United States Department of the Interior
Bureau of Land Management
Bakersfield District
Hollister Resource Area

August 1995

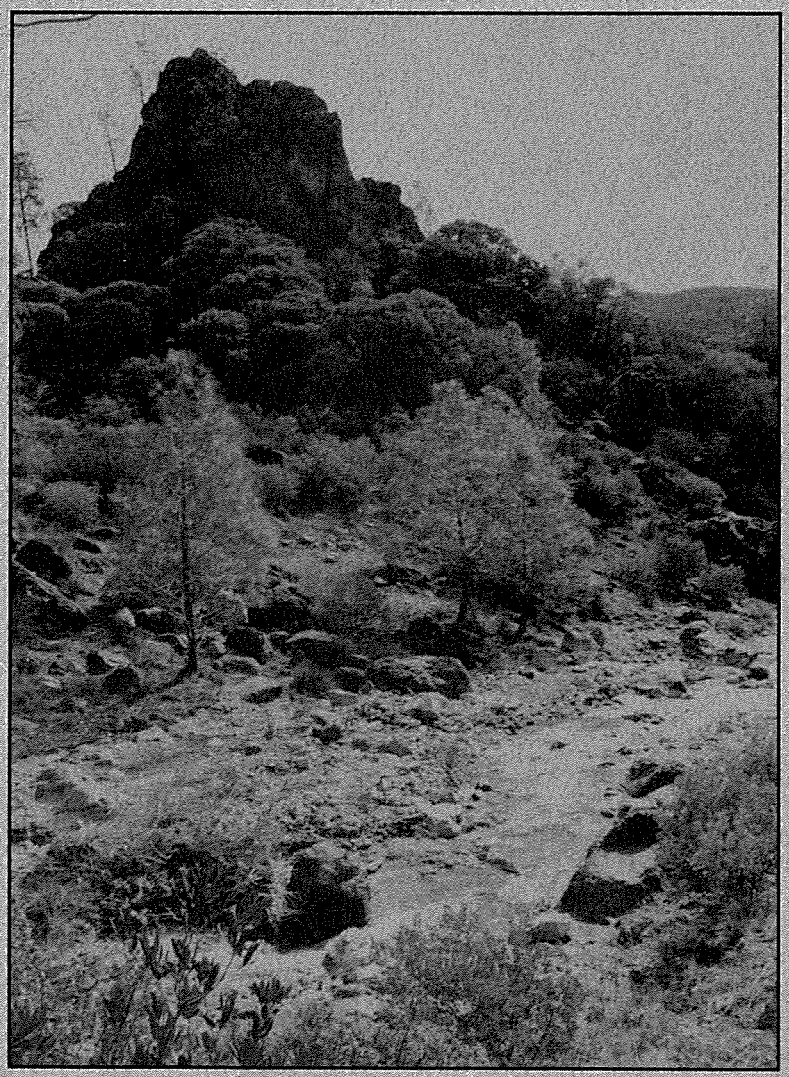
Clear Creek Management Area

Proposed

Resource Management Plan Amendment

and

Final Environmental Impact Statement



BLM/CA/ES-95/007+1611

Clear Creek Management Area
Proposed Resource Management Plan Amendment
and Final Environmental Impact Statement

United States Department of the Interior

Bureau of Land Management

Ed Hastey

Ed Hastey
State Director

7/20/95

Date

At the end of the 30-day protest period, the proposed amendment, excluding any portion under protest, will become final. Approval will be withheld on any portion of the plan under protest until final action has been completed on such protest.

Thank you for your concern and interest in the management of our public lands.

Sincerely,

Robert E. Beehler

Robert E. Beehler
Hollister Area Manager

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Hollister Resource Area
20 Hamilton Court
Hollister, California 95023-2535

Dear Reader:

Enclosed for your review is the Bureau of Land Management's Proposed Clear Creek Management Area Resource Management Plan Amendment and Final Environmental Impact Statement. This document was prepared by the Hollister Resource Area using extensive public input. The document outlines six alternatives for managing the unique 48,000 acre Clear Creek Management Area for a wide variety of public uses as well as improving resource protection for these lands. These alternatives address management issues identified during public meetings and agency scoping conducted early in the planning process. The selected alternative will guide the future management and implementation measures for this area. Alternative "3" (Dispersed OHV Use) is the BLM's Proposed Action.

This RMP is subject to the 30-day protest period and a concurrent review by the Governor of California. Any part of this proposed decision may be protested by any person who has been an active participant in the planning process and has a significant interest that may be adversely affected by the approval of this RMP amendment.

Protests must be postmarked within 30 days after the Environmental Protection Agency publishes the notice of availability of the Final EIS in the Federal Register. Protests must minimally contain the following information: (1) the name, mailing address, telephone number, and interest of the person filing the protest; (2) a statement of the issue or issues being protested; (3) a statement of the part or parts being protested citing pages, paragraphs, maps, etc. of the RMP Amendment where practical; (4) a copy of all documents addressing the issue(s) for the record; (5) a concise statement of why you believe the BLM State Director's decision in incorrect. Protests must be sent to:

Bureau of Land Management
Division of Planning and Environmental
Coordination
1849 C Street NW
(406 L St)
Washington, DC 20240

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SUMMARY

This Environmental Impact Statement evaluates alternatives for managing public use in the Clear Creek Management Area (CCMA), an area administered by the Bureau of Land Management (BLM). This document is also a proposed amendment to the Hollister Resource Management Plan of 1984, and will guide management in the CCMA for the next 15 years.

Located in central California's San Benito and Fresno Counties, the CCMA encompasses approximately 50,000 acres of public land. About 30,000 acres of the CCMA lie within a BLM "Area of Environmental Concern" (ACEC), so designated because of the high concentrations of natural asbestos occurring in its serpentine soils.

Serpentine soils in the CCMA have given rise to a unique assemblage of plants and plant communities. Some plants are not only endemic to the area, they are rare and considered in danger of extinction. One example is the San Benito evening primrose, a federally protected species. Some plant communities such as the San Benito Mountain Forest are also unique and warrant special management.

While vegetation within the ACEC is specially adapted to serpentine soils, the overall vegetative cover tends to be sparse. Many slopes are devoid of vegetation entirely, or have very little vegetative cover. These "barren" hillslopes have become very popular with Off-Highway Vehicle (OHV) enthusiasts.

In addition to the authorized vehicular recreation on barren hillslopes, there exists a large network of backcountry roads and trails throughout most of the 50,000-acre CCMA. These roads and trails were developed in conjunction with extensive timber and mining efforts prior to 1970, and offer a challenging OHV experience. Every year, motorcycle and four-wheeling events are held in the CCMA. The CCMA is popular with other users as well, particularly rockhounders and hunters, who utilize this network of roads and trails to pursue their recreational interests. The CCMA is most frequently visited during the wet season, approximately November through March.

Human disturbance to the soils and plants in the serpentine ACEC is a special management concern, because throughout the ACEC, soil formation tends to be slow, and the topsoil shallow. Plant regeneration is also slow, and accelerated erosion from human activities (such as mining, road building and maintenance, and recreation) has negatively impacted soil and vegetative resources over the

CLEAR CREEK EIS ERRATA SHEET

The BLM would like to call the attention of the reader to several items which were not clearly stated in this final EIS, or which surfaced after the final EIS document had been prepared for printing. For the sake of clarity and simplicity, these items are addressed in the attached errata pages.

1) Every place the reader sees the words "Clear Creek ACEC", "Hazardous Asbestos Area", or "HAA", the reader should understand this is meant to refer to the "Serpentine ACEC".

2) The Serpentine ACEC boundary was re-drawn for the EIS to reflect a 1992 re-mapping of the serpentine mass in the Clear Creek Management Area. Based on soil samples and surveys, this re-mapping more accurately portrays the presence of serpentine on public lands in the Management Area, and shows an extension over the 1986 plan. The ACEC boundary is used for management purposes, and therefore excludes private lands. Map "A" of these errata sheets shows the 1986 ACEC boundary in dark gray, and the expanded boundary (1992) in light gray.

3) Map "B" of these errata sheets shows existing management designations for the San Benito Mountain Natural Area.

- Dark gray stripes depict the legal boundary of the existing Natural Area, which is 1500 acres in size. The light-gray stripes show an area that was proposed and approved in planning documents for Natural Area expansion, but was never formally written up in the Federal Register. The light-gray striped area is approximately 380 acres. It has been managed as part of the Natural Area for several years. The reader should understand that in the document, all reference to the Natural Area refers to not only the existing legal boundary, but the light gray striped area as well.

- The 1500-acre dark gray striped area is also a Wilderness Study Area. The Wilderness Study Area was erroneously removed from BLM's Wilderness Study Area management guidance policy in the early 1980's. This fact was discovered in the Spring of 1995. Until Congress makes the final determination, the BLM will manage the area under Wilderness Study Area policy. An environmental assessment addressing impacts resulting from the errors in management has been prepared and is available to any interested party.

- The lightest gray stippling shows the Final EIS proposed expansion for the Natural Area (approximately 2,020 acres). The reader should understand that this is the area that would be under consideration for expansion, and does not reflect a new legal boundary.

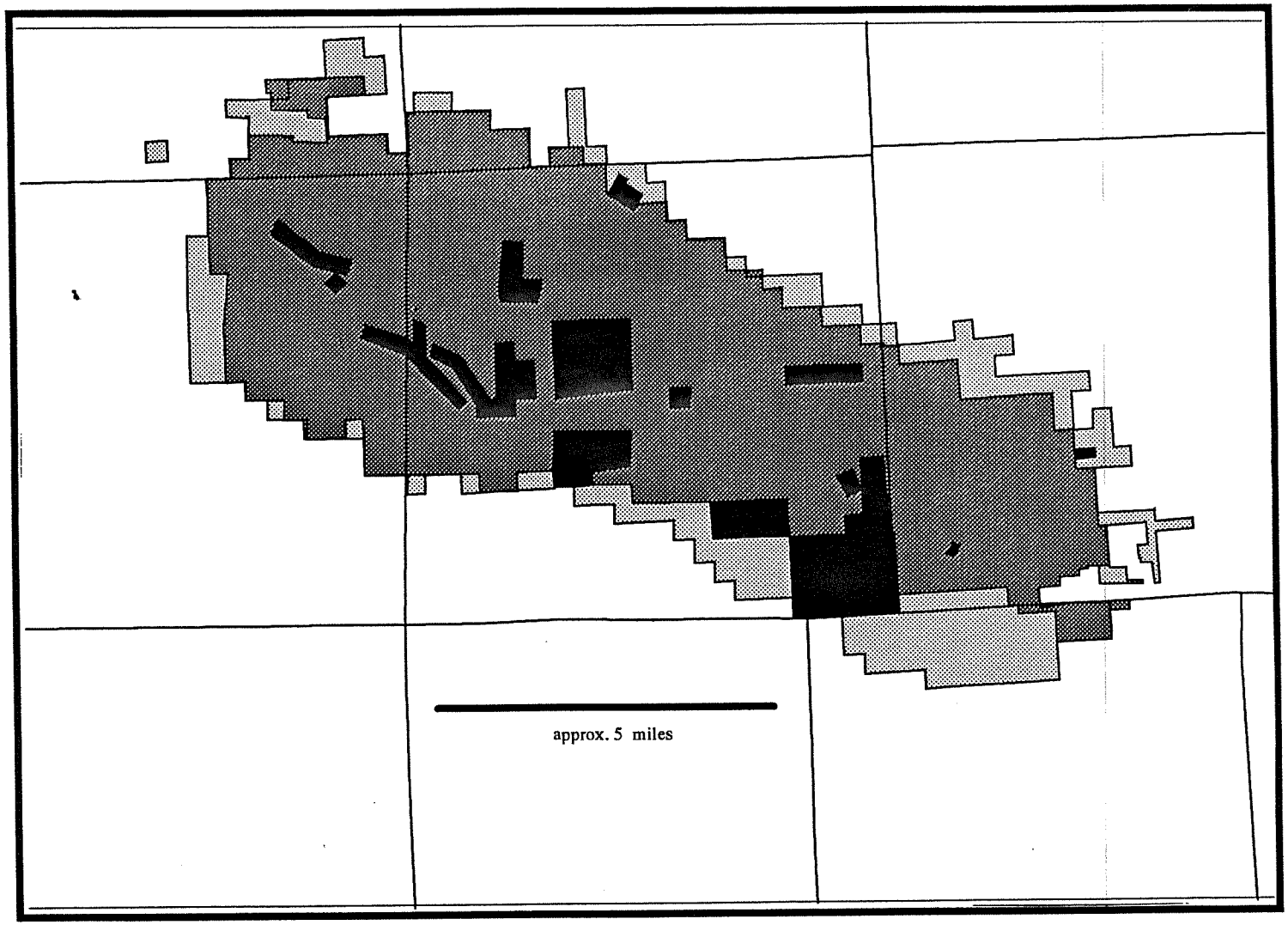
- In places, the Final EIS makes reference to a mineral withdrawal for both the existing Natural Area and the original expansion proposal. Both mineral withdrawals were denied. There is no mineral withdrawal existing for any part of the Natural Area.

- There has been direction from the Washington Office that all Natural Areas should be changed to ACEC's. In the case of the San Benito Mountain Natural Area, this would in effect make a "nested" ACEC within the larger Serpentine ACEC. Since the Serpentine ACEC was designated in part because of its vegetative communities, as was the Natural Area, the logic of having two overlapping designations is called into question. The BLM is reviewing management possibilities with interested user groups.

- The Record of Decision and associated Federal Register Notice will clean up the legal descriptions and re-affirm the Wilderness Study Area status.

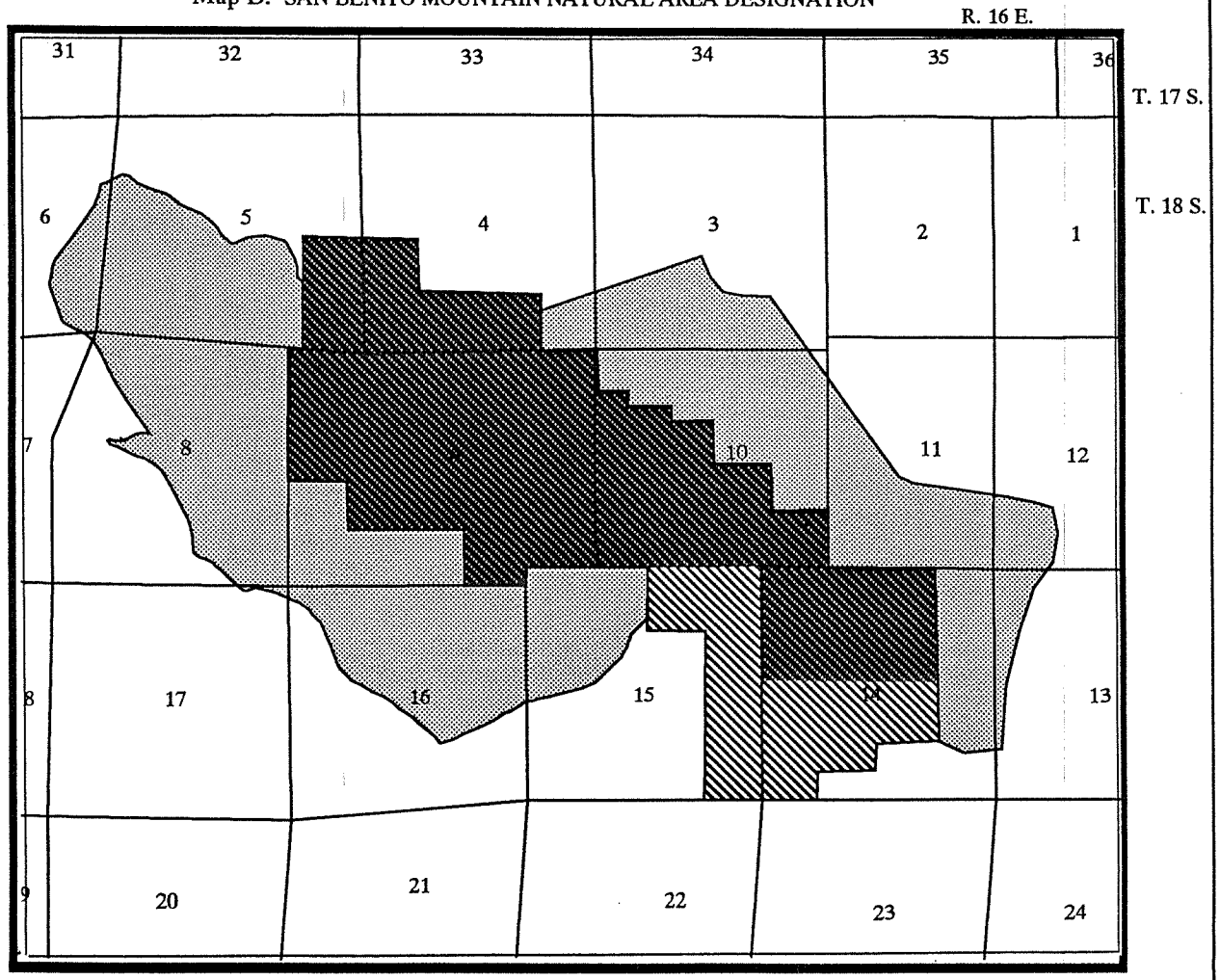
CLEAR CREEK MANAGEMENT AREA FINAL EIS

MAP A: SERPENTINE ACEC DESIGNATION



CLEAR CREEK MANAGEMENT AREA FINAL EIS

Map B: SAN BENITO MOUNTAIN NATURAL AREA DESIGNATION



United States
Department of the Interior

Bureau of Land Management
Hollister Resource Area
20 Hamilton Court
Hollister , CA 95023-2535

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years. Minimizing soil erosion and minimizing the damage to vegetation is a management priority.

In addition, the potential for asbestos exposure via fiber inhalation while recreating or working in the area is a serious health issue. This health issue is magnified by the fact that the area was mined extensively for asbestos earlier in the century, leaving many sites where the tailings of almost pure asbestos are exposed. One large mined site, the Atlas Mine, is an EPA Superfund site, and is closed to public use.

Results of a 1990 study of the San Benito evening primrose showed that this specie's status was declining. This new information, as well as information gained from on-going studies of asbestos health risks, and erosion and sedimentation problems in all watersheds of the CCMA, resulted in a BLM decision to re-evaluate and amend its 1984 and 1986 plans. The ensuing Clear Creek Management Area Resource Management Plan Amendment was released in draft, in December of 1993.

Six issues pertaining to the above were identified in developing and analyzing alternatives for public use of the area. These were: 1) Airborne asbestos emissions; 2) Public health risks associated with asbestos exposure; 3) Asbestos sediment production and transport; 4) San Benito evening primrose recovery; 5) Watershed and riparian zone management; 6) Existing multiple uses.

DRAFT EIS

In the draft, six alternatives were considered. The environmental impacts of each alternative were analyzed in relation to varying degrees of public use. Alternative 1 was the "No Action" alternative, whereby the current management actions would continue. No new recreational facilities would be constructed. Few new mitigation measures would be implemented to reduce environmental impacts from recreational use under this alternative, and recreation would be the primary focus. Existing recreational use patterns would continue, although a dry season closure would be enforced.

Alternative 2 continued implementation of the existing activity plan (Clear Creek Management Plan of 1986), and accelerated implementation of selected actions to a five year schedule. Under Alternative 2, the Clear Creek County Road would be dust-suppressed, erosion projects would be implemented, a vehicle wash rack for the public would be constructed, and all San Benito evening primrose populations and potential habitats in Clear Creek Canyon would be protected. Recreation would still be the main management focus and current use patterns would continue. Camping would continue at Oak Flat and the six staging areas, as well as informal sites outside riparian zones.

Under Alternative 3, a designated route system would be adopted, and a reduced amount of hillclimb acreage would be available for OHV play. All available hillclimb play areas would be located in Clear Creek Canyon. All projects described in Alternative 2 would also be implemented. Camping would be restricted to the Oak Flat Campground. The San Benito Mountain Natural Area would be doubled in size.

Alternative 4 was the BLM-preferred alternative. This alternative restricted OHV use substantially. Under this alternative, all watersheds would be closed to motorcycles with the exception of lower Clear Creek Canyon. The remainder of CCMA would be open to 4WD use only. Camping would be restricted to the Oak Flat Campground. The San Benito Mountain Natural Area boundaries would be the same as under Alternative 3. Projects described under Alternative 3 would be implemented.

Under Alternative 5, the CCMA would be closed to motorcycles. All other vehicle travel would be restricted to a small network of dust-suppressed roads. Camping restrictions would be identical to Alternative 4. The boundaries of the San Benito Mountain Natural Area would be identical to Alternative 4.

Alternative 6 emphasized the enhancement of natural values. The entire ACEC would be managed to protect the unique scenic, botanical, geological and watershed resources. The resource objectives would be maximum protection of natural resources and enhancement of scientific research potential. Vehicle and camping restrictions would be identical to Alternative 5.

The analysis of the impacts from these alternatives showed that impacts to sensitive plants and habitats would decline significantly as one moved towards the more restrictive alternatives, and under Alternative 6, the potential to improve habitats would be maximized. Impacts from human induced erosion would also decline significantly under the more restrictive alternatives, and would be minimized under Alternatives 5 and 6. The risk of developing an asbestos-related cancer decreased from Alternative 1 to Alternative 6, reducing from 5 in 100,000 under Alternatives 1-3 to 2 in 100,000 under Alternatives 4-6. Recreation opportunities would be reduced under Alternatives 3 through 6, and motorized recreation would be almost lost under Alternatives 5 and 6. It was estimated that visitation could drop by as much as 85% in alternatives 5 and 6. Local communities would be impacted most negatively by alternatives 4-6, as revenues from OHV recreation would be reduced and/or nearly eliminated. Net losses in local revenues could total as much as 1.9 million dollars annually under alternatives 5 and 6.

The public comment period for the draft EIS ran from December 15, 1993 through February 15, 1994. The BLM held three public meetings to gather

public comments. These were held in the cities of Hollister, Clovis and San Jose. In addition to the public input gathered from these meetings, the BLM received several hundred written responses from the public, including both individual and form letters.

FINAL EIS

This final RMP Amendment and EIS concentrates on the proposed action. The BLM re-evaluated the draft preferred action, and made substantial revisions. The proposed alternative in the final EIS is Alternative 3, which combines elements of the draft Alternative 3 and 4. The proposed management emphasizes protection of natural values and human health while allowing recreational use. It was developed after analyzing public comments on the draft Clear Creek Management Area Resource Management Plan and EIS. The final document also includes changes to improve clarity and environmental analyses. Most changes were made in response to public comments. The "Management Guidance and Determinations Common to All Alternatives" section in Chapter 2 was substantially expanded to include education, enforcement, research and watershed protection measures. Modifications and clarifications were also made to both the "Affected Environment" (Chapter 3) and the "Environmental Consequences" (Chapter 4) sections.

