality and soil productivity.

CWE is estimated by evaluating the sensitivity of the watershed to disturbance from land use and the amount of land use that has occurred, and is planned to occur, in the watershed. Figure 3-3 represents the factors in the CWE process. Each factor in this process is described in the text following this section.

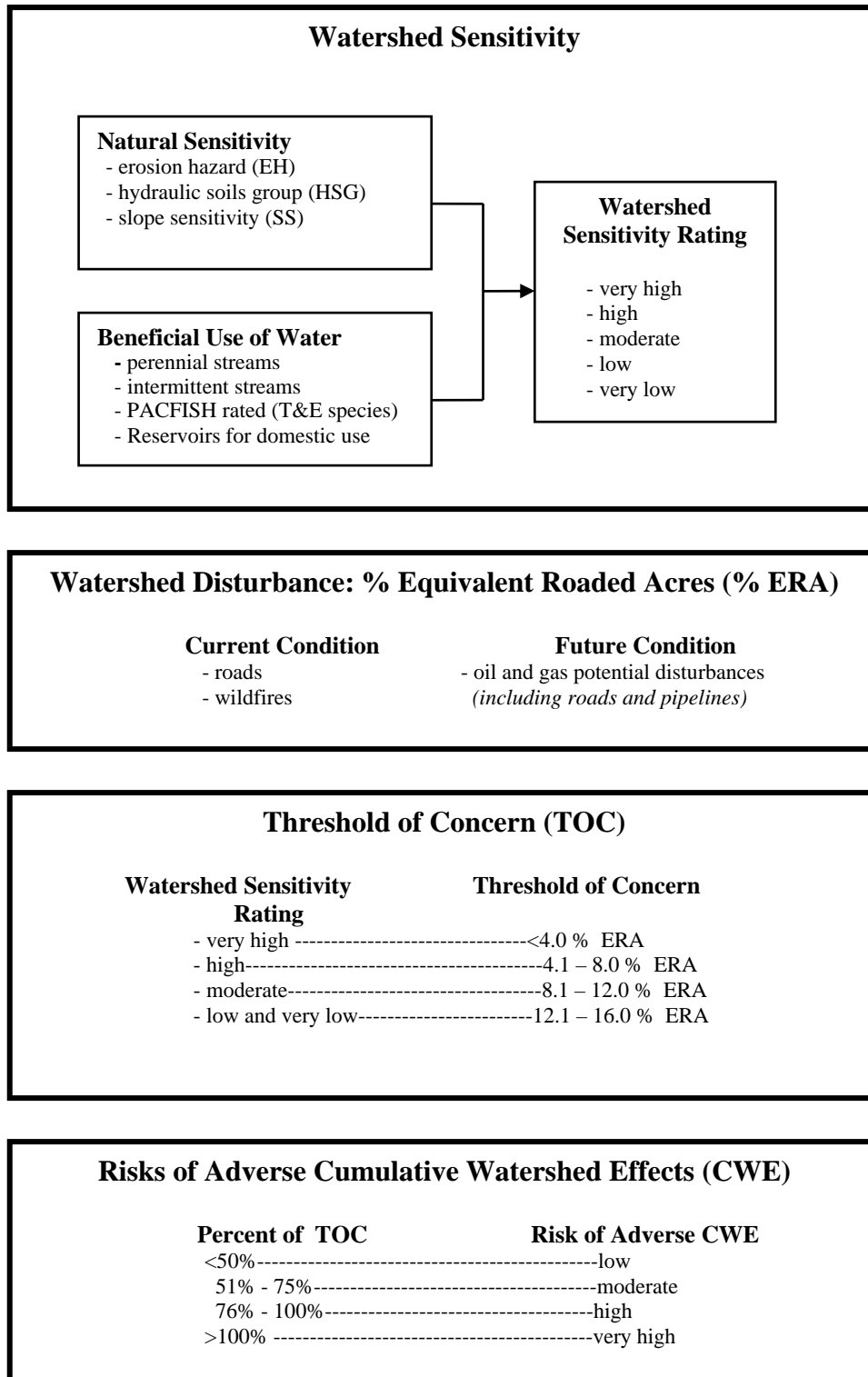
TABLE 3-8: FOREST PLAN: WATERSHED MANAGEMENT DIRECTION RELATED TO OIL AND GAS DEVELOPMENT

Forest-Wide Standards and Guidelines		
<i>Management Direction</i>	<i>Description of Management Direction that Relates to Oil and Gas Development</i>	
4.3.2.3 Seismic And Geologic Hazards	Sub-item 2. Land disturbing actions will be avoided or conducted in a manner to preclude acceleration of active landslides or activation of dormant landslides.	
4.3.4.5 Watershed	Sub-item 1. Soil productivity and water quality will be maintained Sub-item 3. Excessive surface disturbance of watersheds resulting in on-site and off-site soil and water deterioration will be precluded by conducting cumulative watershed impact assessments on Order III and greater drainage.	
4.3.2.7 Riparian/ Wetland Areas	Sub-item 11. Perennial and intermittent streams will be protected by limiting management activities within the Streamside Management Zone (SMZ). Activities are to be limited to the extent that protective vegetation conditions in the zone can be returned to pre-disturbance conditions within one year. Appendix H [in the Forest Plan] provides a matrix of SMZ widths to be used based on four Stream Classes and hillside slope ranges.	
<i>Management Area Specific Direction</i>		
Management Area No. and Narrative On Oil and Gas	Guidelines Relating to Oil and Gas and Watershed Direction	Specific Direction Relating to Watershed
1, 32 Exploration and development of energy resources are accommodated consistent with management area direction.	Integrate the exploration and development of energy resources with the use and protection of other resources. Implement soil and watershed projects for areas within or adjacent to the Sespe Oil Field to correct identified soil erosion and water quality problems.	All areas disturbed during exploration including roads and pads are managed as temporary disturbances and are restored to near natural conditions at the end of use. Human caused oil seeps are corrected or contained immediately upon occurrence. Corrective action is initiated within two years of its identification in the watershed needs inventory.
3, 4, 5, 6, 11, 29, 33, 37, 38 Exploration and development of energy resources are accommodated consistent with management area direction.	Integrate the exploration and development of energy resources with the use and protection of other resources. Implement watershed improvement projects to maintain and enhance stability and restore degraded watershed conditions.	All areas disturbed during exploration including roads and pads are managed as temporary disturbances and are restored to near-natural conditions at the end of use. Areas to be disturbed or previously disturbed are evaluated to determine need for rehabilitation as soon as practical following watershed disturbance. The following factors are considered: - area disturbed is on slopes greater than 30 %; or - soils have an erosion hazard index greater than 4

TABLE 3-8 CONTINUED: FOREST PLAN: WATERSHED MANAGEMENT DIRECTION RELATED TO OIL AND GAS DEVELOPMENT

<i>Management Area Specific Direction</i>		
Management Area No. and Narrative On Oil and Gas	Guidelines Relating to Oil and Gas and Watershed Direction	Specific Direction Relating to Watershed
<p>39</p> <p>Any recommended energy leases will include a “no surface occupancy” stipulation.</p>	<p>Integrate the exploration and development of energy resources with the use and protection of other resources.</p> <p>Implement watershed improvement projects to maintain and enhance stability and restore degraded watershed conditions.</p>	<p>Oil and gas lease actions are documented through the NEPA process after considering the Guidelines for Recommending Action on Oil and Gas Lease Applications to determine where leasing is acceptable. If leasing is recommended, include the “no surface occupancy” stipulations in addition to other appropriate stipulations.</p> <p>Areas to be disturbed or previously disturbed are evaluated to determine need for rehabilitation as soon as practical following watershed disturbance. The following factors are considered: area disturbed is on slopes greater than 30 % or soils have an erosion hazard index greater than 4</p>
<p>7, 12, 14, 16, 25, 26, 28, 29, 32, 42, 48, 51, 54, 57, 61, 65, 67, 68, 69, and 70</p> <p>No statement in the narrative relative to Oil and Gas</p>	<p>Implement watershed improvement projects to maintain and enhance stability and restore degraded watershed conditions.</p>	<p>Areas to be disturbed or previously disturbed are evaluated to determine need for rehabilitation as soon as practical following watershed disturbance. The following factors are considered: area disturbed is on slopes greater than 30 % or soils have an erosion hazard index greater than 4</p>

FIGURE 3-3: FACTORS IN ESTIMATING CUMULATIVE WATERSHED EFFECTS (CWE).



3.1.2.6.1.1. Watershed Sensitivity Index (WSI)

Watershed sensitivity is dependent on two factors: (1) *natural sensitivity* and (2) the *beneficial use of water* in the streams draining it. A discussion of each of these factors follows:

3.1.2.6.1.1.1. Natural Sensitivity

The natural sensitivity of a watershed is determined by examining potential soil instability and slope steepness within the watershed. This is accomplished by considering the soil erosion hazard (EH), hydrologic soil group, (HSG) and slope sensitivity (SS) data. Natural sensitivity weighting factors are assigned for EH, HSG and SS categories as shown in Table 3-9. Each weighting factor is multiplied by the number of acres in that specific category open to management activities within the watershed. This calculation yields “weighted acres”. (One acre in each category is assumed in Table 3-10 for illustrative purposes.) The “weighted acres” are then summed. The resultant sum of weighted acres is then divided by the total number of acres open to management. This number is then multiplied by 100 so that the resultant natural sensitivity index values fall in a convenient range. The result is a normalized numerical expression of the natural sensitivity of the watershed. Watersheds can be compared on an equal basis to determine which are naturally more sensitive than others.

TABLE 3-9: WEIGHTING AND SAMPLE CALCULATION OF NATURAL SENSITIVITY INDEX

Natural Sensitivity Factors	Description/Rating	Weighting Factor	Open Acres	Weighted Acres
Soil Erosion Hazard (EH)	Very High	1.0	1.0	1.0
	High	0.8	1.0	0.8
	Moderate	0.4	1.0	0.4
	Low	0.0	1.0	0.0
Hydrologic Soil Group (HSG)	HSG-D, high	1.0	1.0	1.0
	HSG-C, moderate	0.6	1.0	0.6
	HSG-B, low	0.0	1.0	0.0
	HSG-A, little	0.0	1.0	0.0
Slope Sensitivity (SS)	SS-5, Very High	2.0	1.0	2.0
	SS-4, High	1.0	1.0	1.0
	SS-3, Moderate	0.6	1.0	0.6
	SS-2, Low	0.0	1.0	0.0
	SS-1, Very Low	0.0	1.0	0.0
Total acres and total weighted acres			13.0	7.4
Total weighted acres/ total acres				0.569
Natural Sensitivity Index = 100 x total weighted acres / total open acres				56.9

3.1.2.6.1.1.2. Beneficial Use of Water

Beneficial water use differs from watershed to watershed. For example, a watershed with perennial streams has a higher value than one with intermittent streams. Perennial streams provide better conditions for riparian growth and fish and wildlife habitat, and they can move sediment continuously through the watershed. Beneficial use of water is weighted by the

presence of streams with steelhead trout habitat potential and by reservoirs that store runoff for domestic uses. The relative importance of each beneficial use is weighted as shown in Table 3-10. The higher the value, the greater importance of the beneficial use.

TABLE 3-10: WEIGHTING OF STREAM ATTRIBUTES

Beneficial Use Attributes	Stream Description	Relative Weighting Factor
Fishery and/or Water supply	Perennial streams with PACFISH ¹ potential or upstream from a water storage reservoir	4
	Intermittent streams affecting PACFISH streams or upstream of a reservoir	2
Riparian	Perennial stream, no reservoir or PACFISH potential	3
	Intermittent stream, no reservoir or PACFISH potential	1

¹ Steelhead trout habitat

3.1.2.6.1.1.3. Watershed Sensitivity Index and Rating

The impact of erosion and the resulting sediment on beneficial uses is estimated by multiplying the weighted natural sensitivity rating by the highest beneficial use rating to produce a combined watershed sensitivity index (WSI) for the entire sub-basin. The WSI of the 384 sub-basins evaluated ranged from 80 to 1,200. An adjective rating for watershed sensitivity was determined by dividing the watershed sensitivity index into five ranges as shown in Table 3-11.

TABLE 3-11: WATERSHED SENSITIVITY RATING

Percent of the Range	WSI Range	Watershed Sensitivity Rating
81–100%	980–1,200	Very High
61–80%	755–979	High
41–60%	530–754	Moderate
21–40%	305–529	Low
0 – 20%	80– 304	Very Low

For this study, CalWater sub-basins were used to represent Order III drainages. These sub-basins were delineated as part of a statewide effort by the State Water Resources Control Board to identify, in a uniform manner, drainages to be used for numerous watershed related studies. The watersheds are shown on the map entitled Watershed Stipulations in the DEIS map packet. Further documentation on the watersheds and cumulative watershed effects analysis is provided in the Watershed Resources Background Report prepared in support of the Oil and Gas Leasing Analysis and EIS, located in the project file at the Forest Supervisor's Office.

The soil acreages were derived from the Forest GIS soils map. The soil attribute information was obtained from Los Padres National Forest Soil Survey Reports (USFS 1990; NRCS 1978). The slope sensitivity and the fishery habitat data were derived from the Forest GIS database. Perennial and intermittent streams were determined from the GIS stream data. Beneficial use of the streams was determined from the PACFISH stream maps obtained from the Forest and by observing the presence of downstream reservoirs. PACFISH streams and streams above reservoirs were given the same weight of importance in the calculation of Watershed Sensitivity.

3.1.2.6.1.2. Watershed Disturbance in Terms of Percent Equivalent Roaded Acres (% ERA)

The current and future levels of watershed disturbance are expressed as percent Equivalent Roaded Acres (ERA). Watershed disturbances are expressed in terms of the number of acres of road that would cause a similar disturbance. The ERA is used as the standardized unit of measure for land disturbance. An unpaved road is given an ERA coefficient of 1.0. This is based on an assumed level of sediment production. An area of unpaved road amounting to one acre has an ERA of 1.0. Other types of disturbance, such as improved roads and wildfires, are equated to an unpaved road surface by an ERA weighting coefficient (Table 3-12) that reflects their relative contribution to changes in runoff and sediment production. The percent ERA of a watershed is the sum of the ERAs for all current disturbances in the watershed divided by the watershed area. Future ERAs are evaluated for each high oil and gas potential area. These weighting coefficients were estimated using guidelines in Forest Service Handbook 2509, Ch. 20. The coefficient for unpaved roads (Class D, E and F) is 1.0. Since paved road (A, B and C) surfaces do not produce as much sediment as unpaved roads, they are given a lower coefficient than the unpaved roads.

TABLE 3-12: ERA COEFFICIENTS FOR VARIOUS SOURCES OF LAND DISTURBANCE

Sources of Land Disturbance	ERA Coefficient
Roads	
A class (14.5 acres/mile)	0.05
B,C classes (9.70 acres/mile)	0.03
D, E, F classes (4.85 ac/mile)	1.00
Wildfire - Area Burned	
0 times	0.0
1 time	0.01
2 times	0.025
3 times	0.05
4 times	0.075
5 times	0.10
Oil and Gas Development	
Specific acreages of ground disturbance by HOGPA for each alternative are presented in the RFD tables in Chapter 2.	1.00

The Forest's GIS database was used to determine the miles of roads in a watershed inside the Forest boundary. Estimated road widths are shown in Table 3-13. Estimates were obtained from

average conditions. Trails, inside or outside of the Wilderness areas, were not included in the evaluation, because it was assumed, based on professional experience and judgment, that they did not have a significant effect on runoff.

TABLE 3-13: WIDTH ASSUMPTIONS USED TO CONVERT MILES OF ROAD TO ACRES OF ROAD

GIS Road Code and Description	Estimated Average Width (feet)	Acres per Mile of Road
A Major highways/Interstate	120	14.5
B, C Paved roads, double lane	80	9.70
D, E, F Unpaved roads	40	4.85

The Forest GIS database was also used to estimate the impact of wildfires on cumulative watershed impacts. The number of times an area burned was the only GIS data available for wildfire. The ideal information would also have included the date of the fire, so that the effects of the fire could have been diminished over time. Since that information was not included in the GIS data, only the area burned was used. The ERA coefficients for the burned area are given in Table 3-16. It was assumed that the more times an area had been burned, the greater the watershed impact and the greater the weight of the ERA coefficient should be. The other option was not to include the effects of wildfire in the CWE analysis, which was not appropriate, since wildfire is a common factor in the ecosystem and can contribute significantly to sedimentation downstream.

The ERA coefficient for Oil and Gas development is based on one acre of oil and gas surface disturbance equated to the disturbance of one acre of road.

3.1.2.6.1.3. Threshold of Concern (TOC)

Threshold of Concern (TOC) is used to estimate the limit of the watershed's tolerance to the disturbance from land use. TOC is expressed in percent Equivalent Roaded Acres (ERA).

The TOC for a watershed is estimated by equating ranges of percent ERA to WSI, the watershed sensitivity rating, as shown in Table 3-14. The Los Padres NF had not previously established Forest-wide TOCs, so the TOCs in Table 3-14 were derived from Regional guidelines (FS 1987) and discussions with the Forest hydrologist and soil scientist.

TABLE 3-14: THRESHOLD OF CONCERN (TOC) AS RELATED TO WATERSHED SENSITIVITY RATING

Watershed Sensitivity Rating	Threshold of Concern
Very High (980–1,200)	< 4.0 % ERA
High (755–979)	4.1–8.0 % ERA
Moderate (530–754)	8.1–12.0 % ERA
Low and Very Low (80– 529)	12.1–16.0 % ERA

3.1.2.6.1.4. Risk of Incurring Adverse Cumulative Watershed Effects (CWE)

The susceptibility of individual watersheds to adverse Cumulative Watershed Effects is estimated by comparing the current and future percent ERA with the Threshold of Concern value of % ERA. Adjective values of CWE risk are determined based on the estimated % ERA expected compared to the Threshold of Concern % ERA. The system for rating the risk of incurring adverse CWE is given in Table 3-15.

TABLE 3-15: RATINGS FOR RISK OF ADVERSE CWE

Percent the predicted % ERA is of the TOC % ERA	Watershed Sensitivity Rating					Adverse CWE Risk
	Very High (<4.0%)	High (4.1 - 8.0%)	Moderate (8.1- 12.0%)	Low (12.1-16.0%)	Very Low (16.1 - 20.0%)	
	Percent ERA Range					
<50 %	< 2.0	< 4.0	< 6.0	< 8.0	<10.0	Low
51%–75%	2.1–3.0	4.1–6.0	6.1 - 9.0	8.1–12.0	10.1–15.0	Moderate
76%–100%	3.1–4.0	6.1–8.0	9.1 - 12.0	12.1–16.0	15.1–20.0	High
> 100%	> 4.1	> 8.1	> 12.1	>16.1	>20.1	Very High

How to use Table 3-15. - Read across the table columns to find the correct Watershed Sensitivity Column; read down the column to find the percent ERA range; read right across the row to the last column to determine the corresponding Risk of CWE. Example 1: If a sub-basin with a very high Watershed Sensitivity rating has a percent ERA of 4.2, there would be very high risk of adverse CWE occurring. If the same sub-basin had a percent ERA of 1.5, there would be low risk of adverse CWE. Example 2: If a sub-basin has a low Watershed Sensitivity rating, it can have a higher percent ERA, as much as 16, before it would be considered to be in the very high risk category for adverse CWE.

Mitigation measures can be tied to the level of adverse CWE risk that is projected to occur in a watershed. For example, Forest Plan standards and guidelines for erosion control can be applied in watersheds with a Low or Moderate Risk rating. Additional mitigation, beyond that in the Forest Plan, can be prescribed for watersheds with High Risk ratings; for watersheds with a Very High Risk rating, new land-disturbing activities can be excluded or deferred until the condition causing the potential for risk abates or is reduced by watershed improvement projects.

3.1.2.6.2. Example of Estimating Cumulative Watershed Effects

Table 3-16 presents an example of calculating the risk of incurring adverse CWE for sub-basin 310.22011. Following is a narrative interpretation of the results of the CWE analysis for this sub-basin.

Sub-basin 310.22011 - This sub-basin has a very high Watershed Sensitivity rating, so a current percent ERA of 1.1 falls in the low category for incurring adverse CWE. The RFD predicts no reasonably foreseeable oil and gas development in the sub-basin, so the future percent ERA remains at 1.1, and therefore, there continues to be a low risk for adverse CWE.

TABLE 3-16: EXAMPLE OF CALCULATING CURRENT RISK OF ADVERSE CWE IN SUB-BASIN 310.22011

Natural Sensitivity Factors (Figure 3-3)	Weight	Acres in Category	Weighted Acres
Area in Sub-basin (acres)		12,412	
Area Open for Management (acres)		2,235	
Very High Erosion Hazard	1.0	1,174	1,174
High Erosion Hazard	0.8	922	738
Very High Slope Sensitivity	2.0	716	1,432
High Slope Sensitivity	1.0	367	367
Moderate Slope Sensitivity	0.6	314	188
Hydrologic Soil Group D	1.0	2,071	2,071
Sum of Weighted Acres			5,970
NSI = 100 x (Sum Weighted Acres / Open Acres) = (100x (5,970 / 2,235))			267
Beneficial Use Factors (Figure 3-3)			Weighting Factor
High Value Perennial Stream			4
High Value Intermittent Stream			3
Highest Water Use Weighting Factor			4
Watershed Sensitivity Index (Highest weighting factor x NSI = 4 x 267)			1,068
Watershed Sensitivity Rating (Figure 3-3)			Very High
Current Disturbance Calculations (Percent ERA) (Table 3-12)			
ERA Factors	Weight		ERA
Roads D, E, F - Unimproved (4.85 acres/miles)	1.0	4.8 miles = 23.3 acres	23.3
Burned - 1 time	0.001	304	0.3
Total ERA			23.6
Percent ERA (23.6 / 2,235)			1.1%
Current Risk of Adverse CWE (Table 3-15)			Low

3.1.2.6.3. Procedure for Evaluating Increases in CWE Due to Oil and Gas Development

Each sub-basin with forecasted oil and gas development activities was analyzed for the risk of increased adverse CWE that projected development would cause. The level of projected disturbance was obtained from the RFD projections and applied by calculating CWE for the following two situations:

Situation 1. What is the effect on adverse CWE if the disturbance acres projected in the RFD were equally distributed between the sub-basins in a High Oil And Gas Potential Area (HOGPA) pro-rated by the acres of HOGPA in the sub-basin open to development? This situation provides the low bounds for estimating increases in adverse CWE due to the oil and gas development.

Situation 2. What is the effect on adverse CWE if all the disturbance acres projected for a particular HOGPA all occurred within any given sub-basin within the HOGPA? There is a possibility that this situation could occur because development sites are often clustered

together, especially when an exploration drill site successfully locates oil. This calculation provides the high bounds for estimating increases in adverse CWE due to the oil and gas development.

The ERA coefficient for the oil and gas development was 1.0, that is, each acre of oil and gas development disturbance is equivalent to one roaded acre. The percent ERAs resulting from situations 1 and 2, were compared with the current condition to evaluate the potential increases in adverse CWEs in the sub-basins caused by the projected oil and gas disturbance.

The Cumulative Watershed Effects analysis was applied to 26 basins, consisting of 384 sub-basins. Table 3-17 provides a summary of the number of sub-basins by Watershed Sensitivity category and the related current percent Equivalent Roaded Acres (ERA). The results of the CWE analysis are documented in Chapter 4.

Los Padres National Forest covers 2,739 square miles, of which approximately two-thirds is designated as Wilderness or has otherwise been legally withdrawn from mineral entry including oil and gas leasing. Some of the Los Padres National Forest (NF) drainage basins are partly in Wilderness or withdrawn areas; parts are on private lands within the NF boundary; and some parts are outside of NF boundary.

For this study, only the sub-basins within the NF boundary, including non-NF land, were included in the analysis. The primary reason for this action was the unavailability of data outside the NF boundary. Only data within the NF boundary was available in the Forest's GIS database. Also, slope sensitivity data, critical information for this analysis, did not exist within Wilderness Areas and some withdrawn areas. Therefore, the CWE analysis could only be determined for those lands outside of Wilderness or withdrawn areas, within NF Boundaries (including non-NF lands). Since these are the only NF lands for which oil and gas leasing can be legally considered, this is not problematic.

Table 3-18 provides a listing of hydrologic regions, units and basins. Appendix Table I in the Watershed Background Report for this project provides a complete listing of the sub-basins, their Watershed Sensitivity class, and current percent ERA. The map entitled *Watersheds Stipulations* (in the DEIS map packet) displays basin and sub-basin locations, and other watershed features.

3.1.2.6.4. Discussions by Basin

Refer to the draft environmental impact statement for a detailed discussion of watershed by basin and sub-basin.

TABLE 3-17: NUMBER OF SUB-BASINS BY WATERSHED SENSITIVITY CATEGORY

Watershed Sensitivity	Number of Sub-basins	Current Percent ERA Range
Very High	11	0.2-5.4
High	5	0.3-5.7
Moderate	66	0.1-8.1
Low	104	0.0-11.8
Very Low	197	0.0-12.9

TABLE 3-18: LISTING OF THE REGIONS, HYDROLOGIC UNITS AND BASINS, LPNF

Region	Hydrologic Unit	Basin (Hydrologic Areas)
Central Coast	307 – Carmel River	307.00 – Carmel River
	308 – Santa Lucia	308.00 – Santa Lucia
	309 – Salinas River	309.60 – Arroyo Seco
		309.81 - Atascadero
		309.90 – Pozo
	310 – Estero Bay	310.11 – San Carpofo
		310.17 – Old
		310.18 – Toro
		310.21 – Morro
		310.22 – Chorro
		310.24 – San Luis Obispo
		310.26 – Pismo
		310.31 - Oceano
	312 – Santa Maria	312.20 – Sisquoc
		312.30 – Cuyama Valley
	314 – Santa Ynez	314.30 – Buellton
		314.40 – Santa Cruz Creek
315 – South Coast	315.10 – Arguello	
	315.31 – Goleta	
	315.32 – Santa Barbara	
	315.33 – Montecito	
	315.34 – Carpenteria	
317 – Estrella River	317.00 – Estrella	
400 – Los Angeles	401 – Madranio	401.00 – Madranio Canyon
	402 – Ventura River	402.20 – Upper Ventura River
		402.31 – Upper Ojai
		402.32 – Ojai Valley
	403 – Santa Clara (700)	403.21 – Sulfur Springs (703)
		403.22 – Sisar Canyon
		403.31 – Fillmore (702)
		403.32 – Topatopa (701)
		403.41 – Santa Felicia (705)
		403.42 – Upper Piru (704)
403.43 – Hungry Valley (707)		
403.44 – Stauffer (706)		
500 – Central Valley	556 – San Emigdio	556.30 – San Emigdio

3.1.2.6.5. Summary of Current CWE Conditions

There are 383 sub-basins in the leasing area. Under current conditions, 350 sub-basins have a low risk for adverse CWE, less than 51 percent of TOC; twenty-two have a moderate risk, less than 76 percent of TOC; and eleven sub-basins (7 have high risk and 4 have very high risk) are above 75 percent of TOC. Table 3-19 provides a summary of cumulative watershed effects conditions by basins and Appendix Table I of the Watershed Background Report provides detailed information on sub-basin conditions within the basins. Column 5 of Table 3-19 identifies sub-basins that are above 75 percent of TOC. Only sub-basins with high-risk ratings, over 75 percent of TOC, are considered to be of concern of having adverse CWE. Roads and grazing are the predominant cause of disturbance, and in some places past wildfires also contributed a significant amount of disturbance.

3.1.2.6.6. Existing Conditions in Anticipated High Oil and Gas Potential Areas

There are ten areas with high potential for oil and gas development identified in the Reasonable Foreseeable Development scenario. The relationship of the high oil and gas potential areas to sub-basins is shown in the *Watershed* map in the DEIS map packet. Table 3-20 lists the sub-basins that occur in the possible development areas and Table 3-21 is a summary of current conditions of sub-basins by high oil and gas potential area. A complete listing of sub-basins by high oil and gas potential area is given in Appendix Table II of the Watershed Background Report. Following is a discussion of current conditions of the 107 sub-basins in the ten high oil and gas potential areas.

3.1.2.6.6.1. Piedra Blanca Area

There are nine sub-basins in the Piedra Blanca high oil and gas potential area. Sub-basins of the Cuyama Valley and Sespe Basins drain this high oil and gas potential area. Watershed sensitivity of the sub-basins ranges from very low to moderate. The current percent ERA ranges from 0.2 to 5.7, and the risk rating for negative CWE impacts for all sub-basins is low.

3.1.2.6.6.2. Rincon Creek Area

Eight sub-basins drain the Rincon Creek oil and gas potential area. This high oil and gas potential area is drained by sub-basins of the Carpinteria, Pitas Point and Upper Ventura River Basins. Watershed sensitivity ranges from very low to moderate. The current percent ERA ranges from 3.6 to 6.2, and all sub-basins are in the low risk category for adverse CWE.

3.1.2.6.6.3. San Cayetano Area

There are 23 sub-basins that drain the San Cayetano oil and gas potential area. Sub-basins of the Upper Ojai, Ojai, Sisar Canyon, Topatopa, Fillmore, and Sulfur Springs Basins drain this high oil and gas potential area. Current percent ERA ranges from 1.6 to 6.0. Twenty-one sub-basins have low risk ratings, one has moderate and one has high risk (702.04) for adverse CWE in their current condition.

3.1.2.6.6.4. Sespe Area

There are 18 sub-basins that drain the Sespe oil and gas potential area. Sub-basins of the Fillmore, Topatopa, Upper Piru, and San Felicia Basins drain this area. Current percent ERA ranges from 0.1 to 8.1. Sixteen sub-basins have low risk ratings for adverse CWE in their current conditions, one has moderate risk and one has high risk (701.48)

3.1.2.6.6.5. South Cuyama Area

There are 21 sub-basins that drain the South Cuyama oil and gas potential area. Sub-basins of the Cuyama Valley Basin drain this area. Current percent ERA ranges from 0.7 to 13.5. Nineteen sub-basins have low risk ratings for adverse CWE in their current conditions and two have moderate risk.

3.1.2.6.6.6. La Brea Canyon Area

There are five sub-basins that drain the La Brea Canyon oil and gas potential area. Sub-basins of the Sisquoc Basin drain the area. Current percent ERA ranges from 3.5 to 5.7. All sub-basins have low risk rating for adverse CWE in their current conditions.

3.1.2.6.6.7. Figueroa Mountain Area

There are eleven sub-basins that drain the Figueroa Mountain oil and gas potential area. Sub-basins of the Sisquoc, Cuyama Valley, Buelton, Los Olivos, and Santa Cruz Creek Basins drain this high oil and gas potential area. Current percent ERA ranges from 0.0 to 8.2. Nine sub-basins have low risk rating for adverse CWE in their current conditions and two have very high risk (314.40010 and 314.40012).

3.1.2.6.6.8. Lopez Canyon Area

Four sub-basins drain the Lopez Canyon high oil and gas potential area. Sub-basins of the Oceano Basin drain this area. Current percent ERA ranges from 0.4 to 4.7, and all sub-basins have a low risk rating for adverse CWE.

3.1.2.6.6.9. Monroe Swell Area

There are three sub-basins that drain the Monroe Swell oil and gas potential area. Sub-basins of the Arroyo Seco Basin drain this area. Current percent ERA ranges from 1.8 to 2.5. All sub-basins have low risk ratings for adverse CWE in their current conditions.

TABLE 3-19: SUMMARY OF WATERSHED SENSITIVITY, RISK OF INCURRING ADVERSE CWE IMPACTS, AND SUB-BASINS OF CONCERN FOR CWE IMPACTS

Basin Name and (I.D. No.)	No. of Sub-basins Open to Management	Watershed Sensitivity, No. of Sub-basins by Category	Risk Category for Negative CWE Impacts, No. of Sub-basins	Sub-basins Above 75% TOC
Carmel River (307.00)	6	5 - Very Low 1 - Low	6 - Low	None
Santa Lucia (308.00)	19	6 - Very Low 4 - Low 9 - Moderate	17 - Low 2 - Moderate	None
Arroyo Seco Basin (309.60):	16	4 - Very Low 9 - Low 3 - Moderate	15 - Low 1 - Moderate	None
Atascadero (309.81)	22	13 - Very Low 8 - Low 0 - Moderate 1 - High	20 - Low 2 - Moderate 2 - High	309.810.53 309.810.56
Pozo (309.90)	6	6 - Very Low	6 - Low	None
San Carpoforo (310.11)	3	1 - Very Low 2 - Low	2 - Low 1 - Moderate	None
Old (310.17) and Toro (310.18)	2	1 - Very Low 1 - Moderate	2 - Low	None
Morro (310.21)	1	Very High	Low	None
Chorro (310.22) and San Luis Obispo (310.24)	5	1 - High 4 - Very High	4 - Low 1 - Moderate	None
Pismo (310.26)	2	2 - Very Low	2 - Low	None
Oceano (310.31)	4	1 - Very Low 2 - Low 1 - Moderate	4 - Low	None
Sisquoc (312.20)	30	14 - Very Low 16 - Low	24 - Low 2 - Moderate 1 - High 3 - Very High	312.20010 312.20021 312.20022 312.20022
Cuyama Valley (312.30)	67	55 - Very Low 12 - Low	60 - Low 6 - Moderate 1 - High	312.30023
Buelton (314.30)	2	1 - Very Low 1 - Moderate	2 - Low	None

Basin Name and (I.D. No.)	No. of Sub-basins Open to Management	Watershed Sensitivity, No. of Sub-basins by Category	Risk Category for Negative CWE Impacts, No. of Sub-basins	Sub-basins Above 75% TOC
Los Olivos (314.40)	9	4 - Very Low 1 - Moderate 1 - High 3 - Very High	7 - Low 2 - Very High	314.40010 314.40012
Santa Cruz (314.51)	32 - entire basin is withdrawn from mineral entry	18 - Very Low 11 - Low 3 - Moderate	29 - Low 3 - Moderate	None
Santa Barbara Front: -Arguello (315.10) -Goleta (315.31) -Santa Barbara (315.32) -Montecito (315.33) and -Carpinteria (315.34)	20	4 - Very Low 2 - Low 13 - Moderate 1 - High	20 - Low	None
Estrella Basin (317.00)	16	16 - Very Low	16 - Low	None
Upper Ventura (402.20) and Madranio Canyon (401.00)	11	2 - Very Low 5 - Low 3 - Mod. 1 - High	11 - Low	None
Upper Ojai (402.31), Ojai Valley (402.32), and Sisar Cyn (403.22)	6	5 - Low 1 - Moderate	6 - Low	None
Topotopa (701.00 and 403.32)	32	8 - Very Low 7 - Low 15 - Mod. 1 - High 2 - Very High	32 - Low	None
Fillmore (702.00 and 403.31)	12	10 - Very Low 0 - Low 1 - Mod. 1 - Very High	1 - Low 1 - Very High	702.04
Sulfur Springs (703.00 and 403.21)	7	1 - Very Low 1 - Low 5 - Moderate	6 - Low 1 - Moderate	None
Upper Piru (704.00 and 403.42)	25	6 - Very Low 13 - Low 6 - Moderate	24 - Low 1 - Moderate	None
Santa Felicia (705.00 and 403.41)	7	1 - Very Low 4 - Low 2 - Moderate	7 - Low	None
Hungry Valley (707.00 and 403.43)	4	3 - Very Low 1 - Low	4 - Low	None
Stauffer (706.00 and 403.44)	4	3 - Very Low 1 - Low	4 - Low	None
San Emigdio (556.30)	14	11 - Very Low 2 - Low 1 - Moderate	12 - Low 1 - Moderate 1 - High	556.30050

Basin Name and (I.D. No.)	No. of Sub-basins Considered for Leasing	Watershed Sensitivity, No. of Sub-basins by Category	Risk Category for Negative CWE Impacts, No. of Sub-basins	Sub-basins of Concern for Risk of CWE in Current Condition
Santa Barbara Front: -Arguello (315.10) -Goleta (315.31) -Santa Barbara (315.32) -Montecito (315.33) and -Carpinteria (315.34)	20	4 - Very Low 2 - Low 13- Moderate 1 - High	20 - Low	None
Estrella Basin (317.00)	16	16 - Very Low	16 - Low	None
Upper Ventura (402.20) and Madrano Canyon (401.00)	11	2 - Very Low 5 - Low 3- Mod. 1- High	11- Low	None
Upper Ojai (402.31), Ojai Valley (402.32), and Sisar Cyn (403.22)	6	5 - Low 1 - Moderate	6 - Low	None
Topotopa (701.00 and 403.32)	32	8 - Very Low 9 - Low 13 - Mod. 1 - High 2 - Very High	32 - Low	None
Fillmore (702.00 and 403.31)	12	10 - Very Low 0 - Low 1 - Mod. 1 - Very High	12 - Low	None
Sulfur Springs (703.00 and 403.21)	7	1 - Very Low 1 - Low 5 - Moderate	6 - Low 1 - Moderate	None
Upper Piru (704.00 and 403.42)	25	6 - Very Low 13 - Low 6 - Moderate	24 - Low 1 - Moderate	None
Santa Felicia (705.00 and 403.41)	7	1 - Very Low 4- Low 2 - Moderate	7 - Low	None
Hungry Valley (707.00 and 403.43)	4	3 - Very Low 1 - Low	4 - Low	None
Stauffer (706.00 and 403.44)	4	4 - Very Low	4 - Low	None
San Emigdio (556.30)	14	11 - Very Low 2 - Low 1 - Moderate	14 - Low	None

TABLE 3-20: SUB-BASINS IN HIGH OIL AND GAS POTENTIAL AREAS

High Oil and Gas Potential Area	Sub-basins in the Development Area
Piedra Blanca	312.30008, 312.30009, 312.30012, 701.03, 701.07, 701.08, 701.11, 701.12, 710.13
Rincon Creek	315.34010, 315.34011, 315.34012, 401.00010, 402.20020, 402.20030, 402.20031, 402.20032
San Cayetano	402.31010, 402.32010, 402.32011, 403.22000, 701.39, 702.03, 702.04, 702.05, 702.06, 702.07, 702.09, 702.11, 702.13, 702.14, 702.15, 703.01, 703.02, 703.03, 703.04, 703.05, 703.06, 703.07
Sespe	701.44, 701.45, 701.46, 701.47, 701.48, 702.01, 702.02, 704.34, 704.36, 704.42, 704.43, 705.02, 705.03, 705.04, 705.05, 705.06, 705.07, 705.11
Lopez Canyon	310.31010, 310.31011, 310.31012, 310.31014
La Brea Canyon	312.20062, 312.20065, 312.20066, 312.20081, 312.20082
Figueroa Mountain	312.20031, 312.20032, 312.20033, 312.30065, 314.30010, 314.40010, 314.40012, 314.40020, 314.40030, 314.40031, 314.51070
South Cuyama	312.30014, 312.30015, 312.30016, 312.30017, 312.30020, 312.30021, 312.30022, 312.30024, 312.30025, 312.30026, 312.30027, 312.30035, 312.30036, 312.30037, 312.30038, 312.30039, 312.30040, 312.30041, 312.30043, 312.30044, 312.30046
Monroe Swell	309.60050, 309.60051, 309.60052

TABLE 3-21: WATERSHED CONDITIONS OF SUB-BASINS BY HIGH OIL AND GAS POTENTIAL AREAS

High Oil and Gas Potential Area	Number of Sub-basins in Area	Watershed Sensitivity, No. of Sub-basins by Category	Risk Category for Negative CWE Impacts, No. of Sub-basins	Sub-basins Above 75% TOC
Piedra Blanca	9	3-Very Low 0- Low 6-Moderate	9-Low	None
San Cayetano	23	9-Very Low 6- Low 6-Moderate 1-High 1-Very High	21 - Low 1 - Moderate 1 - Very High	702.04
Sespe	18	3-Very Low 7-Low 6-Moderate 0-High 2-Very High	16- Low 1-Moderate 1 - High	701.48
Rincon Creek	8	1-Very Low 2- Low 5-Moderate	8-Low	None
South Cuyama	21	20-Very Low 1-Low	19 -Low 2 - Moderate	None
La Brea Canyon	5	2-Very Low 3-Low	4 - Low 1 - Moderate	None
Figueroa Mountain	11	4-Very Low 3-Low 1-Moderate 0-High 3-Very High	9 -Low 2 - Very High	314.40010 314.40012
Lopez Canyon	4	1-Very Low 3-Low	4-Low	None
Monroe Swell	3	2-Very Low 1-Low	3-Low	None

3.1.2.6.6.10. Summary of Current CWE Conditions in High Oil and Gas Potential Areas

107 sub-basins drain the high oil and gas potential areas. 98 sub-basins have low risk ratings for adverse CWE impacts and six have moderate risk. Four sub-basins have high or very high risk ratings which is over 75 percent of TOC, and are considered to be of concern of having adverse CWE impacts in their current conditions (see column 5 Table 3-21 for list of sub-basins).

3.2. BIOLOGICAL ENVIRONMENT

This section describes the LPNF biological resources and their susceptibility to oil and gas activities that could result from leasing. The purpose is to establish a basis for understanding potential impacts and comparing alternatives relative to the effects involved.

3.2.1. Introduction

Biological resources are those living elements of the various ecosystems that occur over the landscape.

3.2.1.1. Categories and Data

For the purposes of this analysis, biological resources are categorized into three distinct groups:

- **Wildlife and fish** (mammals, birds, reptiles, amphibians non-anadromous fish species, and invertebrates)
- **Anadromous fisheries** (anadromous fish species) and
- **Vegetation** (terrestrial higher plants)

Wildlife, fisheries, and vegetation data in the LPNF GIS database can be seen on the following maps contained in the DEIS map packet.

- *Vegetation and Oil and Gas Potential Areas*
- *Fisheries, Wildlife and Plant Stipulations, Alternative 3, Meet Forest Plan Direction*
- *Fisheries, Wildlife and Plant Stipulations, Alternative 4, Emphasize Surface Resources*

3.2.1.2. Biological Resources Management Direction

The biological standards and guidelines of the Forest Plan are considered part of the affected environment since they provide management direction that can result in physical consequences when implemented.

The responsibilities of the national forests initially included providing suitable habitats for occupancy by beneficial wildlife species, specifically those species that were traditionally hunted

and trapped for fur. With the passage of the National Forest Management Act (NFMA) in 1976 and subsequent Forest Service regulations protection for all native wildlife species and desirable non-native species was provided for. This Act and its regulations direct that management must provide for the maintenance of viable populations within the planning area. While common law has provided the states with the authority for the regulation of resident wildlife populations, they share these responsibilities with the federal government in the case of migratory and endangered species.

Section 4.2.5 of the LPNF Forest Plan (USFS 1987) indicates that the creation and maintenance of vegetative diversity is the primary objective in providing for wildlife populations. The Forest Plan requires emphasis to be placed both on the creation of wildlife-related recreation, including hunting and fishing, and on the enhancement of populations of threatened, endangered, proposed, and sensitive species. The 1999 Southern California Riparian Conservation Strategy (SCCS) provided increased emphasis on ecosystem health and protection of threatened, endangered, proposed and sensitive plant and wildlife species while continuing to accommodate other uses of the forests. Objectives include, “*maintain or restore habitat to support populations of . . . desired . . . vertebrate and invertebrate populations that contribute to the viability of riparian-dependent communities.*” The SCCS is regarded as an addendum to the LPNF Forest Plan and, for this analysis, “Forest Plan consistency” also implies consistency with direction and guidelines contained in the SCCS.

While the Forest Plan provides broad guidance with respect to fisheries resources, subsequent documents, particularly the SCCS, which includes the PACFISH guidelines, contain much more restrictive guidelines and conditions with respect to protection of aquatic habitats. These latter two documents provide for a high degree of protection of stream habitat capability and protection and conservation of riparian areas by imposing limitations on development activities within the riparian corridor.

With respect to vegetation, the Forest Plan and the SCCS provide management guidelines and practices for (1) general vegetation management, (2) sensitive plants, (3) botanical special interest areas, and (4) riparian vegetation.

General vegetation management, as listed in the Forest Plan section 3.4.5, is directed toward maintaining or increasing vegetative diversity including:

- *The retention of all 31 tree species on the Forest (tree species richness)*
- *The number of plant communities currently occurring on the Forest (plant community richness)*
- *The reduction of the old age class of chaparral and the more even distribution of chaparral age classes in the Forest through prescribed burning (chaparral age class evenness)*
- *High post-fire diversity (post-fire chaparral flora richness)*

In addition to the Forest Plan, there are other laws and regulations requiring consideration of native wildlife species. For example, Section 7 of the Endangered Species Act of 1978 requires all federal agencies to “utilize their authorities...”, the Migratory Bird Treaty Act protects most native bird species from acts that directly kill or destroy active nests, and the Bald Eagle Act protects bald and golden eagles from take.

3.2.2. Wildlife and Fish

3.2.2.1. General Wildlife

Most of the wildlife species located on Los Padres National Forest are not unique to the area or specifically to habitats contained within the forest boundaries but range over large areas and a wide variety of habitat types. Mule (blacktail) deer, commonly found throughout coastal California, also range south into Baja and north into Alaska. Likewise, California quail and mourning doves, both popular species for recreational hunting, are found throughout the Pacific states and continent-wide respectively. Predatory species, such as the black bear, mountain lion, bobcat, coyote, and gray fox are found over a wide range and in almost all habitat types. This is also true of the smaller omnivorous predators such as raccoons, skunks, and weasels. Most of the rodent species found on the forest are also residents of other national forests and private lands.

Because of the large number diversity of habitat types on the LPNF, a wide-variety of birds also occur here. As with the mammals, most are located in similar habitats over a wide area and are not restricted to the LPNF. The same is true of most of the reptiles and amphibians. As an example, the Pacific chorus frog is found locally in a variety of habitat associations and ranges throughout the seven western states, Baja and British Columbia.

Tree-dominated habitats include hardwood forests (oak woodland and riparian) found in the valleys, coastal foothills, and along perennial waterways, and coniferous forests found at higher elevations and along the coastal mountains to the north. On LPNF, shrub-dominated (chaparral) habitats comprise a significant portion (over 65%) of the land base. Aquatic habitats vary from riparian corridors to scattered marshes and wetlands vegetation along reservoirs and natural marshes, seeps and bogs located throughout the Forest.

Wildfire is an important factor in shaping and maintaining terrestrial wildlife habitat in chaparral-dominated habitats of the Forest. Past fire protection has allowed chaparral to become over-mature, leading to decadent and impenetrable brush fields with little or no herbaceous understory. This has reduced occupancy by many species of wildlife that depend upon a diversity of habitats. Within the large expanses of LPNF there occur isolated specific communities that provide the diversity of habitats necessary for many wildlife and fish species. Riparian and aquatic habitats, however small, are essential for providing high wildlife and fisheries diversity, as much of the forest is arid, especially during the summer months. Grasslands (*potreros*) and limited marine communities also provide biological diversity. All coastal areas on LPNF have been withdrawn from oil and gas leasing and are not being considered for leasing. Therefore, no marine species are addressed in this report. These collective habitat types provide for 468 species of resident and transitory fish and wildlife (USFS, 1987).

3.2.2.2. *Threatened, Endangered, Proposed, and Sensitive Wildlife Species*

The varied landscapes of Los Padres National Forest provides habitat for twenty-three species currently listed as threatened or endangered or proposed for such listing (See Table 4-15). Section 7(a)(1) of the Endangered Species Act (ESA) requires federal agencies to:

“ . . . utilize their authorities in furthering the purposes of the Act by carrying out programs for the conservation of endangered species and threatened species . . . ”

This requirement is addressed in FSM 2670.12, the Secretary of Agriculture’s Policy on Fish and Wildlife which directs the Forest Service to:

- *Manage habitats for all existing native and desired non-native plants, fish, and wildlife species in order to maintain at least viable populations of such species;*
- *Conduct activities and programs to assist in the identification and recovery of threatened and endangered plant and animal species; and*
- *Avoid actions that may cause a species to become threatened or endangered.*

See description of listed wildlife species below; descriptions of listed anadromous fish and plant species are found in sections 3.2.3 and 3.2.4.2 respectively.

3.2.2.2.1. Listed Wildlife Species

LPNF is a primary participant in the recovery program for the **California condor** (*Gymnogyps californianus*). This species had a former range over much of the Forest, but ceased to exist in the wild in 1987 after its continued population decline led to the removal of the last wild birds in 1987 for the purpose of captive propagation. This program has resulted in the re-introduction of birds at several locations within and adjacent to the forest. Current information indicates there are 44 free-ranging California condors in or near the forest with several known nesting attempts. The LPNF contains most of the recently active nesting sites and over 90% of the available nesting habitat for this species is withdrawn from oil and gas leasing. Critical Habitat for the California condor was designated in Title 50 of the Code of Federal Regulation (Wildlife and Fisheries) Part 17 (Endangered and Threatened Wildlife and Plants) section 95 (Critical Habitat—Fish and Wildlife) (50 CFR 17.95) and included nine specific areas. The Sespe-Piru area takes in portions of the Piedra Blanca and Sespe HOGPAs. Approximately 400 acres of the Sespe HOGPA and 540 acres of the Piedra Blanca HOGPA are designated as Critical Habitat.

Bald eagles (*Haliaeetus leucocephalus*) may occasionally forage at reservoir sites adjacent to and within the forest boundaries and is occasionally seen in coastal areas adjacent to the Forest. These areas are withdrawn from oil and gas leasing. There are no known nest sites on the LPNF and no suitable foraging habitat for bald eagles is located within or adjacent to HOGPAs.

The **least Bell’s vireo** (*Vireo bellii pusillus*) is a federally-listed endangered species occupying densely vegetated riparian habitats of willow and other low and medium shrub habitats. It formerly ranged from California’s northern Central Valley to NW Baja California. Currently, a primary population remains on Los Padres National Forest adjacent to Gibraltar Reservoir. This area is withdrawn from oil and gas leasing. The species has also recently been documented in the

Sisquoc River drainage. This area is within designated Wilderness, which is withdrawn from mineral entry and outside the study area.

Section 4(a)(3) of ESA provides for the designation of Critical Habitat for species listed under its authority. Critical habitat for the least Bell's vireo has been identified (50 CFR 17.95, Pages 369-381). No occupied habitat is within or adjacent to HOGPAs.

The **Southwestern willow flycatcher** (*Epidonax trailii extimus*) nests in riparian habitat along the Santa Ynez River in Santa Barbara County. The entire Santa Ynez watershed is also withdrawn from mineral entry and outside the study area.

The threatened **marbled murrelet** (*Brachyramphus marmoratus marmoratus*) may nest in suitable stands of redwood and Douglas-fir trees in Monterey County although no nests have as yet been located. The potential habitat nesting stands are located in areas withdrawn from oil and gas leasing. No suitable nesting sites for this species are located within or adjacent to HOGPAs.

The **California red-legged frog** (*Rana aurora draytonii*) occurs in and adjacent to streams within LPNF except on the Mt. Pinos Ranger District. The California Natural Diversity Data Base (RAREFIND) indicates red-legged frogs primary historical occurrence was within coastal streams. Recent surveys indicate no evidence of this species in the interior Sespe or Piru drainages, although it apparently historically occupied the Agua Blanca fork of Piru Creek. No occupied red-legged frog habitat would be affected by any of the oil and gas leasing scenarios considered.

The **arroyo toad** (*Bufo californicus*) is restricted to rivers that have shallow, gravelly pools are located adjacent to sandy terraces. Breeding occurs on large streams with persistent water from late March until mid-June. Arroyo toads were historically found along drainages in southern California from San Luis Obispo County to San Diego County, but now they survive primarily as small isolated populations. Arroyo toads likely occupy areas within the Sespe and Piru Creek drainages.

The **tidewater goby** (*Eucyclogobius newberryi*) occupies the lower reaches of coastal streams and brackish river mouths. No areas suitable for occupancy by this species are located within the study area.

The **Santa Ana sucker** (*Catostomus santaanae*) is known only from an introduced population in the Santa Clara River drainage system (Moyle 1976). There is no native habitat or documented currently occupied non-native habitats within the study area.

The **Smith's blue butterfly** (*Euphilotes enoptes smithi*) historically ranged along the coast from Monterey Bay south through Big Sur to near Point Gorda, occurring in scattered populations in association with coastal dune, coastal scrub, chaparral, and grassland habitats. They spend their entire lives in association with two buckwheat plants in the genus *Eriogonum*. Several small sites of suitable, but unoccupied habitat are located in the study area however there is no occupied or suitable habitat within or adjacent to any HOGPAs.

The **vernal pool fairy shrimp** (*Branchinecta lynchi*) are found in vernal pools from Mt. Shasta south to Riverside County, California. There are no known vernal pools within or adjacent to any of the HOGPAs.

Grassland and semi-desert habitats in the southern San Joaquin and Cuyama Valleys adjacent to the Forest provide suitable habitat for several listed species that may occasionally range onto LPNF lands. These include the **San Joaquin kit fox** (*Vulpes macrotis mutica*), **giant kangaroo rat** (*Dipodomys ingens*), and **blunt-nosed leopard lizard** (*Gambelia silus*). Four listed species of **fairy shrimp** may occur in vernal pools in valley floor habitats.

LPNF lands include coastline in Monterey County. Listed marine species that may occur in these coastal marine habitats include, **southern sea otter** (*Enhydra lutris nereis*), **Steller's sea lion** (*Eumetopias jubatus*), **California brown pelican** (*Pelecanus occidentalis californicus*), **California least tern** (*Sterna antillarum browni*) and **western snowy plover** (*Charadrius alexandrinus nivosus*). There is no coastal marine habitat within or adjacent to HOGPAs.

3.2.2.2.2. Sensitive Species

Sensitive species are those species designated by the Regional forester under the authority of NFMA that may require additional protection and/or monitoring.

The American peregrine falcon (*Falco peregrinus anatum*) was formerly listed as Endangered by both the State of California and the Federal government. Recent increases in populations and increased breeding success have prompted the U. S. Fish and Wildlife Service to de-list the species. Los Padres National Forest has been a primary participant in the peregrine recovery effort and has two to three known active nest sites annually that are restricted to rocky cliff faces.

Sensitive species on the LPNF are associated with unique and/or limited vegetative or geologic conditions or are at the periphery of their known ranges. Species such as the **goshawk** not only require coniferous forest habitats but also only utilize those at higher elevations with large enough acreages to satisfy their territorial needs. Species such as the **Mt. Pinos lodgepole chipmunk** and the **Tehachapi pocket mouse** have highly restricted ranges. The **California spotted owl** utilizes restricted habitats in big cone Douglas fir stands and mature riparian areas in deeply incised canyons.

Several species designated as sensitive are associated with perennial stream habitats on the LPNF. These include **Southwestern pond turtle** (*Clemmys marmorata*), **Two-striped garter snake** (*Thamnophis hammondi*), **foothill Yellow-legged frog** (*Rana boylei*), **Rainbow trout** (*Salmo gairdneri*), **Arroyo chub** (*Gila orcutti*) and Santa Ana speckled dace (*Rhinichthys osculus*). Habitats for these species are located in areas covered by the Riparian Conservation Strategy.

Three fish species are designated Forest Species of Special Emphasis. These are the **Pacific lamprey** (*Lampetra tridentata*), **Santa Ana speckled dace** (*Rhinichthys osculus spp.*), and **arroyo chub** (*Gila orcutti*). The Pacific lamprey has distribution and habitat requirements similar to southern steelhead. The other three species have greatly reduced ranges compared to their historical distribution (Swift et al. 1993).

3.2.3. Anadromous Fisheries

Los Padres National Forest has a variety of fisheries resources within its boundaries. Portions of LPNF border the Pacific Ocean within the northern Monterey Ranger District, which is situated in the higher rainfall, coastal fog belt.

Steep, incised canyons characterize the northern portion of the Forest. The fish fauna tend to be dominated by native species such as the anadromous (southern steelhead) and resident (rainbow) forms of rainbow trout (*Oncorhynchus mykiss*). This area tends to have a relatively simple (few species) fish fauna with most being considered coldwater in nature.

The southern portion of the Forest has a more diverse fish fauna with a combination of species that evolved in high gradient, coldwater habitats and lower gradient, warmer water habitats. In addition, the Forest boundary tends to be further from the coast and does not encompass much of the coastal plain. As a result, steelhead distribution is more restricted because development that has occurred in the coastal plain has restricted access to some upstream areas. At the same time, the Forest provides habitats for some species whose habitats have been severely altered or eliminated by coastal plain development.

Precipitation on the Forest usually occurs only during the late fall and winter periods, with very little rainfall occurring between May and November. As a result, perennial streams comprise only a small percentage of the total miles of stream channel (perennial and intermittent) found on the Forest. Perennial stream habitat is extremely important because of its limited extent.

Riparian areas are of particular importance since they provide multiple benefits to the fishery resources of the Forest. Riparian vegetation helps provide bank stability during high flow events and thus reduces sediment delivery to the channel. The vegetation also provides shading and cover for fish species. The shading helps reduce maximum water temperatures. Research has shown that viable riparian communities increase bank storage of water and provide additional groundwater inflow to the channel during dry periods. In addition, riparian vegetation is a major source for insects that fall into the water and become the “drift” component for juvenile fish. Leaves and other vegetation that end up in the stream form the basis for the aquatic food web and are an essential component of all aquatic ecosystems.

The **southern steelhead** (*Oncorhynchus mykiss*) has been listed by NOAA Fisheries as endangered south of, and threatened north of, the Santa Maria River. Steelhead are the migratory form of the rainbow trout (*Oncorhynchus mykiss*) and usually spend one year in freshwater before migrating downstream to the ocean. They spend several years (usually 2 or 3) in a marine environment before returning to their natal stream to spawn. Not all adults die after spawning, but post-spawning mortality is high (Moyle 1976, Moyle and Yoshiyama 1992, Moyle et al. 1993). This species requires relatively pristine habitat conditions, although the southern steelhead has adapted to water temperatures much higher than its more northerly counterparts.

Steelhead distribution on the Forest was historically widespread in all streams having suitable habitats and connected to the ocean at least during the winter migration of the adult fish. Now, steelhead distribution in the Forest occurs along the Monterey County coast, infrequently in the Arroyo Seco drainage of the Salinas River watershed, and in streams south of Point Conception

(California Department of Fish and Game 1996, National Marine Fisheries Service 1996, U.S. Department of Commerce 1996).

Since steelhead enter streams during high winter flow events, exact distributions are difficult to establish. Presence of juveniles is problematic since juveniles of resident rainbow trout and steelhead are indistinguishable using currently available genetic techniques (Cramer et al. 1995, U.S. Department of Commerce 1996). Forest staff believe that remnant populations may remain in the Santa Clara River and Ventura River watersheds, Rincon Creek, some small south coast streams, along the Monterey County coastline, and the Carmel River watershed (USDA Forest Service 1996a). Only the populations south of Point Conception could be affected by oil and gas leasing since all habitat areas north of the Point are withdrawn from oil and gas leasing.

3.2.4. Vegetation

3.2.4.1. *General Vegetation*

Nine vegetation types and three other land use types (i.e., urban/private inholdings, barren and lake) have been mapped on LPNF and are depicted on the vegetation map provided in the DEIS map packet. Of these types, mixed and chamise-dominated chaparral comprises 58%, and forested communities comprise 30%, of the total LPNF acreage (Table 3-22). Mixed and chamise-dominated chaparral dominates the southern and northeast portions of LPNF. Pinyon-juniper woodlands are a significant community type in the vicinity of Mt. Pinos and along the western foothills of the Cuyama Valley. Conifer forests dominated primarily by Coulter and Jeffrey pine increase in importance in the mountain ranges including Mt. Pinos on the Mt. Pinos Ranger District and in the Dick Smith and San Rafael Wilderness Areas. Oak communities are scattered and tend to occur mostly along drainages. The strong chaparral dominance of the rest of the Forest is reduced in the Monterey Ranger District, as close to one-half of the acreage is comprised of communities other than chaparral. These other communities include mixed conifer and redwood forests along drainages, coastal grassland, coastal sage scrub and oak woodland/forest.

Community types with a greater sensitivity to disturbance or with special management guidelines include:

- *mixed conifer, particularly the coast redwood forest ;*
- *oak forest/woodlands; and*
- *coastal sage scrub which provide habitats for listed wildlife species.*

All of the redwood forests are on the Monterey Ranger District and outside of the study area. Mixed conifer habitats are mostly located outside the study area.

Eighty-four percent of the oak forest is located in areas congressionally withdrawn from oil and gas leasing. Conversely, 66 percent of oak woodland habitats are available for leasing under one or more of the alternatives considered.

Coastal sage¹ occurs on southernmost and northernmost Ranger Districts (RD's), the Monterey RD and Ojai RD.

Table 3-22 provides a summary of (1) the percent of LPNF comprised by each vegetation type, and (2) the percent of the vegetation type within congressionally withdrawn lands and lands being considered for leasing. Sargent Cypress, Santa Lucia fir, limber pine, and big cone Douglas-fir stands are also habitats of special concern because of their limited distribution on the Forest. Table 3-23 shows acreages of the vegetation communities within each HOGPA.

3.2.4.2. *Threatened, Endangered, Proposed, and Sensitive Plant Species*

Two listed plant species, **Hoover's eriastrum** and **Camatta canyon amole**, occur on the Forest, with potential habitat for one additional species, **California jewelflower** (Table 3-24). Two of the listed species, California jewelflower (*Caulanthus californicus*) and Hoover's eriastrum (*Eriastrum hooveri*), occur within the Cuyama Valley within or adjacent to the Forest boundary.

The California jewelflower is found in only three locales other than the Cuyama Valley (CDFG 1992), although new populations within these locales have been discovered (Skinner and Pavlik 1996.) There are no known occurrences of this species on National Forest System lands.

There are four populations of Hoover's eriastrum on LPNF. Habitat for both Hoover's eriastrum and the California jewelflower is described as chenopod scrub, pinyon-juniper woodland and valley/foothill grassland (Skinner and Pavlick 1996), with the California jewelflower tending to occur on sandier soils. On LPNF, occupied habitat has been mapped as pinyon-juniper, but it more closely resembles open shrub and grassland with only scattered junipers. Additional details regarding species distribution and habitat requirements can be found in Appendix B of the Biological Background Report.

Camatta Canyon amole (*Chlorogalum purpureum* var. *reductum*) occurs in annual grasslands and within openings in chamise-dominated chaparral. It is found north of the Machesna Mountain Wilderness, near the Forest boundary. No other occurrences of this species have been reported (CDFG 1992, Skinner and Pavlik 1996).

Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*) occurs within chaparral, within and north of Dick Smith and San Rafael Wilderness Areas (CNPS 1992, Skinner and Pavlik 1996).

An additional 42 sensitive plant species are listed on the LPNF Sensitive Plant List. These include species listed as "Rare" by the State of California, species formally identified as either "Candidate 1 or 2" species but which have been changed to "Species of Special Concern", and other sensitive plants as identified by the Regional Forester (LPNF 1998). Forty-one of the 42 species on LPNF list have been documented on the Forest. Documentation of actual species presence or absence is hampered by lack of comprehensive survey data as surveys are typically conducted in areas of proposed projects and not targeted towards examination of potential habitat in the absence of project development.

¹ Coastal sage communities, a subset of the sagebrush vegetation type, were defined to include all mapped "sagebrush" communities located within 2 miles of the coastline.

TABLE 3-22: VEGETATION TYPES ON LOS PADRES NATIONAL FOREST

Vegetation Types	Calveg Types ¹	% of LP	% W/drawn from Mineral Entry	% Available for Lease Consideration ²
Forest Communities				
<i>Oak Forest</i>	Mixed evergreen, tanoak-madrone, coast live oak, black oak-canyon live oak	6	84	16
<i>Oak Woodland</i>	Blue oak, valley oak-interior live oak	3	34	66
<i>Pinyon-juniper</i>	Pinyon-juniper	13	22	78
<i>Conifer</i>	Conifer-pine, pine-cypress, Jeffrey pine	7	63	37
<i>Coast Redwood</i>	Redwood-douglas fir, tanoak-redwood	1	99	1
Shrub Communities				
<i>Mesic Mixed chaparral</i>	Scrub oak, south coast mixed shrubs	22	68	32
<i>Chamise-dominated chaparral</i>	Chamise, montane mixed shrub	43	59	41
<i>Sagebrush</i>	Coastal sage scrub (soft chaparral), sagebrush, bitterbrush-rabbitbrush	2	33	67
Herbaceous Communities				
<i>Annual Grassland</i>	Annual grass	2	45	55
Other				
<i>Urban, Private</i>	N/A	0.1	8	92
<i>Barren/Water</i>	N/A	0.3	76	24

In general, individual species have limited distribution and there are less than 10 documented occurrences on the Forest. Habitat for most of the sensitive plant species on the LPNF List consists of openings within chaparral or conifer communities. Other habitats for sensitive species include oak woodland, grassland, sagebrush, and rock outcrops. Many of the species are restricted to specific soil or dominance types within these broad vegetation categories but the 1996 LPNF vegetation map does not distinguish these smaller habitats. Because of the number of sensitive plant species and the variety of habitats occupied by sensitive plant species, these plants can be found throughout LPNF and are not restricted to any specific geographical location.

1 See Cheatam and Haller, 1975

2 Lands available for leasing are defined as all lands not specifically withdrawn from consideration.

TABLE 3-23: VEGETATION TYPES PRESENT IN HOGPAs AND NON HOGPA (ACRES)

Location	Forested Communities					Shrub Communities			Herb.	Other		Total
	Oak Forest	Oak Woodland	Pinyon/Juniper	Conifer	Coast Redwood	Mesic Mixed Chaparral	Chamise-dominated Chaparral	Sagebrush	Annual Grassland	Urban	Barren or Water	
All LPNF	117,288	57,656	225,141	133,654	11,840	392,600	756,515	43,610	31,653	1,094	4,693	1,775,744
Withdrawn Areas	98,062	19,292	50,451	83,883	11,728	267,910	445,333	14,425	14,129	92	3,572	1,008,877
Lease Study Area	19,226	38,364	174,690	49,771	112	124,690	311,182	29,185	17,524	1,002	1,121	766,867
HOGPAs												
<i>Piedra Blanca</i>	57		15	160		1,659	905		19			2,815
<i>San Cayetano</i>	300			620		3,262	9,134	69	59			13,444
<i>Sespe</i>	473					1,344	8,838	1,965	262			12,882
<i>Rincon Creek</i>	220	158				3,336	5,270	68				9,052
<i>South Cuyama</i>	1,043	685	48,530	1,345		9,579	9,035	5,733	3,989		319	80,258
<i>La Brea Canyon</i>	131	1,300				2,486	5,289	23	44			9,273
<i>Figueroa Mountain</i>		145		3,006		808	4,297	5	484			8,745
<i>Lopez Canyon</i>	63					233	1,961					2,257
<i>Monroe Swell</i>						263	248		89			600
Total HOGPAs	2,287	2,288	48,545	5,131	0	22,970	44,977	7,863	4,946	0	319	139,326
Non-HOGPA	16,939	36,076	126,145	44,640	112	101,720	266,205	21,322	12,578	1,002	802	627,541
All Existing Leases	1,124	34	690			5,651	6,623	262	234			14,618
Existing Leases in So. Cuyama HOGPA	528		163			2,425	2,411	39				5,566

3.2.4.3. Botanical Areas

There are five existing and one proposed Botanical Area on LPNF. Three of these special areas (Cuesta Ridge, Dry Lakes Ridge, and the Mt. Pinos Summit) are located within the study area but outside any HOGPAs. Cuesta Ridge is the largest Botanical Area on the Forest and is of particular importance as it contains a large area of Sargent cypress on serpentine soils. The Mt. Pinos Summit Botanical Area features one of the few subalpine limber pine stands in southern California. The Dry Lakes Ridge Botanical Area contains a number of endemic species within an enclosed basin.