In the final EIS, no changes were made to alternatives 1-2 or 4-6, with the exception of minor editorial modifications. Alternative 3, however, was modified notably, and is now the BLM-preferred alternative. Under this alternative, all vehicle travel would be restricted to a system of designated routes, spanning the entire CCMA. The goal for a final route mileage available to users would be 270 miles, with an interim route network of 155 miles. The CCMA would essentially be managed under a mostly "Limited Use" designation, rather than a mostly "Open" designation. Seven hill climb play areas would be conditionally open (207 acres) with the remainder conditionally closed, pending a thorough review of all barren areas. Up to 937 acres of open play areas could be designated.

The immediate management priority would be to sign the designated route system while at the same time closing and restoring those routes which were unsuitable for vehicle travel either because of their design or because of their proximity to special resources. During the transition to a "limited use" designation, use off of the designated routes would not be encouraged, and law enforcement measures would be implemented for violators of signed and/or physically closed routes and areas.

The asbestos and public health policy would remain as under Alternative 2, except that about 23 more miles of main roads could be dust-suppressed.

Erosion control structures would be built as under Alternative 2. It is estimated that human-accelerated erosion would be reduced by 62% over Alternative 1, with about 11,327 tons generated annually.

Sixteen populations and 50 habitat areas of the San Benito evening primrose would be protected. The San Benito Mountain Natural Area would expand to about 4,082 acres. Camping would be allowed at Oak Flat and the staging areas, and at designated sites throughout the CCMA, including the ACEC.

The impact analysis was reviewed, and augmented with regard to special status animals for all alternatives. Impact discussions for vegetation were augmented under all alternatives, where necessary, and changed particularly for Alternative 3. Mitigation measures and residual impact discussion were added for both vegetative and animal resources under Alternatives 1-4. A discussion of residual impacts from recreation mitigation measures under Alternatives 3-6 was also added.

In brief, wildlife populations would probably decline under Alternatives 1-2, and no vernal pools would be protected under Alternative 1. Riparian habitat would decline under Alternative 1, but could possibly improve somewhat under Alternative 2. Alternatives 2 and 3 afford protection to Spanish Lake, but not the nearby vernal pools. More aquatic wildlife and riparian area habitat would be protected under Alternatives 3-4, but benefits would be maximized under Alternatives 5-6.

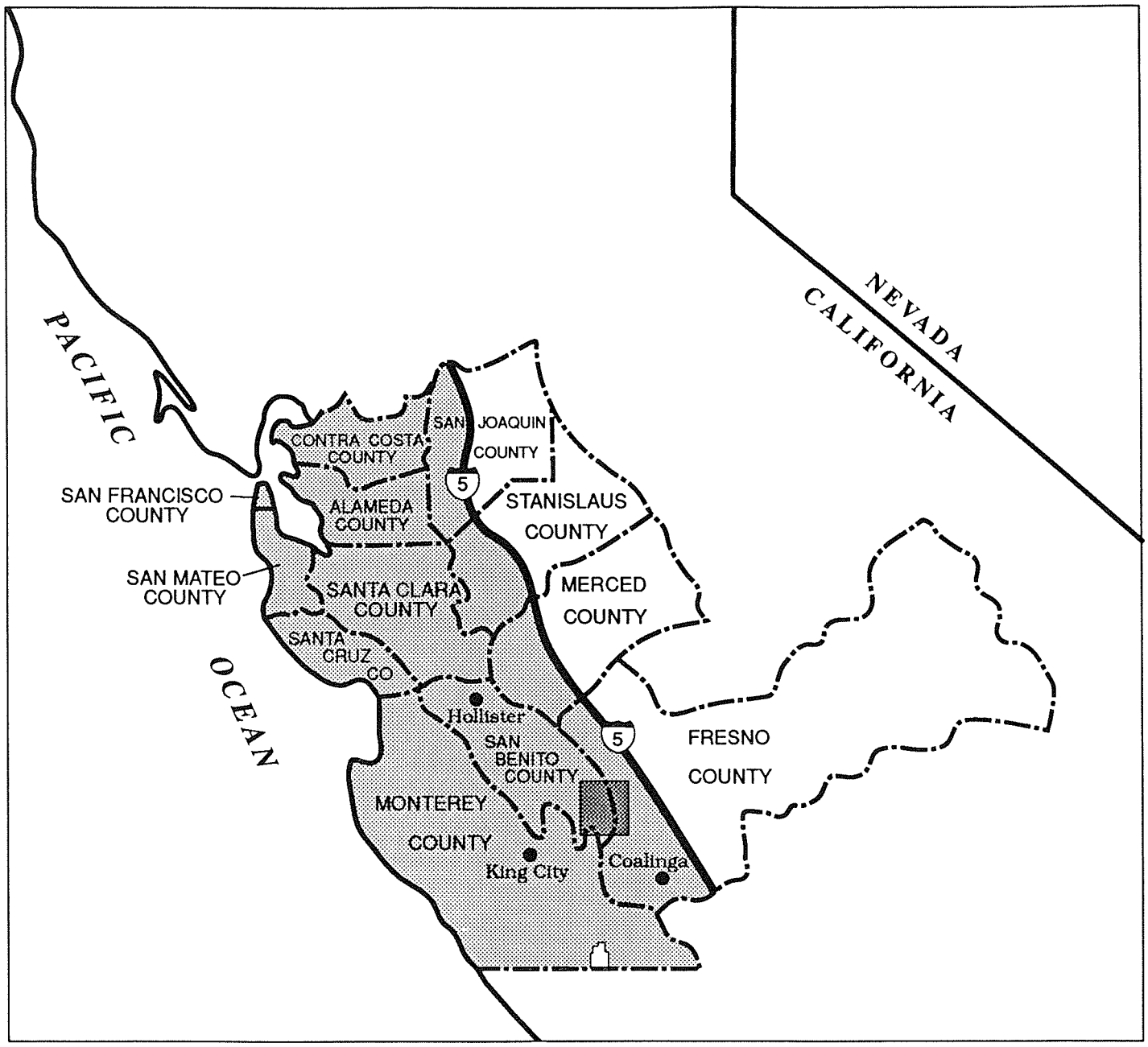
Longterm protection of the San Benito evening primrose would be enhanced and recovery efforts accelerated under Alternative 3, and the San Benito Mountain Natural Area expansion would protect representative examples of nearly all the CCMA's unique habitats and species.

CHAPTER 1 - INTRODUCTION

This Draft Land Use Plan Amendment and Environmental Impact Statement (EIS) reviews management alternatives for the use of public lands in the Clear Creek Management Area (CCMA). The CCMA lies within the Hollister Resource Area (Figure 1), and is managed by the Bureau of Land Management (BLM) in accordance with the 1981 Off-Highway Vehicle Environmental Assessment, the Hollister Resource Management Plan (RMP) of 1984, and the Clear Creek Management Plan and Decision Record of 1986. The scope of this document is limited to a review of decisions which affect public use in the CCMA.

Lands affected by this EIS and RMP Amendment include approximately 50,000 acres of public land. The management alternative selected will guide management of the CCMA for the next several years. In particular, the alternative selected will determine management for the 30,000-acre Serpentine Area of Critical Concern (ACEC) found within the CCMA. This Serpentine ACEC is popular with visitors seeking a recreational experience, but public health concerns persist over use of this area, as it contains high concentrations of naturally occurring asbestos. Concerns also exist regarding potential impacts to sensitive plant populations.

This EIS and RMP Amendment reviews six management alternatives for the CCMA. The alternatives range from a "no action" alternative and the continuation of existing management to a closure of the Serpentine ACEC to off-road vehicle (OHV) use. One of the alternatives (Alternative 3) that was analyzed in this document was developed with assistance from the Clear Creek Technical Review Team (TRT). This TRT is composed of members of the public who have a specialized interest and ability to assist BLM in the development of alternatives and future management of this area. The TRT group held several meetings to discuss the issues and to develop ideas, some of which were incorporated into the proposed alternative. A list of TRT members can be found in Table 7. Issues considered in the assessment of the environmental impacts resulting from each alternative include: 1) asbestos hazards (including air emissions, public health risks, and sediment production and transport); 2) unique and/or rare, threatened or endangered species; 3) watershed and riparian zone management; and 4) existing authorized uses of the area (OHVs, mining operations, rock-hounding, etc.)



Hollister Resource Area

Clear Creek Management Area

Figure 1: GENERAL LOCATION OF CLEAR CREEK MANAGEMENT AREA

PURPOSE AND NEED

The BLM determined that there was a need to re-evaluate and amend the existing land-use decisions made in the Hollister Resource Management Plan, in order to update specific decisions for human health risks, watershed conditions and rare plant species. The purpose of this RMP Amendment is therefore to update land-use planning decisions for the CCMA, by reviewing current management decisions and proposed land-use alternatives in view of new information. In this Draft RMP Amendment, a preferred alternative is proposed to achieve balanced management in the Clear Creek Management Area. The Final RMP will amend previous planning efforts such as the 1981 OHV Environmental Assessment, the 1986 Clear Creek Management Plan, and the 1984 Hollister Resource Management Plan.

Specific land-use planning for this area was developed in the Hollister RMP of 1984, and culminated in the Clear Creek Management Plan of 1986. The primary land management concerns for this area remain the asbestos hazard to both our employees and the general public, and the quality and quantity of rare plant habitat. Because of these concerns, the BLM over the last few years has continually acquired new information about the environmental conditions and human health risks in the Clear Creek Management Area.

In 1988, the BLM revised its employee health and safety plan in order to reduce the potential of asbestos exposure. Special procedures were developed for employees who work in the Clear Creek Management Area, and these meet the Occupational Safety and Health Administration's (OSHA) asbestos exposure regulations. In 1990, the BLM completed a four-year contract study on the ecology of the federally protected San Benito evening primrose. The study resulted in the discovery of several new populations of the species and identified unoccupied potential habitat areas. It was concluded in this study that current management was insufficient to meet the mandates of the Endangered Species Act, and the species should be re-listed as "Endangered", until elements of a recovery plan can be implemented.

In 1992, the BLM completed a contract study on the potential human health risks estimated from the asbestos exposure in the Clear Creek Management Area. This study identified that some measures could be taken to reduce or minimize the human health risk to the public visitors to this area. In 1993, the BLM also completed a contract study that evaluated the erosion and sedimentation problems in the Clear Creek watershed. This watershed study identified that the current erosion problems in the Clear Creek watershed could be reduced or minimized by incorporating additional management controls.

This Environmental Impact Statement (EIS) outlines BLM's methodology and analysis of new environmental data and proposes land management decisions to:

1) Reduce and minimize the public health risks from asbestos; 2) Improve watershed conditions; and 3) Protect rare plants and their habitat.

DESCRIPTION OF THE PLANNING AREA

The planning area covers the Clear Creek Management Area and includes portions of San Benito and western Fresno Counties. The heart of the management area is Clear Creek Canyon, which is located approximately 25 miles northwest of the town of Coalinga. Clear Creek Canyon parallels perennial Clear Creek as it descends west from San Benito Mountain, until its confluence with the San Benito River. The canyon is accessed via the San Benito County Clear Creek Road, which traverses all but the upper reaches of the canyon. This 27-mile county road system is maintained for all-weather access and provides a public transportation route connecting the Coalinga-Los Gatos Road from the south with the historic town of Idria and the Panoche-New Idria Road to the north.

The canyon is used extensively for recreational activities, especially OHV and rockhounding activities. Most OHV activities originate from within the Clear Creek Canyon area, and a network of trails emanate from the canyon. Overnight camping is concentrated in the canyon; with camping sites strung along the course of the narrow canyon bottom, wherever level areas occur.

To facilitate the planning process, the planning area has been grouped into two separate management areas - the *Serpentine Area of Critical Environmental Concern (ACEC)* (approximately 30,000 acres) and the *Non Serpentine Area* (approximately 20,000 acres). Although these areas are relatively large and contain widely scattered parcels of public land, they have a degree of homogeneity with regard to resource characteristics and planning issues. The division is generally along the geologic contact that defines the New Idria Serpentine Formation, which is the basis for the Serpentine ACEC designation.

The Serpentine ACEC was established in 1984, because this geologically unique area contains abundant asbestos naturally occurring in the rocks and soil, and because distinctive plant species are associated with the serpentine formation. The boundaries of the ACEC are defined by legal land descriptions resulting from recent field mapping of asbestos soils derived from the New Idria serpentine formation. This ACEC is sometimes referred to as the Hazardous Asbestos Area (HAA). Within the ACEC is the San Benito Mountain Natural Area (SBMNA), which is approximately 2,000 acres in size. Its primary purpose is to provide research and educational opportunities while maintaining and protecting a unique assemblage of vegetation in as natural condition as possible.
Detailed information about the planning area's resources may be found in Chapter Three, *Affected Environment*. Additional information about the planning area may

be found in the Hollister RMP of 1984 and the Clear Creek Management Plan of 1986, both available at the Hollister Resource Area Office.

PLANNING PROCESS

The BLM process to amend a resource management plan follows the same procedure that is used to develop a new plan. The steps and opportunities for public participation are described below.

Steps in Planning

The resource management planning process is divided into the following nine steps:

1. Identification of issues

   This step identifies resource management conflicts and opportunities that can be resolved through the planning process. Public participation in this process is called scoping and for this EIS included two EPA public meetings and three BLM public meetings. A Notice of Intent (NOI) to prepare the plan amendment and EIS was published in the Federal Register on April 30, 1991.

2. Development of Planning Criteria

   This step identifies the laws, regulations, policy and management guidance that will govern the analysis and resolution of each issue and selection of the alternatives. There is a formal 30-day public review of the planning criteria that is initiated with the publication of a Notice of Availability (NOA) in the Federal Register. The NOA was published in the Federal Register on April 23, 1992.

3. Inventory Data and Information Collection

   This step involves accumulating the resource management and environmental data needed to address the issues in the plan amendment and EIS. Data for the analysis were obtained from both existing sources and new inventory data, and included inventory survey data for the San Benito evening primrose, a health risk assessment for recreational exposure in Clear Creek, a soil survey for portions of the San Benito County, and a Clear Creek watershed analysis.

4. Analysis of the Management Situation

This step calls for an assessment of the current situation. It includes a description of current BLM management guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of existing data that is needed to analyze and resolve the identified issues.

5. Formulation of Alternatives

During this step, several complete, reasonable resource management alternatives are prepared, including one for no action and others that strive to resolve the issues.

6. Estimation of Effects of Alternatives

During this phase, the physical, biological, economic, and social effects of implementing each alternative are estimated in order to allow for a comparative evaluation of impacts.

7. Selection of the Preferred Alternative

This step compares the impacts of each alternative and selects the preferred alternative. The interdisciplinary process used in Steps 5 through 7 is documented in the draft RMP/EIS, which is circulated for public review.

8. Selection of the Resource Management Plan

This step analyzes public comments, modifies the alternatives as appropriate, and serves as a basis for the management plan. The proposed RMP and final EIS is distributed to the public in the final RMP/EIS document. A 30-day protest period is allowed before the RMP is adopted. A Record of Decision is published after consideration of any protests.

9. Monitoring and Evaluation

This step involves monitoring and evaluating the resource conditions as the plan is implemented. If monitoring shows that resource issues are not being satisfactorily resolved or that the desired results outlined by the RMP are not being met, the plan may be amended or totally revised.

Issues Selected for Analysis

The management alternatives outlined in this RMP Amendment are based upon issues identified during the initial public scoping phase of the planning effort. A description of public involvement in the planning process, including the public scoping and consultation and coordination, is presented in Chapter 5 and in Appendix A.

The following issues were identified and addressed in the alternative development, analysis and impact assessment:

1) Airborne asbestos emissions
2) Public health risks associated with asbestos exposure
3) Asbestos sediment production and transport
4) San Benito evening primrose recovery
5) Watershed and riparian zone management
6) Existing multiple uses

Issue #1 - Airborne Asbestos Emissions

Soils in the CCMA can contain up to a million asbestos fibers in one cubic centimeter of dust. When the soil is disturbed, these fibers become airborne and can be transported by the prevailing wind.

The concern is that human activities in the CCMA are disturbing the soils to such an extent that high concentrations of asbestos are entering the air currents and being transported to populated areas outside the CCMA, potentially affecting the health of people in non-asbestos zones.

Decisions must be made as to whether existing management is sufficient to control or eliminate long-distance transport of asbestos. If current management is determined insufficient, alternatives affecting use or access need to be considered.

Issue #2 - Public Health Risks from Asbestos Exposure

Breathing asbestos fibers can increase the risk of developing lung cancer and other respiratory diseases. The probability of developing these diseases is affected by the amount of asbestos inhaled during a lifetime. The Occupational Safety and Health Administration (OSHA) and EPA believes that there is no known safe level of exposure to asbestos. Even short-term environmental exposure to non-occupational asbestos concentrations may still increase a person's chances of developing cancer.

Some public users of the CCMA, such as OHV enthusiasts, are engaged in a risky sport and these users may accept the increased health risk associated with asbestos exposure; however, others may be affected involuntarily when users bring dust home with them, either on clothes or on vehicles. In addition, because intensive or sustained vehicle use may result in lasting high concentrations of airborne asbestos long after the user has left the area, those recreating or working within the CCMA afterwards may have their overall risk factor increased because of the elevated asbestos levels. Decisions need to consider actions that would reduce or eliminate dust emissions and transport.

Issue # 3 - Asbestos Sediment Production and Transport

Asbestos-laden soils and rock outcrops are found in all drainage basins that originate in the Serpentine ACEC. Surface-disturbing activities in the CCMA can increase the erosion rates of the asbestos-rich soils. The erosion of soil and the underlying serpentine formation creates sediment which moves downhill into Clear Creek. This sediment is then transported outside the Clear Creek watershed under high flow conditions, eventually depositing in numerous stream drainages outside of the CCMA. When these sediments become dry and are then disturbed, asbestos fibers are released into the air, potentially exposing people who have never entered Clear Creek to health risks.

Decisions to be made under issue #1, above, also apply here.

Issue #4 - San Benito Evening Primrose Recovery

The San Benito evening primrose was listed as *Threatened* by the U.S. Fish and Wildlife Service in 1985. It is found at only twenty-two locations, most of which are located in Clear Creek Canyon. Most known populations have been fenced for protection from camping and vehicle use. Two populations have not produced plants for several years and are considered extinct except for the germination of primroses resulting from BLM-sponsored seed reintroduction at these sites.

Concern arises over the results of recent studies, which indicate that most of the potential habitat for the primrose is located in Clear Creek Canyon and is heavily impacted by roads, off-road vehicle use, and camping along the creek (Taylor, 1990; BLM, 1992). This in turn indicates that the status of this species is declining.

Management decisions should define actions to stabilize or improve the status of this species, including seed introductions, habitat manipulations in unoccupied but

suitable habitat, and incorporate additional control measures to restrict OHV use and other incompatible land uses.

Issue # 5 - Watershed and Riparian Zone Management

The serpentine watershed and riparian areas in the CCMA have been subject to widespread surface disturbances over the last century. These watersheds have high erosion rates due to the steep, unstable slopes which are composed of soft sheared serpentine bedrock. Erosion has been accelerated by roads, mining, and off-road vehicle disturbance. The riparian zones around the perennial streams and some intermittent streams, and the barren or sparsely-vegetated serpentine slopes, all exhibit a fragile ecology and unusual diversity of plants. In addition, the three special status animal species (foothill yellow-legged frog, two-striped garter snake and western pond turtle) are known to occur in the CCMA and are dependent in some stage of their life cycles on quality stretches of creeks and streams. In total, the Clear Creek and surrounding watersheds support plant and animal communities that are important from a California biodiversity perspective.

The concern is that human activities are causing degradation of the riparian areas by increasing soil loss and sediment transport This in turn could reduce plant productivity and water quality and increase flood frequency and severity. Resource management decisions need to be made about which combination of administrative and engineering controls would best address this issue.

Issue #6. Existing Multiple Uses

A wide variety of public use occurs in the Clear Creek Management Area. Any decision concerning public use of Clear Creek will have to address how the existing authorized uses such as vehicle access and other discretionary (communication sites) and non-discretionary (mining operations and mining claimants) uses would be affected. Decisions regarding OHV access in particular are sensitive, because open OHV play areas are a declining resource in California.

Relation to Other Plans and Programs

The Hollister Resource Management Plan, adopted in 1984, provides management guidance for the Clear Creek area. The RMP outlined management goals and resource management decisions, and established the 30,000 acre Clear Creek Serpentine Area of Critical Environmental Concern (ACEC) within the 50,000 acre CCMA. It expanded the San Benito Mountain Natural Area (SBMNA) to about 2,000 acres. This RMP incorporated the existing Off-Highway (OHV) designations, which were originally adopted in 1982. The Hollister RMP also called for the

preparation of watershed management guidelines (Best Management Practices) which were completed in 1984. These measures outlined possible management practices that could be utilized to control erosion and reduce sedimentation in the area. Additional measures included in this document addressed public health concerns, mining activities, watershed deterioration and protection for plant species.

In 1986, a more detailed activity plan was prepared for the Clear Creek Management Area, to implement decisions adopted in the Hollister RMP and to incorporate appropriate "Best Management Practices" from the watershed management guidelines. This Clear Creek Management Plan was developed to manage a complex ecosystem comprised of sensitive and unique plant populations, a highly erosion-prone watershed, unique serpentine soils, asbestos-containing soils, and hobby and other gem minerals.

An amendment to the Hollister Resource Management Plan is needed to re-evaluate existing land use decisions. This amendment is based upon information now available on both asbestos related health risks and rare plant species. This RMP amendment will respond to the new issues and address the existing public uses within both the CCMA and the Serpentine ACEC.

CHAPTER 2 - ALTERNATIVES

INTRODUCTION

The alternatives have been selected to provide a range of management options to resolve conflicts associated with the identified issues. The alternatives have been developed in consideration of the scope of the project, and are consistent with BLM's mission statement (see front cover of document). In addition, practical and feasible mitigation measures have been included to minimize environmental impacts. The BLM considered during the early scoping of this document an alternative that would completely eliminate public use of the Clear Creek ACEC. This proposed alternative was considered but dropped from further analysis as being inconsistent with BLM's mandate to manage public lands.