TABLE 3-24: THREATENED, ENDANGERED AND CANDIDATE PLANT SPECIES POTENTIALLY OCCURRING ON LPNF¹

Scientific Name	Status	LPNF Habitat Character	LPNF Veg. Type where mapped	Known Location on LPNF	# Occurrences		Potential Habitat in Lease Study Area
					Total LPNF	Lease Study Area	
Threatened and Endangered Species							
Caulanthus californicus	FE, CE	Desert scrub, grassland with scattered juniper	Pinyon-juniper (openings)	Not known to occur on LPNF	0	0	Yes
Eriastrum hooveri (Hoover's Woolly Star)	T	Open grassland	Pinyon-juniper (openings)	Cuyama Valley (Mt. Pinos R.D.)	4	4	Yes
Chlorogalum purpureum var. reductum	T	Grassland, woodland Serpentine	Chamise-dominated chaparral (openings)	Camatta Canyon (Santa Lucia R.D.)	1	1	Yes
Candidate Species							
Sidalcea hickmanii ssp. parishii	C	Chaparral	Chamise-dominated chaparral	Within and north of Dick Smith and San Rafael Wilderness Areas and the Cuesta-Santa Lucia Fire area (Mt. Pinos and Santa Lucia R.D.)	6	5	Yes

¹ California distribution, other habitat types and common names listed in Appendix B of Biological Background Report.
 Status Key: FE - Listed as Federally Endangered under the ESA; FT - Listed as Federally Threatened under the ESA; CE - listed as endangered by the State of California; C- Candidate species under the ESA, PT- Proposed for listing as Federally Threatened under the ESA, PE – Proposed for listing as Endangered under the ESA.

TABLE 3-25: BOTANICAL SPECIAL INTEREST AREAS WITHIN THE STUDY AREAS ON THE LOS PADRES NATIONAL FOREST

Area	Status	Size (acres)	Features	Location
Cuesta Ridge	E	1,300	Serpentinite Sargent Cypress and Coulter Pine; contains 12% of sensitive plants on LPNF	Study Area Non-HOGPA
Dry Lakes Ridge	E	Not known	Disjunct relict plant species within a small enclosed basin	Study Area Non-HOGPA
Mt. Pinos Summit	E	510	Sole example of limber pine stands in the southern California subalpine forest	Study Area Non-HOGPA

E = Existing Botanical Area P = Proposed Botanical Area

3.2.4.4. Noxious Weeds

Infestation of noxious and non-native plants is a growing concern. The Chief of the Forest Service has identified invasive species as one of four significant threats to National Forest and rangeland ecosystems. The Forest Service revised its national policy on noxious weed management in 1995 (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, in conjunction with other federal agencies, developed 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; administration; and planning. In 2001 the Forest Service issued *USDA - Forest Service Guide to Noxious Weed Prevention Practices*. The Pacific Southwest Region has subsequently developed a *Noxious Weed Management Strategy and Action Plan* in response to national direction. The LPNF is currently working on a *Noxious Weed Management Strategy* for the Forest, which is presently in working draft form.

Current LPNF noxious weed inventories and databases are limited. Given budget limitations and priorities there are not sufficient funds to conduct a noxious plant inventory for all of the forest not withdrawn from mineral entry. Based on limited data, it appears that noxious weeds are spreading, especially along roads, trails, and stream corridors.

Currently, the LPNF is treating about 20 miles of stream and 300 acres of uplands per year in order to control noxious weeds. The primary target species in these efforts are tamarisk, dalmatian toadflax, Italian thistle, 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. The preparation and use of noxious weed risk assessments is increasing the amount of land being surveyed. Project planners and decision makers now have information on the risks of spreading weeds and opportunities to incorporate weed control plans into project designs and decisions.

3.3. SOCIAL ENVIRONMENT

The following aspects of the social environment were identified in scoping as being potentially susceptible to significant effects from oil and gas development.

- *Heritage Resources*
- *Socioeconomics/Growth*
- *Forest Neighbors*
- *Access and Traffic*
- *Land and Resource Management Plans*
- *Oil & Gas Development*

- *Scenic Resources*
- *Safety and Hazards*
- *Recreation*

The potentially affected environment of each of these aspects is described in this section.

3.3.1. Heritage Resources

3.3.1.1. Introduction

The purpose of this section is to provide an overview of prehistoric, historic and Native American cultural resources within Los Padres National Forest (LPNF) that could be impacted by further oil and gas leasing on LPNF. There is not sufficient data to provide a more comprehensive description. Approximately 1,200 cultural properties have been inventoried on LPNF. It is estimated that there is a total of 20,000 cultural properties within the Forest. Approximately 3% of the Forest has been field surveyed, with survey limited to site-specific projects as opposed to large-scale surveys. It is not cost effective to gather the needed data at this point in the leasing process. The study area is simply too large. The approach then is to do field surveys, if additional leases are issued, once site-specific development plans are submitted under those leases.

Following this introduction, we present a summary of Native American cultures that have occupied this area, describe prehistoric and historic resources in general terms, and provide information on the Forest Plan direction, standards and guidelines relative to cultural resources.

A separate Heritage Resources background report was prepared to provide background information on the topic for preparation of this EIS. That report is in the file for this project at the LPNF Supervisor's Office. Heritage resource information in this EIS section was obtained or abstracted from the Heritage Resources background report, the LPNF Land and Resource Management Plan, and the EIS for that Plan.

Federal law, regulation, and agency direction require that cultural properties be protected until their value to history, archaeology, architecture or culture is determined. Once their value is determined, cultural properties are managed as appropriate for protection and enhancement of any significant characteristics. Currently, heritage resources management usually responds to management of other resources rather than to a comprehensive program, which would achieve the desired objectives. Protection occurs primarily through avoidance of threatened properties, unsystematic monitoring and physical protection of significant properties, particularly properties on or eligible for the National Register of Historic Places. Management through data recovery or compatible use is rare within the Forest. [LPNF Land and Resource Management Plan]

3.3.1.2. Cultural Summary

3.3.1.2.1. Native American Cultures

The first contacts between Europeans and Native Americans living along the central California coast and adjacent inland areas came in the mid-1500s. Ethnographic researchers have utilized information from Spanish explorers, Spanish missionaries, linguists, and trained and untrained ethnographic observers to describe and categorize the native peoples who inhabited the area of what is now Los Padres National Forest and vicinity at the time of initial European contact. Ethnographers have defined five Native American groups who inhabited the area, primarily on the basis of linguistic characteristics. Because of the early demise of native populations, and vagaries of early records, some of the classifications are speculative.

The five Native American peoples in the area have been identified as the Chumash, the Esselen, the Salinan, the Tataviam, and the Costanoan (or Ohlone). The first three groups are considered to be part of the Hokan linguistic stock. The Tataviam are assumed to have been members of the Tatic language family within the larger Uto-Aztecan stock. The Costanoan have been categorized as belonging to the Utian family of the Penutian stock.

The Chumash occupied most of the area which is now part of the southern portion of Los Padres National Forest. They lived along the coast from Point Piedras Blancas on the north, to Malibu Canyon on the south, and as far inland as the western margin of the San Joaquin Valley. The Chumash population was decimated as a result of contact with Europeans, and later, Americans, and their culture has endured drastic changes. However, they have remained a viable and active population in Ventura, Santa Barbara and San Luis Obispo Counties. The Santa Ynez Indian reservation was established in 1855, although not officially deeded to the Chumash until 1901. It remains a focal point for many contemporary Chumash living in the area.

The Salinan peoples, like the Chumash to the south, and the Esselen to the north, have been assigned to the Hokan linguistic stock due to general similarities in these native languages. At the time of European contact, the Salinan occupied coastal areas between Point Lopez (in the Monterey Ranger District) on the north to Estero Bay on the south, as well as adjacent inland areas, such as near San Antonio de Padua. The Salinan, like other native peoples, were decimated by European contact. More than 21 Salinan villages existed in 1770, but by 1928 only 36 persons of Salinan ancestry were listed (in the California Roll). In spite of these drastic impacts, a number of Native Americans affiliated with the ethnographic Salinan remain in the area, and are active in re-establishing certain aspects of their traditional culture.

The Esselen represent a rather poorly documented ethnographic group. They are thought to have been speakers of a distinctive Hokan language. At the time of European contact, they occupied a relatively short stretch of the central California coast, roughly between Point Sur on the north and Point Lopez on the south, with their territory extending inland over the Santa Lucia Range and into the upper Carmel Valley. The present-day Ventana Wilderness of Los Padres National Forest encompasses a significant portion of this ethnographic Esselen territory. Lack of know-

ledge of Esselen culture is due to its rapid and virtually complete destruction by the early 1800s as a result of Euroamerican contact. There are, however, families who trace their lineage to Esselen ancestors. These people, along with other Native Americans living in Monterey County, have an active interest in their native culture, and the archaeological resources of the region.

The Costanoan (also known as the Ohlone) occupied the coast and coastal ranges from San Francisco Bay south to the area near Monterey Bay. No LPNF lands under consideration for oil and gas leasing are known to have been occupied by the Costanoan. By 1935, it is believed that the eight Costanoan languages were all extinct, although in 1971 Costanoan descendants organized a corporate entity known as the Ohlone Indian Tribe, and are taking an active role in the management and treatment of resources of interest to them.

Little is known about Tataviam-speaking peoples who lived in the easternmost five or six miles of Los Padres National Forest and lands further east. The last Tataviam speaker is reported to have died in 1916.

3.3.1.2.2. Native American Issues and Concerns

3.3.1.2.2.1. Study Approach

Consultant environmental staff conducted a series of interviews with Native American representatives in the area. Objectives of the contact program were 1) to identify the types of natural and cultural resources on LPNF that are of interest to the contemporary Native American community; 2) to gain insight into the nature of potential impacts to such resources as a result of oil and gas developments; and 3) to provide recommendations for identifying and incorporating Native American concerns during future project planning. The contact program was not limited to federally recognized entities, but rather included a broad range of individuals and organizations. Forty-seven Native Americans were initially contacted by mail, and ultimately interviews were conducted with 39 persons, either by telephone or in person.

3.3.1.2.2.2. Issues and Concerns

During the contact program, respondents raised a wide range of resource issues, which we have divided into six categories: burials, rock art sites, other archaeological sites, plants, spiritual/ceremonial locations, and general environmental concerns. However, many of the respondents make no such category distinctions, and hold that all of nature (including people) is part of one united system.

Burials – Human burials, burial sites and artifacts are of very high concern to contemporary Native Americans. Proper respect for and treatment of the dead, and protection of burials is very important, and disturbance must be avoided if at all possible. If burials are inadvertently exposed by a project, and if it is not possible to modify the project, removal of the remains and reburial in the same area is acceptable as long as appropriate Native Americans are involved to

perform the proper reburial ceremonies. Compliance with current laws is appropriate, if not vital.

Rock Art Sites – Such sites are important to the contemporary community as representations of their native culture, and their protection from vandalism and other impacts is critical. In addition, some individuals assign spiritual and/or ceremonial values to these resources (e.g., solstice observation), raising the level of concern regarding indirect (i.e., visual and aural) impacts that could adversely affect these values. Locations of concern were cited as “above Cuyama Valley,” the Plano Valley area, at Piedra Blanca, and near Frazier Mountain.

Other Archaeological Sites – Identification and protection of archaeological sites concerns contemporary Native Americans, as manifestations of their ancestors’ lives. Preservation of the sites and artifacts previously removed from them is considered vital for edification of future generations, and continuation of native cultures. Monitoring of construction projects by Native Americans was often mentioned in conjunction with this resource issue.

Plants – Although plant materials are less of a subsistence issue now, there are numerous individuals who still collect specific plant materials for use in food, basket-making, musical instruments, and medicinal purposes. Some individuals value LPNF lands as key sources of these resources, but others consider LPNF use permits required to gather such materials as an interference with their birthright. Figueroa Mountain and Sage Hill are important locations for gathering of plant materials. The Basketweavers, an informal group of Native Americans and others interested in this craft, maintain a map of gathering locations in the area. They are concerned with protecting the known areas of resources, and identifying new areas.

Spiritual / Ceremonial Locations – This is an extremely sensitive subject to the respondents, but it is clear that certain peaks and other landforms possess intangible values for some members of the Native American community. These locations may not possess any outward physical indicators that distinguish their significance from other landforms. Areas of LPNF with spiritual connections include the Ventana Wilderness, Mt. Piños, Figueroa Mountain, Hughes Ridge, Rincon Creek, the Sespe area, and the Cuyama Valley. The Heritage Resources staff of LPNF is actively compiling a (confidential) list of sacred areas and other traditional cultural sites to assist in future management of the public lands. This list, although it is not exhaustive, currently contains nearly 50 individual locations that are important in this regard.

General Environmental Concerns – Many of the respondents expressed their holistic perception of nature, and natural resources, and associated concerns regarding modern developments in LPNF. They were particularly concerned for the protection of areas classified as “pristine” or “undisturbed.” Native Americans continue to hunt, fish, gather feathers, gather rocks or minerals, make traditional tools, and recreate in LPNF lands, as their ancestors did. They are concerned that increasing development and/or federal regulations may make it impossible for their children to do the same.

3.3.1.2.2.3. Contact Program Limitations

Information compiled in the background report was limited in two important ways. First, contact was not established with every Native American individual who may have interest in the cultural and natural resources of LPNF. Second, the information is limited naturally as a result of the Forest-wide nature of this investigation. While much information was obtained, data on many specific resources and resource areas were not compiled. This level of detail and analysis is more appropriately addressed on a site-specific basis, as it will be once ground disturbing activities are proposed if additional leases are sold.

3.3.1.2.2.4. Future Project-Specific Involvement Desired

Because of the information gaps noted above, the resource information in this EIS and in the Heritage Resources background report should be used only as a starting point when planning or assessing impacts from specific proposed oil and gas development projects on LPNF. Additional in-depth contacts with Native Americans, and the gathering of resource-specific data will be required at the review of specific proposed oil and gas lease activities.

3.3.1.2.3. Prehistoric Resources

3.3.1.2.3.1. Chronological Framework

A variety of chronological frameworks have been proposed by researchers to classify prehistoric occupation of LPNF. The Heritage Resources background report describes the various systems, and addresses resources falling into major time periods proposed by Jones and King. These prehistoric periods include the Paleoindian (prior to 6500 B.C.); Millingstone (6500 B.C. to 3500 B.C.); Early (3500 B.C. to 600 B.C.); Middle (600 B.C. to 1000 A.D.); Late (1000 A.D. to 1500 A.D.);

3.3.1.2.3.2. Prehistoric Site Types

A wide variety of prehistoric site types spanning the entire prehistoric sequence can be expected within the oil and gas lease study area. According to Horne (1996), a comprehensive site classification system has not been developed for LPNF, but systems used nearby (such as at Point Sal) could be useful. Under Spanne's typology, habitation sites have been classified into 1) villages and residential bases; 2) seasonal residential bases; 3) general purpose camps; 4) fishing and shellfishing camps; 5) hunting camps; and 6) trail camps. A full suite of prehistoric habitation sites can be found on LPNF (Horne, personal communication, 1996). Habitation sites may have associated cemeteries, and some have associated rock art.

In addition to habitation sites, many different types of special purpose or day use sites are known. These include food processing locations, quarries for rock tools, locations for processing of rock (lithic) tools, hunting sites, trail rest areas, rock art sites, and religious shrines.

3.3.1.2.3.3. Regional Research Directions

In order to establish the importance of archaeological information, it is necessary to demonstrate that this information can add substantively to the understanding of past cultures. Numerous authorities have argued that this is best demonstrated through the development of regional, problem-oriented research designs. The Heritage Resources Background Report discusses research directions useful in this area under eight separate but related topics. The topics include:

- *Chronology*
- *Population Movements and Ethnic/Linguistic Prehistory*
- *Settlement Patterns and Predictive Modeling*
- *Hunter-Gatherer Settlement and Subsistence*
- *Environmental Change and Cultural Adaptation*
- *Prehistoric Exchange Relationships*
- *Development of Cultural Complexity and*
- *Rock Art Studies*

3.3.1.2.3.4. Previous Survey Coverage

Conducting an archaeological and historical resource survey is one of the first steps necessary in complying with Section 106 of the National Historic Preservation Act (NHPA). Most heritage resource studies on LPNF have been driven by the need to install utility lines or roads. As a result, only a small portion (approximately 3%) of LPNF lands has been systematically surveyed. The Heritage Resources Background Report lists identification numbers of surveys previously conducted by quadrangle map by level of oil and gas potential. However, existing archaeological survey coverage is spotty at best. Table 3-26 lists the number of previous surveys. For the most part, applications for new oil and gas exploration and/or development will require conducting additional archaeological surveys.

TABLE 3-26: PRIOR HERITAGE RESOURCE SURVEYS CONDUCTED

<i>Area within LPNF</i>	<i>Number of Prior Heritage Resource Surveys Conducted</i>
High Oil and Gas Potential Areas	56
Remainder of Lease Study Area	102

3.3.1.2.3.5. Prehistoric Resources Summary

The oil and gas study area is geographically intermediate between California's central coast and the central valley. It contains a wide variety of Native American archaeological sites, including permanent villages and temporary habitation sites, cemeteries, rock art and places of religious significance, and resource procurement and processing locations. Much of the area is unexplored archaeologically, creating the need for careful baseline surveys prior to any development. Sites that could be affected by development have a good potential to yield information relevant to a variety of regional research issues. Because of the area's intermediate position between cultural zones, and the lack of previous surveys, it is possible that unique and

unexpected site types may be encountered. Many sites are likely to be ephemeral and fragile, making them difficult to identify and easy to damage. Regional researchers, while wanting to know more about the data content of the area's sites, generally put high priority on avoidance of impacts. Archaeological investigations should be conducted early in the oil and gas development process, in order to provide information useful in avoiding impacts through project design.

3.3.1.2.4. Historic Resources

A key source for the background report in addressing historic resources was the 1985 Historical Overview of the Los Padres National Forest by Blakely and Barnette. Several later documents address specific aspects of LPNF history, including the Gibraltar Mercury Mine (Palmer, 1991); Civilian Conservation Corps structures on the Forest (Palmer, 1993); gold mining in the Piru Creek and Frazier Mountain mining districts (Dodd, 1995); and recreational residences on Forest land (Dodd, 1995). Several of the authors, and other knowledgeable individuals were contacted by telephone, and interviewed regarding historic data sources, and data gaps.

3.3.1.2.4.1. Historical Periods

The Heritage Resources background report summarizes key events and trends of historic importance, within a framework of five historical periods. These periods are described as the Hispanic Era (1542-1846); the Early American Period (1847-1898); LPNF Beginnings (1899-1933); the Depression Years (1933-1941); and World War II to the Present (after 1941).

3.3.1.2.4.2. Historical Resources

Historic resources associated with the Hispanic era may include Native American habitation sites, areas of mining or timber harvest, and transportation routes. The likelihood that such sites may be within LPNF is generally rated as "limited", but the research potential associated with such sites is rated as "high."

During the Early American period, homesteading replaces Native American habitation sites on the list of potential historic resources, while retaining the other three resource types. The likelihood that such sites may be within LPNF is generally rated as "limited", but the research potential associated with such sites is rated as "high."

For the period when LPNF was beginning, potential resources included administrative structures, recreational residences, transportation and communication routes, mining and timber harvest areas. Most have been rated "moderately likely" for being within LPNF, except for timber harvesting (rated "limited" likelihood). However, most of these resources, if present, are rated as having "high" research potential.

Potential historic resources associated with the Depression Years include administrative structures, campgrounds and recreation, California Conservation Corps camps, fire control, mining, range structures, recreational residences, transportation routes and water systems. Most

of these resources are rated “highly likely” to occur on LPNF, but the only topic of high research potential was identified as the CCC camps.

The list of potential resources for Word War II to the Present is similar to the list for the Depression Years, except that CCC camps and fire control not listed. All the listed sites (except for mining) are rated as being highly likely to occur on LPNF, but their research potential has been rated as “limited.”

3.3.1.2.4.3. Data Gaps

Review of key documents and interviews with persons knowledgeable regarding LPNF history identified seven primary data gaps concerning the historic record for resources considered most likely to be affected by oil and gas leasing. The gaps are discussed in some detail in the Heritage Resources background report, and include

1. *Land use history of the eastern part of Monterey Ranger District, particularly lime processing, lime kilns and a landing site for ships used for the tanbark industry. Information is also needed regarding homesteading and ranching activities in the area.*
2. *Details regarding CCC projects and worker lives.*
3. *Historic evolution of LPNF roads.*
4. *Information regarding water supply systems and railroad grades.*
5. *Homesteading information, especially in the Upper Cuyama Valley.*
6. *Grazing permits and leases on LPNF.*
7. *Oil and gas exploration history.*

3.3.1.2.4.4. Summary of Historic Resource Issues

The historical archaeological research potential of LPNF is extremely high, and to date remains largely untapped. Archival resources available on the Forest are extensive, particularly for the southern regions, although the majority of information is held in private archives. The value of historical documents and photographs for illustrating Forest history is rich, and should be thoroughly addressed prior to any project that may affect the Forest’s historical cultural resources. Although some historical archaeological sites have been recorded within the Forest, additional survey is very likely to find many more previously undiscovered sites. Archival research and oral history interviews will be extremely important to understanding the function and history of these resources.

3.3.1.3. Forest Plan Management Direction

The Forest Plan management direction for heritage resources contains the following statements (Forest Plan, p. 4-6):

- *Increased inventories and significance evaluations will provide the basis for a comprehensive program of cultural resources management;*

- *The cultural resources on approximately one-half of the Forest will have been inventoried;*
- *Eight percent of the inventoried cultural resources will have been evaluated for significance;*
- *Heavy emphasis on interpretation of cultural resources will meet demand for public knowledge and awareness of heritage and history.*

Demand for cultural resources protection will continue to be met through inventory, physical protection measures, and law enforcement. Cooperation and consultation with responsible agencies and with publics with special concerns for cultural resources will continue.

Forest-Wide Standards and Guidelines

1. *The Forest's curated and archived collections including artifacts, oral history records, photographs and records, maps and atlases, and other historical data will be actively managed.*
2. *Confidentiality of cultural resource site locations will be managed.*
3. *All project impact areas will be inventoried prior to implementation to allow identification, protection, and mitigation of any significant cultural properties. The consultation process mandated by Federal regulations (36 CFR 800) will be completed early in the planning for individual projects.*
4. *Public education and interpretation efforts will be utilized as a means of creating increased public awareness and concern for cultural resources (Forest Plan, p. 4-12)*

3.3.2. Socioeconomics/Growth

3.3.2.1. Introduction

This section describes the socioeconomic environment within which the alternative leasing scenarios would be implemented if selected. Topics addressed include *Social Setting, Population, Economic Characteristics and Trends, and Fiscal Characteristics*. The *Social Setting* section provides a general overview of the counties encompassing the areas of the LPNF where oil and gas exploration and development activities are projected to occur. The *Population* section describes general demographic characteristics of the resident population. *Economic Characteristics and Trends* address sources and trends of employment and income in the project region, while *Fiscal Characteristics* deals with governmental revenues.

(NOTE: It is acknowledged that the economic data utilized in this study is to some extent dated. The consultant interdisciplinary team economist has reviewed applicable census data for the year 2000. It is his opinion that changes in the data would not change the results of the socioeconomic analysis.)

Geography plays a major role in socioeconomic analysis and the terms “project region” and “study area” will be used frequently. Specifically they will refer to the counties where oil and gas exploration and development activities are projected to occur as shown in Figure 3-4.

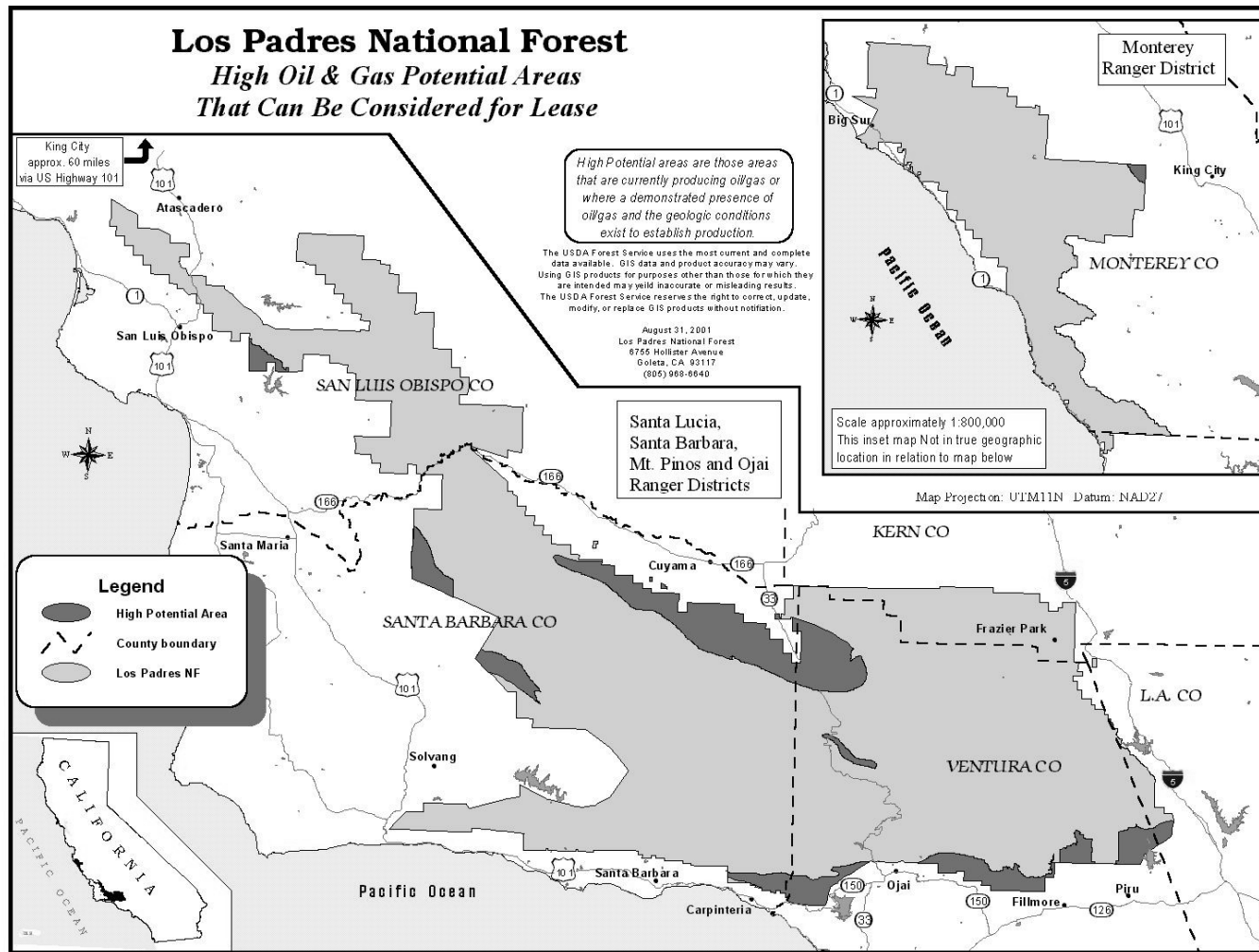
As discussed in Chapter 2, there are several alternative oil and gas exploration and development scenarios being considered whose principal distinguishing characteristics are the number and general location of wells to be drilled and the lease stipulations applied. The lease consideration area where leasing could occur is located in portions of the LPNF lying in Los Angeles, Ventura, Santa Barbara, San Luis Obispo and Monterey Counties. It is these counties that comprise the project region/study area for the socioeconomic impact analysis.

Chapter 2 identifies seven alternative development scenarios. Alternative 1 is the No Action or baseline case, under which no new leasing would occur and thus, there would be little additional disturbance from oil and gas exploration and development activities imposed on the socioeconomic setting. The socioeconomic ramifications of the No Action scenario are described in the present section. It is assumed that current trends in demographic, economic and social conditions will continue unchanged and thus, constitute a baseline upon which the effects of the other development scenarios may be superimposed to provide a basis for estimating the likely impacts of the proposed action alternatives.

Some comments on the scope of the proposed action(s) are necessary because of the varying levels of the proposed oil and gas exploration and development activities in the counties comprising the study area. Alternative 2 is the maximum activity case since it is projected to involve the most well field development (151 wells) and mobilization of social and economic resources. Other action alternatives would involve fewer new wells, infrastructure and support activities, and result in less socioeconomic impacts. The scale of these activities, particularly in the case of the maximum development case, varies substantially from county to county. This has implications for the scope of the socioeconomic impact assessment.

Under the Alternative 2 leasing scenario, a total of 99 new wells would be drilled in various fields in Ventura County, versus 48 in Santa Barbara County and two each in San Luis Obispo and Monterey Counties. In alternatives 3, 4, 4a, 5 and 5a substantially fewer wells would be drilled in Ventura and Santa Barbara Counties, while only two would be drilled in San Luis Obispo County and none would be drilled in Monterey County. This disparity of impact-causing activities among the project region counties results in the need for only a minimal analytical effort for Los Angeles, San Luis Obispo and Monterey Counties. This is because, from a socioeconomic standpoint, the regional effects of mobilizing manpower and technical resources to drill and produce only one or two wells are not significant.

FIGURE 3-4: STUDY AREA HOGPAS AND COUNTY BOUNDARIES



While it is mathematically possible to quantify the employment and income effects, the significance of the analysis pales in the face of the fact that the socioeconomic parameters of Los Angeles, San Luis Obispo and Monterey Counties are measured in the hundreds of thousands of residents and jobs and billions of dollars of personal income and industrial output. More significant would be the effects of the proposed leasing actions in Ventura and Santa Barbara Counties, where the logistics of constructing and supporting a relatively larger number of wells and associated infrastructure could potentially have noticeable effects on the local communities and the regional economy. For these reasons, the discussion of regional Baseline characteristics will be focused on Ventura and Santa Barbara Counties.

3.3.2.2. Social Setting

A region's natural resources, its climate, its accessibility and its proximity to sources and markets of products and services largely determine how people develop and use the area, with its endowments of aesthetically important features (e.g., coastlines, forests, mountains, etc.) creating special amenity values and needs for conservation of resources. The LPNF counties are significantly endowed with natural resources and amenity values that have led to extensive urban and agricultural development along coastal areas and inland valleys, while leaving upland and interior areas largely undeveloped. National and state forests and parks have preserved vast areas for recreation, wildlife habitat with limited exploitation of mineral and forest resources.

From a geo-socioeconomic standpoint, most of the areas of the LPNF where oil and gas leasing activities could take place are remote and rugged and therefore would have little direct impact on communities. Population is sparse and access is difficult due to the relief of the terrain. Exploration and development of oil and gas resources has been ongoing for many years in the LPNF counties, but within the National Forest itself, development has been limited. A review of the California Division of Oil, Gas and Geothermal Resources Annual Report for 1996 indicated a total of 975 producing oil wells in fields that are included partly or totally in the study area counties of the LPNF. Table 3-27 shows the producing wells within and around LPNF by oilfield and county. Ventura County has the most producing wells with 1,919 followed by Santa Barbara with 820 wells, Monterey County with 384, and San Luis Obispo County with 140 wells. (Refer to Section 3.3.6 for additional discussion of oil and gas development in and near LPNF.)

Oil and gas production is not the study area counties' most important economic activity. Industry earnings from oil and gas extraction accounted for only 1.2% of total earnings (place of work basis) in Ventura and Santa Barbara Counties in 1995, while in San Luis Obispo and Monterey Counties the ratio was only 0.1%. (REIS, 1997) Much more significant as sources of income and employment to the counties' residents are: agriculture, manufacturing, services (in particular, tourism) and government. To the extent that development of additional oil and gas reserves within LPNF could become (or be perceived to be) a threat to some aspect of the region's social and economic viability, then mitigation of that threat would be necessary. The remainder of this

section is devoted to evaluating the levels and trends of the study area's social and economic activities.

3.3.2.3. Population

Excluding Los Angeles County, the four LPNF study area counties had about 1.72 million residents in 1997, of which approximately two-thirds (1.11 million) lived in Ventura and Santa Barbara Counties (see Table 3-28). In aggregate, the study area population (exclusive of Los Angeles County's) represents about five percent of the statewide population. Between 1990 and 1997 the four counties' populations grew at modest rates, reflecting the impact of the statewide recession during the years 1990-1993 when, because of the economic contraction emanating from reduced federal spending in the defense sector, job losses led to a net out-migration of population from the state, particularly from southern California. Recovery commenced in 1993-94 with the Los Angeles area leading the upturn. The state Demographic Research Unit (DRU, a unit of the state Department of Finance) has projected continuing and strengthening expansion of population for the study area counties as well as the rest of the state. The study area's population is predominately urban and preponderantly of white and Hispanic origin. Poverty and unemployment rates were relatively high in the counties, but generally in line with statewide averages.

Housing data compiled by the California Department of Finance's Demographic Research Unit indicate that as of 1 January 1997, housing was tight in Ventura, Santa Barbara and Los Angeles Counties (i.e., vacancy rates were in the vicinity of five percent), but less so in San Luis Obispo and Monterey Counties. Table 3-29 presents the principal housing characteristics data for the study area.

3.3.2.4. Economic Characteristics and Trends

Profiles of income and employment (as indicators of the structure and level of economic activity) in the study area counties are provided in, respectively, Tables 3-30 and 3-31. Of particular interest are the construction and mining sectors, which are the principal beneficiaries of oil and gas exploration and development activities. The Counties of Los Angeles, San Luis Obispo and Monterey are included in the tabulations for completeness of data, but attention is focused on Ventura and Santa Barbara Counties because virtually all the impacts of the oil and gas exploration and development activities contemplated in the project alternatives would occur in the latter two counties.

The study area counties have typical economic structures for areas of predominately urbanized populations, with the majority of income and employment generated in the trade, services and government sectors. Looking at Ventura and Santa Barbara Counties' employment data, the mining sector employs a relatively larger proportion of the Counties' workers compared to the

other counties. Most of these jobs are in exploration, development and production of crude oil and natural gas. The rest are mainly in sand and gravel extraction. Several hundred additional jobs in oil and gas extraction are generated in the construction sector for specialized contractors providing certain oil and gas well maintenance services. Ventura and Santa Barbara Counties have well-established industries for development of oil and gas resources.

Economic growth trends in the LPNF study area have shown a mixture of tendencies over the past several years. Like all of California, the study area counties were affected by the economic recession of 1990-1993. Up until then, employment and incomes were increasing in step with population growth, but the cut-back in defense spending in the state's aerospace and other defense-related industries set off a downward multiplier effect on the economy—particularly in southern California. This effect led to losses of jobs throughout the manufacturing, trade and services sectors and resulted in subsequent out-migration of workers to neighboring states. Recovery from the recession commenced in 1993, but it was not until 1995 that some counties even regained their pre-recession levels of employment.

TABLE 3-27: NUMBER OF PRODUCING ONSHORE OIL WELLS WITHIN VICINITY OF LPNF COUNTIES, 1996

<i>Field/Pool</i>	<i>Ventura</i>	<i>Santa Barbara</i>	<i>San Luis Obispo</i>	<i>Monterey</i>
Big Mountain/Sespe	10			
Oak Park/Sespe	15			
Ojai/Lower Sespe	5			
Santa Susana/Sespe	9			
Sespe	245			
Tapo Canyon/Sespe	5			
Torrey Canyon/Sespe	43			
Ventura	426			
Ojai/Silver Thread	78			
Timber Canyon	32			
South Cuyama		97		
Lopez Canyon			0 (abandoned)	
Monroe Swell				10
Subtotal	868	97	0	10
Other Onshore Wells	1,051	723	140	374
Total Onshore Wells	1,919	820	140	384

Source: CA DOG (California Division of Oil, Gas and Geothermal Resources) 1996.

TABLE 3-28: POPULATION CHARACTERISTICS OF LPNF STUDY AREA COUNTIES

Parameter	Ventura	Santa Barbara	San Luis Obispo	Monterey	Los Angeles
Population					
1980 (1 July)	529,174	298,694	155,435	290,444	2,989,552
1990 (1 July)	669,016	369,608	217,162	355,660	7,477,239
1997 (1 January)	716,770	397,954	234,148	371,498	9,448,227
Growth Rate 1990-97 (%/Yr)	0.99%	1.06%	1.08%	0.62%	3.40%
2000 (projected)	755,400	415,600	247,100	381,200	9,889,000
Socioeconomic and Ethnic Characteristics (1990 Census)					
Percent Urban	95.34%	93.59%	80.39%	82.97%	99.13%
Percent in Poverty	7.14%	12.24%	12.14%	10.91%	14.76%
Per Capita Income (1993)	\$22,003	\$24,013	\$18,546	\$21,371	\$21,661
Percent Unemployed (1994)	7.9%	7.3%	7.4%	11.9%	9.4%
Percent White	66.07%	66.31%	81.56%	52.98%	41.01%
Percent Black	2.22%	2.52%	2.33%	6.10%	10.68%
Percent Hispanic	26.22%	26.27%	12.37%	32.74%	37.30%
Percent Other	5.49%	4.90%	3.74%	8.18%	11.01%

Sources: Bureau of the Census, 1996; DRU, 1997

TABLE 3-29: LPNF STUDY AREA HOUSING CHARACTERISTICS (1 JAN 1997)

Parameter	Ventura	Santa Barbara	San Luis Obispo	Monterey	Los Angeles
Total Units	243,888	143,639	97,432	128,162	3,247,372
Single Family	178,396	91,371	67,338	86,497	1,785,397
Multiple	53,230	43,405	18,934	35,224	1,406,297
Mobile Homes	12,262	8,863	11,160	6,441	55,678
Occupied	231,838	134,937	86,623	114,685	3,066,771
% Vacant	4.94%	6.06%	11.09%	10.52%	5.56%

Source: DRU, 1997

TABLE 3-30: SOURCES OF INCOME OF LPNF STUDY AREA COUNTIES, 1995 (IN MILLIONS OF DOLLARS)

Parameter	Ventura	Santa Barbara	San Luis Obispo	Monterey	Los Angeles
Total Personal Income	17,484.67	9,929.02	4,645.39	8,452.08	231,337.44
Total Earnings (by Place of Work)	10,115.31	6,236.82	2,703.06	5,481.47	169,335.53
Non-labor earnings, & transfer payments	7,369.36	3,692.20	1,942.33	2,970.61	62,001.91
Earnings By Industry:					
Farm	412.42	238.35	67.28	701.54	188.01
Agricult. services, forestry, fishing	235.66	153.13	53.01	525.06	554.84
Mining	132.26	78.03	7.60	8.72	442.27
Construction	598.30	312.74	240.07	235.81	6,176.05
Manufacturing	1,296.67	779.07	207.99	358.67	27,199.80
Transportation, communications, and public utilities	519.67	232.06	260.39	219.43	11,566.67
Wholesale/retail trade	1,531.52	873.28	433.26	775.49	26,394.12
Finance, insurance, and real estate	563.61	326.32	129.99	274.91	13,107.95
Services	3,120.97	2,223.97	709.40	1,335.33	62,660.81
Government	1,704.24	1,019.86	594.08	1,046.53	21,045.02

Source: REIS, 1997

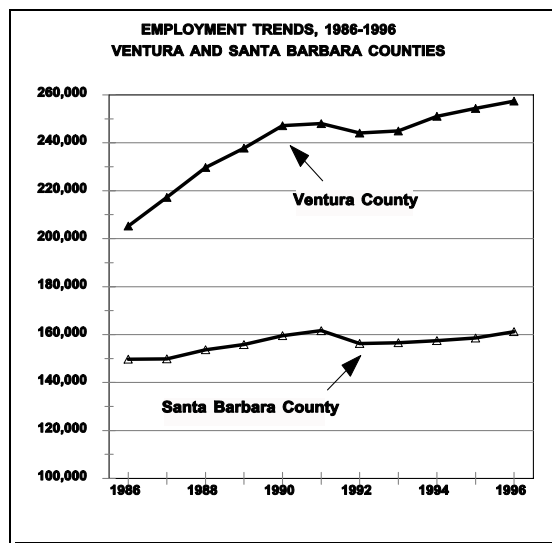
TABLE 3-31: COMPOSITION OF EMPLOYMENT IN LPNF STUDY AREA COUNTIES, 1995*

Industry	Ventura	Santa Barbara	San Luis Obispo	Monterey	Los Angeles
Total Employment (by Place of Work)	353,191	221,196	115,859	188,902	5,029,233
Farm	10,875	9,950	4,133	13,307	9,437
Agricult. services, forestry, fishing	13,515	9,206	3,279	23,469	38,075
Mining	2,823	1,689	300	338	10,794
Construction	19,048	9,287	7,621	6,988	177,730
Manufacturing	32,212	17,715	7,494	9,769	673,416
Transportation, communications, and public utilities	12,498	6,181	5,623	5,711	247,638
Wholesale/retail trade	73,504	44,846	26,903	36,922	1,032,618
Finance, insurance, and real estate	24,658	16,459	10,294	12,888	419,677
Services	115,333	72,968	32,670	48,879	1,854,626
Government	48,725	32,895	17,542	30,631	566,202

Source: REIS, 1997

*Full-time and part-time employees plus proprietors.

The chart to the right illustrates the trends in civilian industrial employment in Ventura and Santa Barbara Counties over the period 1986-1996. Ventura County has shown the more robust trend of growth and recovery, with total jobs reaching more than 250,000 in 1996. (EED, 1997) Santa Barbara County has shown slower growth in employment, and took longer to recover from the recession. The state’s demographic research center in the Department of Finance is projecting continued population growth for the state (and the study area counties) in response to both natural growth (births exceeding deaths) and a net inflow of migrants from abroad and other parts of the country. Employment growth is in part both cause and effect of population growth, and it can be expected that the trends in job expansion will continue.



One issue in the evaluation of the effects of resource development projects on local communities is whether the proposed action might induce excessive growth due to the attraction of workers from outside the study area. An indication of the potential susceptibility of an area to such impacts is the extent of worker commuting to and from the area of interest. The Census

Bureau compiles estimates of workers' journeys to work (JTW) as part of the decennial census, and data for the LPNF counties were reviewed to ascertain the extent to which mining and related employment generated traffic from outside the counties. The Census JTW data do not, unfortunately, break out mining workers' movements, but include them with the Construction sector. This is not a bad situation, however, because construction work generates considerably more jobs than mining, and therefore provides a more rigorous test of the hypothesis that development projects can generate growth-inducing effects.

Table 3-32 shows the pattern of construction workers' commuting travel in the LPNF study area counties in 1990. In that year, Ventura County was estimated by the Census Bureau to have generated 16,077 construction jobs, of which 13,006 (80.9%) were occupied by Ventura County residents. Most of the balance, another 2,553 (15.9%), was filled by Los Angeles County residents. At the same time, 5,796 construction workers from Ventura County commuted to other counties, of which Los Angeles received the vast majority (5,298 or 91.4%). In total, Ventura County supplied workers for 19,494 construction jobs in and out of the county while it generated 16,077 construction jobs, thus indicating that the county was a net exporter of construction workers. This suggests that an expansion of construction work (including mining sector jobs) in the county could be filled by local residents.

Santa Barbara County had an estimated 10,062 construction (and mining) jobs during 1990, of which 8,379 (83.3%) were filled by that county's residents. Ventura and San Luis Obispo County residents filled most of the balance of the sector's jobs (1,317, or 13.1% of the 10,062 total). At the same time, however, the Santa Barbara County was able to supply 9,297 workers to the construction (and mining) sectors in all destinations, which indicates that the county was a net importer of construction workers. Consequently, it could be assumed that a significant expansion of construction (and mining) jobs in Santa Barbara County might require recruiting of labor from outside the county. In view of the fact that most of the non-county workers in 1990 commuted on a daily basis from Ventura and San Luis Obispo Counties, however, it is unlikely that such workers would relocate permanently to Santa Barbara. Therefore, they would not put a strain on local housing and other infrastructure. San Luis Obispo and Monterey Counties were net exporters of construction workers, indicating a capability to accommodate an expansion of construction (and mining) employment within the counties with resident workers.

3.3.2.5. *Fiscal Characteristics*

Leasing and development of mineral and timber resources in national forests and other federally owned land generates revenues for local governments via payments of royalties, bonuses and rents by lessees to the federal government. The federal government then shares the part of these revenues with states, counties and school districts where the forests are located. Much of these local payments are in lieu of property taxes, which the local jurisdictions are unable to levy directly because the lands are owned by the federal government and are therefore exempt from local taxation. Congress has enacted a number of laws to compensate local jurisdictions for the costs of public services they provide to users of the national lands.

TABLE 3-32: CONSTRUCTION WORKER'S TRIP TO WORK: PATTERNS FOR LPNF COUNTIES, 1990

To (across) From (down)	Ventura	Santa Barbara	San Luis Obispo	Monterey	Los Angeles	Other	Total
Ventura	13,006	608	84	0	5,298	498	19,494
Santa Barbara	224	8,379	391	0	159	144	9,297
San Luis Obispo	28	709	4,923	80	96	117	5,953
Monterey	0	0	40	5,140	0	933	6,113
Los Angeles	2,553	178	81	0	**	**	**
Other	266	188	142	640	**	**	**
Total	16,077	10,062	5,661	5,860	**	**	**

Source: Census Bureau, 1995. ** data not relevant to discussion.

An exact accounting of the sources and uses of the federal payments is difficult because the available data do not distinguish among the multiple sources of mineral lease payments within counties (e.g., onshore versus offshore oil and gas, and multiple national parks and forests within a county) and the multiple local jurisdictions (e.g., general county government versus independent school districts). However, the total numbers are still useful as an indication of the general magnitude of the payments.

As tabulated in Table 3-33, in Fiscal Year 1994-95, the general funds of the five counties with land in the Los Padres National Forest where the proposed alternative leasing programs would take place (i.e., all but Kern County) received a total of \$1.4 million in In-Lieu-of-Taxes payments from federal agencies. Santa Barbara and Ventura Counties received the largest portions (\$503,440 and \$404,404) respectively. (State Controller's Office, 1996) These payments cover all national land resource receipts, not just minerals, and do not include non-general fund jurisdictions such as school districts. A somewhat different set of numbers comes from the federal Minerals Management Service which reported that in FY 1996 it disbursed revenues from specifically minerals-related activities on federal lands totaling \$1.2 million to all local jurisdictions in the five LPNF counties. The MMS is an agency of the U.S. Department of the Interior responsible for administering the offshore mineral resources on federal lands as well as the collection and disbursement of revenues from onshore and offshore mineral leases on federal lands. Ventura and Los Angeles Counties received the largest shares. These revenues are primarily based on royalties paid by leaseholders for oil and gas production (50 percent of which are returned to the state and local governments), and would be affected by issuing additional oil and gas leases in the LPNF.

For perspective, these revenues are relatively insignificant to overall county general government budgets. In FY 1994-95, the five counties' general fund revenues from all sources totaled almost \$12 billion (dominated by Los Angeles' \$10.6 billion). Excluding Los Angeles County, the LPNF counties' total general fund revenues in FY 1994-95 totaled \$1.35 billion as shown in Table 3-34.

Thus, the federal payments to local governments—either the in-lieu-of-taxes from all agencies figure recorded by the counties or the more specific minerals revenue payments as reported by the MMS--typically represent less than one percent of the counties’ total general fund revenues. California counties rely primarily on transfers of funds from the state and federal governments for their revenues, with sharing of sales and gas taxes, motor vehicle fees, and highway and welfare-related appropriations accounting for the bulk of the transfers. In FY 1994-95 local property taxes generated about 10 percent of local general government funds while intergovernmental transfers from the state provided 38 percent of funds and federal government transfers provided another 20 percent. (State Controller’s Office, 1996).

TABLE 3-33: COUNTY GENERAL FUND REVENUES FROM FEDERAL IN-LIEU-OF TAXES PAYMENTS

County	Payments In Lieu of Taxes to County General Funds (FY 1995) ¹	Federal Mineral Revenue Disbursements to Counties (FY 1996) ²
Los Angeles	\$180,838	\$418,230
Monterey	\$0	\$20,896
San Luis Obispo	\$327,053	\$109,292
Santa Barbara	\$503,440	\$92,401
Ventura	\$404,404	\$560,863
Total	\$1,415,735	\$1,201,682

Sources: 1. State Controller’s Office, 1996. All federal agencies to county general funds.

2. MMS, 1997. USFS, BLM and MMS to all local jurisdictions

TABLE 3-34: COUNTIES’ GENERAL FUND REVENUES

Ventura	\$513.4 million
Santa Barbara	\$316.0 million
San Luis Obispo	\$191.9 million
Monterey	\$332.4 million

Source: State Controller’s Office, 1996

3.3.3. Social Impacts

3.3.3.1. *Private Properties*

There are numerous Los Padres National Forest neighbors that may be affected by further oil and gas leasing on the Forest. As shown in Table 3-35, almost 10% of the 1,969,520 acres within the LPNF boundary are privately owned. Within the 935,844-acre lease study area, 168,977 acres (18%) are in private ownership. The private lands within the LPNF boundary and their location relative to the HOGPAs can be seen on the accompanying maps. In addition to the neighbors within the LPNF boundary there are numerous neighbors adjacent to or in close proximity of the LPNF boundary. These neighbors consist of undeveloped land, summer homes, private residences, and communities.

Communities adjacent to or in proximity of LPNF consist of:

Big Sur	King City	San Luis Obispo
Carpinteria	Lockwood Valley	Santa Paula
Cuddy Valley	Montecito	Santa Ynez
Fillmore	New Cuyama	Solvang
Frazier Park	Ojai	Sycamore Flat
Goleta	Santa Barbara	Ventura

All of these communities can be located on the set of two folded LPNF maps available at all Ranger Districts and the Forest Supervisor’s Office. Specific concerns were expressed during scoping regarding community impacts to Frazier Park and Cuddy Valley.

TABLE 3-35: LANDS WITHIN LPNF BOUNDARY

Area	National Forest System Lands	Private Lands Within LPNF Boundary	Total
<i>Within LPNF Boundary</i>	1,775,744	193,776	1,969,520
<i>Withdrawn Areas</i>			
<i>Coast Zone</i>	42,089	9,891	51,980
<i>Santa Ynez Watershed</i>	152,228	10,184	162,412
<i>Wilderness Areas</i>	814,560	4,724	819,284
<i>Total Withdrawn Areas</i>	1,008,877	24,799	1,033,676
<i>Lease Study Area</i>	766,867	168,977	935,844

3.3.3.2. Noise

This section provides an overview of basic acoustical concepts, a general description of acoustical conditions in the study area, description of noise-sensitive “receptors” on private lands near and within the Forest boundary, and descriptions of noise standards utilized by the six County governments in the study area. It also provides background information for additional discussion of potential noise impacts under biological resources, recreation, and private property/local plans and policies. This section also contains information on noise levels associated with oil and gas development and operation, and identified noise-related policies of the Los Padres Land and Resource Management Plan.

3.3.3.2.1. Basic Acoustics

Noise is defined as unwanted or objectionable sound. Sound is a form of energy detectable by the human hearing system, and is produced when objects are made to vibrate. This vibration is commonly transmitted in the form of air pressure variations.

Sound energy levels are measured in decibels (dB), a nonlinear scale in which a sound with twice the sound energy of another has a decibel level 3 dB higher. People notice a 3 dB change, and a 5 dB change is considered significant by the U.S. Environmental Protection Agency (U.S. EPA), and the International Standards Organization (ISO). Because of human perception, a sound is perceived as twice as loud as another if it has a decibel level 10 dB higher. Sensitivity of the human ear to various frequencies of sound varies.

The simplest sound descriptor relating to human ear sensitivity, and the one most commonly used in community noise assessment work is the “A-weighted” sound level, with measurements in A-weighted decibels or dB(A). Because human beings tend to be more sensitive to nighttime noises, a day-night noise measure, L_{dn} , is often used. With L_{dn} an additional 10 dB “penalty” is added to sounds occurring between the hours of 10 p.m. and 7 a.m.

Sound energy from a point source attenuates or diminishes as it travels outward from the source, decreasing approximately 6 dB per doubling of distance from the source. Absorption of sound waves by air and the ground surface will further attenuate sound levels. The rate at which these factors attenuate the sound depends on sound frequencies, air temperature, humidity, terrain, and the type of ground cover.

Additional information about basic acoustics, and how it relates to land planning and development, is found in the Noise Elements of the Santa Barbara County and San Luis Obispo County Comprehensive Plans. Other technical acoustical reference works are listed in the Bibliography of this EIS.

3.3.3.2.2. Acoustical Setting

The U.S. EPA took measurements of ambient sound levels at numerous locations around the United States. Average outdoor day-night sound levels in dB in various types of environments most relevant to this study were:

- *Wilderness* 35 dB(A)
- *Rural Residential* 40 dB(A)
- *Agricultural Crop Land* 44 dB(A)
- *Quiet Suburban* 50 dB(A)
- *Normal Suburban* 55 dB(A)

Source: Protective Noise Levels: Condensed Version of EPA Levels Document; U.S. EPA, 1978.

Santa Barbara County also conducted a survey of ambient sound levels in various residential and other urban settings around the County in preparation for their General Plan Noise Element. The survey showed that more than two-thirds of the 37 residential locations sampled had day-night decibel levels of 46 - 54 dB(A), consistent with the EPA studies. However, more than 24% of the residential locations sampled (9 locations) exhibited day-night sound levels in the range of 55-59 dB(A), and three other locations were in the 60-70 dB(A) range. All the locations with readings of 55 dB(A) and above were near a freeway, an expressway, an airport, a railroad, or a combination of several of these.

Transportation equipment and facilities are considered to be the most significant sources of noise in the counties containing Los Padres National Forest, and in most other areas of the U.S. This is based upon the magnitude of noise generated, the duration of that noise, and the number of people that are affected. Major transportation noise generators include aircraft (at airports, and in flight); railroads; highways and arterial roadways. Construction activities also have noise impacts, but these usually are temporary in nature, typically lasting from a few days to a few months in a given area.

Urban areas are much noisier than rural areas, but the latter may be affected at times by noise of logging, agricultural equipment, off-road vehicles or aircraft overflights. Because of the attenuation of sound with distance, and the low density of noise-sensitive observers in rural areas, few persons will perceive high noise levels. However, because of the lower ambient sound levels existing in rural areas, some sound levels that wouldn't even be noticed in urban or suburban areas may be annoying to rural residents or people recreating.

Another consideration in acoustical analysis is that hills, mountains, ridges and other landforms can act as sound barriers, and that various soil materials have differing capabilities to absorb or to reflect sounds. Because of the size of the lease study area and the lack of knowledge of locations for specific well sites, these considerations have not been incorporated at this time. Sound level calculations in this study were conservative in assuming a level terrain and line-of-sight between sound source and noise-sensitive receptors. To the extent that landforms or soil characteristics may block or increase attenuation of the sound levels projected in this study, specific impacts may be reduced. This approach protects noise-sensitive residents and recreational participants until acoustical analyses based upon specific proposed well-site locations establish to the satisfaction of the Forest Service that project impacts will not be significant.

3.3.3.2.3. Sensitive Receptors

Project noise may disturb either people or wildlife. Noise issues related to wildlife are discussed in the EIS sections on biological resources. People using the recreational resources of Los Padres National Forest, or of adjacent non-federal parks or recreation areas, may be disturbed in their activities by oil & gas project noise. Recreation noise considerations are addressed in the recreation sections of this EIS.

The persons, other than recreationists, considered most likely to be disturbed by noise resulting from oil and gas activities are rural and suburban residents, either outside on their property, or inside their home at night.

3.3.3.2.4. Existing Land Uses

Specific concentrations of residential and other noise-sensitive land uses near and in Los Padres National Forest that might be affected by oil and gas development if it was located in close proximity are listed below:

Santa Barbara County

- *Scattered residences south of the Forest, from the Goleta area to the Carpinteria area*
- *40-50 homes along Pine Canyon Road (11N04) southeast of SR 166 and west of the Forest*
- *Some homes west of the Forest between SR 166 and Colson Canyon Road*
- *Zaca Lake recreation area, with cabins and a restaurant, 4 miles northwest of Figueroa Mtn.*
- *Scattered homes along Figueroa Mountain Road west of the Forest*
- *Homes and horse ranches along Happy Canyon Road, northwest of Lake Cachuma*
- *Lake Cachuma area: fishing, and a golf club south of the lake*
- *Some large-lot homes in the Refugio Pass area, southeast of Solvang*
- *A County park and recreation area at Nojoqui Falls, just east of U.S. 101*

Ventura County

- *scattered residences south of the Forest, from the Ojai area to north of Santa Paula*
- *homes and ranches in Lockwood Valley*

Kern County

- *residential development just east of the Forest, in the O'Neil Canyon area*
- *Within the Forest: Frazier Park; Lake of the Woods; Pinon Pines; Pine Mountain Club*

San Luis Obispo County

- *Lopez Reservoir and recreation area south of the Forest*

Monterey County

- *a few residences in the Arroyo Seco area near the Forest (on the eastern, Greenfield side)*
- *a few houses in the Jamesburg area*

3.3.3.2.5. Possible Land Developments

Former Forest staff member Larry Hornberger identified two possible future land development areas near the Forest boundary. Both areas are in San Luis Obispo County. One area is north of the Forest and west of U.S. 101, while the other is southwest of Atascadero, near Frog Pond Mountain. No impacts to these areas are anticipated, however, since the RFD studies prepared for the Forest Service indicate no oil and gas potential in these parts of the Forest. No other potential land developments near the Forest have been identified by members of the six County planning departments having jurisdiction over private lands within the study area.

3.3.3.2.6. General Plan Categories

In general, private lands adjacent to or within Los Padres National Forest are categorized as agricultural, resource conservation, or low density residential.

3.3.3.2.6.1. Local Regulations

Kern County - The Kern County Noise Level Standards are shown in the General Plan Master EIR, page 208. In 1981, when the Plan was adopted, there was no noise ordinance. Control was exerted through EIR analysis and development conditions. For "sensitive land uses", the L_{dn} limit was set at 55 dB(A), while "highly sensitive uses" have an L_{dn} of 50 dB(A). The L_{50} for sensitive uses was set at 50 dB (day) and 40 dB (night), but for highly sensitive uses was 45/35 dB(A). Sensitive land uses includes all residences other than rural; hotels, motels, and resorts; dormitories, preschools, cemeteries, outpatient clinics and professional research offices/ labs. Highly sensitive land uses include other education facilities, hospitals/convalescent homes, churches, auditoriums/concert halls, rural homes, and wildlife sanctuaries.

Los Angeles County - For non-residential uses in non-urban areas, it is County policy that "particular consideration shall be given to noise ... impacts on neighboring developments" and that "consideration should be given to appropriate hours of operation." (Santa Clarita Valley Area Plan, updated Dec. 6, 1990).

Monterey County - County noise compatibility relationships are shown in the Monterey County General Plan, page 82. It specifies that L_{dn} or CNEL sound level ranges of 50-60 dB(A) are normally acceptable for the following uses: multi-family residential, motels, hotels, schools, libraries, churches, hospitals and nursing homes. A sound level of 50 dB(A) is acceptable for passively used open spaces, while 50-55dB(A) is acceptable for single-family homes, duplexes and mobile homes. Sound levels of 50-67 dB(A) are acceptable for active use open spaces, office buildings, commercial uses and professional offices. Golf courses, riding stables, water recreation, cemeteries, industrial uses, manufacturing, utilities and agricultural uses can have sound levels of 50-70 dB(A). Higher sound levels may be acceptable for any uses based on a detailed noise analysis and additional noise insulation.

San Luis Obispo County - Noise standards for San Luis Obispo County are located in the County Land Use Ordinance, Section 22.06.040. They provide that hourly sound levels at the property line of noise-sensitive land uses shall not exceed 50 dB, L_{eq} , during daytime (7 a.m. to 10 p.m.) and 45 dB, L_{eq} , at night (10 p.m. to 7 a.m.). Maximum daytime and nighttime sound at the property line of noise-sensitive land uses are limited to 70 and 65 dB, respectively. San Luis Obispo County defines noise-sensitive land uses as including residential uses, hospitals and similar health-care facilities, schools (from pre-schools through universities and other training), churches, libraries and museums, public assembly and entertainment, offices, outdoors sports and recreation (add 10 dB to the County standards). If the measured ambient noise level exceeds the applicable exterior noise level listed above, the applicable standard shall be adjusted so as to equal the ambient noise level plus one dB. Construction noise is exempted from these standards

in San Luis Obispo County, unless it takes place before 7 a.m. or after 9 p.m. on weekdays, or before 8 a.m. or after 5 p.m. on weekends.

Santa Barbara County - The County's Inland Zoning Ordinance, Sec. 35-295.4, sets development standards for oil and gas drilling and production. Noise provisions of that section are found in items "f" through "h" and state that "drilling or production operations which are within or adjacent to a residential or commercial zone district shall not exceed a maximum daytime noise level of 65 dB(A) and shall not be conducted between the hours of 9:00 p.m. and 7:00 a.m. of any day, unless all noise generating facilities are sufficiently insulated to reduce the outside night time level to 50 dB(A) at or beyond the project property boundary." Item "g" of the Ordinance requires that "production facilities shall be designed and housed such that the noise generated by the facilities as measured at any noise sensitive location shall be equal to or below the existing noise level of said location. Measures to reduce adverse impacts (due to noise, vibration, etc.) to the maximum extent feasible shall be used for facilities located adjacent to noise sensitive locations as identified in the Comprehensive Plan Noise Element (i.e., use of electrical hydraulic surface pumping units)." Item "h" addresses truck traffic, and prohibits operation of "trucks exceeding one and a half tons for use in oil and gas operations between the hours of 9:00 pm and 7:00 am upon streets within any residential neighborhood. Truck routes shall be reviewed for proposed oil or gas facilities to ensure that oil field support traffic is not routed through residential neighborhoods, unless no alternative routes exist."

Ventura County - County noise standards are described on p. 50 of the Ventura County General Plan. They allow a sound-level increase of "no more than +3 dB(A) over the ambient sound level at the sensitive receptor, or no more than L_{eq} of 55 dB(A) from 6 a.m. to 7 p.m., 50 dB(A) from 7 p.m. to 10 p.m., or 45 dB(A) from 10 p.m. to 6 a.m. respectively, whichever is greater."

3.3.3.2.7. Associated Sound Levels

3.3.3.2.7.1. Site construction (access road, well pad, pipelines)

Construction of access roads (if necessary) to the well site(s) takes approximately one week per mile. Preparation of a well pad, and installation of the necessary equipment to drill a well is expected to take approximately one week. The 5-6 workers will typically use two bulldozers, one grader, and one water truck, as well their own vehicles to travel to the site. Maximum construction noise levels, for both the access road construction and construction at the well site, is expected to be 85 dB(A) or less at 50 feet². Individual vehicles en route to the well site will result in typical peak sound levels of 68 dB(A) at 50 feet¹.

² Worker exposure from US. Dept. of the Interior : Mining Machinery Noise Control Guidelines, 1983;

3.3.3.2.7.2. Drilling

Sound levels resulting from well drilling will be similar to levels from general construction, with maximums of 85 dB(A) or below¹. Drilling activity typically continues around-the-clock, until the well is completed, possibly as long as one month. If proximity to noise-sensitive uses requires it, acoustical blankets can be used to reduce sound levels of drilling operations, up to a 10 dB reduction (Clausen, personal communication, Dec. 9, 1996). Traffic to the well site during drilling will be approximately 10 round trips per day, with 70% of the traffic being worker's vehicles, and the other three trips for equipment or other trucks (Appendix C).

3.3.3.2.7.3. Operation

In operation, the engine driving the pumping mechanism emits the loudest sounds associated with an oil well. The engine power required is related to the depth of the well, and the amount of liquid being pumped (Hopps, personal communication, Oct. 15, 1996). According to Floyd Clausen, an oil industry consultant in the Santa Barbara area, a typical well for the area near the Forest is approximately 7,000 feet deep, and produces 100 barrels or less per day. Such a well can use a 50 horsepower engine to drive the pump (or a 50 hp electric motor if electric power has been brought to the site or is nearby). Noise levels for an electric motor would be less than the typical 45 dB(A) nighttime standards used in residential areas (Clausen, personal communication, Dec. 9, 1996).

Arrow Industries sells an engine in the required power range, the 68 hp VRG330, formerly made by Waukesha Manufacturing. According to Greg Sorge, an engineer with Waukesha, this engine has an unmuffled exhaust sound level of 115 dB(A) at 1 meter, as well as engine mechanical noise of 95 dB(A) at 1 meter (Sorge, personal communication, Dec. 13, 1996). Unmuffled exhaust and engine noise levels converts to 91.26 and 71.26 dB(A) respectively at our standard distance of 50 feet (ACE calculation). Addition of one muffler would reduce the exhaust noise to 61.26 dB(A); this, when combined with the engine noise would result in a combined reading of approximately 71.7 dB(A) at 50 feet. Calculated attenuation of that sound level with distance is shown in Table 3-36 (ACE calculation).

TABLE 3-36: CALCULATED ATTENUATION OF PUMP ENGINE NOISE WITH DISTANCE

<i>Distance from muffled engine</i>	<i>50 feet</i>	<i>345 feet</i>	<i>1,020 feet</i>	<i>1,920 feet</i>	<i>0.65 mile</i>
<i>Calculated sound level (dB(A))</i>	<i>71.7 dB (A)</i>	<i>55 dB (A)</i>	<i>45 dB (A)</i>	<i>40 dB (A)</i>	<i>35 dB(A)</i>

Additional attenuation could be achieved with a second muffler (-20 dB(A)) and a sound attenuation enclosure (-30 dB(A)) (Sorge, personal communication). This would result in the following noise levels at 50 feet: 41.26 dB(A) (exhaust) and 36.26 dB(A) (engine); or 42.45 dB(A) combined. This level would attenuate to wilderness levels of 36.43 dB(A) in only 100 feet (ACE calculation).

Operational noise associated with worker traffic would be negligible - only one round-trip to the well site per day, in a standard automobile or pickup truck.

For some wells, and in some geologic formations, hydraulic fracturing of the rock may be proposed after some years in order to enhance production. Although noise levels of such an operation are extremely high (up to 109 dB(A) at 50 feet), the operation is for a short period and would only be occurring from one to two days. (*Sespe Condor Sanctuary Environmental Assessment*, 1973; Hess, personal communication, Oct. 15, 1996). Such sound levels would require 4.75 miles to attenuate to 55 dB(A), assuming there were no intervening hills or mountains between the well site and the sensitive noise receptor. The assumption of no intervening topography or other attenuating factors is, of course, not realistic in this mountainous area of LPNF, and shows the need for site-specific noise analysis at the time in which any such fracturing is proposed.