Mileages, acreages and tonnage estimates included in this document are approximations, and are used to provide the reader with an understanding of the major differences between alternatives. In addition, when the term "OHV" is used, it should be noted that the BLM adheres to the following definition of OHV, from the Code of Federal Regulations (CFR):

> "OHV means any motorized vehicle capable of, or designed for, travel on or immediately over land, water or other natural terrain." (43 CFR 8340.0-5)

When OHV opportunities and activities are described in the text, the BLM refers to any off-road motorized activity, whether that activity involve a jeep, a motorcycle, or any other type of vehicle. Motorcycles and 4WD vehicles are thus subsets of the definition "OHV".

Comparison charts of all the proposed alternatives as well as the monitoring program for the preferred alternative are presented in Tables 1 and 2 at the end of this chapter. Due to the unique conditions of the CCMA, we are attempting to develop closer working relationships with other federal, state and local agencies to meet our goals and objectives, as well as theirs, for watershed and water quality resources. Some of the agencies we have been in recent contact with include the U.S. Fish and Wildlife Service, U.S. Geological Survey, Central Coast and Central Valley Regional Water Quality Control Boards and San Benito County Public Works Department.

BLM will continue to monitor the water quality and soil erosion and sediment conditions. BLM's Best Management Practices (BMP's) monitoring program is based upon monitoring standards set in 1984. Since that time, the BLM and State Parks and Recreation Department (OHV Division) have developed soil standards for OHV use areas.

BLM's existing BMP's will be updated using more current information (see BMP measures below), and this BMP revision will be completed in concert with the OHV route inventory. The new watershed and water quality BMP's will be applied to the selected alternative after adoption of this RMP amendment. This BMP revision will be done with involvement of Federal agencies such as the EPA and State agencies such as the Regional Water Quality Control Boards and the California Department of Fish and Game.

MANAGEMENT GUIDANCE AND DETERMINATIONS COMMON TO ALL ALTERNATIVES

The following actions affect all alternatives and apply to all BLM authorized uses and public access within the CCMA.

Measures to protect Air Quality and Human Health

Activities in the Serpentine ACEC would occur only within the limits of the OSHA asbestos action levels. A seasonal restriction to OHV use would be enforced throughout the CCMA, primarily to reduce dust generation on the unpaved roads and the associated human exposure to these asbestos emissions during dry soil and dusty conditions, but also to reduce road/trail damage and increased erosion during extreme wet conditions.

BLM would continue to develop a public asbestos safety awareness program to help educate and inform the public of the potential health problems associated with asbestos exposure. BLM would continue and/or increase air monitoring, information signs, and develop and distribute brochures or other public information addressing asbestos health risks.

Measures to protect Threatened, Endangered and other Special Status species

Prior to the authorization of any surface disturbing activity, a review of existing biological data would be conducted to determine if any threatened, endangered or other special status species might exist or be impacted by the proposed activity.

Known populations of the San Benito evening primrose and habitat that is currently capable of supporting the primrose would be protected by fences and/or administrative controls, and would be managed to avoid impacts to this listed species whenever possible.

Surface disturbing activities affecting special-status animal or plant species or specialized habitats such as riparian areas and vernal pools, serpentine barrens, or San Benito Forest would be avoided when practical and feasible alternatives existed. All projects would be designed to be least-impacting to these resources. A study would be initiated to determine the status of the big-earred kangaroo rat in the CCMA and how it is being affected by management of the CCMA.

Measures to Facilitate and Encourage Research in the CCMA

BLM would contact various central Californian universities and community colleges with potential research topics, which would facilitate BLM's management of the CCMA and its various resources. Topics such as the health of the unique San Benito Mountain Forest, the composition of this serpentine area's bird and insect life, the abundance and distribution of the big-earred kangaroo rat, and the potential to restore some of the area's degraded serpentine barrens are all relevant to BLM's future management of the CCMA as are many other topics. BLM would seek to enter into Memoranda of Understanding with cooperating universities and colleges and assist in the research agreements as appropriate.

Measures to Protect Serpentine Riparian Habitats

BLM would conduct a riparian inventory in all of CCMA's riparian areas to evaluate resources which are agreed upon through interagency consultation as being essential components for baseline evaluation and regular monitoring. Inventory protocol, monitoring standards, and success criteria would conform to BLM standards and be augmented as appropriate to be compatible with the needs of this serpentine area.

Establishment of Best Management Practices (BMP's)

In consultation with other appropriate County, State and Federal agencies, BLM would establish BMP's to minimize impacts to water quality, air quality, and other important resources. A Best Management Practice (BMP) is defined as the practice or combination of practices that are determined by a State agency (or designated area-wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practical means (including technological, economic, and institutional considerations) of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals. BMP's also refer to a broader process of identifying practices and techniques that may be used to reduce impacts on other resources.

Management Practices discussed in BLM's 1984 Watershed Management Guidance for the Clear Creek Management Area (BLM 1984) would be evaluated for conversion into BMP's for the CCMA as would current State and Federal BMP's such as the soil standards for OHV use areas developed by BLM and California State Parks and Recreation Department.

Measures to protect Water Quality

All vehicle access through abandoned asbestos mined areas would, where possible, be eliminated, to avoid these highly erosive areas. The Atlas Mine access road would remain closed to public use, until the required EPA remediation measures have been completed and the engineering controls such as dust suppression allow for a reduced health risk.

BLM would establish a water quality monitoring program in consultation with other agencies, that would ascertain whether or not Best Management Practices, were achieving the water quality objectives for the future management of the CCMA. The monitoring program would include physical, chemical, and biological attributes of the various streams in the CCMA. Other State and Federal agencies would also be requested to cooperate in the drafting and implementation of this water quality monitoring plan.

Measures Regarding Education Efforts

Education about the potential health risks of recreating in the Clear Creek area is an on-going process. Under all alternatives, educational efforts would be enhanced, and the BLM would employ both personal and non-personal techniques to reach visitors. The specifics of the program would depend upon the alternative selected. Briefly, personal services could include such things as personal contacts between

field personnel and the users, outreach programs whereby BLM staff would attend club meetings to discuss issues and or present programs about health issues in Clear Creek, and volunteer patrols, to disseminate information and provide greater visibility for the BLM. Non-personal services would include such things as more signage, maps and fact sheets, and interpretive displays.

Enforcement of Closure Measures

The BLM would continue to use traditional methods such as fencing, barriers, personal contacts and signing as enforcement measures. In addition, we would be attempting to implement volunteer patrols, made up diverse user groups. Volunteer patrol members would contact other users, providing information about the resources and reasons why particular areas are closed to use. These patrols would augment the efforts the law enforcement ranger, who has been added to the staff specifically for the Clear Creek Management Area. This person would be responsible for patrolling and monitoring of OHV use and when necessary, he would initiate appropriate law enforcement procedures. The development of a Clear Creek OHV Review Committee is being considered to annually review the specific management for this area. This group would review and evaluate user compliance and the effectiveness of special resource monitoring programs (for example, monitoring of riparian areas, San Benito Natural Area, vernal pools). If the group determined that stated objectives were not being met, then the group could recommend emergency closures. In any event, continued non-compliance with use restrictions would result in closures.

Closures would be handled in a similar fashion as for BLM fire season closures, with measures such as gates, signing, and public notices of closure. If the County road network reverts to the BLM, all major access points to Clear Creek would be posted and physically closed during the closure period.

Measures Regarding Land Tenure Adjustments

BLM will re-evaluate land tenure adjustments to eliminate any conflicts between Federal, State and private lands. Small isolated parcels of private land and two large inholdings (approximately 1280 acres) belong to the State of California and are interspersed in a relatively large (30,000 acres) block of public land in the center of the Clear Creek Management Area. If necessary, these private inholdings would be acquired when opportunities present themselves, to enhance BLM management of this area.

Road and Trail Inventory

A route inventory will be completed for the CCMA within the next few months. The purpose of this inventory is to field review all existing main routes and to

determine where these areas overlap with other sensitive resources. This inventory will be used in the development of Best Management Practices (discussed above) to better manage the water quality, sediment and erosion problems, operation and maintenance of routes and improve vehicle access for all types of public visitors.

ALTERNATIVE 1 - NO ACTION

RESOURCE CONDITION OBJECTIVES

1. Monitor the asbestos exposure and generation of dust in the ACEC, to ensure that BLM employees meet all OSHA requirements.

2. Protect all known populations of the federally listed threatened San Benito evening primrose.

3. Protect lower Clear Creek riparian areas and their adjacent upland slopes within 1/4 mile of Clear Creek.

4. Monitor the existing OHV designations to document impacts to watershed and riparian conditions particularly in the lower Clear Creek riparian area and the Atlas Mine watershed.

5. Maintain the natural values of San Benito Mountain Natural Area.

6. Maintain the existing recreation opportunities.

SUMMARY OF ALTERNATIVE

Miles of designated vehicle routes (paved and unpaved): 420
Acres of open barren slopes (hillclimbs): 2,876
Miles of routes dust stabilized: 0.5 (Atlas Mine road)
Miles of roads/trails maintained annually: 30
Number of San Benito Evening Primrose populations protected: 16
Number of primrose habitat areas protected: 15
Number of watersheds having erosion & sediment control projects: 1 (Atlas Mine)

This alternative would allow recreational vehicle use (including OHV) to continue. There would be no change in OHV designations. Recreation would continue to be the management emphasis, with measures to protect other resource values. An existing dry season restriction limiting OHV use would be enforced. Activities requiring specific authorization from BLM (i.e. OHV events, road maintenance, etc.) would be authorized within the limits of the OSHA asbestos standards.

No new recreational facilities would be constructed under this alternative. No new mitigation measures would be required to minimize existing environmental impacts from recreational use. Watershed protection projects would be limited to fencing/barriers necessary to prevent vehicle use 1) outside designated areas in the

San Benito Mountain Natural Area; 2) on existing populations of the San Benito evening primrose; and 3) several terrace sites in the Clear Creek watershed. Except as described below, further implementation of the actions in the Clear Creek Management Plan would not occur.

MANAGEMENT ACTIONS

1. The BLM would continue the existing public asbestos hazard information program through the use of signs, handouts and public contacts, and maintain existing OHV designations. A seasonal restriction on vehicle use would be applied during periods of dry soils and high dust conditions, and during extremely wet and muddy conditions. All activities (casual use and permitted activities) would continue to be allowed only during periods that were within the limits of OSHA asbestos standards.

2. The BLM would complete fencing of all known populations of the San Benito evening primrose and several terrace sites in the Clear Creek watershed to protect them from vehicle disturbance.

3. All lower Clear Creek Canyon riparian areas and upland slopes within 1/4 mile of the canyon would be signed and enforced as closed to OHV use. Watershed practices adopted in 1984 and revised as described earlier in this chapter, would be used as guidelines for any newly authorized activities.

4. To eliminate OHV trespass within the boundary, the BLM would continue to monitor existing use adjacent to the San Benito Mountain Natural Area and continue to construct fencing/barriers at trespass areas.

5. The OHV designations would be maintained with a seasonal restriction, and would be enforced through the use of patrolling, visitor contacts and signing. The BLM would continue to apply for State of California Off-Highway "Green Sticker" grants for operation and maintenance of existing facilities within Clear Creek.

ALTERNATIVE 2 - CONTINUED IMPLEMENTATION OF THE EXISTING MANAGEMENT PLAN

RESOURCE CONDITION OBJECTIVES

1. Reduce dust emissions in Clear Creek Canyon and reduce off-site transport of asbestos-contaminated soils. Ensure that BLM employees meet all OSHA requirements.

2. Provide for the recovery of the threatened San Benito evening primrose.

3. Reduce erosion and sediment transport in the Atlas Mine and the lower Clear Creek watersheds.

4. Protect and manage the San Benito Mountain Natural Area to maintain its natural and scenic values.

5. Maintain existing recreation opportunities where consistent with objectives one through four.

SUMMARY OF ALTERNATIVE

Miles of designated vehicle routes (paved and unpaved): 405
Acres of open barren slopes (hillclimbs): 2,629
Miles of routes dust stabilized: 6.5 (Lower Clear Creek & Atlas road)
Miles of roads/trails maintained annually: 30
Number of San Benito Evening Primrose populations protected: 16
Number of primrose habitat areas protected: approximately 50
Number of watersheds having erosion & sediment control projects: 2 (Atlas Mine & lower Clear Creek riparian area)

This alternative updates and accelerates the implementation for the actions outlined in the Clear Creek Management Plan to a five year schedule. High priority actions that would be completed include:

1) Dust suppression of the Clear Creek County Road;

2) Installation of a public asbestos decontamination facility (vehicle wash rack, and designation of abandoned asbestos mined areas as closed to OHV use;

3) Installation of vehicle barriers at high erosion or other sensitive areas, such as mined areas, serpentine barrens, and riparian zones;

4) Construction of stream gauging stations and about 18 erosion and sediment stabilization projects within the lower Clear Creek watershed, to stabilize and rehabilitate severely eroding trails & hillclimbs;

5) Rehabilitation of two potential San Benito evening primrose habitat areas;

6) Fencing of all San Benito evening primrose populations and high priority potential habitats throughout the CCMA;

7) Restriction of OHV use to designated routes only in a 1/4 mile corridor in Clear Creek Canyon and corridors around portions of upper Clear Creek, the San Benito River, White Creek, Sawmill Creek and San Carlos Creek.

Camping within the lower Clear Creek Canyon riparian zone would be allowed only at the designated staging areas and at the Oak Flat Campground. Camping would continue to be prohibited in the San Benito Mountain Natural Area. Throughout the rest of the CCMA, informal camp sites would be allowed outside of sensitive plant habitat areas. During dry and dusty summer months a seasonal restriction would be enforced and all vehicles would be limited to travel on signed designated and maintained roads only. Wet season closures would also be enacted to reduce erosion damage and to reduce maintenance costs. Asbestos air concentrations would be posted and an individual's exposure to the asbestos would be based upon that informed individual's decision. Activities requiring specific authorization from BLM (i.e. OHV events, road maintenance, etc.) would be authorized within the constraints of the OSHA asbestos standards.

MANAGEMENT ACTIONS

1. The BLM would maintain the existing public asbestos hazard information program through signs, handouts and public contacts. Administrative and engineering controls would be increased to minimize exposure and emissions of asbestos, including the following:

   a) Six and one-half miles along the lower Clear Creek Canyon Road and three and one-half miles of the Atlas Mine Road would be dust-suppressed.

b) Permitted OHV events would be authorized only within the limits of OSHA asbestos standards.

c) A public vehicle decontamination facility (wash rack) would be constructed to safely remove and dispose of asbestos-contaminated sediment from vehicles leaving the Hazardous Asbestos Area.

d) Vehicle use would be restricted to signed and maintained roads during summer months when high dust levels occur.

e) Boundaries of the abandoned asbestos mined areas would be posted as closed to OHV use.

2. Throughout the CCMA, known populations and potential San Benito evening primrose habitat which is currently capable of supporting primrose throughout the CCMA would be protected from vehicle and camping disturbances. Vegetation manipulations (such as brush clearing) and seed or seedling introductions would be completed at two suitable terraces in Clear Creek Canyon.

3. Approximately 18 sediment and erosion stabilization protection projects would be implemented in the Clear Creek riparian buffer strip (1/4 mile on either side of Clear Creek), to reduce downstream transportation of asbestos and other sediments. These erosion projects or other suitable stabilization controls would be used to mitigate continued OHV impacts and could require annual monitoring and maintenance. Watershed best management practices adopted in 1984 would be used as guidelines for any new authorized activities.

4. Existing OHV use adjacent to the San Benito Mountain Natural Area would be monitored, and fences/barriers constructed to eliminate OHV trespass within the boundary. A research management plan would be developed to assist in the management and understanding of this complex ecosystem.

5. Designated access corridors (approximately 18) would be established and signed "open" within the Clear Creek Canyon to provide for dispersed OHV travel. Camping within the lower Clear Creek Canyon would be restricted to the Oak Flat Campground and to developed staging areas. Informal camping would still be allowed outside of sensitive plant habitat areas. Fencing or other controls would be installed to preclude OHV use within the restricted 1/4 mile riparian buffer on either side of lower Clear Creek as well as appropriately-sized corridors around portions of upper Clear Creek, the San Benito River, White Creek, Sawmill Creek and San Carlos Creek.

ALTERNATIVE 3 - DISPERSED OHV USE

RESOURCE CONDITION OBJECTIVES

1. Reduce asbestos exposure and asbestos emissions while still providing opportunities for OHV use. Minimize dust emissions from main roads. Ensure that BLM employees meet all OSHA requirements.

2. Protect existing populations of the San Benito Evening Primrose and attempt to expand its range to areas that have moderate and high potential habitat for the species.

3. Reduce erosion and sediment transport in all CCMA watersheds.

4. Adjust the boundaries of the San Benito Mountain Natural Area to include a cross-section of the unique serpentine and adjacent ecotones found only within this area, using easily identifiable geographical landmarks as boundaries, wherever possible.

5. Manage the Clear Creek Management Area for dispersed OHV use. Based upon resource management criteria, establish open or closed areas as conditions and resources warrant.

SUMMARY OF ALTERNATIVE:

Miles of designated vehicle routes (paved and unpaved): approximately 270
Acres of open barren slopes (hillclimbs): approximately 937
Miles of roads/trails maintained annually: 30.5
Number of San Benito Evening Primrose populations protected: 16
Number primrose habitat areas protected: approximately 50
Number of watersheds having erosion & sediment control projects: All

Under this alternative, most of the actions outlined in Alternative 2 (the CCMA five year accelerated schedule) would take place. The major difference between this alternative and alternative 2 is in the OHV vehicle use designations. With the adoption of this plan, the CCMA would be managed primarily under a "Limited Use" designation. Public vehicle use would be restricted to designated routes and areas. Each year, additional routes would be systematically reviewed and field checked for continued use or closure and/or rehabilitation, until a core network of approximately 270 miles was designated. Seven play areas would remain conditionally open, pending a thorough route and open area inventory. Criteria such as proximity to sensitive resources, erosion potential, maintenance concerns,

and current use patterns and challenge levels, would determine the final mileage and acreage. Primitive camping would be allowed inside the hazardous asbestos area at designated locations, and subject to certain restrictions. Closures would be enforced during extreme wet/muddy conditions or during dry/dusty conditions. During these closures vehicles would be restricted to maintained roads. The public would have access to a vehicle wash rack for asbestos decontamination purposes, and asbestos air concentrations would be posted at the entry of the asbestos area. Visitors would be informed either by direct personal contact, or by indirect methods, such as flyers or signs on bulletin boards, of potential asbestos health hazards. Activities requiring specific authorization from the BLM (i.e. OHV events, road maintenance, etc.) would be authorized during periods when asbestos concentrations were within OSHA limits, and when conditions were not so wet that extreme resource damage could occur.

MANAGEMENT ACTIONS

1. The BLM would augment its existing public asbestos hazard information program through improved signing, handouts, advisories and public contact.

2. Approximately thirty miles of main transportation roads could be dust-suppressed to reduce dust generation and associated asbestos exposure.

3. Seasonal access closures would be enforced to limit vehicle use during months of extreme dry and dusty or wet and muddy road conditions.

4. Overnight camping would be permitted within the ACEC, but would be restricted to designated locations and subject to certain restrictions, to reduce the public's exposure to asbestos.

5. A vehicle wash system would be installed to remove asbestos dust from all vehicles prior to exiting the area.

6. Known populations of the San Benito evening primrose, and its potential habitat currently capable of supporting primrose throughout the CCMA would be protected from vehicle and camping disturbances. Vegetation manipulations (such as brush clearing) and seed or seedling introductions would be considered for habitat areas of high and moderate potential.

7. Approximately 18 access corridors would be established within the Clear Creek Canyon to provide for dispersed OHV travel. A route inventory and designation process would be conducted. A manageable transportation route system would be developed to encompass approximately 30 miles of

primary, annually maintained routes open year round, with additional mileage seasonally opened and maintained to reduce erosion to allow for dispersed OHV use. Closure and/or rehabilitation of high priority areas would be accelerated and would be completed within the first five years of the adoption of this plan.

8. The San Benito Mountain Natural Area would be expanded to approximately 4,082 acres, using geographic landmarks as boundaries wherever possible, with fencing and barriers constructed as needed to prevent vehicle trespass into areas closed to vehicles. In cooperation with the academic community, a research management plan would be developed to encourage scientific studies of this unique ecosystem. The expanded natural area would be withdrawn from mining.

9. OHV use classifications would be re-designated per the above management actions.

Interim OHV Use Policy

The overall OHV use designation under Alternative 3 would change from one of predominantly open areas to one of predominantly limited use area. In order to ensure a smooth transition from the current management strategy to the final implementation of this alternative, an interim strategy is necessary. This interim policy would be in effect until the implementation plan has been finalized (approximately 6 months after the Record of Decision for this EIS has been signed). Major elements of this interim strategy would include the following:

A) Signing. Designated routes and seven interim play areas would be signed open. Use in these designated areas would be encouraged by visitor contacts, signing and printed literature. Using the criteria listed above, routes unsuitable for sustained OHV use would be signed and/or physically closed. Remaining barren hillslopes would be signed closed pending inventory.

B) Protection of high priority areas. Streamside terraces, fragile slopes, and lands within the San Benito Mountain Natural Area would be protected and closed to vehicle use.

C) Enforcement. Violations of signed and/or physically closed areas/trails would be subject to citations and/or other appropriate law enforcement measures.

ALTERNATIVE 4 - RESTRICTED OHV USE

RESOURCE CONDITION OBJECTIVES

1. Reduce asbestos exposure and emissions while still providing opportunities for recreation use. Minimize dust emissions from main roads and minimize emissions outside high use OHV areas. Ensure that employees meet all OSHA requirements.

2. Protect existing populations of the San Benito evening primrose and attempt to expand its range, while still allowing OHV use in the lower six miles of the Clear Creek watershed.

3. Reduce erosion and sediment transport in Clear Creek watershed, Atlas Mine and other watersheds with high erosion potential.

4. Expand the San Benito Mountain Natural Area to include a cross-section of the unique serpentine and adjacent ecotones found only within this area.

5. Manage Clear Creek watershed for intensive OHV use. Manage other watersheds to enhance non-OHV recreation activities and to maximize other natural resource values.

SUMMARY OF ALTERNATIVE

Miles of designated vehicle routes: 119
Acres of open barren slopes: 1229
Miles of routes dust stabilized: 30 (Atlas Mine and Designated Road System)
Miles of roads/trails maintained annually: 30
Number of San Benito Evening Primrose populations protected: 16
Number of primrose habitat areas protected: approximately 50
Number of watersheds having erosion & sediment control projects: 2+ (Atlas Mine & Clear Creek) and additional watersheds based upon annual monitoring in high erosion areas.