3.3.3.2.8. Forest Plan Management Direction

Los Padres Land and Resource Management Plan has no separate section in which noise issues are addressed. Noise-related policies are found under several of the key management topics. The following are Forest-wide policies directly or indirectly related to noise issues.

***Fish & Wildlife**, Item 13. (p. 4-10) “High noise producing activities should be located and timed to avoid disturbance of nesting/breeding locations of Sensitive or Special Emphasis wildlife species.”*

***Recreation**, Item 1. (p. 4-11) “The recreational environmental setting, experience and activity opportunities appropriate to each Management Area will be maintained.”*

***Lands**, Item 3. (p. 4-13) “Where special uses have the potential for producing noise levels above those deemed to be compatible with the Management Area objectives, the Special Use Permit will establish maximum noise levels which may not be exceeded. Noise levels must not exceed OSHA standards for occupational safety and levels acceptable for wildlife protection.”*

***Transportation**, Item 1. (p. 4-14) “Road construction will be minimized. Any road proposals on National Forest land will be situated to best accommodate all anticipated uses and to support Management Area objectives.”*

3.3.4. Access and Traffic

A network of Interstate, State highways and county roads provides access into and around LPNF. This network is extended by approximately 1,540 miles of Forest Development Roads (FDRs). About 982 miles of these development roads are under National Forest jurisdiction. Certain roads and areas are closed to public use because rights-of-way are lacking.

The existing transportation system of roads and highways in and around the Forest are shown on the maps in the DEIS map packet and the two folded Forest maps available at District Ranger offices and the Forest Supervisor’s Office. Many roads have not been maintained to adequate

levels. About 25% of system roads require extensive maintenance. The Forest provides 313 miles of roads and trails designated for off-road vehicle (ORV) use; 296 miles are open all year, and 17 miles are open seasonally. There are approximately 1,000 miles of uninventoried travel ways; most of these are the result of illegal ORV use on the Mt. Pinos and Santa Lucia Ranger Districts.

3.3.4.1. Forest Development Roads (FDR)

Forest Development Roads (FDR) differ from Public Roads in that use is subject to control by the Forest Service. Use of an FDR is a ‘permitted’ use whereas use of a public road is a right of the public. Funds appropriated by Congress pay for maintenance and construction of FDR roads; funds derived from State and Federal gasoline taxes pay for the maintenance and construction of public roads. Commercial users of FDR roads must pay for or perform their fair share of maintenance, and they can be required to pay their share of construction costs whether or not the road is already constructed.

A Road Use Permit is necessary for commercial use of the Forest Development Roads. Commercial users are currently required to pay for or perform their commensurate share of maintenance as well as repair any extraordinary damage to the road that they may cause. Any requirements deemed necessary to protect the road and adjacent resources or provide for user safety can be stipulated in the permit. Additional roads on Federal lands, which are not on the FDR system and are not on leased acres, may be constructed through issuance of a special use permit, which can contain the same stipulations as a Road Use Permit. Other than this, the permittee has total responsibility for maintenance and operation of the special use road, including limiting use.

The one existing “substantial” oil field on the Forest served by a Forest Development Road is the Sespe Field located along the southern forest border north of Fillmore. The Forest Service and oil field operators share in the maintenance of this FDR.

Most oil and gas roads are not physically closed to the general public and are classed as local roads. Local roads that provide access to the individual well sites or batteries are managed under the field development plan.

3.3.4.2. Public Roads and Highways

Los Padres National Forest is served by a multitude of public roads and highways, such as Interstate 5, U.S. route 101, State routes 1, 33, 41, 58, 126, 150, 154, 166, and numerous county routes within Monterey, San Luis Obispo, Santa Barbara, Ventura, Kern and Los Angeles Counties. Table 3-37 lists the public roads and highways expected to be utilized for each HOGPA.

3.3.4.3. Forest Plan Management Direction

Current Forest Plan transportation management direction is to maintain existing roads for administrative and public use of the Forest consistent with resource protection. The Forest encourages the counties to maintain roads that serve private property or uses beneficial to county residents. Commercial users are required to pay a commensurate share for road maintenance.

Forest Plan management direction calls for:

- 1. Road construction will be minimized. Any road proposals on National Forest land will be situated to best accommodate all anticipated uses and to support Management Area objectives.*
- 2. The number of miles of roads and/or motorized trails will be limited to an average of three miles per square mile of area per major watershed. Road/trail straight-of-way should not exceed one-half mile where possible. Total cleared road rights-of-way width should be limited to no more than 66 feet when possible.*
- 3. A debris (sluff and slide) disposal plan will be prepared for Forest lands adjacent to California State Scenic Highways 1, 33 and 154 in coordination with the California Department of Transportation.*
- 4. Public road agencies will be encouraged to accept jurisdiction and maintenance of Forest Development Roads needed to provide public services and access to private lands, residences, and businesses.*
- 5. Obliterate any Forest Development Roads that become unnecessary for the protection and management of the Forest. Such roads are returned to a near-natural appearing condition compatible with the surrounding terrain.*
- 6. Maintain a Forest Transportation Plan. This Plan should identify all Forest Development Roads and determine appropriate maintenance levels and priorities.*

The roads of the transportation system affect nearly all other resources. Most road improvements result from the need by forest management for resource development and/or administration of resources. In planning for the development of oil and gas, a roadway would be used for transportation and to accommodate overland and/or underground pipelines, and communication facilities.

New oil and gas development would utilize only a small subset of the existing system combined with newly constructed project roads as necessary to access the oil and gas resource. The amount of new road construction has been estimated in the RFD for each alternative leasing scenario as shown in Chapter 2 in Tables 2-2, 2-3, 2-5, 2-7, 2-10, 2-12, 2-14 and 2-17.

The RFD development scenarios would result in worker commute traffic in support of construction and operations and oil tanker truck traffic. The amount of this traffic and resultant impact are projected in Chapter 4. Table 3-37 lists the expected commute trip origins, distances, and routes and the expected oil tanker truck destinations, distances, and routes for each of the HOGPAs.

3.3.4.4. *Significance Threshold and Levels of Service (LOS)*

The significance of traffic impacts is defined in terms of the “level of service” a transportation link provides. There are six levels of service (LOS) as defined in the Highway Capacity Manual:

***Level of Service A** describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restrictions in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.*

***Level of Service B** is in the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable with a low probability of traffic flow being restricted. The lower limit (lowest speed, highest volume) of this level of service has been associated with service volumes used in the design of rural highways.*

***Level of Service C** is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained, with service volumes perhaps suitable for urban design practice.*

***Level of Service D** approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.*

***Level of Service E** cannot be described by speed alone, but represents operations at even lower operating speeds than in level D, with volumes at or near the capacity of the highway. At capacity, speeds are typically, but not always, in the neighborhood of 30 mph. Flow is unstable, and there may be stoppages of momentary duration.*

***Level of Service F** describes forced flow operation at low speeds, where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream.*

Significant traffic impacts are assumed to be occurring at LOS E and F. Consequently, exceeding LOS D is defined as the threshold of significance.

Table 3-38 shows recent traffic volumes and capacity (*updated since DEIS*) related to LOS on key links in the transportation system that could be affected by traffic generated by further leasing for oil and gas development on Los Padres National Forest.

For each highway segment, the table displays:

- *2004 Average Daily Traffic (ADT) — the average number of vehicles per day during the highest use month.*
- *2004 Annual Average Daily Traffic (AADT) — daily traffic volumes averaged over 365 days.*

- 2004 Peak Hour Total in Vehicles/Hour - the greatest volume of traffic expected in a one-hour period. This volume of traffic is derived from the volume exceeded for at least 74 one-hour intervals during the year, not from the highest single hour reading.
- Estimated Capacity in Passenger Vehicles/Hour at the threshold of significant effects (Service Level D) - the greatest number of vehicles, which can be accommodated at Service Level D.
- Estimated Capacity in Passenger Vehicles/Hour at the maximum capacity (Service Level E) - the greatest number of vehicles, which can be accommodated at Service Level E.
- Number of Lanes - indicates if the highway segment is two or four lanes wide.

TABLE 3-37: COMMUTER AND OIL TANKER TRANSPORTATION INFORMATION BY HOGPA

HOGPA	Commuter Traffic				Oil Tanker Traffic				
	From	Mi's	Route	Neighboring Communities	To	Mi's	Route	Communities in Route	Waterways along route
Piedra Blanca	Ventura	30	CA-33	Ojai	Ventura	30	CA-33	Ojai	Sespe Creek Ventura River
San Cayetano	Ventura	22	CA-150 CA-126	Santa-Paula Ojai Fillmore	Fillmore	16	CA-150 CA-126	Santa Paula Fillmore	Santa Paula Cr. Santa Clara River
Sespe	Ventura	30	Good-enough Rd. CA-126	Fillmore	Fillmore	10	Good-enough-Rd. CA-126	Fillmore	Sespe Creek Little Sespe Cr. Santa Clara River Lake Piru-waterways
Rincon Creek	Ventura	15	CA-150 US-101	Ventura	Ventura	15	CA-150 US-101	Ojai	Coyote Creek Lake Casitas Ventura River
South Cuyama	Bakersfield	60	CA-166 CA-33 CA-99N	New Cuyama	Taft	36	CA-166 CA-33	New Cuyama	Cuyama River
La Brea Canyon	Santa Maria	35	La Brea Canyon Secondary Highway US-101	Santa-Maria	Santa Maria	35	La Brea Canyon Secondary Highway US-101	Santa Maria	N. Fork La Brea Creek La Brea Creek Sisquoc River Santa Maria River
Figueroa Mt.	Santa Maria	50	Happy Cyn.Rd. CA-154 US-101	Los-Olivos Buellton Solvang Santa-Ynez	Santa Maria	50	Happy-Cyn.Rd. CA-154 US-101	Los Olivos Buellton Solvang Santa Ynez	Happy Canyon. Creek
Lopez Canyon	Santa Maria	25	31S06 30S05 US-101	Arroyo-Grande Pismo-Beach Oceano	Santa Maria	25	31S06 30S05 US-101	Arroyo-Grande Pismo-Beach Oceano	Lopez Canyon Lopez Lake Arroyo Grande-Creek
Monroe Swell	King City	15	20S01 US-101	King City	N/A	N/A	N/A	N/A	N/A

As can be seen in Table 3-38, Highway 33 near Ventura and Highway 126 from Highway 118 to Highway 150 exceed LOS D at the peak hour and thus are incurring significant traffic impacts.

TABLE 3-38: 2004 TRAFFIC DATA AND ESTIMATED CAPACITIES

Mile Post	Route/location	Caltrans online Latest update 5/5/2004			Estimated Capacity In Peak Veh/hr At:			Lanes
		ADT		Peak Hr Total Veh/hr	Level of Service (D)	Level of Service (E)	Max. Capacity	
		Peak Month	Annual		Significance Threshold			
Hwy. 33, Ventura County								
01.57	Stanley Ave. Interchange	45,000	43,500	4,000	3,470	3,680	4	
04.49	Canada Larga Rd	30,000	29,000	2,700	3,470	3,680	4	
08.00	Creek Road	25,500	24,500	2,300	3,470	3,680	4	
11.2	Junction 150	25,500	24,500	2,050	3,470	3,680	4	
13.35	LPNF boundary	2,200	2,000	330	960	1,220	2	
57.51	Santa Barbara/Ventura Co Line	490	410	90	960	1,220	2	
Hwy. 33, Santa Barbara County								
8.18	SantaBarbara/SLO Co Line	490	410	90	960	1,220	2	
Hwy. 33, San Luis Obispo County								
2.8	Junction 166 West	900	1,000	95	960	1,220	2	
4.95	Kern/SLO Co Line	900	1,000	95	960	1,220	2	
Hwy. 33, Kern County								
11.56	Maricopa Junction Rte 166	5,000	4,350	420	960	1,220	2	
17.89	Taft Junction, Route 119 east	9100	8,500	830	960	1,220	2	
Hwy. 126, Ventura County								
5.03	Junction 118 (Freeway)	40,000	37,000	3,600	3,470	3,680	4	
12.04	Junction 150 (Highway)	40,000	37,000	3,950	3,470	3,680	4	
13.25	Hallock Drive	33,000	30,500	2,950	3,210	3,570	4	
21.14	Fillmore, Jct. Rte. 23 South	35,500	35,500	3,050	3,210	3,570	4	
Hwy. 150, Ventura County								
0.00	Junction 101	4,850	4,700	500	960	1,220	2	
02.20	Santa Barbara/Ventura Co. Line	4,850	4,700	500	960	1,220	2	
11.27	Santa Ana Cyn. Road East	3,100	3,000	450	960	1,220	2	
14.41	Junction 33, South	10,300	10,700	930	960	1,220	2	
15.02	Loma Dr.	23,600	23,400	2,200	2780	3390	4	
16.58	Junction 33, North	20,300	20,000	1,750	2780	3390	4	
19.04	East Ojai, Gorman Rd. East	7,000	6,700	710	960	1,220	2	
31.26	Santa Paula, North	3,600	3,400	370	960	1,220	2	
34.4	Junction 126	16,800	15,200	1,500	2780	3390	4	
Hwy. 154, Santa Barbara County								
0.00	Junction 101	10,100	9,700	900	1,180	1,200	2	
8.11	Junction 246 West	9,200	8,500	910	1,180	1,200	2	
Hwy. 166, San Luis Obispo and Santa Barbara Counties								
8.93	Jct. Route 101, North	2,900	2,700	270	720	1200	2	
64.30	New Cuyama, Perkins Rd.	3,450	2,900	420	720	1200	2	
74.72	Junction, Route 33 Kern Co.	4,400	3,500	310	720	1200	2	
Hwy. 166, Kern County								
2.96	Pentland Rd.	4,600	3,850	350	720	1200	2	
14.86	Old River Rd.	6,100	5,100	460	720	1200	2	
22.8	Junction Route 5	3,050	2,700	200	720	1200	2	
24.62	Mettlet Junction Route 99	3,700	3,200	290	720	1200	2	

Sources: 5/5/2004 traffic figures from Caltrans internet web page; LOS D & E estimated using FLDOT Freeplan, Highplan, & Artplan software

3.3.5. Land and Resource Management Plans

3.3.5.1. Forest Plan

The proposed action this EIS addresses involves a Forest Plan amendment. The current (1987) Forest Plan predates the Leasing Reform Act and needs to be made consistent with the requirements of that act, and regulations pursuant to the act, to identify lands available or not available for oil and gas leasing and lease stipulations to avoid or mitigate adverse effects to the environment and other resources. Another need for this forest-wide analysis responds to direction in the Forest Plan to prepare an EIS to address pending lease application.

The Forest Plan is currently undergoing revision. A Forest Plan revision is different than a Forest Plan amendment. Revisions are undertaken about every ten years. Amendments can occur any time as needed. Due to schedule delays that have occurred since the oil and gas leasing analysis started in 1995, this amendment and the revision schedules overlap.

The following guidelines and standards are used in the current (1987) Forest Plan as direction for specific Management Areas in Los Padres National Forest. In the listing of specifics for individual management areas which follows, items from this list are referred to by the code letters at the left. Other provisions of the Plan that may bear on future oil and gas policies and stipulations are quoted in full under the applicable management areas.

Management Guidelines (G) or Standards (S) (*Forest Plan pp. 4-20 through 4-174*)

Cultural Resources

C.1 Protection is emphasized where monitoring indicates significant problems (G)

Fish and Wildlife

F&W.1 Projects which may destroy or modify San Joaquin Kit Fox habitat shall be reviewed by the Forest Biologist prior to approval (G)

F&W.2 Any projects which may destroy or modify critical condor habitat shall undergo consultation with U.S. Fish and Wildlife Service prior to approval.

Minerals

M.1 Integrate the exploration and development of energy resources with the use and protection of other resource values (G).

M.2 Oil and gas leases are documented through the NEPA process after considering the Guidelines for Recommending Action on Oil and Gas Lease Applications (Appendix J of Forest Plan) to determine where leasing is acceptable and what stipulations and advisory notices are appropriate (S).

M.3 All areas disturbed during exploration including roads and pads are managed as temporary disturbances and are restored to near natural condition at the end of use (S)

M.4 Roads are designed to be consistent with ROS classes where practical. The range of recreation experiences will be protected by appropriate mitigation (e.g. in semi-primitive non-motorized areas roads will be closed to public motorized vehicles). (S)

M.5 If leasing is recommended, include the “no surface occupancy” stipulation in addition to other appropriate stipulations.

Watershed

W.1 Areas to be disturbed or previously disturbed are evaluated to determine need for rehabilitation as soon as practical following watershed disturbance. The following factors are considered: - area disturbed is on slopes greater than 30%; - soils have an erosion hazard index greater than 4; - ecological needs of existing vegetation. (S)

Transportation

T.1 Design and locate public roads or motorized trails to minimize impacts on wildlife. (G)

T.2 Density of roads or motorized trails is limited to an average of one per square mile of area per major watershed (S).

T.3 New roads will not be constructed.

Visual Resources

V.1. Maintain a _____ landscape (see table 3-39 for words in blank) (G)

V.2 Variety class A lands are managed to meet retention (S).

V.3 _____ are managed for retention or partial retention (S). (see table 3-39 for blank)

V.4 Variety class A lands managed for retention are not subject to tradeoff.

V.5 Prepare a corridor viewshed plan for _____ (see table 3-39 for blank) (G).

TABLE 3-39: FOREST PLAN MANAGEMENT AREA GUIDELINES AND STANDARDS

Mgmt Area	General Location	Management Guidelines and Standards Included in the Forest Plan
1	Seven small and widely separated parcels totaling 20,515 acres. 1a and 1c are near Lopez Res.; 1d and 1e are in the Cuyama area.	C.1; F&W.1; V.1: ...natural appearing to strongly modified...; V.3: State Highway 33, Lopez Lake and other sensitivity 1 viewshed lands... ; M.1, M.2, M.3, M.4;
3	Three separate areas of 48,677 ac. 3a is 7 mi. W of King City; 3b is 3 mi. S of Atascadero; 3c is 5 mi. NE of San Luis Obispo.	C.1; V.1: ...natural appearing to strongly modified...; V.3: U.S. Highway 101, lands surrounding Santa Margarita and Atascadero, and the viewshed of Reliz Canyon Road... ; M.1, M.2, M.3, M.4;
4	Five widely-separated units that total 57,659 acres; 4a is 12 mi. N of Los Alamos; 4b is 1 mi. S of Ozena Campground; 4c is 12 mi. W of Frazier Park; 4d is 6 mi. N of Sta. Paula; and 4e is 3 miles N of Piru near Lake Piru.	C.1; V.1: ...natural appearing to slightly modified...; V.3: Viewshed lands of State Route 33, Lockwood-Ozena Road, Colson Canyon Road, La Brea Canyon Road, and Lake Piru... ; M.1, M.2, M.3, M.4; F&W.2; W.1; T.2
5	A single 36,353 acre unit, located 5 miles S of New Cuyama.	C.1; F&W.1; F&W.2; T.1; T.2; V.1: ...natural appearing to strongly modified...; V.2: ...within the Highway 166 viewshed...other variety class A lands are managed to meet partial retention; V.3: ...non-Class A lands within the Highway 166 viewshed, and foreground views from road 9N11 are managed to meet

Mgmt Area	General Location	Management Guidelines and Standards Included in the Forest Plan
		partial retention.
6	Two large units totaling 197,039 acres. Unit 6a is in the eastern Cuyama Valley and southern San Joaquin Valley; and 6b is 4 miles S of Frazier Park.	C.1; T.1; T.2 ...with the exception of the Ballinger Canyon ORV area...; M.1, M.2, M.3, M.4; V.1: ...natural appearing to strongly modified...; V.3: Lands visible from I-5, State Highway 33, Hungry Valley State Park, Lockwood-Ozena Road, and Forest roads 8N01, 8N12, 7N03, 9N10, and 9N05 are managed to meet retention & partial retention (VQO map).
7	A single 28,455 acre unit comprising the scenic viewshed of Frazier Park and vicinity.	C.1; T.1; T.2; V.1: ...natural appearing to modified...; V.2; V.3: Lands visible from the community of Frazier Park, I-5, Cuddy Valley Road, and Lockwood-Ozena Road are managed to meet retention and partial retention (see VQO map).
10	Two nearly contiguous units of 18,344 acres within the scenic corridor of Hwy. 33. 10a is 2 miles N of Cuyama Peak, and 10b is near Pine Mountain.	C.1; T.1; T.2; V.1: ...natural appearing to slightly modified...; V.4; V.3: Lands visible from the community of Frazier Park, I-5, Cuddy Valley Road, and Lockwood-Ozena Road are managed to meet retention and partial retention (see VQO map); V.5: ...State Highway 33...;
11	Two separate units of 44,458 ac. 11a is located 10 miles E of San Luis Obispo; 11b is 5 miles E of Twitchell Reservoir.	C.1; T.1; T.2; M.1, M.2, M.3, M.4; W.1; V.1: ...natural appearing to strongly modified...; V.3: Lands visible from Pozo Road, High Mountain Road, Colson Canyon Road, and La Brea Canyon Road...;
12	Five separate units totaling 78,589 acres. 12a is 12 mi. W of Greenfield; 12b is 17 mi. W of King City; 12c is 8 mi. W of Ft. Hunter-Liggett headquarters; 12d is 5 mi. SW of New Cuyama; 12e is 5 miles NE of Ojai.	C.1; F&W.1; F&W.2; T.1; T.2; Withdrawals: Recommend withdrawal of this management area and leasable mineral entry on all public domain lands within the Coastal Zone. V.1: ...natural appearing to strongly modified...; V.2; V.3: Areas visible from State Highway 166, Carmel Valley Road, Nacimiento-Ferguson Road, Tassajara Road, Arroyo Seco Road, and trails in the Ventana Wilderness...;
13	A single unit of 35,011 acres 7 miles NE of Sta. Margarita Lake between Hwy 58 and Pine Mtn.	C.1; W.1; T.1; T.2 (with exc. of the Pozo-La Panza OHV area); V.1: ...natural appearing to strongly modified...; V.2; V.3: Lands w/in the viewshed of Highway 58...;
14	A single unit of 10,591 acres adjacent to Pyramid Reservoir.	C.1; T.1; T.2; W.1; V.1: ...natural appearing to modified...; V.2; V.3: Areas viewed from I-5, Pyramid Lake and Forest road 8N01...;
16	Two nearly contiguous units of 15,607 acres near Hwy 154.	C.1; T.1; T.2; V.1: ...natural appearing to slightly modified...; V.4; V.5: ...State Scenic Highway 154...;
25	Two units of 25,927 acres. 25a is 9 miles E of Lopez Res.; 25b is 15 mi. NW of Twitchell Res.	C.1; T.1; T.2; W.1; V.1: ...natural appearing to strongly modified...; V.2; V.3: Lands within the State Highway 166 viewshed...;
26	A single 7,677 acre unit located 5 miles N of Lake Cachuma.	C.1; T.1; T.2; W.1; M.1, M.2, M.3, M.4; V.1: ...natural appearing to strongly modified...; V.2; V.3: Areas viewed from State Hwy 154 and Figueroa Mtn Rd ...;
27	A single 320 acre parcel adjacent to I-5 near Gorman.	Encourage State to acquire it for inclusion in the Hungry Valley OHV Park...
28	A single 156,569 acre unit. It spans the upper Santa Ynez watershed from San Marcos Pass to Cachuma Mtn. on the west, and from Potrero Seco and Murietta Saddle on the east.	C.1; T.1; T.2; W.1; V.1: ...natural appearing to slightly modified...; V.2; V.3: Areas viewed from State Highways 33 and 154, East Camino Cielo Road, Lake Cachuma, Paradise Road, Santa Ynez Recreation Area, Buckhorn Road, Matalija Creek, and Matalija Reservoir ;
29	A single 58,777 acre unit located 3 miles N of Twitchell Reservoir.	C.1; T.1; T.2; W.1; M.1, M.2, M.3, M.4; V.1: ...natural appearing to strongly modified...; V.2; V.3: Areas viewed from State Highway 166 ...;
32	Three units in the SE part of the Forest, totaling 9,680 acres. 32a (San Cayetano Mtn.) is located 4 mi. NW of Fillmore; 32b (Oak Flat) is 5 mi. N of Fillmore;	C.1; M.1, M.3, M.4; V.1: ...natural appearing to strongly modified...; V.2; V.3: Areas viewed from State Hwy 126, the city of Fillmore, Lake Piru, Oak Flat Road, and other sensitive level 1 recreation sites and travel ways ...; VQO tradeoff will only be

Mgmt Area	General Location	Management Guidelines and Standards Included in the Forest Plan
	and 32c is 6 miles NE of Fillmore.	allowed in areas where it will be feasible to restore visual conditions to levels shown on the VQO map.
33	Three nearly contiguous units of 7,981 ac. near San Luis Obispo.	C.1; T.1; T.2; W.1; M.1, M.2, M.3, M.4; V.1: ...natural appearing to slightly modified...; V.4;
37	Two units totaling 23,814 acres within the viewshed of Hwy 33 near Ojai.	T.1; T.2; W.1; M.1, M.2, M.3, M.4; V.1: ...natural appearing to slightly modified...; V.4; V.5: ...State Highway 33...
38	A single 41,881 acre unit on the south slope of the Santa Ynez Mtns. near Highway 154.	T.1; T.2; W.1; M.1, M.2, M.3, M.4; V.1: ...natural appearing to slightly modified...; V.4; V.5: ...State Highway 154...;
39	A single 14,323 acre unit adjacent to Lake Casitas.	C.1; T.1; T.2; M.1 (with special emphasis on watershed mgmt.); M.2; M.5; V.1: ...natural appearing to modified...; V.2; V.3: Areas viewed from Hwy 150 and Lake Casitas...
42	Two units totaling 6,440 acres. These units represent the fore-ground viewshed of State Scenic Highway 1 along the Monterey County coast between the high-way and the Pacific Ocean. Unit 42a is located 5 mi. SE of Point Sur; 42b is 3 miles E of Lopez Point.	Planning: Coordinate with State/ local jurisdictions on plan consistency determinations; Transportation: For purposes of this Plan, new or expanded roads are developments and undergo the coordination and review process with State and local agencies; Minerals: Deny any mineral lease application for lands which are within the Coastal Influence Zone and are acquired lands with Weeks Act status; Withdrawals: Recommend withdrawal of all National Forest lands within this management area from commercial leasable and locatable mineral, oil and gas entry; V.1: ...natural appearing...; V.4; V.5: State Scenic Highway 1...; An unobstructed view of the land and sea interface essentially free of structural intrusion, is maintained. F&W: Projects which may destroy or modify Smith's Blue Butterfly habitat (coastal buckwheat plants) shall be reviewed by the Forest Biologist prior to approval.
48	Four units totaling 49,042 ac. along the west slope of the coast range in Monterey Co within the scenic viewshed of Highway 1. Unit 48a is 5 miles NE of Point Sur; 48b is 4 miles E of Point Sur; 48c is adjacent to Highway 1 from Post Summit to Anderson Peak; and 48d is one mile E of Cape San Martin.	W.1; F&W: Projects which may destroy or modify Smith's Blue Butterfly habitat (coastal buckwheat plants) shall be reviewed by the Forest Biologist prior to approval. Transportation: T.1; T.2; For purposes of this Plan, new or expanded roads are developments and undergo the coordination and review process with State and local agencies; Withdrawals: Recommend withdrawal of all National Forest lands within this management area from leasable mineral entry; Planning: Coordinate with State/ local jurisdictions on plan consistency determinations; Minerals: Design and locate any needed roads to minimize resource damage, especially visual impacts to the Highway 1 viewshed; minimize changes in the existing landscapes; minimize wildlife habitat losses; minimize disturbance to riparian areas; maintain water quality; V.1: ...natural appearing or slightly modified...; V.4;
51	One unit of 1,181 acres, located 17 miles W of Greenfield.	C.1; T.1; T.2; V.1: ...natural appearing to modified...; V.3: Areas viewed from the Tassajara Road ...;
52	Four units totaling 10,647 acres. 52a is 7 mi. NW of Frazier Park; 52b is 5 mi. NW of Frazier Park; 52c is 2 mi. NW of Frazier Park; 52d is 5 mi. W of Pyramid Res.	C.1; T.1; T.2; V.1: ...natural appearing to modified...; V.2; V.3: Areas viewed from Cuddy Valley Road and Alamo Mountain Road ...
54	One unit of 5,397 acres centered on Frazier Mtn. Near Frazier Pk.	C.1; T.1; T.2; V.1: ...slightly modified...;
57	Three units totaling 10,754 ac., all developed recreation areas. 57a is the Santa Ynez RA, 6 miles N of Santa Barbara; 57b is the Blue Point RA, 6 miles N of Piru; 57c is Arroyo Seco RA, 12 miles SW of Greenfield.	V.1: ...natural appearing to modified...; V.3: Areas viewed from sensitivity level 1 travel ways, use areas and water bodies...; V.4; Withdrawals: Continue existing withdrawal to mineral entry within the recreation area until a future review and assessment provides additional direction. Study the suitability of expanding the existing withdrawal to include the entire recreation area.

Mgmt Area	General Location	Management Guidelines and Standards Included in the Forest Plan
61	Two units totaling 43,622 ac. 61a is 8 mi. N of Lake Cachuma; 63b is 6 mi. W of Frazier Park.	C.1; T.1; T.2; M.1, M.2, M.3, M.4; V.1: ...natural appearing to modified...; V.4; V.3: Areas viewed from sensitivity level 1 travelways, use areas and water bodies...;
63	Two units totaling 19,959 ac. 63a is 6 miles N of Sta Barbara; 63b is 3 miles N of Ojai.	C.1; T.1; T.2; ; V.1: ...natural appearing to modified...; V.4; V.3: Areas viewed from sensitivity level 1 travel ways, use areas and water bodies...;
64	All designated and recommended Wilderness Areas. Designated areas include the Ventana, Santa Lucia, Machesna, San Rafael and Dick Smith Wildernesses. Recommended Further Planning areas include Garcia, La Brea, Matilija, and Sespe-Frazier.	F&W.2; Cultural: Emphasize protection of cultural resources in the sensitive areas listed above [to reduce the effects of vandalism and natural deterioration; V.1: natural character of the Wilderness... ; Minerals: Valid existing rights will be managed to protect the Wilderness character; valid existing rights will be identified prior to approval of any surface disturbing activity; Recommend to Congress that areas formally designated "Known Geological Structures" be made available for oil and gas leasing with no surface occupancy; "Known Geological Structures" are identified by the BLM. Drilling activities are conducted outside Wilderness boundaries... ;
65	Two separate areas w. 54,781 acres. Sespe Sanctuary is 5 mi. N of Fillmore; Sisquoc Sanctuary is 19 miles N of Santa Barbara.	C.1; V.1: a natural... ; F&W.2; Withdrawals: No new surface entry or disturbance for oil and gas development or mineral exploration is permitted; recommend withdrawal of the entire sanctuary from leasable and locatable entry.
66	Six separate RNAs totaling 7,745 acres, with 2 candidate RNAs totaling 2300 acres. Locations are Cone Peak RNA, 2955 acres, 3 miles E of Lopez Point; Wagon Caves RNA, 150 acres, 9 miles NE of Lopez Pt.; Black Butte RNA, 540 acres, 3 miles NE of San Luis Obispo;	V.1: a natural... ; F&W.2; Withdrawals: RNAs will be recommended for withdrawal from mineral entry; M.5; T.3; Other locations include: American Canyon RNA, 1500 acres, 9 miles E of Sta. Margarita Lake; San Emigdio Mesa RNA, 1200 acres, 15 miles W of Frazier Park; Ventana Cone RNA, 1400 acres, 7 miles NW of Big Sur; candidate San Rafael Mtn.RNA, 1300 acres, 12 miles NE of Lake Cachuma; and candidate Big Pine Mtn. RNA, 1000 acres, 12 miles NE of Gibraltar Reservoir.
67	Six separate land units totaling 2,460 acres (Botanic Areas); locations are 3 miles SE of Cape San Martin (75 ac.); 5 miles SE of Cape San Martin (85 acres); 7 miles SE of Cape San Martin (10 acres); 450 acres 7 miles N of Ojai; 510 acres 11 miles W of Frazier Park; 1330 acres 6 miles N of San Luis Obispo.	C.1; protect cultural values specific to Mt. Pinos from changes which alter the present natural or natural-appearing landscape. V.1: a natural... ; F&W.2; Withdrawals: Recommend withdrawal of Botanic Areas within the Coastal Zone from commercial leasable and locatable oil, gas and mineral entry; for other Botanic Areas, determine whether a withdrawal is appropriate. When appropriate, recommend withdrawal as part of the establishment of the Botanic Area. Minerals: Deny any mineral lease application for lands which are within the Coastal Influence Zone and are acquired lands with Weeks Act status. M.5; T.3;
68	2,536 acre area 18 miles west of Frazier Park	C.1; V.1: a natural... ; Withdrawal: Geologic Areas will be recommended for withdrawal from mineral entry; M.5; T.3;
69	5,772 acres area seven miles south of New Cuyama.	C.1; V.1: a natural... ; F&W.2; W.1; Withdrawal: Request withdrawal from mineral entry; M.5; T.3;
70	20,648 ac. within Ventana, San Rafael, and recommended Sespe-Frazier Wilderness areas.	F&W.2

3.3.5.2. *Research Natural Areas*

Existing and candidate Research Natural Areas (RNA's) are covered under Management Area 66 in the LPNF Forest Plan. Management Area 66 consists of six separate RNA's comprising 7,745 total acres. Two candidate RNA's totaling 2300 acres are also identified. These units are situated as follows:

66a, "**Cone Peak RNA**," three miles east of Lopez Point between Cone Peak and Lime kiln Creek (Monterey RD) within the Highway 1 scenic corridor; (2955 acres)

66b, "**Wagon Caves RNA**," nine miles northeast of Lopez Point on lower Rattlesnake Creek (Monterey RD); (150 acres)

66c, "**Black Butte RNA**," three miles northeast of San Luis Obispo in the vicinity of Mt. Lowe (Santa Lucia RD); (540 acres)

66d, "**American Canyon RNA**," nine miles east of Santa Margarita Lake at Pine Mountain (Santa Lucia RD); (1500 acres)

66e "**San Emigdio Mesa RNA**," fifteen miles west of Frazier Park near Mount Abel (Mount Pinos RD); (1200 acres)

66f, "**Ventana Cone RNA**," seven miles northwest of Big Sur (Monterey RD). (1400 acres)

66g, "**Candidate San Rafael Mountain RNA**," twelve miles northeast of Lake Cachuma (Santa Lucia RD); (1300 acres)

66h, "**Candidate Big Pine Mountain**," twelve miles north of Gibraltar Reservoir (Santa Barbara RD); (1000 acres) American Canyon RNA is within critical habitat of the California Condor.

RNA's and candidate RNA's are to be managed for non-destructive, non-manipulative research and study. Cultural resources management emphasizes complete inventory and evaluation of properties with a high priority placed on enhancement through research and study. Other uses are secondary to scientific use. RNA's may be located within designated Wilderness. Landscapes will essentially possess the visual characteristics of a natural condition.

The Forest Plan calls for RNA's to receive No Service Occupancy (NSO) stipulation if included in any oil and gas leases.

Specific concern for protection of the Wagon Caves RNA was expressed during scoping.

3.3.5.3. County Land Use Plans

LPNF is spread over five counties. Portions of the Forest are in Kern, Los Angeles, Monterey, San Luis Obispo, Ventura and Santa Barbara. Each county was notified of the project by letter. Counties were also queried by letter soliciting: relevant planning documents; their input regarding issues and concerns; and identification of any projects that might contribute cumulative impacts.

Following is an overview of each counties input and relevant portions of their general plans submitted to LPNF.

3.3.5.3.1. Kern County

Geographic Overview: The only portion of LPNF within Kern County is at the far southern edge of the County, covering an area of approximately 135 square miles of the northeastern portion of the Forest. There are no LPNF HOGPAs within Kern County. The only community within the area is Frazier Park, and there are private inholdings designated "Pine Mountain Club" and "Piñon Pines". The only major road through the area is Forest Highway 95, although Interstate-5 is located within 1-2 miles of the eastern end of the area.

Relevant Plans and Policies: The General Land Use Plan for southwest Kern County designates most lands along the LPNF boundary as Resource Conservation. The following are pertinent excerpts from County planning documents provided.

Goal: "To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland or mineral resources, or diminish the other amenities which exist in the County." (G.P., p. 8-2)

Map Provisions: Resource: Mining and Petroleum (Map Code 8.4) - "Areas, which contain producing, or potentially productive, petroleum fields and mineral deposits of regional and statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is 5 acres gross. Permitted uses shall include, but are not limited to, the following: Primary: Mineral and petroleum exploration and extraction, including aggregate extraction. Compatible: Extensive and intensive agriculture, mineral and petroleum processing (excluding petroleum refining), pipelines, power transmission facilities, communication facilities, equipment storage yards, borrow pits, dumps, night watchman or crew quarters; one single-family dwelling unit pursuant to conditional use permit provisions of the Kern County Zoning Ordinance."

Other map resource codes include Intensive Agriculture (8.1); Resource Reserve (8.2); Extensive Agriculture (8.3); and Resource Management (8.5). (G.P., pp. 8-2 and 8-3)

Policies: uses of all types will be encouraged as desirable and consistent interim use in undeveloped portions of the County regardless of General Plan designation.

4. *In areas with a Resource designation on the General Plan map, only industrial activities, which directly and obviously relate to the exploration, production, and transportation of the particular resource, will be considered to be consistent with this plan.*
5. *In accordance with the Surface Mining and Reclamation Act, new commercial and residential development will not be permitted in areas containing mineral deposits of regional or Statewide significance, as defined by the State Board of Mines and Geology, and as designated Mineral and Petroleum on the General Plan map.*

6. *Land use proposals within or near MRZ-2 areas should be reviewed with the goal of achieving compatibility with mining.*
7. *Mineral lands classified MRZ-2 should be protected from encroachment of incompatible land uses.*
8. *Emphasize conservation and development of identified mineral deposits.*
9. *Development will be constrained, pending adoption of ordinances which establish conditions, criteria, and standards in areas containing valuable resources, in order to protect the access to and economic use of these resources."*
11. *Rivers and streams in the County are important visual and recreational resources and wildlife habitats. Areas of riparian vegetation along rivers and streams will therefore be preserved when feasible to do so.*
14. *Habitats of threatened or endangered species should be protected to the greatest extent possible.*

3.3.5.3.2. Los Angeles County

Geographic Overview: A very small portions of Los Angeles County is within the boundary of LPNF at the extreme eastern end of the Forest. There are no HOGPAs within Los Angeles County.

Relevant Plans and Policies: Richard Frazier, Regional Planner II responded to Forest Supervisor Dahl's letter requesting input regarding local plans and cumulative impact issues. Frazier indicated that there were "no projects to report" for the cumulative impact analysis, and sent copies of the **Antelope Valley Areawide General Plan** and the **Santa Clarita Valley Area Plan** which cover portions of Los Angeles County that include or are adjacent to Los Padres National Forest.

The following are views and excerpts from those plans:

3.3.5.3.2.1. Antelope Valley

Pages IV-4 and 5 of the Plan report describe the community of Gorman, located approximately two miles east of the Los Padres NF boundary in that area. The plan indicates that Gorman may grow based on increased activity at Hungry Valley State Recreation Area to the south. If so, it would be developed at very low densities (1 dwelling unit or less per 2 acres), consistent with water and sewer system capacities. The nearest residentially zoned land in Los Angeles County to Los Padres NF is the N-1 zoned land at the extreme northwest corner of the county, located within 1/4 mile of I-5, and within 3/4 mile to 1 mile of the Los Padres NF boundary. According to the Hazards and Resources Map, most of that residentially zoned area is within the seismic safety (Alquist-Priolo) zone, within the Hillside Management (HM, 25%+ slope) zone, and within the 60-decibel noise management area. Immediately east of I-5 and south of the Los Angeles/Kern County line, the area is designated Significant Ecological Area (SEA) #59. This

area, which is part of the foothills of the Tehachapi Range, is extremely diverse from an ecological standpoint. It represents one of the "best foothill wildflower sites in southern California." (Plan, p. A-8)

According to page IV-13 of the Plan report, "where further development of [Gorman and other rural communities] does occur, it should be of an "infill" nature, consistent with the existing community character and service levels, and in no event should it exceed the densities specified on the Antelope Valley Areawide General Plan Land Use Policy Map."

Plan policies regarding mineral extraction are found on Plan report page V-6, item 39. The policy is to "ensure conservation of natural resources through the establishment of public programs to encourage continued agricultural production and to control energy consumption, mineral extraction, groundwater recharge, construction, and other public and private activities which affect the future availability and quality of such resources." Policy 150 (page V-19) is for the County to "protect important mineral resources by a long-range approach toward mineral resource utilization." For County approval of non-residential uses in non-urban areas (such as oil & gas development), it is County policy that "all applications for ... mining operations ... or other similar uses shall include a full environmental analysis to identify potential negative impacts." And for "... mineral extraction and other appropriate proposals, approved site restoration shall be required at the termination of such use." (Plan, p. VI-5)

3.3.5.3.2.2. Santa Clarita Valley

Several thousand acres of Los Padres NF are included within Los Angeles County and the Santa Clarita Valley area, as well as thousands of acres more which are within Angeles NF but which are administered by Los Padres NF. These lands are located in the far west of the Santa Clarita area, and are shown in the Land Use Policy map as "NF" (National Forest). Only to the south, where the Forest lands are abutted by Rancho Temescal, are they adjacent to private lands. According to the Land Use Policy map, Rancho Temescal lands are designated "HM" for Hillside Management. Such lands have slopes of 25% or more, and development in HM areas is more controlled and restricted than in non-hillside lands. Residential densities in the 25%-50% slope category may be as much as 1 dwelling per two acres, or as little as 1 dwelling per 10 acres (Plan, p. 45).

The County has no jurisdiction over federal Forest Service lands. However, private inholdings within the Forest are subject to County review. The Plan report (page 38) states that "private inholdings within the forest boundaries are designated for non-urban uses at a maximum density of 1 unit / 5 acres except within established residential communities where higher densities presently exist. Within these established residential communities future development may occur at non-urban, and in some instances, low urban densities consistent with the existing character of the area. Commercial uses to support user groups within the forest may be permitted. In all cases, development proposals will be subject to applicable hillside management and flood protection performance standards and criteria. All proposed private and public development projects within the National Forest boundaries will be reviewed by both the Regional Planning

Commission and the U.S. Forestry [sic] Service for compliance with applicable land use and resource management plans."

For non-residential uses in non-urban areas, it is County policy that a. "the proposed use should be located and designed so as not to conflict with established or planned community land use and circulation patterns. Whenever necessary, the proposed use should be located and designed so as to provide an appropriate land buffer between potentially disruptive, polluting and/or hazardous uses and surrounding lands."

b. "The necessary public services and infrastructure should be in or readily available, including appropriate sewage disposal facilities and water for domestic use as well as firefighting. In areas lacking public services, it shall be demonstrated that the development proposal will not require an unusual public investment. Those improvement costs which benefit only a particular development should be borne by that development, while costs of improvements beneficial to a greater segment of the overall community should be shared by the community."

c. "The proposed use shall be located in areas deemed suitable from an ecologic, geologic and topographic standpoint. The design must minimize the environmental and geologic impacts of the project and preclude groundwater contamination."

d. "Access, egress and onsite parking should be provided in a manner which maximizes safety and minimizes adverse impacts on surrounding land use patterns. Convenient all weather access will be required for firefighting purposes."

e. "The design and location of the project should ensure that the transport of toxic, explosive, or otherwise hazardous substances will avoid existing or planned (as shown on the adopted Santa Clarita Valley Plan) residential communities. Building and site design of any potentially volatile or otherwise hazardous land use should consider as its prime objective the health, safety and welfare of the community in which it is situated or to which it is proximate."

f. "The proposed site should be appropriately landscaped, fenced and screened to minimize the visual impact on surrounding and overlooking residences. Particular consideration shall be given to noise, odor, lights, and traffic impacts on neighboring developments."

g. "Consideration should be given to appropriate hours of operation."

h. Not applicable.

i. "Where appropriate, undergrounding of all local utilities is desirable. New overhead major utility lines (e.g., power, telephone or transmission lines) should, where possible, follow the least visible route and cross ridgelines at the most visually unobtrusive locations."

j. " Where appropriate, structures in hillside areas should be designed to preserve scenic value. Where feasible, structures should be placed so that roof lines do not protrude above road grade

on the down slope side...." "All cut-and-fill slopes over five feet in vertical height should be planted with adequate plant materials to protect against erosion. Trees, shrubs and ground covers shall completely cover exposed graded area."

k. "The ability of major and secondary highways to serve as escape routes and to accommodate seasonal recreation traffic from outside the areas shall be considered in reviewing the development proposal, particularly with proposals for uses involving volatile/hazardous materials."

l. "In identified hazard areas, the design of proposed developments should include use of appropriate hazard mitigating or avoidance measures: Fire: In identified brush fire hazard areas, mitigation techniques should include use of fire retardant materials, brush clearance, a design which provides for a defensible perimeter and implementation of a suitable emergency access plan. Flood: Development should be designed so as to not interfere with natural drainage during severe storms nor become endangered by such runoff. Wherever appropriate, natural watercourses should be retained in as natural a state as possible, minimizing modification of the natural carrying capacity or production of excess siltation."

m. " Biotic, cultural and scenic resources should be recognized and addressed in the design of any project. To the extent practical, measures should be taken to minimize any negative impacts resulting from a development proposal. As part of the review process, it may be necessary to require a survey of the site by qualified professionals" (Plan, pages 46-49).

Regarding mineral resources, Policy 3.3 of the Plan is to "protect important mineral resources by a long-range approach toward mineral resource utilization" (Plan, p. 26). "Mineral extraction uses such as quarries and oil and gas fields" are permitted uses within areas of N1, N2 and HM designation, but "appropriate conditioning of the design of the project" may be required "such that the negative impacts on adjacent land uses and the environment will be minimized." And, "in the event of termination of ... mineral extraction facilities...effectuation of approved site restoration plans shall be required" (Plan, pages 35 and 36).

3.3.5.3.3. Monterey County

Geographic Overview: The Monterey Ranger District of the Forest is entirely within Monterey County. Although this is a large geographical area the greater majority of the area is withdrawn from mineral entry due to inclusion in a designated Wilderness area or within the Coastal Zone. There is one HOGPA, the Monroe Swell, located on the inland, eastern boundary of LPNF.

Relevant Plans and Policies: Information was received from Steven Maki, Planning & Building Department in response to the Forest Supervisor's letter. No explicit comments were sent in response to the FS letter, other than the General Plan and its EIR. No information was given in response to the question of potential projects, which would result in cumulative impacts.

Energy Resources

- County goals are to "promote efficient energy use" and to "encourage development of renewable energy resources. No specific goals, objectives or policies regarding oil & gas development are included in this Plan, although on page 13 the text indicates that the proposed policies can "extend fossil fuel reserves further into the future."

Minerals

- It is the County's goal to "provide for the conservation, utilization and development of the County's mineral resources in keeping with sound conservation practices and techniques." (p. 16). Associated objectives and policies include

2.1 Objective: Protect potentially significant mineral deposits and mining operations from encroachment by incompatible land uses, in accordance with established land use priorities.

Policies:

2.1.1 The County shall work in conjunction with the State Division of Mines and Geology to inventory lands containing valuable mineral deposits and identify on- and off-site land uses that would be incompatible with mineral extraction activities.

2.1.2 The County shall designate land use categories, which will protect potentially significant mineral deposits from land uses, which would permanently preclude mineral extraction.

2.2 Objective: Protect existing mining operations, including idle and reserve properties, from encroachment by incompatible land uses, in accordance with established land use priorities.

Policies:

2.2.1 Existing mining operations shall be inventoried and off-site incompatible land uses identified.

2.2.2 The County shall designate land use categories which will protect existing mining operations from incompatible land uses.

2.3 Objective: Provide for mineral extraction in keeping with sound conservation practices and for the reclamation of the extraction site to a condition consistent with the surrounding natural landscape and environmental setting.

Policies:

2.3.1 A mining and reclamation plan shall be required for all proposed mineral extraction operations.

2.3.2 Mining operators shall be required to furnish the County with all information needed to make an environmental assessment of the proposed mineral extraction operation.

2.4 Objective: Support efforts to conserve raw mineral resources through recycling.

Existing Land Use

- Near LPNF lands which are both legally available for oil and gas development, and which have development potential of low to high, adjacent uses include agricultural lands, unimproved/ watershed areas, and public/quasi-public (Fort Hunter-Liggett Military Reservation).

Future Land Use Plan

- Private lands near available LPNF lands with oil/gas development potential are all designated as "resource conservation", having residential lot sizes ranging from 10-160 acres.

Waste Disposal

- There are two private oil industry waste disposal sites in Monterey County: Rancho Los Lobos, and the Texaco site, both south of San Ardo.

3.3.5.3.4. San Luis Obispo County

Geographic Overview: The portion of LPNF within San Luis Obispo County consists of the Santa Lucia Ranger District. This area contains the Lopez Canyon HOGPA just to the north of Lopez Lake.

Relevant Plans and Policies: A response letter was received from Greig Cummings expressing particular concerns regarding possible oil & gas development near Lopez Lake. The greatest impact concerns there are to recreational and water resources, due to impacts to visual resource, water quality, air quality, noise, truck traffic and socioeconomics. County Engineering Department staff expressed concern about protection of water quality at the reservoir if there was to be oil & gas development within the watershed. The concern is related not only to possible oil & gas contaminants, but also to water quality degradation due to grading for roads and facility pads.

Impacts in other areas could affect the rural atmosphere of the large-lot areas adjacent to LPNF. And oil & gas development in LPNF could affect recreation and the tourist portion of the local economy by degrading back-county recreation experiences through visual impacts, odors, noise and air pollution.

Attached portions of the County Natural Areas Plan described the Lopez Lake environs, as well as El Chorro Natural Area. Attached information also identified nine existing or proposed trails that could be affected by oil and gas development.

Cummings also attached portions of the Huasna/Lopez Planning Area Land Use Element/Circulation Element, the 1995 Annual Resource Summary Report, and the Air Quality section of that report. Other area plans, however, are needed as well, like Salinas River; Las Pilitas, Shandon, and Carrizo. It also would be useful to have the County Land Use General Plan and EIR.

Cummings included a memo from Barry Lajoie of San Luis Obispo APCD ((805) 781-5912) regarding air quality concerns related to oil & gas development. Lajoie requested that the EIS "evaluate potential air quality impacts from development of new roads, well pads, tank sites, pipelines, and other supporting infrastructure within the County. Though we recognize the preliminary nature of the study, and therefore the difficulty surrounding accurate estimates, we feel strongly that infrastructure development could represent significant impacts to air quality."

Lajoie recommended consideration of the possible development of the Nacimiento Water Project as one with potential cumulative impact effects, in combination with Los Padres oil & gas development. The Nacimiento Water Project would consist of 56 miles of water pipeline that may pass areas in or near Los Padres NF. Nacimiento is currently being addressed in an EIR.

Development standards for Resource Extraction Wells (SLO Co. Land Use Ord., 22.08.174 b.)

- (1) **Roads, access and site preparation.** Roadwork and grading for drill site preparation shall be limited to that necessary for site access and shall be designed and oriented to minimize cut and fill slopes and removal of vegetation. Roads shall be maintained in a dust-free condition by periodic watering or by compacted surfacing. A grading permit may be required for drill site access roads and site preparation, as determined by Sec. 22.05.020 (Grading).
- (2) **Clearing and revegetation.** The land area exposed and the vegetation removed during construction shall be the minimum necessary to install and operate the facility. Topsoil shall be stripped and stored separately. Disturbed areas no longer required for production will be regraded, covered with topsoil and replanted during the next appropriate season.
- (3) **Well locations.** A well hole, derrick, or tank shall not be placed closer than 100 feet of any residence, or closer than 25 feet from any public road, street or highway, except where the Planning Commission determines that such separations are unnecessary or ineffective because of physical conditions of the drilling site or the vicinity.
- (4) **Sumps and waste disposal.** All waste substances ... shall be retained in watertight receptors, from which they can be piped or hauled for terminal disposal in a (RWCB-approved dumping area). The use of unprotected earthen sumps is prohibited except during drilling

operations. Any allowed sump located within view of any public street or within 1000 feet of any residence is to be enclosed with a fence ..."

- (5) **Fire protection.** Fire fighting apparatus and supplies, approved by the county Fire Department shall be maintained on the site at all times during drilling and production operations."
- (6) **Completion of drilling.** The applicant shall notify the Planning Director within 10 days after completing or abandoning the facility. Within 30 days after completing or abandonment of an exploratory or production well, all ... equipment, including any earthen sumps, are to be removed from the site and the sumps filled."

c. Well operation and site maintenance.

- (1) **Landscaping.** ... not applicable in Agriculture and Rural Land categories outside of urban and village reserve lines."
- (2) **Site maintenance.** The drillsite, permanent equipment and approaches to the site are to be kept in a clean, neat appearing condition free from debris, other than necessary and incidental drilling equipment and supplies. The site shall be maintained so as to prevent any accumulation of oil, oil products, or oil-coated boards, materials or equipment which might cause fumes or odors detrimental to adjoining property."
- (3) **Storage tanks.** ... not applicable in Agriculture and Rural Land categories outside of urban and village reserve lines."
- (4) **Parking and loading.** All parking and loading activities related to well drilling or production are to occur on-site."
- (5) **Signing.** Only directional, instructional and warning signs, and signs required for identification of a well may be placed on the premises."
- (6) **Operating wells.** Pumping wells are to be operated by electric motors or muffled internal combustion engines. Pumping units within urban or village reserve lines or Residential Suburban land use categories [must be] screen[ed] from the view ... and which reduce noise ... to within the limits specified by Sec. 22.06.040 (Noise Standards)
- (7) **Violations.** [no conflict; only applies if facility is under County standards, and violates them.]

d. Periodic inspection. [County reg. not applicable to wells under FS / BLM jurisdiction.]

e. Well abandonment. [no conflict expected]

Los Padres Area Plan

This area encompasses all of LPNF within San Luis Obispo County, as well as private inholdings within the Forest. All the public lands within the plan area (175,800 acres) are designated "Open Space", while private inholdings and adjacent lands are categorized as "Rural Lands" (21,100 acres) or "Agriculture" (20,650 acres). A number of Sensitive Resource Areas (SRAs) have been designated. They include:

Black Mountain Wild Horse Range

Fish Creek - Geode Mountain

Hi-Mountain Road

Knobcone Pine Forest

La Panza Ranch Natural Area

Pine Mountain; and

Rinconcada Mine Botanical Area

Huasna / Lopez Planning Area

This area east of Arroyo Grande was identified by the County as a planning area that could be affected by oil and gas development in LPNF. Areas of particular concern include Lopez Lake Recreation Area and vicinity (SRA-3); SRA-1 which is part of the Santa Lucia Wilderness Area; and SRA-2, Fish Creek - Geode Mountain. The plan has special requirements regarding oil & gas traffic on Huasna Road and Huasna Townsite Road (p. 8-2). It also has special visual analysis and impact mitigation requirements relative to Lopez Lake Recreation Area.

3.3.5.3.5. Ventura County

Geographic Overview: The northern two-thirds of Ventura County is within Los Padres NF. The community of Ojai is immediately south of the Forest boundary, while the communities of Santa Paula and Fillmore are located approximately four miles from the Forest. Lake Casitas and Lake Piru are immediately south of the Forest boundary. SR 33, a major access road north through LPNF passes through Ojai. Major private enclaves within the Forest include Lockwood Valley and private lands near Ozena.

County General Plan: County staff provided no information regarding known or possible projects, which may result in cumulative impacts relative to LPNF oil & gas development. However, they did send copies of the General Plan, and the Final EIR for the General Plan.

ENERGY RESOURCES, p. 27 of GP; does not address oil & gas development issues; these policies are found in the MINERAL RESOURCES section, pp. 15-17 (see below)

GOALS:

1. Manage mineral resources in a manner which effectively plans for the access to, development and conservation of mineral resources for existing and future generations."
2. Identify and manage mineral resources in order to:
 - Safeguard future access to the resource.

- Facilitate a long-term supply of mineral resources within the County.
 - Minimize incompatibility between the extraction and production of the resource and neighboring land uses and the environment
 - Provide notice to landowners and the general public of the presence of significant mineral resource deposits.
3. Promote the utilization of mineral resources located close to urbanized areas before their extraction is precluded by urbanization.

Ensure that all mineral extractions are conducted in a manner, which protects the environment and the public's health, safety and welfare.

Policies

1. Applications for the extraction of mineral resources shall be reviewed to assure minimal disturbance to the environment and to assure that lands are reclaimed for appropriate uses, which provide for and protect the public health, safety and welfare.
2. Discretionary development within a Mineral Resource Area (see Resource Protection Map) shall be subjected to the provisions of the Mineral Resource Protection (MRP) Overlay Zone, and is prohibited if the use will significantly hamper or preclude access to or the extraction of mineral resources.
3. Mineral Resource Areas may be established, in whole or in part, in accordance with the following criteria:
 - Any area designated by the State Board of Mines and Geology as an area of statewide or regional significance pursuant to the provisions of the Surface Mining and Reclamation Act of 1975.
 - Any area covered by a discretionary permit (e.g. CUP) for mining of aggregate minerals determined to be of Statewide or regional significance.
4. The County is not obligated to approve discretionary entitlements for the development of mineral resources located in a Mineral Resource Area nor is it the County's intent to preclude mineral resource development from occurring outside of Mineral Resource Areas as identified on the Resource Protection Map.
5. Mining operations shall comply with the requirements of the County Zoning Ordinance and standard conditions, and State laws and guidelines relating to mining and reclamation.
6. All discretionary permits for in-river mining shall be conditioned to incorporate all feasible measures to mitigate flooding and erosion impacts as well as impacts to water resources, biological resources and beach sediment transport.

7. All General Plan amendments, zone changes, and discretionary developments shall be evaluated for their individual and cumulative impacts on access to and extraction of recognized mineral resources, in compliance with the California Environmental Quality Act.
8. Significant adverse impacts on the access to and extraction of recognized mineral resources which are identified in environmental assessments and reports shall be mitigated to less than significant levels or, where no feasible mitigation measures are available, a statement of overriding considerations shall be adopted. It is not the County's intent to preclude property owners and mineral rights owners and/or lessees from negotiating mutually satisfactory mitigation measures, such as, but not limited to, surface leases, access points and associated improvements.
9. Petroleum exploration and production shall comply with the requirements of the County Zoning Ordinance and standard conditions, and State laws and guidelines relating to oil and gas exploration and production.
10. As existing petroleum permits are modified, they shall be conditioned so that production will be subject to appropriate environmental and jurisdictional review." (GP, pp. 16-17)

Ventura County designates general land uses in the following categories: urban; existing community; rural; agricultural; open space; and state and federal facilities. Open space is the most compatible designation relative to oil & gas extraction. "Open space" is "any parcel or area of land or water which is essentially unimproved and devoted to an open-space use as defined in this section, and which is designated on a local, regional or State open space plan as any of the following:

- Open space used for the managed production of resources, including, but not limited to, areas containing major mineral deposits, including those in short supply."
- Open space for the preservation of natural resources...
- Open space for outdoor recreation...
- Open space for public health and safety...
- Open space to promote the formation and continuation of cohesive communities by defining the boundaries and by helping to prevent urban sprawl.
- Open space to promote efficient municipal services and facilities by confining urban development to defined development areas." (GP, p. 58)

Open Space Goals: "(1) Preserve for the benefit of all the County's residents the continued wise use of the County's renewable and nonrenewable resources by limiting the encroachment into such areas of uses which would unduly and prematurely hamper or preclude the use or appreciation of such resources." (GP, p. 60)

Open Space Policies: "(2) Open Space should also include areas set aside for managed production of resources, including, but not limited to, ... areas containing major mineral deposits, including those in short supply." (GP, p. 61)

Pipelines:

"Major pipelines within Ventura County carry crude oil and natural gas, generally along highways and railroad lines. Most oil companies, which have operations in Ventura County have pipelines, located within their oil/gas lease areas, but do not operate major transporting pipelines. Four Corners Pipeline Company is a private pipeline company regulated by the Public Utilities Commission that transports crude oil through their own lines and connects to other pipelines as needed. Four Corners Pipeline Company operates only their own pipeline facilities, and does not own any crude oil." (GP, p. 113)

Transportation Policies:

3. The minimum acceptable Level of Service (LOS) for road segments and intersections within the Regional Road Network and Local Road Network shall be as follows:
 - a. LOS - "D" for all County thoroughfares and Federal highways and State highways in the unincorporated area of the County, except as otherwise provided in subparagraph (b);
 - b. LOS - "E" for State Route 33 between the northerly end of the Ojai Freeway and the City of Ojai;
 - c. LOS - "C" for all County-maintained local roads; and
 - d. The LOS prescribed by the applicable city" (GP, pp. 116-117)
4. Except as otherwise provided in the Ojai Area Plan, County General Plan Land Use designation changes and zone changes shall be evaluated for their individual and cumulative impacts, and discretionary development shall be evaluated for its individual impact, on existing and future roads, with special emphasis on the following:
 - (a) Whether the project would cause existing roads within the Regional Road Network or the Local Road Network that are currently functioning at an acceptable LOS to function below an acceptable LOS.
 - (b) Whether the project would worsen traffic conditions on existing roads within the Regional Road Network or the Local Road Network that are currently functioning below an acceptable LOS; and
 - (c) Whether the project could cause future roads planned for addition to the Regional Road Network or the Local Road Network to function below an acceptable LOS." (GP, p. 117)
6. Development that would generate additional traffic shall pay its pro-rata share of the costs of necessary improvements to the Regional Road Network per the County's Traffic Impact Mitigation Fee Ordinance as amended from time to time." (GP, p. 117)

Public Utilities Policies:

1. New gas, electric, cable television and telephone utility transmission lines shall use or parallel existing utility rights-of-way where feasible and avoid scenic areas when not in conflict with the rules and regulations of the California Public Utilities Commission. When such areas cannot be avoided, transmission lines should be designed and located in a manner to minimize their visual impact.
2. All transmission lines should be located and constructed in a manner which minimizes disruption of natural vegetation and agricultural activities and avoids unnecessary grading of slopes when not in conflict with the rules and regulations of the California Public Utilities Commission." (GP, p. 123)

Other Public Buildings and Grounds (*intergovernmental cooperation and coordination*)**Goals**

1. Ensure a continuing, cooperative planning and working relationship between the County of Ventura and the respective State and Federal Government Agencies in sharing information relative to existing and proposed State and Federal facilities.
2. Ensure that Federal and State facility planners are adequately informed of applicable County regulations, standards and land use policies in order to minimize conflicts with the County Planning Program."

Policies

1. The Planning Division will encourage Federal and State Agencies to fully comply with the County General Plan and other County adopted regulations, standards and land use policies.

Programs

1. The County will continue to provide input on environmental documents for proposed modification to Federal and State facilities to ensure all adverse consequences are adequately identified and mitigated as feasible."
- 2.

FEIR for Ventura County Plan, 1988

Land use map for south half of County shows existing community of Summit midway between Ojai and Santa Paula along SR 150;

RESOURCE PROTECTION MAP, South Half 1" = 8,000 ft. Shows scenic resource area zone around Lake Matilija and Lake Casitas; no other identified sensitive resources are within or near FS lands.

Ojai Valley Area Plan

Resources Map: Scenic resource protection zone around Lake Casitas encompasses perhaps one section of FS land; several visually-sensitive ridgelines also extend into FS lands; biologically-sensitive zone along the Ventura River passes within a few hundred feet of FS lands NW of Ojai.

Area Plan for The Piru Area of Interest (updated through Nov. 17, 1992)

Since there is no FS land within the planning boundary, the policies likely to be of the most interest are those for potential impacts that can reach beyond a well site and affect private lands. These include 1.3, Scenic Resources; 1.8, Agricultural Soils and Hillside Erosion; 1.9, Water; 2.1, Seismic and Geologic Hazards; 2.3, Fire Hazards; 2.4, Noise; and possibly 1.7, Air Quality and 4.1, Transportation and Circulation.

3.3.5.3.6. Santa Barbara County

Geographic Overview: The portion of LPNF starting roughly with range 25 west (R25W) and running northwest to the Cuyama River is within Santa Barbara County. This portion of the forest contains the South Cuyama, Figueroa Mountain and La Brea Canyon HOGPAs and the western end of the Rincon Creek HOGPA.

County staff completed two project worksheets regarding projects or initiatives which may result in cumulative impacts relative to LP oil & gas development. They include:

- County Agriculture Element Update (General Plan)

Under this effort, to have taken place between 1996 and 2000, rural lands will be rezoned and redesignated. This may intensify usage of those lands in some locations, and may introduce additional residential, recreational and commercial areas in rural areas than are now currently allowed. The results may be cumulative impacts in "most issue areas identified."

- Other oil & gas development (Pacific OCS, State Tidelands, and onshore within County)

Relevant Plans and Policies**Inland Zoning Ordinance, Div. 8, Energy Facilities**

"Oil and gas drilling, production, and related facilities shall be permitted uses in the following districts: a. Agriculture II (AG-II); b. Coastal-Related Industry (M-CR); c. General Industry (M-2)." (Sec. 35-295.2, Permitted Districts, 1.)

"Oil and gas drilling, production, and related facilities shall be permitted subject to a Major Conditional Use Permit (Sec. 35-315) in the following districts: a. Agriculture I (AG-I); b. Resource Management (RES); c. Residential Ranchette (RR); d. Retail Commercial (C-2);

e. General Commercial (C-3); f. Industrial / Research Park (M-RP); g. Light Industry (M-1); h. Recreation (REC) - only in County parks and subjects to requirements of Sec. 25-4 d. of the County Petroleum Ordinance." (Sec. 35-295.2, Permitted Districts, 2.)

Minimal paperwork (a Land Use Permit) is required if the project is in AG-II, M-2 or M-CR zoning districts; is no closer than 1000 feet to any district other than those three; is within a state-designated oil field; there will be no treatment or processing facilities at the site; no water flooding or steam injection using fresh groundwater for enhanced oil recovery is proposed; is located no closer than 100 feet to the top of the bank of any watercourse, or 200 feet from the Santa Ynez, Santa Maria, Sisquoc or Cuyama Rivers; is not larger than 0.5 acre, or if so, is not located on prime agricultural lands; will not disrupt mapped historical or archaeological sites; will not disturb mapped locations of rare/endorsed species, unusual or delicate habitats, prime examples of ecological communities, or scientific study areas; is not within a Scenic Highway corridor; and will not result in any other potentially significant adverse impacts identified during a site visit. (paraphrase of Sec. 35-295.3, Processing, 1.)