This alternative would incorporate most of the features from Alternative 3 with some modifications; however, the OHV opportunities would generally be limited to the lower Clear Creek watershed, with remaining areas closed to all OHV and motorcycle use.

Camping would not be permitted in the Clear Creek Canyon watershed except at designated campgrounds. OHV restrictions (fences, barriers) and/or watershed improvements and stabilization projects (i.e. stream armoring, silt dams) would be constructed in sensitive riparian zones and other selected high erosion prone areas.

The San Benito Mountain Natural Area would be expanded to the same boundaries as under Alternative 3. All public vehicle access would be restricted as necessary to prevent unnecessary health and safety risks due to extreme dry and dusty road conditions, when the OSHA exposure levels are reached. When the OSHA asbestos exposure levels are within acceptable limits the public would have access to a vehicle wash rack and the asbestos air concentrations would be posted.

MANAGEMENT ACTIONS

1. The existing public asbestos hazard information program would be enhanced through signs, handouts and public contacts. A public decontamination facility would be constructed to safely remove and dispose of asbestos-contaminated sediment from vehicles leaving the Hazardous Asbestos Area. Roads would be surfaced or dust suppressants could be applied to eliminate visible dust emissions. Roads would be closed seasonally if use were resulting in excessive erosion and/or if asbestos emissions standards were exceeded. During periods of dry soil and dusty conditions, OHV use would be restricted to a limited number of designated roads.

2. Known populations of the San Benito evening primrose, and its potential habitat currently capable os supporting primrose throughout the CCMA would be protected from vehicle and camping disturbances. Vegetation manipulations (such as brush clearing) and seed or seedling introductions would be considered for habitat areas of high and moderate potential.

3. Watershed improvement and road maintenance projects would be a priority within the high use OHV areas. Watershed mitigation measures would be developed and implemented to reduce erosion and offsite sedimentation and downstream transport of asbestos in intensively used OHV areas. These erosion and stabilization projects would be used primarily to mitigate impacts from the construction or maintenance of roads, trails and open unrestricted OHV use areas. Watershed best management practices adopted in 1984 would be used as guidelines for any new authorized activities. In areas re-designated as "closed" or "limited" to vehicle access the erosion problems due to OHV use would be monitored and rehabilitated on a priority basis.

4. The San Benito Mountain Natural Area would be expanded to 4082 acres with fencing/barriers constructed as needed to preclude OHV use in expanded natural areas. A research management plan would be developed in conjunction with the academic community to allow scientific studies which would assist in the increased understanding of this complex ecosystem. The Natural Area expansion would be withdrawn from mining.

5. A manageable transportation route system would be developed to encourage dispersed vehicle access. The vehicle access network would encompass approximately 30 miles of dust-suppressed all weather transportation routes and approximately 119 miles of secondary routes opened seasonally which are maintained to reduce erosion. OHV use designations would be revised for these three areas:

   a. Clear Creek Watershed (approximately 10,000 acres)

      This area would be dual zoned; both motorcycle and 4WD use would be allowed. The Natural Area expansion would result in approximately 600 additional acres being closed to vehicle use except on designated roads. Camping would not be allowed in the Clear Creek watershed, except in designated campgrounds.

   b. Serpentine ACEC (excluding Clear Creek Watershed, 20,000 acres)

      This area would be zoned for 4WD use only. All "A" designations in this area would be changed to "Limited Use", or "B" areas, with travel limited to designated roads. Camping would not be allowed within the ACEC.

   c. Remainder of the Management Area (20,000 acres)

      This area would be dual zoned; both motorcycle and 4WD use would be allowed. "Open", or "A" designations would be revised to "B" or "Limited Use" designations. Vehicle travel would be restricted to designated roads. This change to limited use OHV designation would affect approximately 1,000 acres that are currently open for unrestricted use and would assure consistency with OHV designations within the ACEC boundaries.

ALTERNATIVE 5 - OHV CLOSURE

RESOURCE CONDITION OBJECTIVES

1. Minimize asbestos exposure and generation of dust emissions to reduce the health risks of this area. Eliminate asbestos dust emissions from OHV use. Minimize erosion and sediment production and transport from the designated road system. Ensure that BLM employees meet all OSHA requirements.

2. Maximize opportunities to protect existing populations of the San Benito evening primrose and to expand its range while maintaining a system of roads for BLM authorized right-of-way holders and general public access to the area.

3. Reduce sediment transport and erosion from all sources in all watersheds. Improve watershed conditions in those areas previously used by OHVs.

4. Expand the San Benito Mountain Natural Area to include a cross-section of the unique serpentine and adjacent ecotones found only within this area.

5. Restrict vehicular use to system of maintained roads. Emphasize non-OHV recreational use. Eliminate motorcycle use in the CCMA.

SUMMARY OF ALTERNATIVE

Miles of designated vehicle routes (paved and unpaved): 27
Acres of open barren slopes (hillclimbs): 0
Miles of routes dust stabilized: 0.6
Miles of roads/trails maintained annually: 30
Number of San Benito Evening Primrose populations protected: 16
Number of suitable, but unoccupied primrose habitat areas protected: approximately 58
Number of watersheds having erosion & sediment control projects: All

This alternative would close all roads and trails except a small network of roads that would allow access to the CCMA. The CCMA would be closed to motorcycles. The boundaries of the San Benito Mountain Natural Area would be expanded to include more of the unique plant habitat found only in this area, and to include more of the watershed.

MANAGEMENT ACTIONS

1. The existing asbestos hazard information program would be maintained through the use of signs, handouts and public contacts. Roads would be closed seasonally if use were resulting in continued excessive erosion or if asbestos emission standards were exceeded.

2. Known populations of the San Benito evening primrose would be protected. All high, medium and low potential habitat would be evaluated for seed or seedling introduction of the San Benito evening primrose.

3. Sediment and erosion stabilization projects would be constructed to prevent erosion and/or reduce sediment transport. These projects would be done primarily to mitigate past OHV impacts and reduce the overall downstream transport of asbestos sediment. Watershed best management practices adopted in 1984 would be used as guidelines for any new authorized activities. Annual watershed and road monitoring would be conducted to develop and prioritize implementation of erosion control measures.

4. The San Benito Mountain Natural Area would be expanded to 4082 acres. A Cooperative Management Agreement would be established with academic groups to foster research into the natural ecosystems, and a restoration/rehabilitation plan would be developed to rehabilitate the disturbed areas (i.e. OHV play areas, roads, trails and mine sites) within the expanded boundary.

5. The Clear Creek Management Area would be zoned for 4WD use only and all motorcycle access would be eliminated. All "Open", or "A" designations would be changed to "Limited Use", or "B" designations with vehicle traffic restricted to designated roads. This limited OHV designation would affect approximately 1,000 acres outside the ACEC that are currently open for unrestricted use and would assure consistency with OHV designations within the ACEC boundaries. Camping would be limited to areas formally designated as campgrounds such as the Oak Flat Campground. Fencing or other controls would be installed to assure all vehicles remain on designated roads.

ALTERNATIVE 6 - ENHANCEMENT OF NATURAL VALUES

RESOURCE CONDITION OBJECTIVES

1. Minimize asbestos exposure and generation of dust emissions to reduce the health risks of this area. Eliminate asbestos dust emissions from OHV use. Minimize erosion and sediment production and transport from the designated road system. Ensure that BLM employees meet all OSHA requirements.

2. Maximize opportunities to protect existing populations of the San Benito evening primrose and expand its range into all potential habitat areas.

3. Reduce sediment transport and erosion from all sources in all watersheds. Improve watershed conditions in those areas previously used by OHVs and reduce impacts resulting from primary road systems.

4. Manage the entire Clear Creek area for research and resource preservation. Promote and allow recreational uses which are compatible with the preservation of natural values.

SUMMARY OF ALTERNATIVE

Miles of designated vehicle routes (paved and unpaved): 27
Acres of open barren slopes (hillclimbs): 0
Miles of routes dust stabilized: 0.6
Miles of roads/trails maintained annually: 30
Number of San Benito Evening Primrose populations protected: 16
Number of primrose habitat areas protected: approximately 58
Number of watersheds having erosion & sediment control projects: All, as determined from annual monitoring.

Under this alternative the entire Serpentine ACEC would be managed to enhance and protect the unique scenic, botanical, geological and watershed resources to provide for maximum protection and scientific research. Stabilization of these watersheds would be a priority to reduce onsite generation and offsite transport of sediments as well as protecting the plant habitat and riparian zones.

MANAGEMENT ACTIONS

1. The asbestos exposure and dust generation in this area would be managed by restricting vehicle use to a system of well maintained roads. These roads

would be closed if excessive erosion could not be controlled through maintenance or re-design.

2. Annual watershed and road monitoring would be conducted to prioritize the development and implementation of erosion projects in high erosion areas to restore natural conditions. An implementation plan would be prepared to identify priority actions and to develop an implementation and monitoring schedule for the next ten years.

3. Roads (Clear Creek Road, Sawmill Creek Road, for example) would be rerouted or closed as necessary to eliminate impacts to watershed, rare plant habitat, and riparian values.

4. The San Benito Mountain Natural Area would be expanded to include the entire serpentine outcropping. Cooperative Management Agreements would be developed to establish a field research facility in the vicinity. The entire SBMNA would be withdrawn from mining.

5. The Clear Creek Management Area would be zoned for 4WD use only. All "Open", or "A" designations would be changed to "Limited Use", or "B" designations with vehicle traffic restricted to designated roads. This limited OHV designation would affect approximately 1,000 acres outside the ACEC that are currently open for unrestricted use and would assure consistency with OHV designations within the ACEC boundaries. Camping would be restricted to designated campgrounds. Fencing or other controls would be installed to assure all vehicles remain on designated roads.

6. Known populations of the San Benito evening primrose would be protected and all unoccupied but potential habitat (including low potential habitat such as staging areas) would be evaluated for seed or seedling introduction of this species.

SELECTION OF THE PREFERRED ALTERNATIVE

BLM's Preferred Alternative is Alternative 3 as modified, which incorporates or modifies most of the components of both the 1994 Draft EIS Technical Review Team (TRT) Alternative #3, and the 1986 Clear Creek Management Plan. The new Alternative 3 also incorporates many ideas provided to the BLM during the public comment period for the Draft EIS. While this alternative would restrict OHV recreation to designated routes and trails, and would expand the San Benito Mountain Natural Area, it also would maintain significant OHV opportunities throughout the CCMA. This alternative has been selected because it would allow continued access within the Clear Creek Canyon but would control riparian impacts such as erosion and sedimentation in this watershed by the construction of various erosion and sediment control projects. This alternative would also provide for increased manageability of OHV use. Sensitive areas, such as riparian zones and open barrens slopes would receive greater protection, and overall public exposure to asbestos would be greatly reduced through a combination of engineering and administrative controls.

This alternative would be implemented with the following proposed actions:

A) Most hillclimbs in the CCMA would be conditionally closed, pending a thorough open area inventory. Using set criteria such as erosion potential and/or proximity to riparian zones, sensitive plant populations and habitat, cultural resources and mined areas, open areas would be reviewed to evaluate their potential for OHV use. Up to about 937 acres of open areas could be re-opened for OHV use; however, open acreage could be much less, and could potentially be zero. OHV use, including motorcycles and 4WD vehicles would be restricted to a network of designated routes - the route network would be determined by a route inventory, and would span the entire CCMA.

B) Approximately 30 miles of main access roads would be dust-suppressed to reduce airborne dust emissions caused by vehicle use and to thereby reduce human exposure to asbestos. This route system would be available all year round.

C) Camping would be restricted to the Oak Flat Campground and to designated sites within the Serpentine ACEC. These designated sites would include both formal and informal areas, and would be located away from sensitive resources.

D) The San Benito Mountain Natural Area would be expanded to approximately 4082 acres; its boundaries, wherever possible would be defined by easily identifiable geographic landmarks such as roads.

E) All 16 known populations and approximately 50 suitable terrace sites of the San Benito evening primrose would be protected. Known populations and potential habitat of listed and candidate species and sensitive habitats would be protected.

Monitoring

A) Annual biological, watershed, and other program monitoring would be implemented per the guidelines in Table 2.

B) Compliance with OHV use designations would be evaluated annually. Significant OHV trespass or other non-compliance could result in further restrictions to OHV use, including closures.

UNAVOIDABLE ADVERSE IMPACTS (PREFERRED ALTERNATIVE)

Unavoidable adverse impacts are the residual impacts that would still exist in spite of the mitigation measures, and in this study include impacts to Air Quality/Human Health, Vegetation, and Watershed values.

Air Quality/Human Health

Air quality would continue to be affected by the use of vehicles on unpaved roads and trails. Fugitive dust containing asbestos fibers would continue to degrade existing air quality and could adversely affect the health of public land visitors.

Vegetation

In the long term, continued erosion of topsoil in high vehicle use areas would decrease the soil productivity and inhibit natural revegetation of these areas. Direct impacts in the short term from vehicle use include brush crushing and physical removal of vegetation, and long term indirect impacts from erosion, would affect some sensitive plant habitat in the riparian areas. However, restriction of vehicles to designated routes, in conjunction with closures of most open areas pending inventory for OHV suitability, should minimize these impacts.

Watershed

Any vehicle use on highly erosive areas such as barren slopes opened for OHV use, and on unpaved roads and trails would remove topsoil and increase erosion and sedimentation. Surface water quality would be affected by increases in sedimentation over current levels.

TABLE 1. COMPARISON OF ALL ALTERNATIVES

	ALTERNATIVE #1 EXISTING MANAGEMENT (NO ACTION)	ALTERNATIVE #2 IMPLEMENTATION OF CLEAR CREEK MGMT PLAN (within 5 years)	ALTERNATIVE #3 DISPERSED OHV USE	ALTERNATIVE #4 RESTRICTED OHV USE	ALTERNATIVE #5 OHV CLOSURE	ALTERNATIVE #6 ENHANCEMENT OF NATURAL VALUES
MANAGEMENT EMPHASIS	Emphasis on OHV recreational use, no new restrictions imposed.	All areas remain open with implementation of CC Mgmt Plan completed within five years.	Vehicle travel in the Clear Creek Management Area will be limited to designated routes. Most open areas will be conditionally closed to OHV use pending an open area inventory to determine which hillclimbs are compatible with this use.	Clear Creek watershed zoned for dual purpose OHV use (2 & 4 wheel drive vehicles). Other watersheds zoned for 4 wheel drive access only on designated roads and trails (closed to motorcycle use).	Clear Creek managed for non-OHV dependent uses with all vehicles restricted to designated roads.	The Area of Critical Environmental Concern (ACEC) and Natural Area managed to protect and enhance the unique scientific, scenic, ecological, geologic, botanical and watershed values.
ASBESTOS POLICY/ PUBLIC HEALTH AND SAFETY	Public makes informed choice about visiting asbestos area. BLM employees monitored to meet OSHA standards. Dry season restrictions to OHV (est. May-Sept.).	Visitors will have a public vehicle wash rack provided to reduce the transport of asbestos to users homes & communities. Six miles of the lower Clear Creek County road will be dust suppressed.	No change from Alt. #2 except for 23 miles of additional dust stabilization on the main vehicle access routes (county roads). This is provided to reduce the amount of asbestos emissions to onsite users.	No change from Alt. #3 except for a reduced vehicle access network and geographical area open for OHV use. This is provided to further reduce airborne asbestos emissions.	OHV use eliminated, which will significantly decrease visitor usage. The vehicle access network (27 miles) would be graded but not dust suppressed.	No change from Alt. #5.
WATERSHED MANAGEMENT	No sediment dams or closure of open areas. Erosion and sediment transport impacts not mitigated.	Sediment dams constructed to mitigate OHV generated sediment and off-site transport of sediments via Clear Creek drainage.	No change from Alt. #2.	No change from Alt. #3 except for the addition of standards to stabilize other actively eroding watersheds outside the Clear Creek watershed.	Erosion and sediment stabilization projects to reduce sediments in all watersheds - emphasis on drainages most affected by historic use.	Erosion and sediment stabilization projects to reduce sediments in all watersheds.

	ALTERNATIVE #1 EXISTING MANAGEMENT (NO ACTION)	ALTERNATIVE #2 IMPLEMENTATION OF CLEAR CREEK MGMT PLAN (within 5 years)	ALTERNATIVE #3 DISPERSED OHV USE	ALTERNATIVE #4 RESTRICTED OHV USE	ALTERNATIVE #5 OHV CLOSURE	ALTERNATIVE #6 ENHANCEMENT OF NATURAL VALUES
WATERSHED EROSION AND SEDIMENTATION ESTIMATES	Road network includes 420 miles of unpaved road/trails. 2876 acres of OHV hillclimbs open. Total sediment yield = 30,059 tons per year. This is approximately a 20% increase over natural conditions.	Road network includes 405 miles of unpaved road/trails. 2876 acres of OHV hillclimbs open. Total sediment yield = 28,893 tons per year. This is a 6% reduction from alt. #1.	Road network includes 270 miles of unpaved road/trails. 937 acres of OHV hillclimbs open. Total sediment yield = 11,327 tons per year. This is a 62% reduction from alt. #1.	Road network includes 119 miles of unpaved road/trails. 1229 acres of OHV hillclimbs open. The total sediment yield = 8,640 tons per year. This is a 71% reduction from alt. #1.	Road network includes 27 miles of unpaved road/trails. No acres are open for OHV hillclimbs. Total sediment yield = 5,249 tons per year. This is a 82% reduction from alt. #1.	Road network includes 27 miles of unpaved road/trails. No acres are open for OHV hillclimbs. Total sediment yield = 5,249 tons per year. This is a 82% reduction from alt. #1.
SAN BENITO EVENING PRIMROSE	16 populations and 15 habitats protected.	16 populations and 50 habitats protected.	16 populations and 50 habitats protected.	16 populations and 50 habitats protected.	16 populations and 58 habitats protected.	16 populations and 58 habitats protected.
SAN BENITO MOUNTAIN NATURAL AREA	1871 acres	1871 acres	4082 acres	4082 acres	4082 acres	17301 acres
RECREATIONAL OPPORTUNITIES	2876 acres open for OHV play on barren slopes. 420 miles of roads and trails limited to designated routes. 2048 acres of hillclimbs (play areas) closed.	2876 acres open for OHV play on barren slopes. 405 miles of roads and trails limited to designated routes. 2048 acres of hillclimbs (play areas) closed. Camping restricted to staging areas and to Oak Flat Campground and to areas outside riparian zones.	207 acres conditionally open in the interim, and up to 937 acres open, pending barren slopes inventory 155 miles designated in the interim, up to about 270 miles of designated roads and trails pending route inventory 3987-4714 acres of hillclimbs (play areas) conditionally closed. Camping allowed at Oak Flat, and in designated areas within the Serpentine ACEC.	1229 acres open for OHV play on barren slopes. 119 miles of roads and trails limited to designated routes. 3695 acres of hillclimbs (play areas) closed. Camping allowed at designated Campgrounds.	0 acres open for OHV play on barren slopes. 26 miles of roads limited to county road system. Camping restrictions same as Alt. #4	0 acres open for OHV play on barren slopes. 26 miles of roads limited to county road system. Camping restrictions as in #4 and #5.

TABLE 2. PREFERRED ALTERNATIVE MONITORING PLAN

RESOURCE SELECTED FOR MONITORING	SPECIFIC CONDITION FOR ENVIRONMENTAL MONITORING	THRESHOLD OR STANDARDS THAT NEED TO BE MET	ACTION OR DECISION IF THRESHOLD IS EXCEEDED (All Alternatives)	ACTION OR DECISION IF THRESHOLD IS EXCEEDED (Specific to individual Alternatives)	ESTIMATED STAFF NEEDS	ESTIMATED FUNDING
ASBESTOS POLICY	All existing regulations will be followed and monitor all proposed changes to asbestos health and safety regulations (OSHA and EPA). BLM employees will meet OSHA standards.	Public will have access to asbestos air emissions monitoring results to make an informed choice about visiting this area. Vehicle wash rack provided to reduce the transport of asbestos to users homes & communities.	Seasonal restriction on public use during the dry & high dust conditions. BLM employees monitored to ensure OSHA compliance.	Surface disturbance activities (OHV races) would not be permitted if airborne asbestos concentrations exceed OSHA thresholds. BLM employees would use personal protection (respirators) if asbestos levels are elevated to ensure OSHA compliance.	Patrol rangers to follow BLM Health and Safety plan for OSHA compliance. Continue to monitor use and inform visitors about asbestos exposure and ways to minimize exposure. (4 workmonths)	Two full-time patrol rangers, OSHA personal protective equipment and training and supervision (est. $60,000/yr)
WATERSHED MANAGEMENT (INCLUDES VERNAL POOLS, RIPARIAN ZONES)	Monitor stream flow in Clear Creek at least annually. Set-up monitoring stations on at least two watersheds or sub-watersheds and document all erosion sediment and other water quality problems in an annual report.	Silt traps or other sediment control system will be designed and constructed to mitigate OHV generated sediment and off-site transport of sediments via Clear Creek drainage.	All stream crossing and riparian zones will be protected by a buffer zone which will exclude or protect vehicle crossing. All impacts caused by vehicle use in riparian zone will be documented.	Silt dams to reduce sediments in Clear Creek riparian zone and develop standards to stabilize other actively eroding watersheds. If riparian and watershed conditions show degradation, restoration to these areas will be initiated.	Patrol rangers, other resource staff specialist as needed to monitor riparian zones, road and trail conditions, develop rehab plans and implement via contract or in-house. (4 workmonths)	Two patrol rangers and staff specialists to set-up and monitor. Estimate 6 monitoring sites inventoried per year. (est. $10,000)

RESOURCE SELECTED FOR MONITORING	SPECIFIC CONDITION FOR ENVIRONMENTAL MONITORING	THRESHOLD OR STANDARDS THAT NEED TO BE MET	ACTION OR DECISION IF THRESHOLD IS EXCEEDED (All Alternatives)	ACTION OR DECISION IF THRESHOLD IS EXCEEDED (Specific to individual Alternatives)	ESTIMATED STAFF NEEDS	ESTIMATED FUNDING
OHV USE AREAS	All trails, roads and open play areas will be inspected for erosion problems prior to and after high use season (Nov.-April). Specific monitoring plots will be established to document amount of use and associated impacts.	Marked increase in loss of soil, vegetation and any new development of gully erosion will be documented in annual monitoring report.	If impacts are not mitigated within one year of discovery, closure of affected area to vehicle access will be immediate.	All roads, trails, & hillclimbs within the Clear Creek Management Area would be closed.	Patrol rangers, other resource staff specialists as needed to inspect and repair erosion problems associated with roads and trails. Monitoring points will be established at specific locations. (4 workmonths)	Two patrol rangers and staff specialists to set-up and monitor. Estimate 10 miles of road maintenance work per year (est. $10,000), sediment dams,fencing and dust abatement onetime construction cost (est. 3.2M)
SAN BENITO EVENING PRIMROSE	Known populations will be inventoried annually and document site conditions. Potential habitat will be monitored using USFWS draft recovery plan	Known populations fenced - most potential habitat in lower Clear Creek Cyn not already impacted by development would be protected. Any adverse impacts will be documented.	If adverse conditions are documented to either habitat or known populations action will be taken to restore site conditions.	All areas that have high habitat potential will be restored for potential re-introduction of species.	Patrol rangers to monitor any impacts to existing fenced rare plant locations. Other staff to inventory populations annually. (2 workmonths)	Patrol rangers and other staff to rehab, reseed suitable habitat and repair any enclosures. (est. $1,000/yr)
SAN BENITO MOUNTAIN NATURAL AREA	Annual inspection of boundary.	All vehicle trespass will be resolved in FY it was identified.	Trails, roads and other access points that contribute to trespass will be closed if trespass cannot be resolved.	Boundary expanded to include upper Clear Creek watershed	Patrol rangers to inspect boundary and monitor any vehicle trespass. (1 workmonth)	Patrol rangers to repair or extend any fence needed to preclude vehicle trespass. (est.$500/yr)

RESOURCE SELECTED FOR MONITORING	SPECIFIC CONDITION FOR ENVIRONMENTAL MONITORING	THRESHOLD OR STANDARDS THAT NEED TO BE MET	ACTION OR DECISION IF THRESHOLD IS EXCEEDED (All Alternatives)	ACTION OR DECISION IF THRESHOLD IS EXCEEDED (Specific to individual Alternatives)	ESTIMATED STAFF NEEDS	ESTIMATED FUNDING
AQUATIC WILDLIFE	Monitor trends of foothill yellow-legged frog, fish, and invertebrates as indicators of biological health of creeks in CCMA	Maintain or increase diversity of species and/or numbers of individuals	If public uses in subject watershed were shown to be bringing populations below target levels, modify allowed public uses	Same as Column 3	All major watersheds monitored (1 Work Month)	Patrol rangers, staff specialists Equipment, supplies and sample analysis costs @ $2000/year
WATER QUALITY	Physical and chemical parameters to be monitored will be determined in consultation with other agencies	Maintain at or above acceptable and agreed upon levels	If public uses in subject watershed were shown to be bringing water quality below target levels, modify allowed public uses	Same as column 3	All major watersheds monitored (1 Work Month)	Patrol rangers, staff specialists Equipment, supplies and sample analysis costs @ $2000/year
VEHICLE ACCESS DESIGNATIONS & RESTRICTIONS (FENCING, etc.)	All vehicle access restrictions will be monitored annually. Atlas Mine Superfund site will be monitored monthly.	Fencing to preclude OHV use in 1/4 mile corridor around lower Clear Creek - about 18 access routes into the canyon to remain open.	New fencing to preclude OHV use in 1/4 mile corridor around lower Clear Creek, and in all play areas/hill climbs outside the Clear Creek watershed	No new fencing needed if strict compliance to OHV can be maintained. If not, new fencing or other barriers to prohibit OHV use may be required.	All closed routes will be monitored for erosion and unauthorized use. (2 workmonths)	Patrol rangers to repair or extend any fence needed to preclude vehicle access (est. $1,000)
AIR QUALITY	BLM employees will perform routine air sampling for OSHA asbestos exposure.	OSHA thresholds will be used for employee exposure (0.1 fibers per cc in eight hour time weight average).	If OSHA thresholds are exceeded employees may be restricted from working in the Serpentine ACEC.	Under Alt. #2, #3, and #4, public vehicle access could be restricted along with BLM employees when OSHA limits are exceeded.	All employees who work in the asbestos area will be required to meet both BLM and OSHA requirements. (2 workmonths)	All employees will be health monitored and personal protective equipment will be available for use. (est. $15,000/yr)

CHAPTER 3 - AFFECTED ENVIRONMENT

This chapter provides a description of those portions of the environment that could be affected by the alternatives selected for analysis, and in particular how those alternatives could affect the unique resource values of two specially designated areas within the CCMA - the Serpentine Area of Critical Environmental Concern (ACEC) and the San Benito Mountain Natural Area. The San Benito Mountain Natural Area falls within the Serpentine ACEC. These areas require special management and monitoring, especially as most of the dispersed recreation occurs within the ACEC boundaries. Major emphasis has also been placed on the environmental issues identified during the public scoping process.

CLEAR CREEK MANAGEMENT AREA

TOPOGRAPHY AND CLIMATE

Elevation within the management area varies from about 2,000 feet to over 5,000 feet. The highest peak in this portion of the Diablo Mountain Range is San Benito Mountain, at 5,241 feet in elevation. The topography is mostly mountainous and the slopes range from 30 to 70 percent, with interspersed small, flat lying stream terraces. Predominant in this landscape are steep, bare areas surrounded by brush-covered slopes with occasional rock outcrops.

Weather in the CCMA is hot and dry in the summer and cool and wet in the winter. Summer daytime temperatures occasionally exceed 100°F. Winter temperatures frequently fall below freezing and snow is common at the higher elevations. Precipitation, in the form of rain with some snow, occurs almost entirely from November to May. The average rainfall is 17 inches per year. Periodic flooding because of high intensity rainfall in not uncommon in this area, as rainfall can be as much as one inch per hour.

AIR QUALITY AND HUMAN HEALTH

The CCMA is within two air quality management areas as regulated by the State of California. These air basins are: the North Central Coast and the San Joaquin Valley. There are two regional air quality boards that oversee these air basins: the

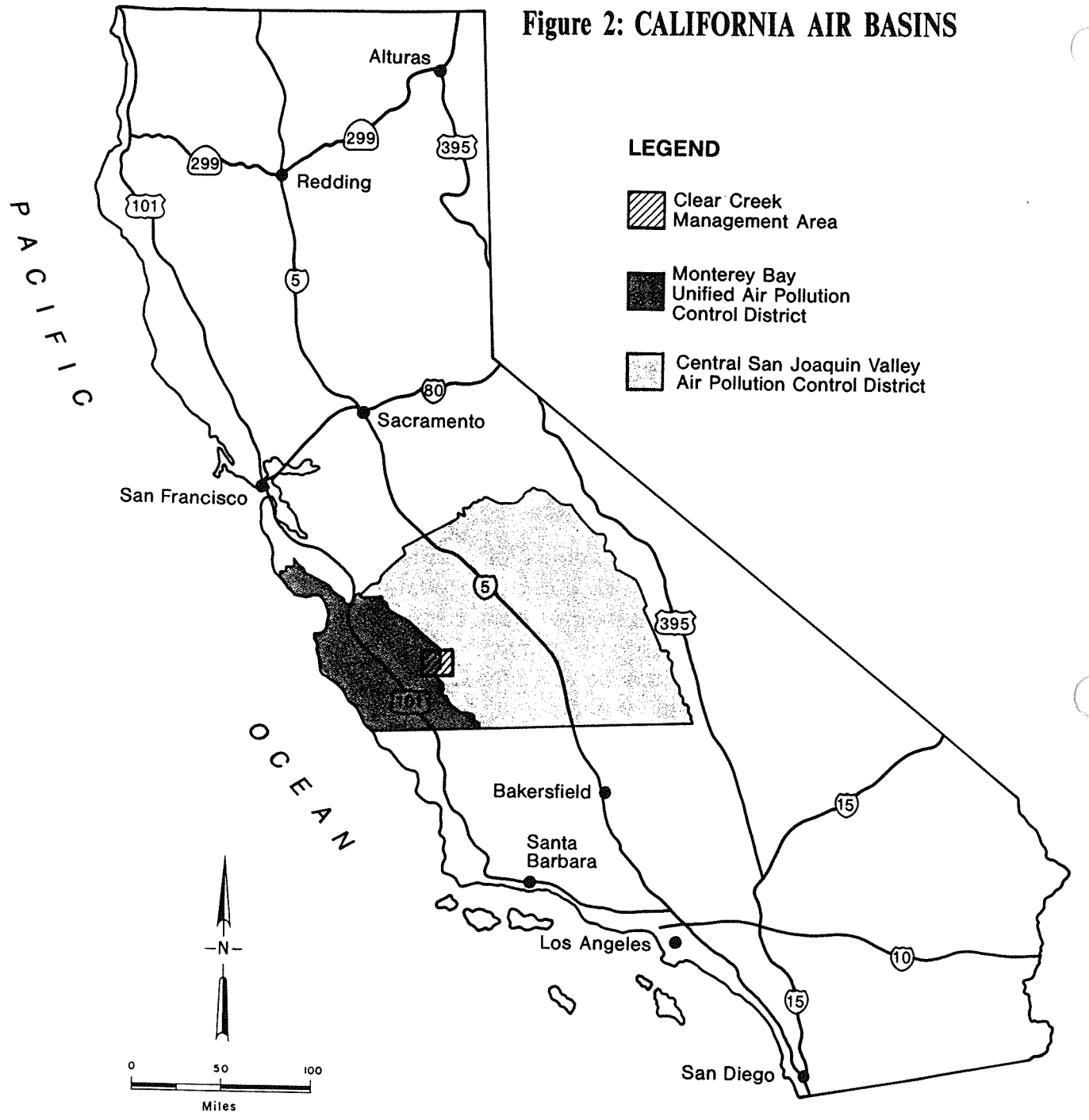
San Joaquin Valley Unified Air Pollution Control District and the Monterey Bay Unified Air Pollution Control District (Figure 2).

The meteorological conditions between these two air basins is influenced by the Diablo Range which separates the San Joaquin valley from the Salinas valley and its coastal marine weather patterns. The mountainous Diablo Range restricts the circulation of air within the San Joaquin valley, which is noted for its persistent winter inversions and "tule fog" and for its high summer temperatures. This restricted air circulation in the San Joaquin valley allows for a build-up of pollutants which translates into a significant number of days with a poor-to-moderate pollution index. West of the Diablo Range, the air quality generally improves since the weather patterns and air circulation are heavily influenced by the cooler coastal marine conditions.

The North Central Coast Air Basin includes Monterey, Santa Cruz and San Benito Counties. This basin currently exceeds federal ambient air quality standards for ozone, and exceeds the State of California ambient air quality standards for ozone and fine particulate matter of less than 10 microns (PM-10). California PM-10 violations were recorded on eight occasions in 1987 and four times in 1988 (MBUAPCD). The San Joaquin Valley Air Basin includes Fresno county and it currently exceeds both federal and California ambient air quality standards for carbon monoxide and PM-10. Fresno County has severe air quality problems that exceed many larger urban centers such as New York or Chicago (CARB 1988).

Vehicle use within the overall air basin can account for 36% of the reactive organic gases, and 50% of the nitrogen oxide (MBUAPCD). Vehicle use on unpaved serpentine roads and trails can also generate asbestos emissions and other fine dust of less than 10 microns (PM-10), all of which can negatively impact air quality. However, no data has been gathered in this area which quantifies the PM-10 contribution from vehicles. The other pollutants associated with motorized vehicles are: Reactive Organic Gases (ROG), Nitrogen Oxides (NOX), and (PM-10). The BLM in cooperation with the Monterey Bay Unified Air Pollution Control District has computer modelled the other common vehicle emissions, ROG, NOX, and CO from mobile sources. Based upon this analysis all common automotive emissions except PM-10, are within existing air quality standards and do not exceed Federal or State regulatory thresholds. The PM-10 emissions estimated by computer modeling were found to potentially exceed State and Federal standards. Since the San Joaquin Valley Air Pollution Control Board has adopted a PM-10 reduction plan effective December 1993, all land-use decisions for the CCMA will need to conform to this plan. In addition, when the Monterey Bay Unified Air Pollution Control Board adopts their PM-10 reduction plan, it will also become a standard that BLM will strive to meet for all land-use decisions in the CCMA. In addition to ambient air quality standards, the State of California has begun to

Figure 2: CALIFORNIA AIR BASINS



implement a long term program to identify, assess and control ambient levels of hazardous air pollutants. This program was initiated by the passage of the AirToxics "Hot Spots" Information and Assessment Act of 1987. This program is aimed primarily at industrial sources of localized point source emissions (e.g. asbestos mining). This Act is in accordance with Title III of the Federal Clean Air Act as amended in 1990. This regulation identifies and specifically regulates National Emission Standards for Hazardous Air Pollutants (NESHAPS), which includes an asbestos standard. The asbestos standard under the NESHAPS regulations pertain to asbestos mining and milling operations only and do not set any airborne "threshold" for acceptable levels of airborne asbestos.

Other air quality regulations have been set for employee exposure by the Occupational Health and Safety Administration (OSHA) which affect worker safety in environments that have high asbestos air concentrations.

Hazardous Asbestos Emissions. The North Central Coast air basin can affect the San Joaquin Valley air basin by the prevailing winds that transport air pollutants. The air sampling investigations conducted by EPA indicated that asbestos concentrations were similar within the two air basins. This EPA study only addressed asbestos air pollution transport. The onsite generation and inhalation of airborne asbestos was determined by both EPA and BLM to be a potential problem from motorized vehicle use in the Clear Creek Management Area.

Surface disturbance, primarily from vehicle use on the unpaved roads in this area, generates asbestos emissions, which can exceed established OSHA standards for public health and safety. Several studies have been conducted over the past decade by regulatory agencies to determine the impacts to air quality from vehicle use on unpaved roads in natural asbestos areas. The results of these studies indicate that the force of vehicle wheels on the road surface causes pulverization of the surface material, then asbestos fibers are lifted up by the passing vehicle and strong air currents are generated which can suspend these particles in the air (EPA, 1989).

The quantity of dust emitted depends on road traffic, vehicle weight, number of wheels per vehicle, vehicle speed, soil moisture, and concentration of asbestos in the soil. Unpaved roads in the CCMA generally have a pulverized texture when dry. After rainfall has saturated these road surfaces they become muddy and slippery, but within a short time the road surfaces can dry out and generate dust. In general, the asbestos emissions generated from vehicle use can be measured or predicted.

Asbestos Health Effects. Asbestos is a generic term that refers to a group of six needle-shaped mineral types, all of which occur naturally in the environment. Individual asbestos fibers are only visible under a microscope. Asbestos has several unique properties, making it useful for industrial and commercial applications. Asbestos fibers are heat-resistant and very durable, allowing them to persist in the environment for many years. In addition, because of their size and shape, these fibers are easily disturbed and made airborne. Once the fibers are in the air they can remain suspended and can easily travel with the prevailing wind.

Asbestos found in the Clear Creek area is of the chrysotile mineral type, which is also referred to as the "short-fiber" type of asbestos. Both animal and human studies have demonstrated that inhalation of all types of asbestos can be carcinogenic (PTI, 1992). Although there are considerable differences in the cancer potency of these six fiber types, the entire class of asbestos fibers, including chrysotile asbestos, has been classified as a human carcinogen. Adverse health effects from chrysotile inhalation can include cancer of the larynx, lung cancer, mesothelioma and asbestosis. Most of these adverse health effects are the result of exposure to high concentrations in the workplace over many years. However, the short-term and generally lower airborne asbestos concentrations found in an environmental setting still may increase a person's chances of developing cancer.

All types of asbestos fibers are a health hazard when they are disturbed, become airborne and are then inhaled. Asbestos fibers are breathed deep into the sensitive lung tissue and become imbedded in the cell walls. Once asbestos fibers enter the lung, they remain trapped there. These fibers are irritants, and cause the human body to develop scar tissue over individual fibers. The medical term for this disease is called asbestosis; it usually develops over long periods of time and is related to the amount of asbestos fibers inhaled.

Asbestosis, or lung scarring, increases the difficulty in breathing, reduces the oxygen uptake in the lung and can also strain the heart muscle. This disease can develop after 10-15 years after first exposure to asbestos and is a permanent condition with no known cure. Several types of cancer are associated with asbestos exposure, including lung cancer, mesothelioma and gastrointestinal cancers of the stomach, colon or esophagus. All of these diseases have been associated with both occupational and non-occupational exposures to asbestos.

The chances or risk of contracting these asbestos-related diseases depends upon several risk factors. The first factor is the quantity of fibers inhaled, called the dose. The second factor is the duration of exposure to the dose of asbestos. Other significant factors include smoking and heredity or any history of cancer within the immediate family.

BLM employees are required to follow the OSHA regulations for exposure to asbestos. One of the OSHA procedures that is routinely followed is personal exposure monitoring for asbestos. This has provided BLM with a database of asbestos air concentrations in the CCMA for the years 1988-1992. Additional studies in 1978 and 1979 were conducted by the University of California at Berkeley, in which air samples were collected, laboratory analysis was performed, and a report of all findings submitted to the BLM.

A database of all these air samples was compiled by BLM and the data were independently reviewed by BLM's Technical Assistance Contractor, PTI, Environmental Services. PTI prepared a risk assessment report that estimated the risk to the public from asbestos exposure in the ACEC. Table 3 presents the estimated risk of developing cancer from the three common activities of recreational visitors. This table, which is based on PTI's study, assumes that the average visitor is in the Clear Creek area 5 times per year, uses an OHV for 5.4 hours and has 3.2 days devoted to camping, hunting and mineral collecting. Based upon the amount of asbestos inhaled during these activities, an individual who visits the Clear Creek Management Area repeatedly can expect to incur some increased amount of risk. Thus, based upon this average public use pattern, five persons out of 100,000 visiting the CCMA would contract cancer due to their inhalation of asbestos fibers. This risk assessment also considers the high use visitor who makes 9 visits per year. Assuming 9 visits per year that include 5.4 hours of OHV riding and 3.2 days per year for camping, hunting and mineral collecting, the estimated cancer risk rises to 9 in 100,000. When evaluating these risk estimates, the reviewer should be aware of the various uncertainties in the data that may exist and consider how these uncertainties may affect the actual human health risks resulting from exposure at this site. Figure 3 presents a comparison of cancer risks as affected by the duration of exposure (1 to 60 days per year) as a consequence of various recreational activities at the site. Table 4 presents examples of the types of uncertainties that can affect these risk estimates. One very clear uncertainty is the estimate of asbestos exposure concentrations for motorcycle riders. Data from the University of California at Berkeley reported that asbestos concentrations in air may be up to 84 times higher than estimated by the BLM data. Therefore, the Berkeley data were considered in preparing the risk assessment.

Although these risks have been estimated based upon the average frequency of use per year by an individual, there are uncertainties associated with these numbers. For example, increased visits per year, an individual's age and heredity and other lifestyle habits such as tobacco smoking could increase a individual's risk. Also the secondary risks from the exposure outside the Clear Creek Management Area via offsite transport of the asbestos soils into the homes and communities have not been quantified. This secondary exposure cannot be

TABLE 3. ESTIMATED RISKS OF DEVELOPING CANCER FROM ASBESTOS EXPOSURE

Exposure Pathway Inhalation of asbestos during recreational activities in Clear Creek	Estimated Excess Lifetime Cancer Risk[1] 1-Day	Average[2]	High Case[3]
1) Off-Road Vehicle Use (includes 2-WD and 4-WD)	4 in 1,000,000	2 in 100,000	6 in 100,000
2) Other activities (including camping)	1 in 100,000	3 in 100,000	NA
3) Combined Activities (Number 1 & 2 above)	1 in 100,000	5 in 100,000	9 in 100,000

[1]The excess lifetime cancer risk represents the additional probability (excluding the national background cancer probability) that an individual may develop cancer over a 70-year lifetime as a result of the specific exposure conditions evaluated. Uncertainties in these estimates due to variables presented in Table 4 are unknown and unquantifiable.

[2]The average case was estimated using 5 visits per year (OHV riding for 5.4 hours) and 3.2 days per year for camping, hunting and mineral collecting.

[3]The high case estimate was established based upon 9 visits per year for OHV activities.

NA = maximum high estimates were not analyzed.