Development Standards for Oil & Gas Drilling and Production (Sec. 35-295.4)

"1. The following standards shall apply to all projects: a. ... no oil or gas drilling or related facilities shall be permitted within 500 feet of an occupied residence within a residential or commercial zone district; b. ... the site shall not exceed one (1) acre in size ... ; c. oil and gas production and related facilities shall be consolidated or collocated to the maximum extent feasible ... d. grading and alteration of natural drainage patterns shall be minimized to preserve the natural contour of the lands; e. all lights shall be shielded so that all lighting is confined to the project site; f. drilling or production operations which are within or adjacent to a residential or commercial zone district shall not exceed a maximum daytime noise level of 65 dB(A) and shall not be conducted between the hours of 9:00 pm and 7:00 am of any day, unless all noise generating facilities are sufficiently insulated to reduce the outside night time level to 50 db(A) at or beyond the project property boundary; g. production facilities shall be designed and housed such that the noise generated by the facilities as measured at any noise sensitive location shall be equal to or below the existing noise level of said location. Measures to reduce adverse impacts (due to noise, vibration, etc.) to the maximum extent feasible shall be used for facilities located adjacent to noise sensitive locations as identified in the Comprehensive Plan Noise Element (i.e., use of electrical hydraulic surface pumping units). h. it is prohibited to operate trucks exceeding one and a half tons for use in oil and gas operations between the hours of 9:00 pm and 7:00 am upon streets within any residential neighborhood. ... Truck routes shall be reviewed for proposed oil or gas facilities to insure that oil field support traffic is not routed through residential neighborhoods, unless no alternative routes exist. i. All production equipment and facilities shall be recessed, covered, or otherwise screened from view from any designated Scenic Highway. j. No noxious odors associated with the project shall be detectable at the project property boundary. k. In additions to requirements ...of Sec. 25-34 and -35 of the County Code, the site upon well abandonment, shall be recontoured, reseeded, and landscape to approximate original conditions ..."

2. "In addition, the following development standards may be applied to production operations to the extent deemed necessary by the Director or Planning Commission. a. Each producing well shall be completed in such a manner that all production equipment and facilities shall be recessed, covered, or otherwise screened from view. Trees or shrubbery shall be planted and maintained so as to develop attractive landscaping and to screen the site and production equipment, structures, tanks and facilities thereon from public view, unless such equipment, structures, tanks and facilities are screened from public view by reason of an isolated location, existing trees or shrubbery, intervening surface contours, or a wall constructed as herein provided. b. The site shall be enclosed with an adequate non-combustible type fence, wall, screen, or housing sufficient to prevent unauthorized access thereto and having a height of at least six (6) feet, unless public access is prevented by reason of an isolated location. c. A monitoring system to measure off-site impacts, including noise, vibration, odor, and air or water quality degradation, may be required as a condition of approval. d. Permanent structures and equipment shall be painted a neutral color so as to blend in with natural surroundings."

Sec. 25-296 addresses Applicability, Permitted Districts, Processing, Findings, Development Standards, and Abandonment for separate treatment and processing facilities. These regulations are not applicable since additional off-site treatment and processing facilities are not expected to be needed.

Applicable Comprehensive Plan Policies

Pipelines for oil, gas and produced-water (10) pp. 82-b and 82-c

Use existing pipelines to the maximum extent feasible. If new pipelines are required

- construct, operate and maintain them as common-carriers;
- locate them in approved corridors unless the Planning Commission determines that such corridors are not available, safe, technically feasible or environmentally preferred;
- if the pipelines are proposed in an approved corridor, analyze cumulative impacts of locating future pipelines to that corridor;
- design any new common-carrier pipeline(s) to take into account the reasonable, foreseeable needs of other potential shippers;
- engineer pipe placement to minimize incremental widening of the corridor in subsequent pipeline projects

Gas Processing Facilities (11) p. 82-d

The County prepared a report addressing screening and siting criteria for such facilities (if located in the North County Consolidation Planning Area (NCCPA). As with Sec. 35-296 of the

zoning ordinance, it is not anticipated that these regulations will be applicable for this EIS at this time, since no additional off-site treatment and processing facilities are expected to be needed.

Oil Transportation Policy (12) pp. 82-d and 82-e

The County established these policies regarding preference for pipelines over other methods for transport of crude oil from offshore oil fields, and for facilities service both onshore and offshore fields. However, the policies do "not apply to facilities that serve only onshore fields..."

3.3.6. Oil and Gas Development

3.3.6.1. History

This section provides a description of the history of oil and gas development on LPNF, the current development and potential development.

Production of oil and gas within Los Padres National forest began in 1887 when the Sespe Oil Field was discovered in the Tar Creek area near the town of Fillmore. Lyman Hardison and Wallace Steward, who later formed Union Oil Company (Unocal), discovered the field. By 1900, Union Oil Company had drilled 35 wells to develop its first field, the Sespe Oil Field, producing oil mostly from Vaqueros Sandstone. (Dosch 1967)

The cumulative production of oil and natural gas from oil fields in and around LPNF is listed in Table 3-40.

3.3.6.2. Current Development

There are 21 existing oil and gas leases covering 4,863 acres within Los Padres National Forest. The leases are shown on the maps in the DEIS map packet. These leases are considered to be a part of the affected environment for all eight alternative leasing scenarios.

Approximately 90% of the Forest oil and gas production is from the Sespe Oil Field. The Sespe Oil Field is on the east plunge of a four-mile wide anticlinal fold of Tertiary sediment and produces oil from the Vaqueros, Sespe, and "Coldwater" formations. Since it first came into production, the field has produced 47 million barrels of oil and 61 billion cubic feet of gas. Estimated reserves for the field in 1999 were 3.4 million barrels of oil and 5 billion cubic feet of gas.

Small amounts of oil and gas are produced from two leases on 440 acres in the South Cuyama Oil Field in the Cuyama Valley. Production is from a faulted section of the Vaqueros formation. Most of the South Cuyama Oil Field borders the Forest. Production is from formations that underlie approximately 20% of the surface in the Forest. From 1948 through 1999 these

formations have produced 284 million barrels of oil and 233 billion cubic feet of gas. Reserves are estimated at 2.7 million barrels of oil and 2.4 billion cubic feet of gas.

The number of wells drilled on the Forest varies from year to year. During the 1980's, five or six wells per year were drilled. Since 1990, only two wells total have been drilled on the Forest. Most wells are drilled in known geologic structures (KGS) near existing field developments of the Sespe Oil Field and upper Ojai Field. Most are field development or field extension wells. Wells range in depth from 2,000 feet to 10,000 feet (an estimated average of 4,000 feet).

A report released (2/15/01) entitled "Preliminary Report of Oil and Gas Production for 2000" by the California Department of Conservation, Division of Oil and Gas published the data listed in Table 3-40 for fields in and around LPNF. Note that the Ojai, South Cuyama and Sespe oil fields produce from both Forest leases and private lands. All other fields do not produce from Forest leases.

TABLE 3-40: OIL AND GAS PRODUCTION FOR OIL FIELDS IN AND AROUND LPNF

Oil field	Oil (thousand barrels)		Gas (million cubic feet)		Approximate % on LPNF ^{1/}		Estimated Remaining Reserves	
	2000	Cumulative through 1999	2000	Cumulative through 1999	Oil	Gas	Oil (thousand Barrels)	Gas (million cu. ft.)
Hopper Canyon	14	3,221	49	4,246	0	0	95	114
Monroe Swell	18	662	6	134	0	0	126	43
Ojai	389	34,141	1,710	71,651	<1	<1	2,652	8,892
Rincon (onshore)	422	121,521	523	188,121	0	0	3,525	5,093
Sespe	513	46,655	1,320	61,117	60	40	3,431	5,062
South Cuyama	317	222,270	255	233,538	25	80	2,723	2,379
Temescal	59	7,953	99	6,510	0	0	100	203
Timber Canyon	53	6,884	101	14,257	0	0	553	1,789

^{1/} Based on 1998 production figures

3.3.6.3. *Potential Development*

The potential for the occurrence and development of oil and gas for each of the High Oil and Gas Potential Areas of Los Padres National Forest is summarized in tabular form for each alternative in Chapter 2. Probability of oil and gas occurrence is described in the Reasonable Foreseeable Development Scenario, Appendix D.

3.3.6.4. *Industrial Infrastructure*

Sixteen refineries currently are operating in southern California (greater Los Angeles, Bakersfield, Santa Maria and Oxnard) with a total capacity exceeding 1.1 million barrels per day. Six refineries with additional capacity of about 100,000 barrels per day are presently idle. These refineries have sufficient excess capacity to accommodate any anticipated production from new LPNF oil and gas leases. Crude from most of the High Potential areas would probably be refined in Los Angeles. It is thought that new production in excess of about 100,000 barrels of oil per

day would displace feedstock oil from foreign markets. (Tom Hopps, Petroleum Geologist, Rancho Energy Corporation, Personal Communication, August 2001)

Access to oil and gas production has a major impact on facilities, operations and shipping. If new production is established within or adjacent to an existing oil field, existing facilities can almost always be used. These facilities include powerlines, pipelines and processing facilities. Such facilities were designed earlier in the life of the field when, in almost all cases, production rates were much greater. The decline to the present rates of production has resulted in excess capacity of most facilities.

The economics justifying construction of powerlines and pipelines is a function of distance to and size of the new discovery. If the new discovery is small (1-2 million barrels) it likely will not support the cost of constructing powerlines and pipelines over any distance greater than about one mile. On the other hand, a discovery larger than 20 million barrels would support a considerable length of such new construction. In every case it is necessary to have local facilities to remove produced water and sediment prior to shipping.

Based on the foregoing, this analysis assumes that within or adjacent to existing fields, facilities of the existing field will be utilized. For small discoveries in remote areas, new powerlines will not be installed and pumps will be powered by natural gas (or propane) fueled engines. If a pipeline passes through or very near such a discovery, it will generally be utilized. Otherwise, produced oil (and sometimes waste water) will be shipped by truck.

3.3.7. Scenic Resources

3.3.7.1. Introduction

The scenic quality of Los Padres National Forest has aesthetic value in and of itself and is an important factor in the quality of the recreation experience enjoyed by numerous forest visitors.

This section describes the Los Padres National Forest scenic resources that might be affected by the alternative oil and gas leasing scenarios being considered.

3.3.7.2. General Description Of LPNF Scenic Resources

Large natural-appearing wildland landscapes near major population centers are an important feature of Los Padres National Forest. Ninety-three percent of the Forest's landscape has a natural appearance. A very small portion, less than 6%, is characterized by modification. Roads, fuelbreaks, special use sites, and utility lines are the principal types of modification. While most of the Forest has an appearance characteristic of the region as a whole, a significant portion (12%) features such distinctive landscapes as coastline, oak woodland and dry grasslands, deserts, conifer forest, streamside zones, and rock outcrops.

Los Padres National Forest is a major source of wildland recreation opportunities for central and southern California. Visitors are attracted to Los Padres by the variety of terrain, vegetation, and recreational settings, including ocean beaches, sub-alpine forest, chaparral, desert badlands, and riparian areas. Both developed recreation and general forest (dispersed) recreation are available to large urban populations from the San Francisco Bay Area to the Los Angeles Basin. The Santa Barbara Front is a scenic attraction of national and international fame. The Big Sur area of Los Padres National Forest is another national and international scenic attraction, which is visited by millions of people each year.

Los Padres National Forest enjoys a Mediterranean climate characterized by wet, cool winters and warm, dry summers. Six major vegetation types mantle the Forest's landscape: chaparral, mixed evergreen and oak forest, oak woodland, pinyon-juniper woodland, conifer forest, and grassland. Major rivers and streams, which are not regulated by dams, are the Big Sur, Little Sur, Arroyo Seco, Sisquoc, Santa Paula, and Sespe. The Los Padres is the only National Forest in California that includes seashore and beaches on the Pacific Ocean. The largest single recreation use of Los Padres National Forest is "viewing scenery," 17% of total recreation use.

Los Padres National Forest is situated within the Southwest Mountain and Valley Character Type. Landscapes within Los Padres generally have very steep slopes, deeply dissected landforms with numerous large rock outcrops. Pine forests are common on the Mt. Pinos Ranger District, but are rare to non-existent on other ranger districts, where grasslands and chaparral are the predominant vegetation types. Colors vary from dark-green in the pine forests to gray-green in chaparral to tan in grasslands and rock outcrop areas. Visual textures vary from coarse in the pine forests, to medium coarse in chaparral, to smooth in grasslands and rock outcrop areas.

3.3.7.3. Scenic Resource Attribute Data

Forest Service landscape architects have developed various attribute data that describe the scenic resources and help in the management of the national forests. LPNF landscape architects have mapped these scenic resource attributes for the Forest. A scenic resource inventory and analysis was completed in 1977. The scenic resource database consists of the following attribute data:

3.3.7.3.1. Visual Quality Objectives (VQOs)

Visual Quality Objectives (VQOs) adopted by the Forest Plan were established through the application of a Nationwide and Region-wide system of land classification and scenery management called The Visual Management System. This established "inventoried Visual Quality Objectives." In support of emphasis for each management area, the inventoried VQOs were adjusted through an interdisciplinary process to raise or lower the inventory VQOs, and became "adopted" VQOs as part of the FLPMA process.

The scenic resource inventory and analysis recommended Visual Quality Objectives (VQOs). VQOs are expressed in terms of minimal acceptable scenic standards to maintain the scenic integrity of an area. VQOs vary from *preservation* to *maximum modification*. Current LPNF

direction for management of scenic resources is found in the Forest Plan in the form of the adopted Visual Quality Objectives (adopted VQOs).

The LPNF Forest Plan gives the Forest Supervisor discretionary authority to underachieve the adopted VQOs within specific guidelines:

“The Visual Quality Objectives will be met with the following exceptions:

- a. *Minor adjustments, not to exceed a drop of one-VQO-level are allowable with the Forest Supervisor’s approval, provided the minimum VQO specified for each Management Area will not be exceeded and visual resource improvement measures (rehabilitation, enhancement) will be undertaken elsewhere in the Management Area to balance the resulting decline in visual quality.*
- b. *Temporary drops of more than one VQO may be made during and immediately following project implementation with Forest Supervisor’s approval providing they do not exceed one year in duration.”*

From a standpoint of managing scenic quality, Visual Quality Objectives should not be traded-off except where:

1. *The Forest Supervisor determines that oil and gas resources are more valuable than scenic resources, and*
2. *viable alternatives for meeting Visual Quality Objectives (e.g., lateral drilling, relocation to an alternate site, etc.) do not exist.*

Alterations of the natural landscape that are visually evident could be allowed under full achievement of the following VQOs: partial retention, modification, and maximum modification. However, the public may not accept any alteration of the natural-appearing landscape. Therefore, public expectations may not be entirely met by the full achievement of adopted VQOs.

Adopted VQOs are regarded, therefore, as minimum standards for management of scenic resources. Under-achievement of VQOs, in most cases, represents significant losses in scenic quality and should be avoided wherever possible.

3.3.7.3.2. Scenic Conditions

Scenic conditions refer to the visual state of a landscape. Scenic conditions differ from VQOs in that VQOs are expressions of minimal acceptable level for scenic conditions.

3.3.7.3.3. Existing Scenic Conditions (ESC)

The acres of land by Existing Scenic Conditions (ESCs), for the area being considered for lease, are shown in Table 3-41. Over 94% of the study area is natural appearing. ESCs are classified as follows:

*Class 1, Untouched (Correlates to "Preservation" Visual Quality Objective VQO),
 Class 2, Unnoticed Alterations (Correlates to "Retention" VQO), and
 Class 3, Minor Alterations (Correlates to "Partial Retention" VQO).*

Less than 6% of the study area landscapes are characterized by modification, or human-dominated landscapes, with existing scenic conditions (ESC) being classified as:

*Class 4, Disturbances (Correlates to "Modification" VQO),
 Class 5, Major Disturbances (Correlates to "Maximum Modification" VQO), and
 Class 6, Drastic Disturbances (Correlates to "Unacceptable Modification" VQO).*

In Los Padres National Forest, roads, fuelbreaks, oil and gas developments, special use sites, pumping stations, and utility lines are the principal types of human alterations that have been classified as ESC classes 4, 5 and 6.

TABLE 3-41: SCENIC CONDITION CLASS ACREAGES, LAND CONSIDERED AVAILABLE FOR OIL AND GAS LEASE

EXISTING SCENIC CONDITIONS	SC 1 Preservation	SC 2 Retention	SC 3 Partial Retention	SC 4 Modification	SC 5 Maximum Modification	SC 6 Unacceptable Modification	Total Lands Considered Acreage
ACRES	667,781	37,496	20,382	23,314	12,102	5,792	766,867

Table 3-42 describes the six types of existing scenic condition found within the lands being considered for lease. It also describes the correlation to adopted VQOs, and the time frames within which the VQOs must be met by new activities, such as oil and gas development.

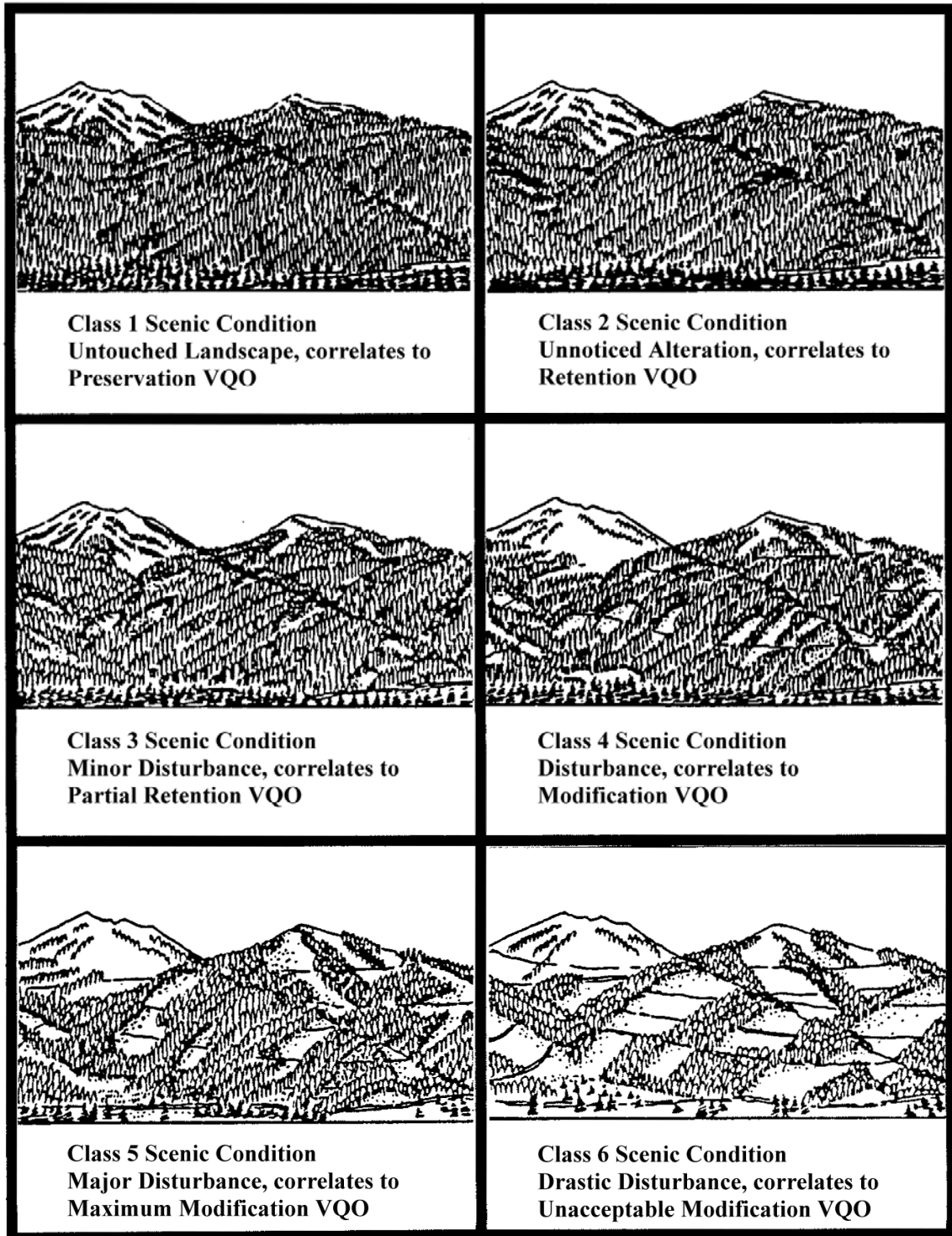
TABLE 3-42: EXISTING SCENIC CONDITIONS, VQOs, AND COMPLIANCE TIMING REQUIREMENTS

Scenic Condition	Description of Scenic Condition	Visual Quality Objective	Description of VQO	Time Frame to Meet VQO
Scenic Condition 1 Untouched Landscape	Areas in which only ecological change has taken place, except for trails needed for access. These landscapes appear to be untouched by human activity.	Preservation	This VQO allows ecological changes only. Management activities, except for very low visual-impact recreation facilities, are prohibited.	At completion of facility construction.
Scenic Condition 2 Unnoticed Alterations	Areas in which changes in the landscape are not visually evident to the average person unless pointed out. They appear to be unnoticed alterations.	Retention	This VQO provides for management activities which are not visually evident. Under retention, activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident.	Retention should be achieved concurrent with the beginning of surface disturbing activities and be maintained throughout the duration of operations.
Scenic Condition 3 Minor Disturbance	Areas in which changes in the landscape are noticed by the average forest visitor, but they do not attract attention. The	Partial Retention	Management activities remain visually subordinate to the characteristic landscape when managed according to the partial retention VQO. Activities may repeat form, line, color, or texture common to the characteristic	Reduction in contrast to meet partial retention should be achieved within six-months of the beginning of surface

Scenic Condition	Description of Scenic Condition	Visual Quality Objective	Description of VQO	Time Frame to Meet VQO
	natural appearance of the landscape still remains dominant. Activities appear to be minor disturbances.		landscape but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate to the characteristic landscape.	disturbing activities and maintained throughout the duration of operations.
Scenic Condition 4 Disturbance	Areas in which changes in the landscape are easily noticed by the average forest visitor and may attract some attention. Activities appear to be disturbances but resemble natural patterns.	Modification	Under the modification VQO management activities may visually dominate the original characteristic landscape. However, activities of vegetative and landform alteration must borrow from naturally established form, line, color, and texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Additional parts of these activities such as structures, roads, etc., must remain visually subordinate to the proposed composition.	Reduction in contrast to meet modification should be achieved within one-year of the beginning of surface disturbing activities and be maintained throughout the duration of operations.
Scenic Condition 5 Major Disturbance	Areas in which changes in the landscape are strong and could be obvious to the average forest visitor. These changes stand out as a dominating impression of the landscape. Yet they are shaped so that they might resemble natural patterns when viewed from three-to five-miles or more distance. Activities appear to be major disturbances.	Maximum Modification	Management activities of vegetative and landform alterations may dominate the characteristic landscape. However, when viewed as background, the visual characteristic must be those of natural occurrences within the surrounding area or character type. When viewed as foreground or middleground, they may not appear to completely borrow from naturally established form, line, color, or texture. Alterations may also be out of scale or contain detail which is incongruent with the natural occurrences as seen in foreground or middleground.	Reduction of contrast to meet maximum modification should be achieved within five-years of the beginning of surface disturbing activities and be maintained throughout the duration of operations.
Scenic Condition 6 Drastic Disturbance	Areas in which changes in the landscape are in glaring contrast to the natural appearance. Almost all forest visitors could be displeased with the effect. Activities appear to be drastic disturbances.	Unacceptable Modification	This is not a VQO. Size of activity is excessive, poorly related to scale of landscape, overall extent is excessive, or activities & facilities contrast in form, line, color, or texture. Visual elements are unrelated to those in the characteristic landscape.	Unacceptable Modification includes those visual impacts which exceed ten (10) years duration.

Figure 3-5 contains sketches as examples of these six classes of scenic conditions and their correlation to VQOs.

FIGURE 3-5: SCENIC CONDITION EXAMPLES



There are 766,867 acres of Los Padres National Forest that can be considered for oil and gas leasing. Table 3-43 tabulates the existing scenic conditions in these areas. For each HOGPA and the non-HOGPA area, the table shows the number of acres where:

- The VQOs are met or not met;
- The VQO is for a natural appearing landscape but the existing conditions are human dominated; and
- Adverse scenic impacts are or are not occurring.

TABLE 3-43: EXISTING SCENIC CONDITIONS IN THE AREAS BEING CONSIDERED FOR LEASE

Existing Conditions (acres)	Total Lease Study Area	Existing Condition Meets Forest Plan Visual Quality Objectives (VQOs)	Existing Condition Does Not Meet Forest Plan Visual Quality Objectives (VQOs)			Are Adverse Scenic Impacts Occurring?	
			Is the Existing Landscape Human Dominated but The VQO is for a Natural Appearing Landscape?		Total	Yes	No
			Yes	No			
Area							
HOGPAs							
<i>Piedra Blanca</i>	2,815	2,549	204	62	266	266	2,549
<i>San Cayetano</i>	13,444	12,180	1,211	53	1,264	1,264	12,180
<i>Sespe</i>	12,882	10,902	1,148	832	1,980	1,980	10,902
<i>Rincon Creek</i>	9,052	8,147	750	155	905	905	8,147
<i>South Cuyama</i>	80,258	79,285	844	129	973	973	79,285
<i>La Brea Canyon</i>	9,273	8,771	190	312	502	502	8,771
<i>Figuroa Mountain</i>	8,745	8,171	75	499	574	574	8,171
<i>Lopez Canyon</i>	2,257	2,207	3	47	50	50	2,207
<i>Monroe Swell</i>	600	561	33	6	39	39	561
Total HOGPAs	139,326	132,773	4,458	2,095	6,553	6,553	132,773
Non-HOGPA Area	627,541	587,456	33,531	6,554	40,085	40,085	587,456
Total	766,867	720,229	37,989	8,649	46,638	46,638	720,229

Table 3-43 represents the cumulative scenic impact of past and present activities.

46,638 acres of the study area currently do not achieve the Adopted VQOs. These areas include some existing highway and roadway cut banks and fills slopes, some fuelbreaks, some utility lines, and some existing oil and gas developments. Most of LPNF area being considered for lease achieves (20,494 acres) or over-achieves (699,735 acres) the adopted VQOs.

3.3.7.3.4. Variety Classes

The scenic resource inventory includes variety classes. Variety classes categorize the inherent scenic attractiveness of various Forest landscapes. Within the entire Los Padres Forest, and within the area considered for oil and gas leasing landscape variety is classified as either distinctive (Class A), common (Class B), or minimal (Class C).

Table 3.44 lists the percent and amount of acres in each variety class for the areas being considered for oil and gas leasing.

TABLE 3-44: LANDSCAPE VARIETY CLASSES BY HOGPA/NON-HOGPA

HOGPA/non-HOGPA Areas	Total Land Area	Variety Class A Distinctive	Variety Class B Common	Variety Class C Minimal
Piedra Blanca	Acres: 2,815 Percent: 100	Acres: 112 Percent: 4	Acres: 2,703 Percent: 96	Acres: 0 Percent: 0
San Cayetano	Acres: 13,444 Percent: 100	Acres: 1,499 Percent: 11	Acres: 11,881 Percent: 88.5	Acres: 64 Percent: .5
Sespe	Acres: 12,882 Percent: 100	Acres: 633 Percent: 4.6	Acres: 122,09 Percent: 95	Acres: 40 Percent: .4
Rincon Creek	Acres: 9,052 Percent: 100	Acres: 1,031 Percent: 12	Acres: 8,027 Percent: 88	Acres: 0 Percent: 0
South Cuyama	Acres: 80,258 Percent: 100	Acres: 1,892 Percent: 2	Acres: 71,584 Percent: 89	Acres: 6,782 Percent 8
La Brea Canyon	Acres: 9,273 Percent: 100	Acres: 0 Percent: 0	Acres: 9,273 Percent: 100	Acres: 0 Percent: 0
Figueroa Mtn.	Acres: 8,745 Percent: 100	Acres: 2,455 Percent: 28	Acres: 6,290 Percent: 72	Acres: 0 Percent: 0
Lopez Canyon	Acres: 2,257 Percent: 100	Acres: 0 Percent: 0	Acres: 1,998 Percent: 89	Acres: 259 Percent 11
Monroe Swell	Acres: 600 Percent: 100	Acres: 0 Percent: 0	Acres: 509 Percent: 85	Acres : 91 Percent: 15
Total HOGPAs	Acres: 139,326 Percent: 100	Acres: 7,624 Percent: 6	Acres: 124,460 Percent: 89	Acres: 7,242 Percent: 5
Non HOGPA	Acres: 627,541 Percent: 100	Acres: 51,218 Percent: 8	Acres: 538,662 Percent: 86	Acres: 37,661 Percent: 6
Total Areas Considered for Lease	Acres: 766,867 Percent: 100	Acres: 58,842 Percent: 8	Acres: 663,122 Percent: 86	Acres: 44,903 Percent 6

3.3.7.4. Affected Environment By HOGPA

Narrative descriptions of the scenic character of the study area for each HOGPA and the non-HOGPA area are presented below:

3.3.7.4.1. Piedra Blanca HOGPA - 2,815 Acres

The Piedra Blanca HOGPA is located in the central part of the Forest between the Dick Smith and Sespe Wilderness. This area is part of the Southwest Mountain and Valley Character Type. It is distinct from the general description of the character type in that it is dominated by very large white to tan-colored rock outcrops. The area appears as a broad sweeping landscape of dark greens and grays of the chaparral/sagebrush vegetation dramatically punctuated by massive, smooth rocks of glistening colors. On moonlit nights they glow in the landscape. Although the Sespe River is within the area, it does not play a major role in the overall unit, except in the immediate foreground areas. The area includes some of the viewshed of the Jacinto Reyes National Scenic Byway.

3.3.7.4.2. San Cayetano HOGPA - 13,444 Acres

The San Cayetano HOGPA is along the south boundary of the forest between Ojai and Fillmore. This area is part of the Southwest Mountain and Valley Character Type. The

predominant vegetation type is chaparral with inclusions of hardwood forest, and grassland. The area is within the viewshed of Santa Paula and Ojai, and managed for a visual emphasis. Several steep bluffs and rock outcrops create distinctive features that contrast with the variety of greens in the vegetation and are features that attract visitor's attention. Background distances are very steep and natural appearing. Foreground areas from roadways have gentler slopes and more variety of vegetation. Water features are not noticeable, but are present along creeks and rivers to a point that they are an attraction for recreationists.

3.3.7.4.3. Sespe HOGPA - 12,882 Acres

The Sespe HOGPA is located in the southeast part of the forest, north of Fillmore, between the forest boundary and the Sespe Wilderness. This area is part of the Southwest Mountain and Valley Character Type, which generally has steep slopes, covered with a mix of chaparral type vegetation and little evidence of water. Although the Sespe HOGPA maintains these overall general characteristics, it shows much more evidence of past impact than any of the other areas in this analysis. Steep slopes, deeply dissected, with large areas of exposed soils characterize the landform. Major alteration of this landform has taken place to establish oil and gas developments along ridges, creating strong contrasts of color and form. Dark green vegetation contrasts with this exposed ground, drawing attention to the human created landscape. Water features are not noticeable, except in the immediate drainages or streams where typical riparian willows and sycamores create canopies over the area. These areas are not disturbed.

3.3.7.4.4. Rincon Creek HOGPA - 9,052 Acres

The Rincon Creek HOGPA is located along the southern border of the Forest to the west of Lake Casitas. This area is part of the Southwest Mountain and Valley Character Type. The predominant vegetation type is chaparral with inclusions of hardwood forest and grassland. Lake Casitas is the main attraction east of the HOGPA. The landform is typical of the character type, steep but without any distinctive features. The less steep areas offer more grassland, both along the ridges and in the foothills of the area. Vegetation is a mosaic of chaparral offering variety and natural-appearing patterns with a mix of colors and textures. With the exception of Lake Casitas, water does not play a role in the composition.

3.3.7.4.5. South Cuyama HOGPA - 80,258 Acres

The South Cuyama HOGPA is located along the northern border of the Forest. This area is part of the Southwest Mountain and Valley Character Type. The landform is steep to rolling at lower elevations, without distinctive dissections or rock outcrops. The predominant vegetation types are chaparral and pinyon-juniper with inclusions of hardwood forest; large expanses of grasslands, or "potreros", also occur in the area. The landform is almost completely covered with a blanket of vegetation leaving only the grassland as a contrast to the sage and dark green vegetation cover. The vegetation cover softens the effect of the landform. Water plays no role in the description of the area.

3.3.7.4.6. La Brea Canyon HOGPA - 9,273 Acres

The La Brea Canyon HOGPA is located along the southern border of the Forest roughly midway between Lopez Lake and Lake Cachuma. This area is part of the Southwest Mountain and Valley Character Type. The predominant vegetation is chaparral with inclusions of grassland and hardwood forest. The steepness of the landform is dominant in this area, although the canyon bottoms offer large areas of grassland over relatively flat forms. Water form is not important in the area. Roadways through the area offer the sharpest contrasts of color with exposed soils of tan and the greens and grey of the vegetation on the steep slopes.

3.3.7.4.7. Figueroa Mountain HOGPA - 8,745 Acres

The Figueroa Mountain HOGPA is located along the southern border of the forest northwest of Lake Cachuma. The area is part of the Southwest Mountain and Valley Character Type. The predominant vegetation types are oak grassland and chaparral with inclusions of evergreen forest. A portion of this area is located within the Highway 154 scenic corridor. Oak grassland on the side slopes of the mountain adds distinction when combined with the large rock outcrops of the area. The contrasts of color and texture make variety a characteristic of the area. Water plays little or no part in the overall scenic composition.

3.3.7.4.8. Lopez Canyon HOGPA - 2,257 Acres

The Lopez Canyon HOGPA is located just northwest of Lopez Lake. This area is part of the Southwest Mountain and Valley Character Type. The predominant vegetation type is chaparral with inclusions of hardwood forest, conifer forest, and grassland. The area is viewed from Highway 101 and from Lopez Lake. The large expanse of steep landform dominates the characteristics of the mosaic of vegetation types. The vegetation offers a wide variety of color contrasts that are exposed fully to views from the highway corridor. Views from the area of the Lake are the only influence of water features in the area.