FIGURE 3. ESTIMATED INCREASE IN RISK OF DEVELOPING CANCER/ DAYS PER YEAR

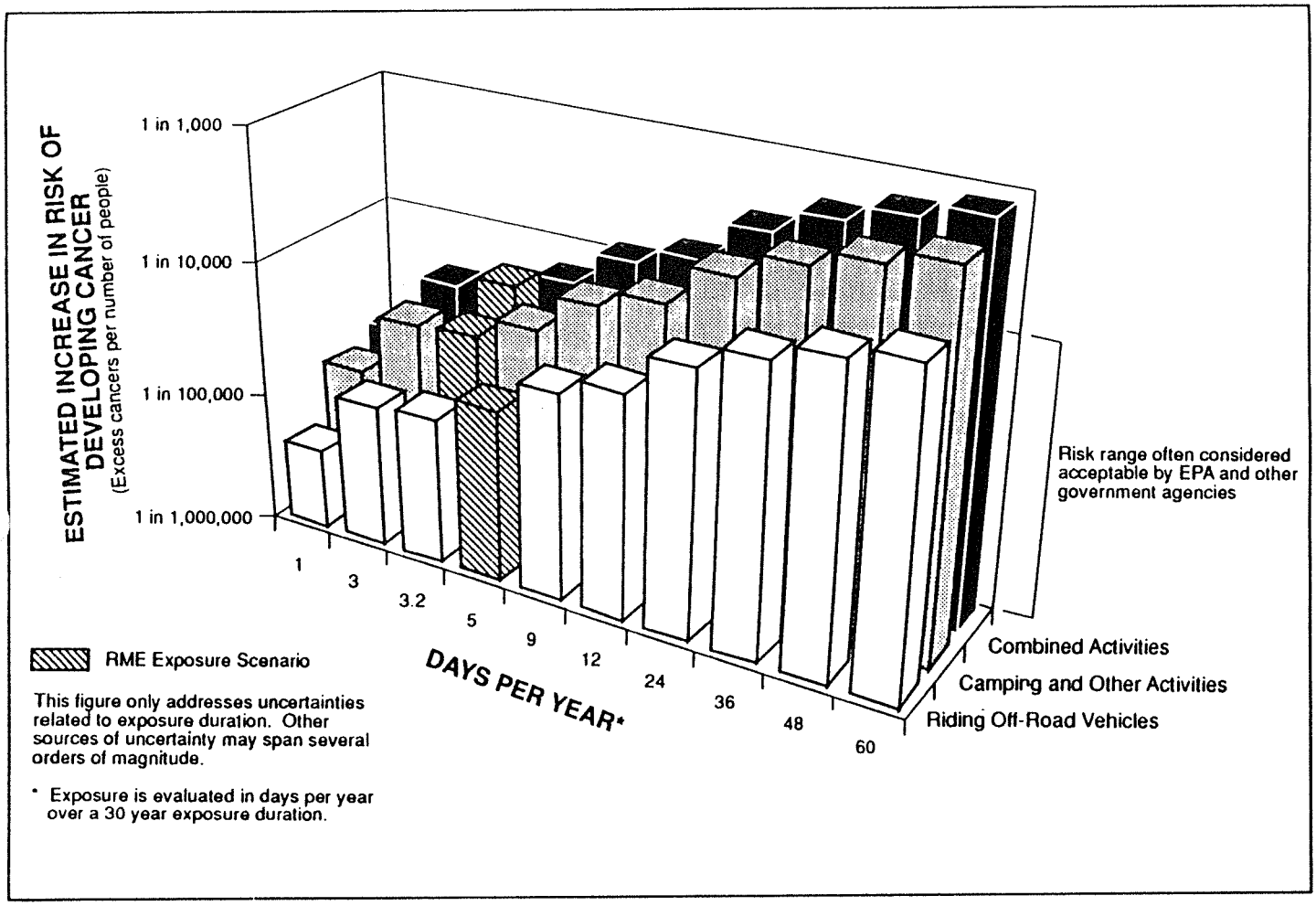


TABLE 4 - CONTRIBUTION OF SELECTED VARIABLES TO UNCERTAINTY

Variable	Over- or Underestimate; Magnitude	Basis
PCM data	Over- or underestimate	Imprecision of PCM method may result in over- or underestimate of exposures and risks
BLM data set (PCM)	May underestimate; up to 38- to 84-fold	Popendorf and Wenk asbestos concentration data are considerably higher than BLM data
Asbestos unit risk factor	Overestimate; 7 to 200-fold	URFs derived based on exposure to chrysotile asbestos in mining and milling are much lower than the EPA URF based on exposure to a variety of types of asbestos in various exposure settings
Asbestos unit risk factor	Under- or overestimate; unknown, may be 50-fold or greater	URF for asbestos may not account for all biologically active fibers
Tobacco smoking	Over- or underestimate	Risks of developing lung cancer following asbestos exposure may be substantially increased in person who smoke tobacco
Exposure assessment	Overestimate for most individuals, underestimate for some; unknown	Site use is expected to be highly variable with individuals

Note: BLM - U.S. Bureau of Land Mangement
CCMA - Clear Creek Management Area
EPA - U.S. Environmental Protection Agency
PCM - phase contrast microscopy
URF - unit risk factor

accurately determined, but risks from secondary exposure are expected to be less than those associated with onsite exposure. In addition to uncertainty in the risk estimate caused by variable exposure scenarios, there are also uncertainties caused by the lack of reliability in the measurement of asbestos concentrations. The analytical methods used were not able to accurately determine the asbestos concentrations in air and since the degree of inaccuracy is unknown, the exposure values for inhalation cannot be verified. Results of EPA-sponsored studies of asbestos analytical methods indicate that measurements may be ± 50 X. Therefore, risk estimates using air measurement data to quantify human exposure may be inaccurate by at least this factor; however, there is no information to permit an actual evaluation of the data accuracy in this case.

For comparison purposes, the average lifetime risk of someone developing any type of cancer is about 1 in 4. This average cancer risk is increased by exposure to asbestos at Clear Creek (see Table 3). The EPA prepares risk assessments to predict health risks present at other Superfund sites, and the EPA acknowledges some health risks are low enough to be considered "acceptable" risks for public exposure to chemicals in the environment. At some sites, the EPA allows public health risks between 1 in 10,000 (or 1×10^{-4}) to 1 in 1,000,000 (or 1×10^{-6}). These risks are much lower than the risk associated with the lifetime average of contracting cancer, or with many everyday activities such as riding in a car, where the lifetime risk of being killed in an accident is 1.4 in a 100 (or 1.4×10^{-2}).

A more detailed analysis of the asbestos health risks is presented in a risk assessment report in Appendix B.

VEGETATION

Vegetation is most easily discussed from a plant community perspective. The naming of plant communities throughout this document is intended to be as consistent as possible with the classification of Terrestrial Plant Communities of California (Holland, 1986) which is becoming the most often-used classification in California. Vegetation within the CCMA can be divided into two groups based on soil types. The first group is categorized by vegetation growing on soils derived from sedimentary rock, and includes Non-serpentine Foothill Pine-Chaparral Woodland, Chamise Chaparral, Valley Oak Savannah, and Non-native Grassland. The vegetation associated with sedimentary soils mostly occurs outside of the ACEC. These sedimentary soil plant communities have had limited impact due to the relatively low use of OHV's in these areas.

The second group is categorized by vegetation growing on soils derived from serpentine rock, which is the dominant soil type within the Clear Creek Serpentine ACEC. Areas of soils derived from serpentinitic rocks are recognized world-wide

for their unique flora and fauna. This is especially true in California where non-native species, especially grasses, have displaced native species, further increasing the value of serpentine-based soils where non-native species cannot readily establish. California serpentine habitats, thus, represent havens for an important part of California's native flora and fauna. Consequently, plant communities found on serpentine-based soils, such as grasslands, chaparral, and wetlands, have been given a high priority for conservation actions by federal and state agencies as well as private conservation organizations (Personal comm., Stanford Univ., 1994). Vegetation communities supported on these soils include Southern Ultramafic Jeffrey Pine Forest (specifically in the CCMA this is referred to as the "San Benito Forest" [Kuchler, 1977] a jeffrey-coulter-foothill pine and incense cedar association), Serpentine Barren Hills, Serpentine Riparian, Serpentine Vernal Pools, Serpentine Chaparral (more specifically, Leather Oak Chaparral), and Serpentine Foothill Pine-Chaparral Woodland. These six serpentine-influenced plant communities are discussed below along with their biological significance and vulnerability.

San Benito Forest and San Benito Mountain Natural Area -

The pine forests on and around San Benito Mountain are unique in their combination of tree species and hybrids. The San Benito Mountain Forest has the distinction of being the only forest in the world that supports jeffrey (Pinus jeffreyi), coulter (P. coulteri), and foothill pine (P. sabiniana) (also known as digger pine). The San Benito Mountain population of jeffrey pine is the only population of this species in the coast ranges south of northern Lake County (Kuchler 1977, p. 151) The jeffrey X coulter pine hybrids around San Benito Mountain are considered an important natural source of these hybrids and have been used in the past for genetic research and breeding programs. This forest also contains groves of incense cedars, which are the only cedars in the inner south coast ranges (the nearest stands of incense cedars found elsewhere are in the coastal Santa Lucia Mountains 60 miles to the west and in Napa County 175 miles to the north). One rare lily, the talus fritillary (Fritillaria falcata), occurs at only 9 locations in the world and two of those, including the largest population, are located in the understory of the San Benito Forest (other herbaceous vegetation of the forest are discussed below). These kind of distinctions indicate the potential of CCMA forests to conserve the biodiversity represented by this area's unusual genetic and species assemblages.

In the past, timber cut for use in nearby mines and for construction of mining roads greatly reduced the number of pines in Clear Creek's forests. Currently, unauthorized tree cutting is a concern especially in Clear Creek Canyon, where photo monitoring has indicated a 25% loss of pines between 1982-1989 in heavy use areas adjacent to the Clear Creek Road (BLM, 1989).

The San Benito Mountain Natural Area was created to provide special resource management protection for this unique area with these three goals: 1) to ensure survival of the CCMA's pine forests; 2) to maintain the vegetation and soil resources in as natural a condition as possible ; and 3) to provide opportunities for scientific and academic research in this unique ecosystem. Because of unauthorized OHV use in the area, BLM in 1986 started fencing the boundaries of the Natural Area that were easily accessible to vehicle trespass; however, unauthorized OHV use continues in the natural area, mostly on the sparsely vegetated or barren hillsides which are easily accessed. Between 10-40 OHV users can be observed during the high use weekends. Unauthorized off-road vehicle use and authorized vehicle use on roads in the Natural Area both adversely impact the Natural Area and these impacts are discussed in the chapter on Environmental Consequences.

Serpentine Barrens -

Serpentine barrens have been noted as the most striking vegetation feature of the San Benito Mountain landscape (Griffin and Yadon 1989). For the purposes of this document "serpentine barrens" is a general term applied to openings in hillslopes which support almost no herbaceous vegetation and which are sparsely vegetated (or not at all) by the woody vegetation of trees and shrubs. 5000 acres (approximately 15% of the Clear Creek Management Area) of serpentine barrens which are 13 acres or larger have been mapped within the CCMA.

Woody vegetation on these barrens, when it exists, consists of scattered Jeffrey, coulter, and foothill pines, incense cedar, big-berry and Mexican manzanitas (Arctostaphylos glauca and A. pungens respectively), and leather oak (Quercus durata). The sparse herbaceous vegetation of these barrens, when it exists, consists of an annual buckwheat (Eriogonum covilleanum); a member of the mustard family, Brewer's streptanthus (Streptanthus breweri); a member of the pea family, Indian breadroot (Pediomelum californicum), blazing star (Mentzelia laevicaulis) and occasionally the rare sunflower, rayless layia (Layia discoidea). Where "islands" of trees or shrubs do occur on serpentine barrens one may also find several plant species which are commonly found elsewhere in the CCMA (see discussion below under "Serpentine Foothill Pine-Chaparral Woodland"). This plant community grows extremely slowly because of naturally poor soil conditions. Comparisons between 1932 and 1990 photos of the same hillsides show the same individual trees and almost no change in their height. Vegetative ground cover is not detectible in the photos of either year and is most likely because, even in the best of years, its growth is so limited it is not detectible in such photos. Off-road vehicle use of these barren hills degrades their ability to support plant life and accelerates erosion (sediment yield) on them one and one-half to five times (150-500%) the natural rate (PTI 1993). All vegetation on the serpentine barrens

throughout the CCMA except in the San Benito Mountain Natural Area may be under severe threat of elimination due to intensive impacts from vehicle use. These impacts are discussed in the chapter on Environmental Consequences.

Serpentine Foothill Pine-Chaparral Woodland -

This is the most abundant vegetation community found on serpentine throughout California and in the CCMA. Typical in CCMA Serpentine Foothill Pine-Chaparral Woodland are serpentine endemic plants such as leather oak (Quercus durata) interior silk tassel (Garrya congdonii), and twistflower (Streptanthus insignis insignis), as well as non-endemic species such as foothill pine (Pinus sabiniana), Mexican manzanita (Arctostaphylos pungens), Indian Valley bush mallow (Malocothamnus aboriginum), and California barberry (Berberis dictyota). The CCMA supports 27 serpentine-endemic plant species which vary in their degree of rarity, and most of these grow within openings between chaparral shrubs. Four of these species are only known to occur in the CCMA and nearby serpentine. These are the San Benito evening primrose (Camissonia benitensis), rayless layia (Layia discoidea), San Benito mint (Monardella benitensis), and Howell's onion (Allium howellii sanbenitensis). One scrub oak (Quercus dunnii), which grows in chaparral off serpentine soils, is known to occur at only one location within the CCMA, 60 miles from its next nearest population which is west of Paso Robles. Several other species, while not restricted to the CCMA or serpentine soils, comprise the bulk of the herbaceous community in the CCMA. These include such species as flax (Linum lewisii), broomrape (Orobanche fasciculata), ground cone (Boschniakia strobilacea), wallflower (Erysimum perenne), Andrew's bedstraw (Galium andrewsii), bird's beak (Cordylanthus rigidus ssp. rigidus) and violets (Viola spp.). These herbaceous plants mostly grow on sparsely vegetated slopes and openings between chaparral or under forest stands which are also areas intensively used for off-road vehicle recreation. Since the roots of herbaceous plants are shallower and smaller than those of woody shrubs and trees they are easily severed or dislodged when disturbed, especially on the loose soils and/or steep slopes of the CCMA.

The majority of herbaceous plant species that occur in the CCMA's Serpentine Foothill Pine-Chaparral Woodland also represent the majority of those found on serpentine barrens and under the San Benito Forest (both of these communities are discussed above).

Chaparral shrub and herbaceous plant species in the CCMA remain quite extensive and, while in small localized areas they have been eliminated by road construction and off-road vehicle and camping use, their overall survival is not threatened because they remain abundant and, in many areas, they are natural obstacles to vehicles. One exception is that where these typically chaparral species occur on serpentine barrens (see discussion above under "serpentine barrens") or in

openings of other plant communities, it is commonplace to observe them severely degraded and in a state of apparent decline due to intensive off-road vehicle or camping use.

In densely vegetated areas prescribed burns may be needed in the future to reduce fuel loads and to allow for the positive impacts fire is known to provide to dense chaparral habitat. However, due to the concern of exposure to asbestos by fire suppression personnel, prescribed burning in the serpentine portion of the CCMA may not be practical.

Serpentine Riparian -

Riparian communities occur where surface water is flowing all or most of the year, and include adjacent areas of vegetation that are dependent on water tables at or near the ground's surface. Riparian communities are of critical importance to aquatic plants and animals as well as for terrestrial wildlife that use them for food, water, shelter, and as corridors for travel. Formerly found throughout California, riparian communities have been severely degraded or eliminated in many areas of the state. The CCMA is unusual in that it supports a serpentine riparian community which contains an unusual collection of plant species. In the CCMA, serpentine riparian habitat occurs along Clear Creek, the San Benito River, Picacho Creek, San Carlos Creek, Sawmill Creek, White Creek, and many smaller tributaries which flow into Clear Creek and the San Benito River.

Creeks in the CCMA usually consist of alternating stretches of good and poor quality riparian habitat. Creek areas in good condition contain a series of small pools one to four feet deep, connected by a slightly meandering but stable streambed which is not deeply downcut or altered by 1-10 year storm events and which supports some riparian plant species not found elsewhere in the CCMA. Brewer's willow (Salix breweri), an uncommon and serpentine dependent species, dominates the overstory, and two low-growing grasses, Muhlenbergia asperifolia and saltgrass (Distichlis spicata), dominate the ground cover. Interspersed among the willows and grasses are uncommon plants such as short-spiked hedgenettle (Stachys pycnantha), hernandez bluecurls (Trichostemma rubisepalum), and guirado's goldenrod (Solidago guiradensis). More common riparian plants in the CCMA include grass-of-parnassis (Parnassia palustris), Indian paintbrush (Castilleja minuata), and columbine (Aquilegia eximia). Pools, meandering streams, and productive vegetative growth all serve to slow down flowing water and retain it longer in the soil, trap and hold sediments, reduce the channelization of streambanks, and raise the water table so it is available to plants farther from the creek than it otherwise would be. Examples of riparian areas in good condition are the upper two miles of Picacho Creek, select sections of Clear Creek and Sawmill Creek.

Riparian areas in unsatisfactory condition in the CCMA include areas alongside creeks where riparian vegetation has been partially to completely removed and streambanks and nearby soils highly disturbed as a result of vehicle and camping use. Populations of riparian herbs have been seriously reduced from camping activity along Clear Creek (Griffin, 1989). This kind of disturbance is most obvious in areas where intense vehicle use occurs on barren slopes leading directly into creeks. When riparian vegetation and soil in and adjacent to creeks are impacted, habitat for invertebrates, fish, and aquatic amphibians and reptiles is also degraded. Areas in upper Clear Creek Canyon, Sawmill Creek, on the north side of Indian Hill and north of Staging Area 5 are four examples of such degradation.

Roads constructed in the past within floodplains in the CCMA (such as along Sawmill, San Carlos and Clear Creeks) and annual maintenance of them also cause significant degradation of stream habitats through direct deposition of sediments into creeks and, in extreme cases, actually burying portions of creeks and surrounding vegetation.

Riparian areas in unsatisfactory condition in the CCMA also include segments of creeks which are shallow and wide and in which sediments have been deposited from erosion sources upstream such as fallen hillsides or severely-gullied roads. Once deposited, these sediment "plugs" divert streamflow into the bottom of adjacent hillsides causing partial or massive hillside failures which result in additional large sediment deposits moving downstream and continuing this erosion cycle. Evidence of past and imminent hillside slippage into Clear Creek is seen below roadcuts which have decreased the cohesive integrity of inherently unstable hillsides.

Serpentine Vernal Pools -

These pools, which annually dry out by late summer, support several plant species not found elsewhere in the CCMA. BLM recognizes that over 90% of vernal pool habitat has been removed from California and so considers the protection of remaining pools a high priority. There are two vernal pool areas in the CCMA and those occur in the Spanish Lake area and on the north side of Clear Creek Canyon. Vernal pools in Clear Creek Canyon have been successfully protected by fencing and surrounding chaparral for several years and appear stable. However, Spanish Lake and small pools nearby Spanish Lake are subject annually to extensive off-road vehicle use.

Special Status Plant Species

Special status plant species are those species which are: 1) State or Federally listed as Threatened or Endangered (T/E); 2) Proposed for State or Federal listing as T/E; 3) Candidates for State or Federal listing; or 4) designated by a BLM State Director as sensitive. The first three Federal designations listed above are given according to provisions of the federal Endangered Species Act (50 CFR 17.12), while State designations are given according to the California Endangered Species Act (14 CCR 670.5). The occurrence of any special status plant species on public lands is a factor considered in the planning process for the CCMA. Eight special status plant species are either known or suspected to occur within the CCMA (see Table 5). One (San Benito evening primrose) is federally listed as threatened, and seven are federal Category 2 candidate species. Category 2 candidate species are species for which current information indicates Threatened or Endangered status is possibly appropriate however this information is not sufficient to immediately begin the listing process (Smith and Berg, 1988).

Table 6 lists 14 plant species which are known or suspected to occur in the CCMA and may become special status plants in the future. BLM considers these in the planning process of any BLM-authorized activity so as not to contribute to the need to designate these species as special status plants.

Listed Species

The San Benito evening primrose (Camissonia benitensis) was listed as "Threatened" by the U.S. Fish and Wildlife Service (USFWS) under provisions of the Endangered Species Act of 1973 on 12 February 1985 (50 Federal Register 5758). A recently published and BLM-funded three-year study (Taylor 1991, p.74) recommended that this species be relisted as "Endangered" due to the recent loss of two known primrose populations in the lower Clear Creek drainage and the degradation of more than 50% of this species' suitable habitat resulting from continued camping and vehicle use (Taylor 1991, pg. 74).

Twenty-two populations of the primrose are currently known to exist and their distribution is as follows;

12 in the Clear Creek watershed, (all public)
4 in the San Benito River watershed, (3 public)
1 in San Carlos Creek watershed, (public)
1 in Lorenzo Vasquez Creek watershed, (private)
2 in the White Creek watershed, (1 public)
2 in the Laguna Creek watershed (both private)

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22 TOTAL (17 of which are on public lands)

TABLE 5. SPECIAL STATUS PLANTS WITHIN THE CLEAR CREEK MANAGEMENT AREA

SPECIES	COMMON NAME	FEDERAL STATUS	OCCURRENCE
+Calystegia collina venusta	south coast Range morning glory	C2	Known
Camissonia benitensis	San Benito evening primrose	T	Known
Chorizanthe biloba immemora	Hernandez Spineflower	C2	Known
Fritillaria falcata	talus fritillary	C2	Known
+Fritillaria viridea	San Benito fritillary	C2	Known
Layia discoidea	rayless layia	C2	Known
Pentachaeta exilis aeolica	slender pentachaeta	C2	Known
Phacelia phaceliodes	Mt. Diablo phacelia	C2	Known

+ - species recently found to be more abundant than previously thought

C2 - federal Category 2 candidate, insufficient information exists to warrant listing as threatened or endangered at this time

T - federally listed as threatened

TABLE 6. OTHER SENSITIVE PLANTS IN THE CLEAR CREEK MANAGEMENT AREA

SPECIES	COMMON NAME	LIST #	OCCURRENCE
Acanthomintha lanceolata	Santa Clara thorn mint	4	KNOWN
Acanthomintha obovata ssp. obovata	San Benito thorn mint	4	KNOWN
Aspidotus Carlotta-halliae	Carlotta Hall's lace fern	4	KNOWN
Clarkia breweri	Brewer's Clarkia	4	KNOWN
Eriogonum heermannii var. occidentale	Heermann's western buckwheat	4	KNOWN
Eriogonum nudum var. indictum	protruding buckwheat	4	KNOWN
Fritillaria agrestis	stink bells	4	KNOWN
Galium andrewsii gatense	Andrew's bedstraw	4	KNOWN
Lessingia occidentalis	western lessingia	4	KNOWN
Linanthus ambiguus	serpentine linanthus	4	KNOWN
Solidago guiradonis	Guirado's goldenrod	4	KNOWN
Malacothamnus aboriginum	Indian Valley bush mallow	1B	KNOWN
Mimulus subsecundus	one-sided monkey flower	4	KNOWN
Monardella benitensis ssp. antonina	San Benito monardella	4	KNOWN
Trichostema rubisepalum	Hernandez bluecurls	4	KNOWN

Taken from the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, 4th edition, 1988.

List 4: Watch list - plants of limited distribution but of low vulnerability
List 1B: Vulnerable - plants rare, threatened or endangered in California or elsewhere

A final recovery plan for the San Benito evening primrose is expected to be published by the U.S. Fish and Wildlife Service during 1994 or 1995. The main components of the recovery plan are expected to include: 1) protection of all known populations and habitat areas which are currently capable of supporting the primrose; 2) restoration of old colonies which have been eliminated where habitat remains suitable and new colonies if necessary; 3) continuation of research into life-history aspects which are pertinent or necessary for maintaining viable populations; and 4) implementation of a public education awareness program for the preservation of the San Benito evening primrose. Since the Clear Creek drainage supports the majority of populations and primrose habitat, it will be the focus of recovery efforts for this species.

The San Benito evening primrose is usually less than eight inches tall and has yellow flowers of 4 petals. This primrose germinates in late spring and dies in early summer after producing seed for the following year. Despite its name, this evening primrose blooms from morning until early afternoon, from mid-April to mid-May. Habitat for the primrose includes serpentine alluvial terraces, streambanks, and areas of debris flow (landslides). These habitats are discussed below.

Sixteen of the 22 known San Benito evening primrose populations are found on relatively flat areas of stream-deposited (alluvial) serpentine soil, called "terraces", where smaller streams have deposited serpentine sediments at their junction with larger streams. A high diversity of herbaceous plant species can occur on these terraces and in 1992, initial plant surveys on three terraces documented up to 26 native herb species, including four of the rarer species found in Clear Creek. Terraces that have been subject to long-term camping or intense vehicle disturbance may contain as few as one or two flowering herbaceous species.