3.3.7.4.9. Monroe Swell HOGPA - 600 ACRES

The Monroe Swell HOGPA is located along the eastern border of the Monterey District of the Forest, Northwest of King City. The area is part of the Sierra Foothill and Low Coastal Mountain Character Type. The predominate vegetation type is chaparral with large expanses of grassland at lower elevations. The landform is moderately varied with broad slopes, which are steep, but stable. Vegetation offers little variety or relief, even in riparian areas. Water features are not noticeable.

3.3.7.4.10. Non-HOGPA Area - 627,541 Acres

The Non-HOGPA Area consists of all the lands that would be offered for lease that are not in a HOGPA. This area is large and varied. It contains most landscape types within LPNF.

3.3.7.5. *Existing Scenic Impacts*

Current oil and gas developments within Los Padres National Forest are generally concentrated in the Sespe Oil Fields and near the Cuyama Valley. Existing scenic conditions

at these oil fields generally have been classified as Scenic Class 5 (Major Disturbances) and Scenic Class 6 (Drastic Disturbances).

3.3.8. Safety and Hazards

3.3.8.1. Issues and Concerns

Numerous issues and concerns regarding safety and hazards were identified during scoping. These included fire and geologic risks as well as spills of hazardous materials and resultant pollution.

3.3.8.2. Fire Hazards

Three of the main purposes for establishing Los Padres National Forest were to protect watersheds, reduce off-site (downstream) damages from erosion and flooding, and provide water to local communities for domestic, agricultural, and industrial use. Wildfires represent a major threat to all these resources.

Wildfires can occur in all vegetative types in the Forest, but chaparral brush, which covers close to two-thirds of the Forest, is most susceptible. Older chaparral plants generally die in place, and plant decomposition is extremely slow. After about 20 years, chaparral mortality increases and deterioration becomes apparent; when the stand age exceeds 30 years, the dead portion of the plants increases to 35% or more, considered the critical limit.

Chaparral species depend on fire for rejuvenation, and recent research in chaparral vegetation has shown that the percent of dead material is the chief cause of the occurrence, reoccurrence, and intensity of chaparral fire. Past fire history of this Forest indicates that wildfires originating in old age vegetation generally become problem fires.

The flammability of dense brush and accumulated dead material, compounded by dry summer months, steep terrain, and inaccessibility in many areas, produces a high fire hazard for most of the Forest during the summer. Los Padres National Forest contains one of the largest continuous fuel beds in Southern California, approximately 381,000 acres. It extends from the top of the Ventura/Santa Ynez watershed divide northwesterly 47 air miles to the Miranda Pine Road.

Direct damage caused by large wildfires includes loss of property and lives. Indirect damages due to loss of cover vegetation include accelerated erosion that degrades water quality, increases flooding, and increases sedimentation of reservoirs. Fire restrictions are implemented during the summer for Forest areas where the fire hazard is rated as extreme. During critical fire weather, such as Santa Ana Winds or periods of extremely hot weather, areas of the Forest can be closed to entry on a temporary basis.

Total fire occurrence over the last four decades has increased due to such circumstances as communities moving into the chaparral zone (the "urban interface"), expanded recreation use, and an increase in the number of special use permits granted for uses such as roads,

powerlines, dams, radio and television broadcast sites, and oil and gas pipelines. Presently, the leading causes of fire on the Forest are (in descending order) arson, campfires, smoking, children playing with matches, and burning vehicles.

Over the years there have been several wildfires on LPNF due to oil operations. Some of these were directly attributable to the oil operation itself; some were related to equipment used in the oil fields (truck exhaust, land clearing, burning vehicles, oil exploration, etc.). More fires may have been due to oil operations than reported because some could be classified as non-statistical or non-reportable (in general, non-statistical fires are fires which do not constitute a threat to the Forest, a natural resource, or require Forest Service suppression actions).

There is no history of oil-related wildfire causing any long-term losses to resources but there have been short-term losses. There have been no irreversible losses to resources due to past oil-related wildfires. There was some irretrievable loss especially to the visual resource for one to two years after the fire.

From 1968 until the present, there have been twelve statistical fires (fires threatening Forest resources or requiring Forest Service suppression activities) in the Sespe Oil Field. These twelve fires burned a total of 90,000 acres. The Hopper fire (1997) burned over 24,000 of these acres and the Piru fire (2003) burned 65,000 acres.

In the fall of 2003, the Piru fire burned through the Sespe oil fields. Most of this area was affected to some degree. Burn intensity in the oil fields ranged from light to severe. Some of the north-facing slopes in the south end of the area burned very lightly. Other areas, particularly the Tar Creek drainage, burned very hot. Although 90% of the oil fields burned over, the fire damaged very few facilities or equipment. This was no doubt due to the hazard reduction work that had been done by the oil companies and the placement of the equipment on well pads or other locations that are devoid of vegetation. However, about 200 power poles, which were located in the brush and not on cleared well pads, burned and required replacement.

A Burned Area Emergency Rehabilitation (BAER) report was prepared following the Piru fire. The BAER report identified a need to install drainage structures and make other improvements on the roads within the Sespe oil fields, primarily the Squaw Flat Road. Additionally, the Forest Service and the oil companies improved drainage on the roads and drill pads to better channel the increased runoff expected because of the denuded watershed. Work on this continues during the winter of 2005 because heavy rains and flooding resulted in further damage to roads in the area.

3.3.8.3. *Geologic Hazards*

3.3.8.3.1. Earthquakes

The seismic hazard is high on LPNF. Major faults such as the San Andreas, Nacimiento, Rinconada, Big Pine, and Santa Ynez cross the Forest. Many of the major and associated

secondary faults are considered active or potentially active. Earthquake damage usually is due to high intensity ground shaking. Secondary effects include landslides, soil liquefaction, differential soil settlement, ground lurching, and water oscillation. The potential for seismic damage to roads, highways, facilities, structures, and recreation areas exists Forest-wide. There are no known occurrences of direct damage to oil and gas facilities on the Forest that have been attributed to earthquakes.

3.3.8.3.2. Landslides

An inventory of slope stability indicates that approximately 15% of the Forest's surface is extremely sensitive to slope failure, 40% is highly sensitive, 35% is moderately sensitive, and 10% has low sensitivity. Over 250 active and 200 dormant landslides have been mapped. Fifty potentially active landslides near or above campgrounds and administrative sites may pose hazards to life and property. Other landslides affect Forest trails and roads, and state highways. Earthquake activity or intensive rainstorms greatly increase landslide potential and severity in extremely sensitive areas. In addition, landslide potential in extremely sensitive areas is higher after wildfire or prescribed fires. This is especially true when more than 20% of the vegetation is removed within a drainage basin and local storms during the first winter following burning exceed four inches of precipitation over a 24-hour period.

3.3.8.4. *Spill Hazards*

A spill constitutes any discharge of oil or hazardous material which reaches or which may reach wildlife, soil, vegetation, perennial, intermittent, or ephemeral stream courses, lakes, ponds, or reservoirs. It is also any discharge, which may eventually reach water because of soil, vegetation, and potential runoff conditions, and will have an adverse effect on downstream uses.

The potential sources of hazardous materials spills are many. A major source is the transportation of these materials on Federal, State, county or private roads that are on or located near Forest Service land. Another major source is the use of these materials, e.g. drilling fluids and muds, polymers, and viscosifiers, in the various phases of oil and gas exploration, development, and production. The development, production and transportation of oil by truck or pipeline are sources of possible oil discharges. Earthquakes can cause failure of pipelines and storage tanks if not designed to withstand the seismic loads.

As previously stated, many power poles burned in the Sespe Oil Fields during the Piru fire in 2003. Some of the older pole mounted electrical transformers contained small amounts of PCBs (polychlorinated biphenyls). In the past, PCBs were used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977 because of evidence they build up in the environment and can cause harmful health effects. After the Piru fire burned through the oil fields, there were reports of possible spills from four power transformers that fell to the ground but soil tests show that the spills resulted in either zero or trace amounts of PCBs. This equipment was replaced by newer transformers, which do not contain PCBs.

Chapter 2 of this EIS discusses the laws, regulations, and orders that apply to the protection of surface water quality. Many of these are also applicable to the prevention and control of spills, which may affect resources in the vicinity of an oil and gas operation.

Well blowouts represent another form of spill and safety hazard. The risk of well blowouts has decreased as well blowout prevention techniques have improved over the years. Table 3-45 shows the decreasing risk by decade from a little less than one percent in the 1940's to 0.03% in the 1970's and 1980's.

TABLE 3-45: WELL BLOWOUTS IN CALIFORNIA BY DECADE

Decade	Numbered of Wells Drilled in CA.	Number of Blowouts	% of Wells Blowing out
1940's	7,552	63	0.83%
1950's	21,810	15	0.07%
1960's	24,944	19	0.08%
1970's	21,915	7	0.03%
1980's	30,417	10	0.03%

Source: California Department of Conservation, Division of Oil, Gas and Geothermal Resources

3.3.9. Recreation

The purpose of this section is to describe recreational issues and concerns, Forest Service recreation management direction, and the recreational setting and opportunities of LPNF that may be affected by the alternative oil and gas leasing scenarios being considered.

3.3.9.1. What Is Recreation?

Recreation can be defined in many ways, such as:

- *"the pleasurable and constructive use of spare time,"*
- *"refreshment in mind and body," and*
- *"re-creation of the human body and spirit."*

This sense, that can include creativeness, refreshment, relaxation, and pleasure, is realized through participation in various recreational activities occurring in preferred surroundings, or settings. The Forest Service manages recreation settings in order to provide opportunities for recreational experiences. Those experiences are also influenced by many other factors, including the recreationists' own views, perceptions, and expectations. Experience has demonstrated that the public expects a wide range of recreation opportunities and settings on the LPNF, from Wilderness to fully developed campgrounds.

Recreation on LPNF is more than just camping, boating, or hiking. Research has shown that people choose a specific environment, or "setting," for each of these recreation activities in order to realize a desired set of experiences. For example, wilderness camping in a large undeveloped setting with difficult access and few facilities offers a sense of solitude, challenge, and self-reliance. In contrast, RV-camping in a setting with easy vehicular access

and highly developed facilities offers more comfort, security, and social opportunities. These examples show that "camping" can occur in different settings, provide different opportunities, and satisfy different recreation needs, experiences, and expectations.

The objective in managing recreational settings on LPNF is to provide opportunities for people to have recreational experiences. The key to providing most of these opportunities is the setting and how it is managed. Land managers can facilitate (or hamper) many desired experiences by the way they manage such "setting indicators" as access, remoteness, social encounters, visitor management, facilities and site management, visitor impacts, and naturalness.

3.3.9.2. Recreation Issues and Concerns

Scoping meetings and other scoping activities have been performed as part of the Los Padres Oil and Gas Leasing Analysis. This analysis is focused on the issues and management concerns identified during scoping. Many respondents expressed concerns regarding specific geographic areas shown in Table 3-46. Others expressly requested no leasing be allowed in or around the following specific areas, and it is assumed that several of these areas are mentioned because of concerns about recreation. One response was received indicating that development of oil and gas resources might be beneficial to motorized recreation by providing increased access.

TABLE 3-46 GEOGRAPHIC AREAS OF EXPRESSED CONCERN IN SCOPING

<i>Entire LPNF</i>	<i>Lake Casitas and watershed</i>	<i>San Rafael Range</i>
<i>South forest Solvang to Lake Piru</i>	<i>Pine Mountain</i>	<i>Sierra Madre Ridge</i>
<i>Figueroa Mountain</i>	<i>Arroyo Seco Watershed</i>	<i>South of Santa Ynez Mountains</i>
<i>Tepusquet Peak</i>	<i>Upper San Antonio River</i>	<i>Lake Cachuma</i>
<i>Lopez Reservoir</i>	<i>Santa Lucia, Memorial Park</i>	<i>Senior Canyon</i>
<i>Highway 33 south of crest</i>	<i>Ballinger Canyon</i>	<i>"the Indian"</i>
<i>Wheeler Gorge</i>	<i>Rock Front</i>	<i>Monterey County</i>
<i>Matilija Canyon</i>	<i>Kerry Canyon</i>	<i>Wagon Cave Research Natural Area</i>
<i>Matilija Creek</i>	<i>Tinta Trail</i>	<i>Solitude in all Wildernesses</i>
<i>Teague Memorial Watershed</i>	<i>Santa Barbara & Ventura County</i>	<i>Wilderness values in the following:</i>
		Bear Canyon
		Juncal
		Bear Mountain
		Los Machos Hills
		Big Rocks
		Nordhoff
		Black Butte
		Sawmill Badlands
		Condor Point
		Sespe Frazier
		Cuyama
		Spoor Canyon
		Dry Lakes
		Stanley Mountain
		Fox Mountain
		Tepusquet Peak
		Garcia Mountain
		White Ledge Peak

3.3.9.3. Recreation Opportunity Spectrum (ROS) System

The Forest Service has developed the Recreation Opportunity Spectrum (ROS) classification system to characterize and analyze recreation opportunity. The Recreation Opportunity Spectrum, (ROS) provides a framework for stratifying, defining, and managing classes of outdoor recreation settings, activities, and experience opportunities. ROS is a continuum, or

spectrum, that has been divided into six classes, as shown in Table 3-47, classifying recreational opportunities ranging from most-developed to least-developed settings.

Maintaining a broad spectrum of ROS classes is important for providing people with choices in their recreation opportunities. (Note: LPNF does not provide “urban” recreation opportunities.)

The ROS system reflects that activities outside of Wilderness can indirectly affect the *Primitive* and *Semi-Primitive-Non-Motorized* settings inside of Wilderness. The same is true for other areas withdrawn from mineral entry. Consequently, the potentially affected environment for this recreation analysis is the entire LPNF, not just the forestlands that are legally available to be considered for oil and gas leasing.

TABLE 3-47: ROS CLASSES

<i>Acronym</i>	<i>Description</i>
(U)	Urban
(R)	Rural
(RN)	Roaded Natural
(SPM)	Semi-Primitive-Motorized
(SPNM)	Semi-Primitive-Non-Motorized
(P)	Primitive

3.3.9.3.1. Forest Plan Direction

3.3.9.3.1.1. Adopted ROS Classes

Current direction for management of recreation resources is found in the Forest Plan. Adopted ROS Classes embody management direction for recreation opportunities. A map entitled *ROS Classes & Developed Recreation Sites*, contained in the DEIS map packet, shows the LPNF adopted ROS classes. This map also shows the location of the HOGPAs and existing leases. HOGPAs are the only areas where oil and gas production is reasonably foreseeable outside of existing leases.

Table 3-48 on the following page shows ROS classes for each HOGPA and the Non-HOGPA area and withdrawn areas. The number of acres in each ROS class and the percentage this represents of that ROS class and the percentage of each area are also given in the table.

3.3.9.3.1.2. Sensitivity of ROS Classes

Land-management decisions and subsequent on-the-ground activities, such as new oil and gas leasing may modify each of the ROS class “setting indicators”. If a setting indicator is modified enough to cross a threshold, the ROS class achieved may be different than the ROS goal in the Forest Plan. The under-achievement can be accepted, mitigation may be stipulated to prevent crossing the threshold, or the activity can be prohibited. In some instances under-achievement may be an acceptable trade-off in producing oil and gas. Acceptance of such an

under-achievement would necessitate a Forest Land and Resource Management Plan amendment.

3.3.9.4. *LPNF Recreation Opportunities And Use*

3.3.9.4.1. Existing Recreational Opportunities

LPNF is a major supplier of wildland recreation opportunities for central and southern California. Visitors are attracted to the Los Padres by the variety of terrain, vegetation, and recreational settings, including ocean beaches, sub-alpine forest, chaparral, desert badlands, and riparian areas. Both developed recreation and general forest (dispersed) recreation are available for visits by large urban populations from the San Francisco Bay Area and the Los Angeles Basin.

The Forest Service measures recreational use in terms of thousands of recreational visitor days (MRVD's). The LPNF received 4,293 MRVD's (4,293,000 recreation-visitor-days) of recreation use in 1982, and ranked 15th in total recreation use among the nation's 156 National Forests. (The Forest Service stopped collecting recreation-use data in 1982, so these are the latest data available.) 1982 recreation use had increased 55% since 1965 when the Forest received 2,710 MRVD's. About 30% of recreation use in the Forest is in developed sites. These include public facilities such as campgrounds, picnic areas and observation sites. General forest recreation (dispersed recreation) opportunities include designated Wilderness areas, undeveloped areas, and roads and trails. About 70% of recreation use in 1982 occurred in the general forest category.

3.3.9.4.2. Existing Use At Developed Sites

Existing developed sites are being "loved to death." Most developed recreation sites are located in areas with shade trees and near water sources, used for fishing, swimming, and water play. Oak trees are declining throughout LPNF. Riparian vegetation and riparian areas are being adversely impacted by human use. The results are soil erosion, human sanitation problems, litter, degradation of wildlife habitat, and degradation of the recreation experience. Existing facilities and improvements at developed sites are in need of repair. Access roads, parking spurs, picnic tables, stoves, campfire rings, toilets, etc., are in states of disrepair. Many existing developed recreation sites and facilities do not meet Federal standards for accessibility per the Americans with Disabilities Act (ADA). In recent years, the U.S. Congress has not made available funds sufficient to remedy these situations at recreation sites.

Several developed sites are shown on the map entitled *ROS Classes & Developed Recreation Sites* contained in the DEIS map packet. Other developed sites are shown on the two folded Los Padres National Forest recreation maps available at Forest ranger stations.

TABLE 3-48: ACRES IN ROS CLASSES FOR HOGPA/NON-HOGPA AND WITHDRAWN AREAS

ROS CLASS	P Primitive			SPNM Semi-Primitive Non- Motorized			SPM Semi-Primitive Motorized			RN Roaded Natural			R Rural			Total Acres
	Acres	% of Area	% of ROS Class	Acres	% of Area	% of ROS Class	Acres	% of Area	% of ROS Class	Acres	% of Area	% of ROS Class	Acres	% of Area	% of ROS Class	
AREA																
<i>Withdrawn Areas</i>																
Wilderness Areas	577,450	71%	100%	237,110	29%	53%										814,560
Big Sur Coastal Zone				10,194	24%	2%				31,895	76%	9%				42,089
Santa Ynez Watershed				58,015	38%	13%	60,186	40%	16%	27,066	18%	8%	6,961	5%	41%	152,228
Total Withdrawn Areas	577,450	57%	100%	305,319	30%	68%	60,186	6%	16%	58,961	6%	16%	6,961	1%	41%	1,008,877
HOGPAs																
Piedra Blanca				1,597	57%	0%				1,218	43%	0%				2,815
San Cayetano				997	7%	0%	10,226	76%	3%	2,221	17%	1%				13,444
Sespe				5,029	39%	1%							7,853	61%	47%	12,882
Rincon Creek				1,476	16%	0%	3,352	37%	1%	4,224	47%	1%				9,052
South Cuyama				1,162	1%	0%	62,859	78%	17%	16,237	20%	5%				80,258
La Brea Canyon							1,324	14%	0%	7,949	86%	2%				9,273
Figueroa Mountain				2,268	26%	1%	1,356	16%	0%	5,121	59%	1%				8,745
Lopez Canyon				1,349	60%	0%				908	40%	0%				2,257
Monroe Swell										600	100%	0%				600
Total HOGPAs				13,878	10%	3%	79,117	57%	21%	38,478	28%	11%	7,853	6%	47%	139,326
Non-HOGPA				130,003	21%	29%	233,633	37%	63%	261,894	42%	73%	2,011	0%	12%	627,541
Total Study Area				143,881	19%	32%	312,750	41%	84%	300,372	39%	84%	9,864	1%	59%	766,867
Total LPNF	577,450	33%	100%	449,200	25%	100%	372,936	21%	100%	359,333	20%	100%	16,825	1%	100%	1,775,744

In an effort to remedy some of these situations, the USDA Forest Service is testing an “Adventure Pass” program to improve customer service and generate financial support to maintain facilities. These funds are returned to National Forests on which they are generated (80% of funds collected) for improvement and rehabilitation of recreation facilities. The LPNF began selling the Adventure Pass in mid-June 1997, and according to a news release dated 2/98, revenues generated from June-December 1997 were \$194,636 with \$158,600 returned to the Forest. Some users have purchased daily passes, while others prefer annual passes which are valid for all four National Forests in Southern California: Angeles NF, Cleveland NF, San Bernardino NF, and Los Padres NF. Sales at FS offices include discounted passes sold to holders of Golden Age Passports (senior discount) and Golden Access Passports (persons with disabilities).

Other possibilities exist to help remedy the degraded situation at developed recreation sites. The Forest Service can provide operation and maintenance of these facilities using its own employees, or it can have a contractor operate and maintain them under a special use permit.

3.3.9.4.3. Wilderness and Roadless Areas

Extensive Wilderness and roadless areas on LPNF are utilized for dispersed recreation. The designated Wilderness and Inventoried Roadless Areas (IRAs) of LPNF are shown on the map in the DEIS map packet entitled Roadless Areas. 46% of LPNF (814,560 acres) are in designated Wilderness. IRAs on LPNF have been evaluated several times for inclusion in the National Wilderness Preservation System (NWPS) over the past 30 years. During that time 405,790 acres of the 1,064,486 acres in the 38 IRAs on LPNF have been included in the NWPS. Designated Wilderness areas are withdrawn from mineral entry and cannot be considered for oil and gas leasing. An additional 113,893 acres of IRAs are withdrawn from mineral entry due to inclusion in the Santa Ynez Watershed (113,893 acres) and the Coastal Zone (114 acres).

Table 3-49 shows the portion of IRAs that are withdrawn from mineral entry. For the portions of IRAs open to minerals activity, Table 3-49 shows the acres in each ROS class.

Table 3-50 shows how much of each IRA is in each HOGPA and breaks the acreage out by ROS class. Table 3-51 does the same for the Non-HOGPA area and show totals for the entire study area.

3.3.9.4.4. Trails

The trail system provides access within the Forest and a focal point for many recreation activities. There are 1175 miles of maintained trails within the Forest; these provide both day-use and extended backpacking opportunities for both non-motorized and motorized activities. This trail system is used for a variety of activities including hiking, horseback riding, ORV (on designated trails and other routes), for access to hunting, fishing and nature study opportunities,

and most recently, for mountain bicycling and jogging. Mountain (off-road) bicycling, in particular, is an emerging activity, which is currently permitted on all trails outside of Wilderness, and is beginning to create conflicts with other trail uses. In addition, the Piedra Blanca (22WO3), Aliso (28WO5), and Santa Cruz (27W09) trails are designated National Recreation Trails.

The Forest has 313 miles of roads and trails designated for off-road vehicle (ORV) use. Of these, 296 miles are open year-round and 17 miles are open only part of the year. Each of these roads and trails is designated for motorcycle use, 4-wheel drive use, or a combination of the two uses according to the 1976 Forest Off Road Vehicle Plan and subsequent amendments. Permits can be issued for annual events such as motorcycle enduros following approval of an environmental assessment.

3.3.9.5. Demand For Recreation Opportunities

Visitor use and demand for recreation opportunities in the LPNF is projected to increase. Forest-wide, demand will be greatest at or near water, at developed recreation sites, summer home tracts, organization camps, day-use areas, the Big Sur Coast, Ojai Front, Santa Barbara Front, along scenic highways, byways and other sensitive roads and trails, within Wildernesses and *Semi-Primitive-Non-Motorized* areas, and landscapes adjoining Wildernesses.

LPNF satisfies a unique demand for quick access to recreation from major urban areas. The Forest is in a position to provide primitive and semi-primitive recreation better than any other recreation provider near an urban metropolitan area.

TABLE 3-49: INVENTORIED ROADLESS AREAS ON LPNF

Inventoried Roadless Area			Portion Withdrawn from Mineral Entry				ROS for Portion Open to Mineral Entry				
ID #	Name	Total Acres	Wilderness	Coastal Zone	Santa Ynez	Total	SPNM	SPM	RN	R	Total
2	Sespe-Frazier	327,609	217,386			217,386	15,674	68,798	23,856	1,895	110,223
102	Black Bute	22,788	16,967			16,967	630		5,171	20	5,821
103	Bear Mountain	22,736	21,387			21,387	483		202	664	1,349
104	Bear Canyon	14,490				0	14,139		351		14,490
105	Chalk Peak	7,494		114		114	2,744		4,636		7,380
107	Garcia Mountain	22,531	14,156			14,156	1,531	4,404	2,440		8,375
108	Black Mountain	17,173				0		11,270	5,903		17,173
109	La Panza	5,026				0		2,634	2,392		5,026
110	Machesna	31,160	18,515			18,515	5,210	4,683	2,752		12,645
111	Los Machos Hills	12,128				0		3,442	8,686		12,128
112	Big Rocks	12,736				0	3,752	7,555	1,429		12,736
113	Stanley Mountain	15,725				0		9,652	6,073		15,725
114	Miranda Pine	13,636				0	3,007	3,427	7,202		13,636
115	Horseshoe Springs	14,145				0		9,390	4,755		14,145
116	Tepusquet Peak	5,827				0			5,827		5,827
117	La Brea	60,615	46,529			46,529	3,269	5,839	4,978		14,086
118	Spoor Canyon	13,772				0	9,288		4,484		13,772
119	Manzana	2,962	718			718	1,861	332	51		2,244
120	Fox Mountain	52,469				0	11,383	35,981	5,105		52,469
121	Santa Cruz	21,416			21,214	21,214			202		202
122	Condor Point	18,933			52	52	7,680		11,201		18,881
123	Camuesa	8,213			8,213	8,213					0
124	Madulce-Buckhorn	14,184			11,488	11,488	27	1,015	1,654		2,696
125	Mono	28,466			28,424	28,424	14	28			42
127	Diablo	19,605			19,605	19,605					0
128	Juncal	12,486			12,343	12,343	63	80			143
129	Matilija	35,276	29,606			29,606	3,414	620	1,636		5,670
130	White Ledge	19,453			2,445	2,445	10,541	4,723	1,744		17,008
131	Dry Lakes	17,113				0	6,639	4,727	5,747		17,113
132	Nordhoff	12,033				0		7,888	4,145		12,033
134	Sawmill-Badlands	91,859	37,577			37,577	1,879	24,035	28,368		54,282
135	Cuyama	19,639				0	18	18,212	1,409		19,639
136	Antimony	44,059				0		35,610	8,449		44,059
263	Tequepis	9,493			6,856	6,856			2,637		2,637
268	Quatal	7,290				0		2,012	5,278		7,290
277	Church Creek	2,949	2,949			2,949					0
278	Little Pine	1,315			1,315	1,315					0
279	De La Guerra	5,682			1,938	1,938		3,206	538		3,744
Totals		1,064,486	405,790	114	113,893	519,797	103,246	269,563	169,301	2,579	544,689 *

* Includes approximately 15,000 acres of non-federal land.

TABLE 3-50: INVENTORIED ROADLESS AREAS BY HOGPA

HOGPAs	Inventoried Roadless		ROS Class in Area (acres)				Total Acres	% of HOGPA	% of IRA(s)
	ID #	Name	SPNM	SPM	RN	R			
<i>Piedra Blanca</i>	5002	<i>Sespe Frazier</i>	428		479		907	32%	0.3%
		<i>Not in an IRA</i>	1169		739		1,908	68%	
		<i>Total</i>	1,597		1,218		2815	100%	
<i>San Cayetano</i>	5132	<i>Nordhoff</i>		1309	840		2,149	16%	17.9%
	5002	<i>Sespe Frazier</i>	997	7,889	756		9,642	72%	2.9%
		<i>Subtotal Roadless</i>	997	9,198	1,596		11,791	88%	1.1%
		<i>Not in an IRA</i>		1,028	625		1,653	12%	
		<i>Total</i>	997	10,226	2,221		13,444	100%	
<i>Sespe</i>	5002	<i>Sespe Frazier</i>	4395			1,395	5,790	45%	1.8%
		<i>Not in an IRA</i>	634			6,458	7,092	55%	
		<i>Total</i>	5,029			7,853	12,882	100%	
<i>Rincon Creek</i>	5130	<i>White Ledge</i>	480	667	606		1,753	19%	9.0%
		<i>Not in an IRA</i>	996	2685	3,618		7,299	81%	
		<i>Total</i>	1476	3352	4224		9052	100%	
<i>South Cuyama</i>	5134	<i>Sawmill-Badlands</i>		12288	6905		19193	24%	20.9%
	5124	<i>Madulce-Buckhorn</i>		149	369		518	1%	3.7%
	5120	<i>Fox Mountain</i>	1140	32704	3692		37536	47%	71.5%
	5135	<i>Cuyama</i>		15829	1,409		17,238	21%	87.8%
	5118	<i>Spoor Canyon</i>	19		234		253	0%	1.8%
		<i>Subtotal Roadless</i>	1,159	60,970	12,609		74,738	93%	7.0%
		<i>Not in an IRA</i>	3	1,889	3,628		5,520	7%	
		<i>Total</i>	1,162	62,859	16,237		80,258	100%	
<i>La Brea Canyon</i>	5116	<i>Tapusquet Peak</i>			5816		5816	63%	99.8%
	5117	<i>La Brea</i>		340	610		950	10%	1.6%
	5115	<i>Horseshoe Springs</i>		214	506		720	8%	5.1%
		<i>Subtotal Roadless</i>		554	6932		7486	81%	0.7%
		<i>Not in an IRA</i>		770	1,017		1,787	19%	
		<i>Total</i>		1,324	7,949		9,273	100%	
<i>Figueroa Mountain</i>	5279	<i>De La Guerra</i>		144	273		417	5%	7.3%
		<i>Not in an IRA</i>	2,268	1,212	4,848		8,328	95%	
		<i>Total</i>	2,268	1,356	5,121		8,745	100%	
<i>Lopez Canyon</i>		<i>Not in an IRA</i>	1,349		908		2,257	100%	
<i>Monroe Swell</i>		<i>Not in an IRA</i>			600		600	100%	
<i>Total HOGPA's</i>		<i>Roadless</i>	7,459	71,533	22,495	1,395	102,882	74%	9.7%
		<i>Not in an IRA</i>	6,419	7,584	15,983	6,458	36,444	26%	
		<i>Total HOGPA's</i>	13,878	79,117	38,478	7,853	139,326	100%	

TABLE 3-51: INVENTORIED ROADLESS AREAS IN THE NON-HOGPA AND STUDY AREA TOTALS

AREA	Inventoried Roadless Areas		ROS Class in Area (acres)				Total Acres	% of HOGPA	% of IRA(s)
	ID #	Name	SPNM	SPM	RN	R			
Non HOGPA	5136	Antimony		32,664	8,251		40,915	7%	92.9%
	5104	Bear Canyon	14,030		351		14,381	2%	99.2%
	5103	Bear Mountain	460		15	436	911	0%	4.0%
	5112	Big Rocks	3,381	7,067	1,429		11,877	2%	93.3%
	5102	Black Butte	330		4,816	20	5,166	1%	22.7%
	5108	Black Mountain		11,109	5,732		16,841	3%	98.1%
	5105	Chalk Peak	2,744		4,636		7,380	1%	98.5%
	5122	Condor Point	7,129		7,720		14,849	2%	78.4%
	5135	Cuyama	18	2,386			2,404	0%	12.2%
	5279	De La Guerra		2,834	267		3,101	0%	54.6%
	5131	Dry Lakes	6,639	4,727	5,680		17,046	3%	99.6%
	5120	Fox Mountain	10,043	3,115	1,413		14,571	2%	27.8%
	5107	Garcia Mountain	1,486	4,105	2,269		7,860	1%	34.9%
	5115	Horseshoe Springs		9,136	4,251		13,387	2%	78.2%
	5128	Juncal	63	77			140	0%	1.1%
	5117	La Brea	3,269	5,499	4,327		13,095	2%	21.6%
	5109	La Panza		2,624	2,336		4,960	1%	98.7%
	5111	Los Manchos Hills		2,957	8,167		11,124	2%	91.7%
	5110	Machesna Mountain	4,895	4,683	2,707		12,285	2%	39.4%
	5124	Malduce-Buckhorn	27	865	1,284		2,176	0%	15.3%
	5119	Manzana	1,819	233	51		2,103	0%	71.0%
	5129	Matilija	3,298	620	1,304		5,222	1%	14.8%
	5114	Mirada Pine	2,846	3,268	7,202		13,316	2%	42.7%
	5125	Mono	12	23			35	0%	0.1%
	5132	Nordoff		6,579	3,304		9,883	2%	82.1%
	5268	Quatal		2,012	5,242		7,254	1%	99.5%
	5134	Sawmill-Badlands	1,582	11,709	18,848		32,139	5%	35.0%
	5002	Sespe-Frazier	9,606	59,386	21,255	501	90,748	14%	27.7%
	5118	Spoor Canyon	9,269		4,249		13,518	2%	98.2%
	5113	Stanley Mountain		8,924	5,763		14,687	2%	93.4%
5116	Tepusquet Peak			11		11	0%	0.2%	
5263	Tequepis			2,353		2,353	0%	24.8%	
5130	White Ledge	9,687	3,999	753		14,439	2%	74.2%	
Total Non HOGPA		Roadless	92,633	190,601	135,986	957	420,177	67%	39.5%
		Not in an IRA	37,370	43,032	125,908	1,054	207,364	33%	
		Total Non-HOGPA	130,003	233,633	261,894	2,011	627,541	100%	
Total Study Area		Roadless	100,092	262,134	158,481	2,352	523,059	68%	49.1%
		Not in an IRA	43,789	50,616	141,891	7,512	243,808	32%	
		Total Study Area	143,881	312,750	300,372	9,864	766,867	100%	