Four populations have been recorded on banks immediately adjacent to streams and presumably these populations began after floods deposited San Benito evening primrose seed at these sites. Such populations are likely to persist only until the next major flood washes their seed reserve downstream and so these populations are very temporary. Such temporary habitat is, however, important because seed produced at these sites is available for transport (by wind, animals, or other means) to nearby terraces where it could establish new populations or input new genetic material into existing populations (Taylor, personal communication, 1993). Two populations are known to occur on stabilized landslides of serpentine soils.

Heavy use on terraces and temporary (streambank) habitat eliminates existing vegetation and compacts the soil so that the success/survival of buried seeds, and seeds that are blown or otherwise moved onto the terraces or streambanks, is decreased. Typically, the more camping and vehicle use a terrace or streambank receives, the less it is able to support plant life. Taylor (1991) reported that portions of 35 of the 53 terraces in Clear Creek Canyon had been severely

degraded by road construction or camping and vehicle use and no longer represented suitable habitat for the primrose. Although varying numbers of terraces would be protected under the six alternatives offered, it is expected the recovery of disturbed portions of these terraces will require many years or decades.

The 53 terraces are ranked as having a high, medium, or low priority for protection. This ranking is based upon their size and the extent of topsoil disturbance which has occurred upon them. As an example, terraces larger than one acre which are relatively undisturbed would be ranked as high, whereas terraces smaller than one acre which have been very disturbed are ranked as having a low priority for protection.

These rankings are used in Chapter 4 (Environmental Consequences) to assess how the six alternatives offered will affect remaining unoccupied primrose habitat.

If left undisturbed for 20-50 years, terrace habitat, that was formerly suitable for the San Benito evening primrose, begins to support a shrubby chaparral community that displaces the primrose and other small and herbaceous plant species.

Because a majority of suitable primrose habitat has been degraded, the survival of this species will depend on the protection of the remaining occupied and unoccupied habitat as well as the maintenance of habitat in appropriate vegetation successional stages.

Candidate Plant Species

The seven Category 2 Candidate plant species known or suspected to occur within the CCMA are discussed below. Panoche peppergrass (Lepidium jaredii ssp. album) was considered for its potential to occur in the CCMA but, because the appropriate habitat (very heavy "Gumbo" clay grassland below 3000 feet elevation) for this species has not been documented in the CCMA, Panoche peppergrass is not further discussed in this document. No other special-status plants are currently suspected to occur in the CCMA, though it is possible that others may be documented here in the future.

South Coast Range Morning Glory - Calystegia collina venusta

The south coast Range morning-glory is known from a four-county area which includes Santa Barbara, Monterey, San Benito, and Fresno Counties. Several populations were recently discovered during 1991-1992 plant surveys. These populations were recorded in the Diablo Range near Vallecitos Valley, Laguna Mountain, Turkey Flat, and the mouth of Clear Creek. This morning glory can occur on serpentine in some areas (it is abundant on serpentine near Table Mountain in southeastern Monterey County) however it has only been observed on

the fringes of the New Idria serpentine block in the CCMA and it is possible that highly weathered serpentine is not suitable for this morning glory (Taylor, personal communication, 1993). The documentation of many populations during recent surveys indicates this species may be too common to warrant continued status as a candidate for listing.

Hernandez Spineflower - Chorizanthe biloba var. immemora

The San Benito Spineflower is known to occur in Fresno, Monterey, and San Benito Counties. Its habitat includes sandy to gravelly openings on sedimentary soils in dry woodland and chaparral. One of the few populations known of this species was documented near the mouth of Clear Creek in 1988 (Reveal and Hardham 1989), and in 1994 BLM fenced a 1-mile long area that surrounds this location to prevent impacts from vehicle use. Little is known about Hernandez spineflower but it is considered exceedingly rare (Reveal and Hardham 1989).

Talus Fritillary - Fritillaria falcata

The talus fritillary is a lily that grows from a bulb five-six inches beneath the ground's surface and between March-May it produces mottled yellow-green flowers which are nearly prostrate on the ground. This fritillary is known to occur in five counties but only nine populations of this species have been recorded. Most of these populations support under 100 individuals. One of the two populations in the CCMA supports several hundred individuals, making this the largest population of this species. The majority of individuals within this population are inside a protective fence enclosure but in 1992 off-road vehicle tracks were observed in habitat occupied by the uphill portion of this population. The other population in the CCMA is inside the San Benito Mountain Natural Area. This population is unfenced but impacts or threats to this population have not been recorded at this site. Low-intensity searches for additional populations of this fritillary in apparently suitable habitat have not succeeded in documenting additional populations, indicating that this species may be extremely rare.

San Benito Fritillary - Fritillaria viridea

The San Benito fritillary is a lily which, starting at two-four years of age, grows a one to three-foot stem with periodic whorls of leaves and green-brown flowers. It is known from Monterey, San Benito, and San Luis Obispo Counties. Recent surveys in the CCMA have documented several new populations in openings between shrubs of serpentine chaparral. This habitat is quite widespread in the CCMA and because of its abundance it has the potential to support several hundred populations of this fritillary. This species is sufficiently abundant at this

time to warrant its removal from consideration as a candidate for listing as threatened or endangered (Taylor, personal communication, 1993).

Rayless Layia - Layia discoidea

The rayless layia is a two to six-inch tall herbaceous member of the sunflower family which, in May, produces inconspicuous yellow flowers lacking the showy, outwardly-extending ray flowers typical of most sunflowers.

The distribution of the rayless layia includes approximately 25 known populations is limited to the CCMA and the Hepsedam Peak - Laguna Mountain area of Laguna Ranch two miles southwest of the CCMA. This distribution is as follows;

14 in the Clear Creek watershed (all on public, 7 are partially protected by fencing, and another is the sole population of this species located in the San Benito Mountain Research Natural Area),
7 in San Carlos Creek watershed (5 on public land),
2 in the Laguna Creek watershed (both on private land),
1 in Picacho Creek watershed (public),
1 in the White Creek watershed (public),

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25 TOTAL (21 of which are on public lands within the CCMA)

Habitat for the rayless layia is known to include steep rocky (talus) slopes, serpentine barrens, openings on steep slopes within chaparral stands and under forest canopy, and stream terraces. Portions of seven populations have been protected. Portions of these and other known populations and available habitat for this species in the CCMA have been impacted by road construction and vehicle use, enough so that this species may warrant listing as threatened or endangered in the near future.

Slender Pentachaeta - Pentachaeta exilis aeolica

The slender pentachaeta is a three to five-inch tall herbaceous member of the sunflower family which produces flowers with red-yellow centers (tube flowers) and white, outwardly extending (ray) flowers during April-May. This species may be exceedingly rare because it is currently known from only two sites in the Santa Lucia Mountains near The Indians, and from two sites near the mouth of Clear Creek. During 1994, BLM fenced the only known population of this species on public lands within the CCMA as well as the majority of grassland habitat which appears suitable for this species.

Mount Diablo Phaceilia - Phacelia phacelioides

The Mount Diablo phacelia is a 2-12 inch tall member of the waterleaf family which produces purple-striped, white flowers in a coiled inflorescence at the tops of its branches from April-May. Previous to a 1992 discovery of a single population of this plant in San Benito County near San Carlos Peak in the CCMA, this species was known from 14 rocky or chaparral sites in Alameda, Contra Costa, Stanislaus, and Santa Clara Counties. The solitary population within the CCMA was observed along a narrow trail in fairly dense chaparral habitat and within a transition zone between serpentine and non-serpentine soils. Since the individuals of this population were all growing along the edges of the trail and none were observed off the trail it appears this population has benefitted somewhat by the open habitat created by the trail.

WILDLIFE

Discussion of wildlife species was included in the 1985 Draft Clear Creek management Plan and Environmental Assessment for game species (such as deer, wild pig, and upland game birds) and wildlife habitat was addressed in the 1986 Clear Creek Management Plan and Decision Record. The reader is referred to both these documents (which are available for review in BLM's Hollister Resource Area Office) for relevant information on these subjects. This Environmental Impact Statement would not impact these resources beyond the scope of the above listed documents and so these two wildlife issues are not further considered in this Environmental Impact Statement. Special-status animal species and aquatic wildlife are two issues that were not referenced in earlier planning documents for Clear Creek and these are discussed below.

SPECIAL STATUS ANIMAL SPECIES

Special status animal species are those species which are: 1) State or Federally listed as Threatened or Endangered (T/E); 2) Proposed for State or Federal listing as T/E; 3) Candidates for State or Federal listing; or 4) designated by a BLM State Director as sensitive. The first three Federal designations listed above are given according to provisions of the federal Endangered Species Act (50 CFR 17.12), while State designations are given according to the California Endangered Species Act (14 CCR 670.5).

The occurrence of any special status animal species on public lands is a factor considered in the planning process for the CCMA. For the purposes of this EIS, 20 quadrangles, which included the CCMA and those that surround it, were queried in the California Natural Diversity Data Base to augment information in BLM files on special-status animals that could occur in the CCMA. Animals such as the red-

legged frog, California tiger salamander, or rare invertebrates which have not been found within 10 miles of the CCMA or that occupy habitats that are not found in the CCMA were not further considered.

There are five special status animal species known to occur within the CCMA. These are the southwestern pond turtle (Clemmys marmorata), the two-striped garter snake (Thamnophis hammondii), the foothill yellow-legged frog (Rana boylii), the big-earred kangaroo rat (Dipodymys elephantinus), and the prairie falcon (Falco mexicanus). The first three of these species are all dependent on creeks or rivers for a substantial part of their life cycle. Habitat destruction is often a cause for the decline of aquatic dependent animals, and in California, there is an overall decline in amphibian and reptile populations. In general, riparian habitat is degraded by increased sedimentation, altered streambank structure, the removal of riparian vegetation, or reduced water quality. In the CCMA, these impacts can occur as a result of mining, camping or vehicle use. Although habitat destruction is a key factor in the decline of these species, they are also declining in pristine areas where habitat destruction is not an issue (Ely, 1992). The big-earred kangaroo rat occurs in chaparral of the CCMA, but too little else is known about this species to determine how it may be impacted by the various alternatives in this EIS. Therefore, the BLM will further investigate its status in the CCMA (see Chapter 2 "Measures to Protect Threatened, Endangered and Other Special-Status Species and Specialized Habitats"), but will not address it in Chapter 4 (Environmental Consequences) of this EIS. The prairie falcon is not expected to be impacted by the actions of this EIS because there is no indication from past monitoring of this falcon's nesting areas in the CCMA that the uses of the area (mostly off-road vehicle recreation and hunting) adversely affect this species. Therefore, the prairie falcon is not further addressed in this EIS. Each of the other special status species are discussed below.

Foothill yellow-legged frog (Rana boylii) -

The foothill yellow-legged frog, currently a federal Category 2 candidate species, usually ranges in size from that of a nickel to a 50-cent piece. Formerly it occurred from western Oregon south along coastal mountains to Los Angeles County, California and in the Sierra Nevada foothills. It is now rare or absent south of northwestern San Luis Obispo County and the southern Sierra foothills. The foothill yellow-legged frog inhabits rocky streams, creeks, and rivers in chaparral, woodland, and forest. The foothill yellow-legged frog is known to occur in all major creeks of the CCMA with the largest population occurring in Picacho Creek. During warm months, the entire length of Clear Creek appears to be occupied by foothill yellow-legged frogs, and it is difficult to approach this creek without flushing some individuals into the water.

Western pond turtle (Clemmys marmorata)-

The western pond turtle is currently a C-2 federal candidate species. It ranges in size from three to seven inches long. This pond turtle is mainly found east of the Cascade-Sierran crest from the Oregon border to northwest California. For part of its life cycle the western pond turtle depends on streams or lakes and reservoirs in open woodland, grassland or open forest. In the CCMA the western pond turtle is known to occur in lower Clear Creek and in the San Benito River but has not been documented in any other CCMA creeks perhaps due to the lack of large enough pools.

Two-striped garter snake (Thamnophis hammondii) -

The two striped garter snake is currently a federal category 2 candidate species. This snake ranges in size from seven to eighteen inches and occurs in permanent fresh water locations such as streams with rocky beds. It can be found from the vicinity of Salinas (Monterey County, California) to northwestern Baja California. In the CCMA the two-striped garter snake is known to occur in Clear Creek and is likely to occur in all other creeks in the CCMA.

Big-earred kangaroo rat (Dipodomys elephantinus) -

The big-earred kangaroo rat is currently a federal category 2 candidate species. This kangaroo rat reaches a head and body length of about five inches with a tail 7-8 inches long. Its distribution is restricted to chaparral from the Del Puerto Canyon area of Stanislaus County to the Gabilan and Diablo Mountains in southern San Benito County (Williams 1986). Collections for museum specimens of this species were taken near the peak of San Benito Mountain (1936) and near Sawmill Creek (1944). In 1980 individuals of this species were trapped near the Jade Mill near the northern edge of the CCMA serpentine block (Williams pers. comm. 1994). According to Williams (1986) there may be insufficient justification to consider D. elephantinus a distinct species from the narrow-faced kangaroo rat (D. venusta). However, genetic and morphological studies done to clarify taxonomic relationships between the big-earred kangaroo rat and several subspecies and species of other kangaroo rats indicate the big-earred kangaroo rat is quite distinct at least to a subspecific level of the narrow-faced kangaroo rat (Best, pers. comm., 1994). It is more different from existing subspecies of the narrow-faced kangaroo rat than those other subspecies are from eachother. The big-earred kangaroo rat's ear size relative to its body size is longer than other kangaroo rats and skull measurements are statistically significantly different from other kangaroo rats in or near its geographical range (Best, pers. comm. 1994). Since chaparral is common in the CCMA and this is the preferred habitat of the big-earred kangaroo rat, there may be no threat to its population status in the CCMA. However wide trails (which are common in the CCMA) may act as barriers that this species has trouble

crossing (Best, pers. comm., 1994). In addition, this kangaroo rat has never been observed in large numbers (Best, pers. comm., 1994). Given this mixed information, more studies would be justified to clarify this species' status in the CCMA.

AQUATIC WILDLIFE

For the purposes of this document "aquatic wildlife" refers to those animals found within the CCMA that spend at least a substantial portion of their lifespan within the water column of creeks or the San Benito River. Besides the special-status amphibian and reptiles discussed above this would include fish, insects and other invertebrates, a tree frog (Hyla regilla), the western aquatic garter snake (Thamnophis couchi), and valley garter snake (Thamnophis sirtalis fitchi). Although little is known about the distribution within the CCMA of these wildlife species and groups, periodic sampling or other observations of fish in six creeks and the San Benito River has produced additional information on the only three fish (besides a single observation of large mouth bass) observed in the CCMA. These are listed in Table 7.

WATERSHED RESOURCES

The Clear Creek Management Area has portions of five watersheds. These watersheds primarily flow either southeast towards Coalinga into the Central Valley or west via the San Benito River towards Hollister. There are several main drainages of significance that support perennial streams, and these are: San Benito River, Clear Creek, Sawmill Creek, White Creek and Los Gatos Creek.

The San Benito River is impounded by a dam, forming the Hernandez Reservoir, approximately six miles north of the mouth of Clear Creek. The Hernandez Reservoir is used for groundwater recharge for northern San Benito County. In Fresno County, White Creek joins into Los Gatos Creek which flows past the town of Coalinga. Near the town of Huron, the Los Gatos Creek terminates into a alluvial fan called the Arroyo Pasajero. The Arroyo Pasajero is truncated on the eastern edge by the California Aqueduct.

In general, the watershed conditions observed in the CCMA reflect naturally high rates of erosion that have been accelerated by human impacts. These watershed conditions result from a long history of surface disturbance, beginning in the mid-1850's with extensive surface disturbance from road construction, logging and mineral exploration and extraction. Since the mid-1970's motorized vehicle recreation has been the dominant public use within the area. The management of watershed resources for the CCMA necessitates understanding the relationships between surface water, soil erosion and sedimentation. The following is a

Table 7. Presence of Fish Species Within the CCMA			
Name of Creek or River	speckled dace (Rhinichthys osculus)	Sacramento sucker (Catostomus occidentalis)	California Roach (Hespero- leucus symmetricus)
headwaters of San Benito River	No	Yes	Yes
San Benito River approx. 1/4 mile west of Picacho Creek	Yes	Yes	Yes
lower Clear Creek	Yes	Yes	Yes
upper Clear Creek	No	No	No
Picacho Creek	No	No	Yes
Sawmill Creek	No	No	Yes
San Carlos Creek	No	No	No
White Creek	No	No	No

discussion that describes the interaction between soil resources, water resources and the serpentine erosion process.

The fragile watersheds of the Clear Creek Management Area originate in highly erodible serpentine soils and outcrops. These serpentine watersheds are unique and require special management considerations. The Clear Creek Canyon watershed lies within the ACEC and has the highest concentration of public use in the management area (Figure 4). The primary erosion concern in the canyon is centered on the steep upland barren hills, which are major sediment contributors because of both natural erosion and increased erosion and accelerated erosion caused by OHV use. These erosion and sedimentation erosion problems areas are: hill climbs which lead directly into stream channels, removal of riparian vegetation, stream bed disturbance by vehicles, eroding roads and trails, and undercutting of side slopes by streams such as Clear Creek.

Soil Resources. Five major types of soils have been identified within the San Benito County portion of the management area. The two major differences between these five groups are the source rock from which they are formed. Two main rock types exist within the Clear Creek Management Area, serpentine rock and sedimentary rock. Soils derived from serpentine rock contain asbestos. Those soils derived from sedimentary rock do not contain asbestos. All soil types are prone to some form of erosion and soil loss due to natural conditions and human disturbance.

The properties of serpentine soils (low calcium/magnesium ratio, high Ph, low organic matter and the presence of toxic elements such as nickel, cobalt and lead) are such that plant growth is stunted or inhibited, resulting in the barren slopes, common to the CCMA (see Figure 5). In some of these barren areas soil removal from erosion exceeds the rate of soil formation. Soil formation and fertility are generally greater in the sedimentary derived soils. The sedimentary soils found in the CCMA are more productive and lack the barren areas typical of the serpentine-derived soil. In some locations such as open barren hillslopes, serpentine soils are being physically removed faster than they are being naturally replenished.

Water Resources. Water resources refer to all surface water runoff into rivers and creeks within the CCMA and the values this water provides to people, wildlife, and vegetation. Water resources in the CCMA are primarily under the jurisdiction of two State of California Regional Water Control Boards (CRWQCB) as authorized by the Environmental Protection Agency under the Clean Water Act. These are the Central Valley Regional Water Control Board and the Central Coast Regional Valley

FIGURE 4. LOCATION OF CLEAR CREEK WATERSHED

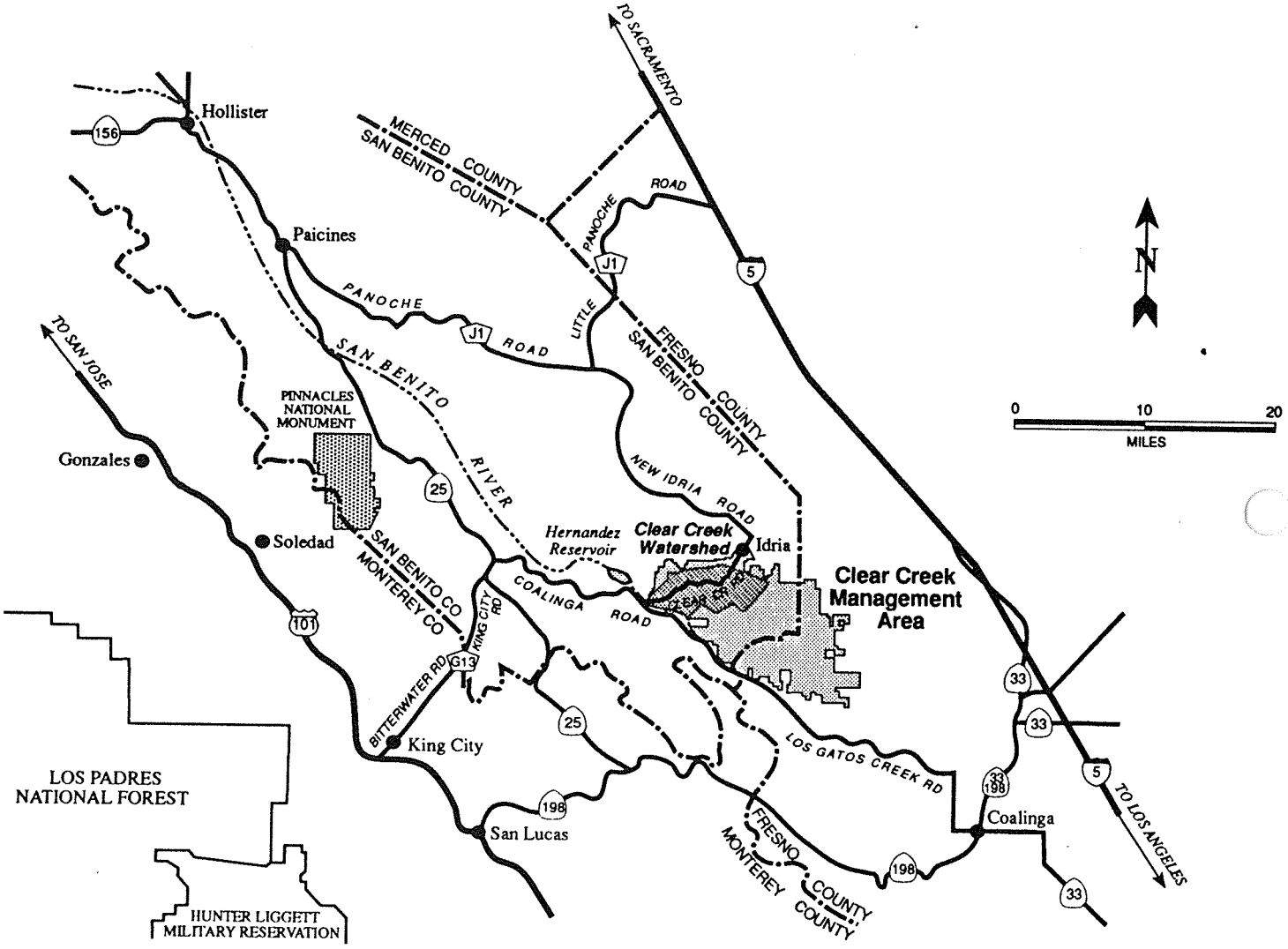
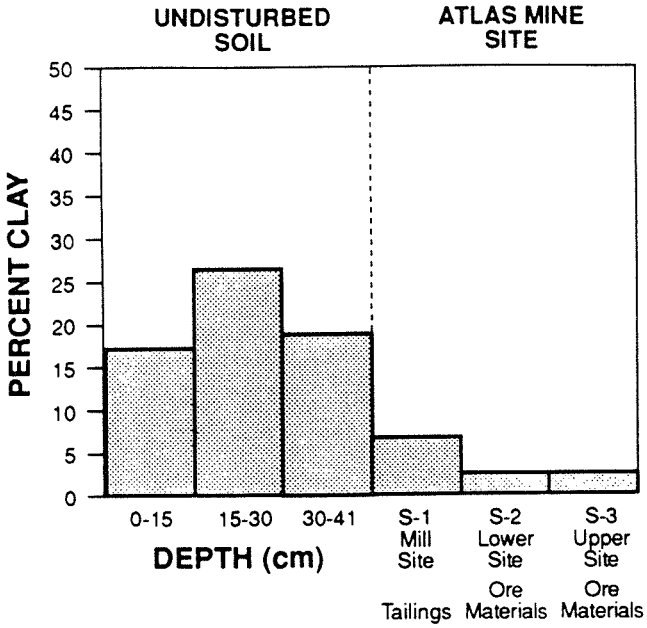
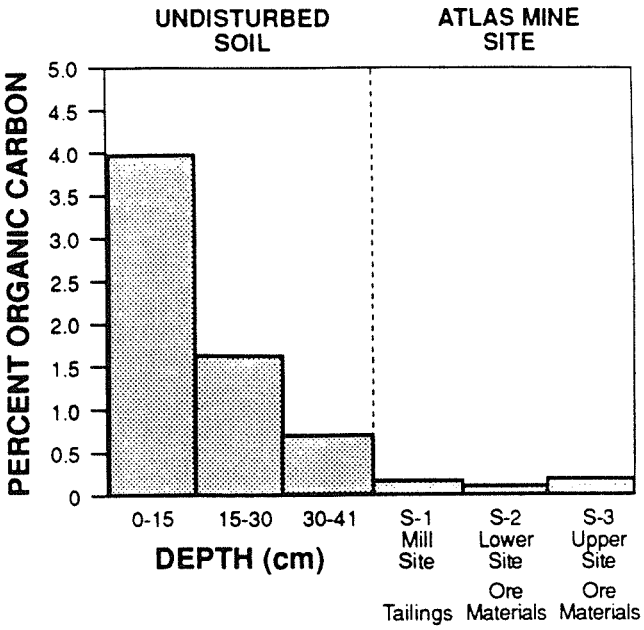
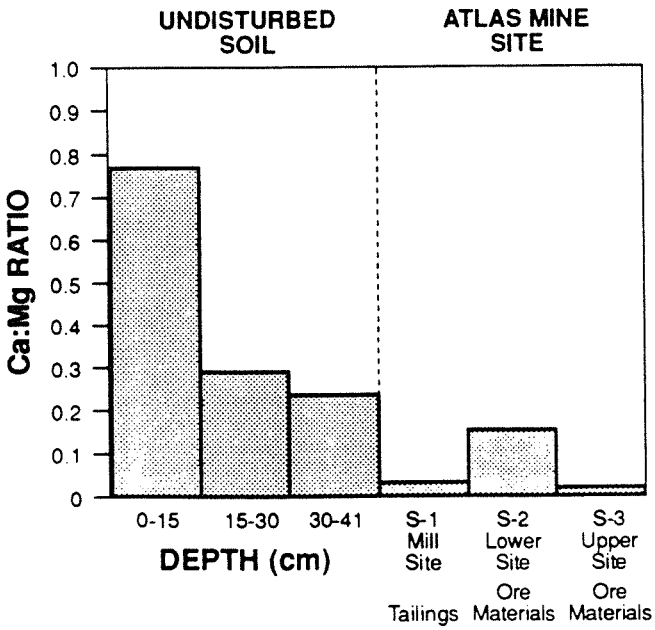
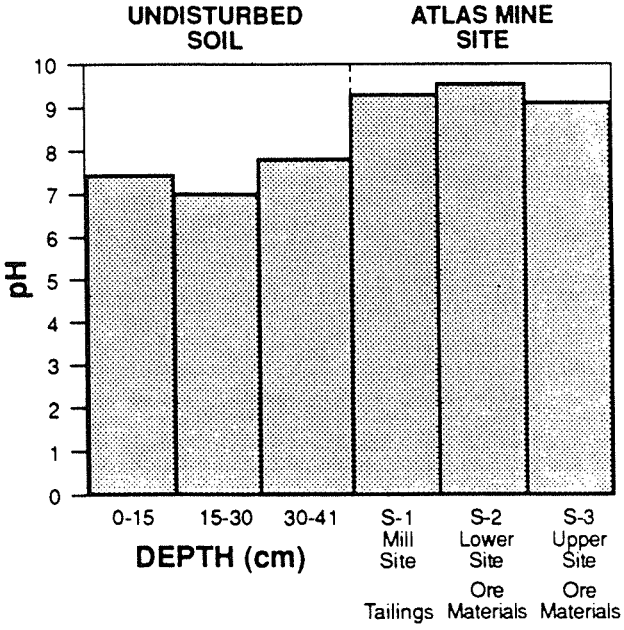


FIGURE 5. SERPENTINE SOIL CHEMISTRY









Water Control Board. All waters which flow into the Central Valley are overseen by the former and those waters within the CCMA that flow into the San Benito River are overseen by the latter.

The Central Valley Regional Water Control Board includes the streams in the CCMA that flow into the Central Valley in a group referred to as "West Side Streams", and has designated nine beneficial uses for this group (SWRCB 1975). These uses include Agricultural Supply (i.e. vegetation for livestock grazing), Industrial Process Supply (i.e. fire protection), Water Contact Recreation (i.e. swimming and wading), Non-contact Water Recreation (i.e. camping, hunting and hiking), Warm Fresh Water Habitat (i.e. to sustain warm water aquatic species), Wildlife Habitat (i.e. for food, water, and shelter for wildlife), Preservation of Rare and Endangered Species, and Groundwater Recharge.

The Central Coast Regional Water Control Board did not specifically mention or group any streams in the CCMA that drain into the San Benito River (Carpenter, 1994, pers. comm.). For such unnamed waters in the Central Coast Basin two beneficial uses were identified; Water Recreation (i.e. wading, camping, etc.) and Aquatic Life (i.e. fish and amphibians). Designated uses for the San Benito River include Freshwater Replenishment, Navigation, and Commercial and Sport Fishing. Designated uses for the Hernandez Reservoir include those three listed for the San Benito River and Shellfish Harvesting (CRWQCB, Central Coast Region, 1994).

BLM's policy is to ensure that these designated uses are maintained or enhanced. BLM is attempting to develop closer working relationships with the appropriate water control boards as well as other federal, state and local agencies which share responsibilities to meet both State and Federal water quality goals and objectives as they apply to waters in the CCMA. Some of these other agencies which BLM has been in recent contact with include the EPA, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Geological Survey, and the San Benito County Public Works Department.

Serpentine Erosion Process. Soil erosion can be defined as the physical removal of the soil by means of storm runoff, raindrop impact, wind, animal, or human activity. Eroded soil is transported downslope by various erosion processes. Eroded soil which reaches streams is transported downstream during high flows and affects downstream land and water users. Many factors affect the degree of soil erodibility and the type of erosion process which occurs. Rainfall intensity, slope steepness, plant cover and the physical and chemical properties of the soil affect the extent and type of erosion that occurs.

The serpentine watersheds in Clear Creek Management Area contain soils formed from highly sheared and erodible serpentine rock containing abundant chrysotile asbestos. Many of these steep slopes lack soil or vegetative cover. Runoff from

winter storms causes extensive rill and gully erosion which transports eroded soils and asbestos fibers downstream.

Eroded soils are transported downslope by rills and gullies or by sheet erosion. Sheet erosion in general is so gradual of a process that it can go on undetected except for noticeable color changes in these serpentine soils. In the Clear Creek watersheds, a subtle soil color change usually can be seen where sheet flow has removed the uppermost soil horizon which is red-brown and has exposed the underlying blue-grey sub-soil. Erosion on both barren and vegetated slopes (both natural and human-induced) causes soil loss and other physical and chemical changes. These changes negatively affect the soil texture, composition and soil chemistry. These changes can reduce the infiltration capacity, soil productivity and increase the amount of asbestos fibers that are available for release by both water and air pathways. The soil erosion process observed in the Clear Creek ACEC has been qualitatively described to occur in three distinct "stages", which are described below:

Erosion Cycle (Stage 1) -

This cycle begins when vegetative material called litter or duff is removed by a combination of forces such as rainfall, wind, gravity, fire and/or human disturbance. The lack of vegetative matter reduces the favorable conditions to reproduce seedlings because the protective mulch is removed. Conditions will further degrade if revegetation does not occur, as continued erosion will in time remove the organic topsoil layer. This process continues when the existing vegetation is killed or physically removed by either sheet erosion or by rill or gully erosion.

Erosion Cycle (Stage 2) -

During this stage the soil erosion continues, increasing the amount of "barren areas" that expose the more toxic and less fertile sub-soil. The remaining vegetation in these barren areas is stressed due to changes in the soil chemistry. The soil properties are altered by continued removal of the organic material which increases the pH and alters the critical calcium/magnesium balance. Vegetation under these conditions has a slow regeneration potential, but can still exist in isolated "islands". This stage is recognizable by the thin "reddish" soil that is surrounded by the more "blue-grey" sub-soil and asbestos-rich parent material.

Erosion Cycle (Stage 3) -

Usually at this stage only a few dominant plants exist in isolated "colonies". Species typically found include pine and a few shrubs such as manzanita or leather oak. At this stage, the vegetation is physically and chemically stressed due to the extreme toxic soil conditions. Vegetative cover is so reduced that the erosion cycle can continue unabated, which in turn continues to degrade the plant habitat even further. This stage is recognizable by the few pine trees and other shrubs that are on thin red or white soil surrounded by a barren hill slope.

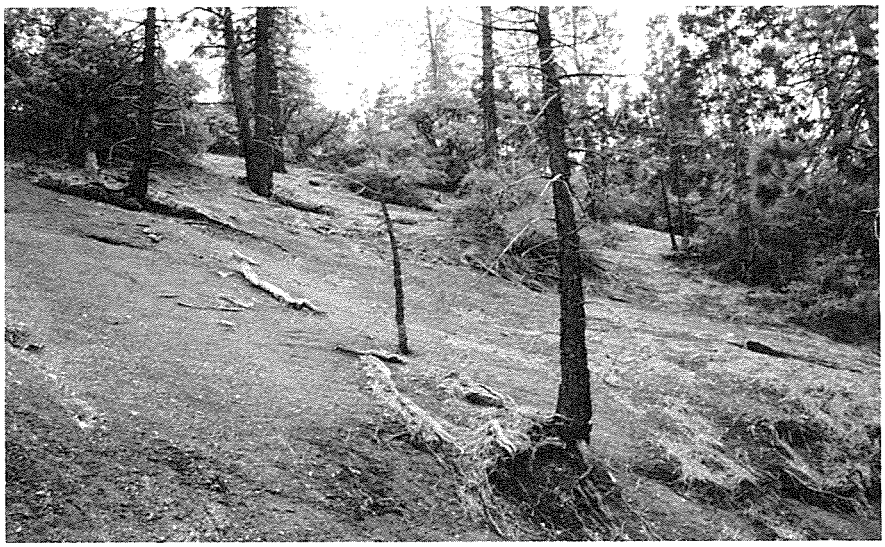
Photographs showing the three stages of erosion occurring in Clear Creek are shown in Figure 7.

Quantified Erosion Modelling. The extent of the soil loss and sediment generation depends on a number of factors and can be estimated by a variety of indirect estimates and direct measurements. The watershed resources in the Clear Creek Management Area have been studied and a report was prepared by PTI Environmental Services entitled "Erosion and Sedimentation in the Clear Creek Watershed, San Benito River Basin, Central California" (PTI,1993). This erosion study investigated both the natural erosion process and the impact of surface disturbances accelerated by from human activities such as road building and OHV use within the Clear Creek watershed (approximately 10,000 acres). The erosion process in the Clear Creek watershed is typical of the entire Serpentine ACEC. Therefore, the erosion rates and sedimentation volumes that have been calculated for this watershed can be used to estimate similar rates and volumes in the remaining watersheds. Within the larger Clear Creek Management Area ACEC (approximately 30,000 acres), there are over 70 mine sites and approximately 420 miles of unpaved primitive roads which have been created over the last 100 years.

Estimated erosion contributions from natural and human activities are as follows: 1,800 cubic yards/square mile per year from undisturbed slopes, 2,700 cubic yards/square mile per year and 3,800 cubic yards/square mile per year from roads and trails (PTI, 1993). Background and accelerated erosion rates are shown in Figure 8. These estimated erosion rates do not include any contribution from other forms of erosion such as stream bank erosion and landslides which do occur in this area and which increase the total sediment yield above the PTI estimates. The erosion rates for this area are high and exceed the rate of soil formation. Surface disturbance from mining and roads can create accelerated erosion by a variety of actions:

1 - Oversteepening the cut-and-fill slopes of the road prism.
2 - Exposing unprotected (potentially toxic to vegetation) subsoils.

FIGURE 6. PHOTOGRAPHS OF LANDSCAPES SHOWING SOIL EROSION



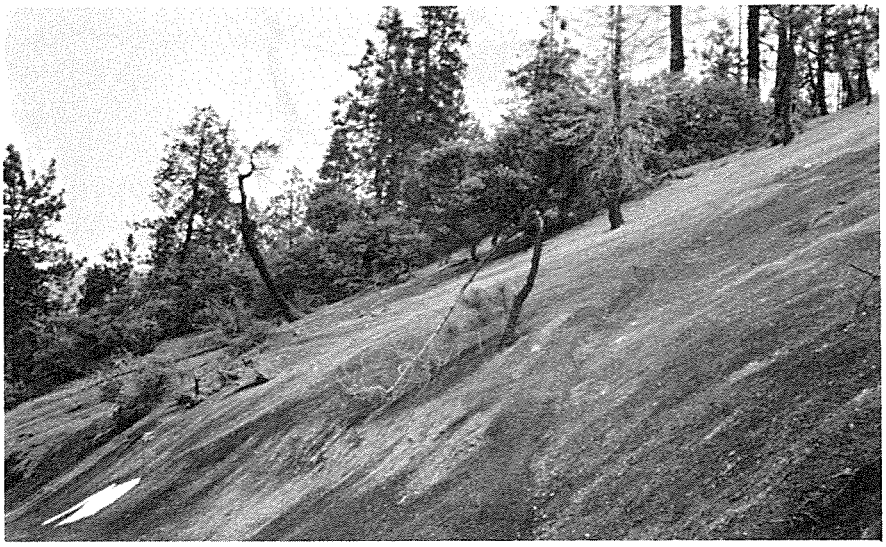
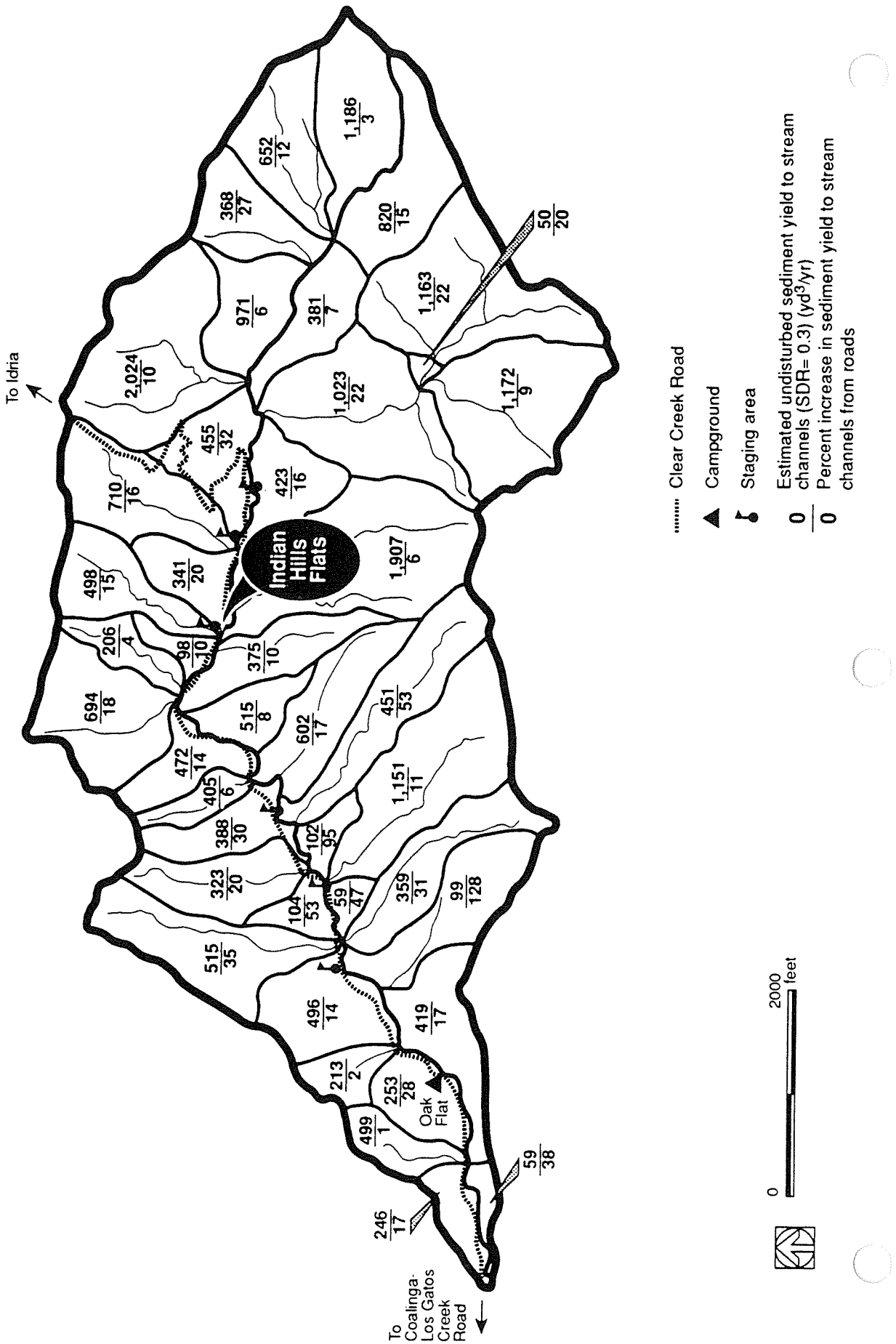


FIGURE 7. ESTIMATED EROSION RATES FOR CLEAR CREEK WATERSHED



3 - Dumping unconsolidated fill downslope and into drainages and creeks.
4 - Intercepting and collecting both subsurface and surface water and diverting it off a natural course.

Some other significant findings from this study are:

- Most of the erosion from natural conditions is relatively uniform through the watershed and averages about 11 tons/acre/year.

- Roads of any type are a significant and continuing source of sediment that is more easily delivered and available for downstream transport.

- Vehicle use on OHV open hillclimbs (natural barren slopes) disrupts the natural soil "crust" and surface gravel layer which protects these slopes and increases the erosion from these areas by approximately 1.5 to 5 times over the natural conditions.

- The average sediment yield for undisturbed soil is 3.2 tons/acre/yr, hillclimbs contribute from 4.9-16 tons/acre/year, the road network contributes 80.2 tons/acre/yr.

- The road network and use of OHV on barren slopes in the Clear Creek watershed increases the natural background erosion by as much as 20%. An annual sediment yield at the mouth of the Clear Creek from this road network is estimated to be 38,000 cubic yards/square mile.

- Each square mile of hillclimb that is closed reduces the sediment by approximately 900 cubic yards per year.

- Some form of management practice can be applied to contain eroded materials or preferably reduce erosion.

- Silt traps or other means incorporated in Alternatives 2-4, are proposed to capture and reduce sediment from leaving the Clear Creek watershed. Based upon engineering design and placement of the engineering controls, sediment yield leaving the Clear Creek watershed could be reduced by between 20-50%.

- Road maintenance (especially on the county road) should be done to reduce sidecast materials from entering into the creek channels. Also water diversions such as culverts and waterbars should be constructed and/or improved to reduce the gully erosion from concentrated and channelized water.

Road Maintenance. The PTI erosion estimates are based upon an evaluation of current and historic use of roads, trails and open hillclimbs and the operation and maintenance of county roads. Based upon field measurements, sediment volumes were calculated using the total mileages and acreages of routes and open hillclimbs available for use under each alternative. These sediment volumes were also compared with the existing situation (Alternative #1) to determine the estimated reduction in sediment yield under each proposed alternative.

Changes in the amount of routes, trails and hillclimbs and improved maintenance techniques would greatly decrease the accelerated erosion and sedimentation throughout the entire CCMA. The existing road maintenance on county roads and BLM jeep and motorcycle trails has contributed increased amounts of sediments into creeks. This is due to concentration of run off onto roads, and increased sediment loads from sidecasting sediments into creeks directly, or onto roadside berms and hillsides so that these sediments are susceptible to high-stream flows. Improvements to road maintenance would be a major part of the revision to BLM's proposed new OHV route network and updated Best Management Practices (see Management Guidance and Determinations Common to All Alternatives- Chapter Two).

The maintenance of roads would be determined by the amount of repair necessary to provide for safe vehicle access and to reduce any offsite erosion and sedimentation impacts related to the roads and trails. Currently, minimal grading is being done the BLM some of these roads to install waterbars to help in reducing damage to the road and lessen any offsite transport of sediment from these roads.

GEOLOGY AND MINERALS

The Clear Creek Management Area is defined by a northwest-trending serpentine body (Serpentine ACEC), three to five miles wide and 15 miles long. The serpentine mass is highly sheared with the exposed rock being made up of small chips and plates which are generally friable and easily erodible. Locally, there are some blocks of more erosion-resistant rocks which have been only moderately crushed and sheared; these rocks generally form the higher mountain tops and rock escarpments. The serpentine uplift is thought to have formed over 65 million years ago (Cretaceous Age) and it contains a unique collection of minerals. This geologic assemblage is called the New Idria Formation. Surrounding the New Idria Formation are the older, approximately 100 million years old (Jurassic Age), Franciscan Formation as well as the Cretaceous Age marine sandstone and shale of the Panoche Formation. The Franciscan group is the oldest group of rocks in the area and consists primarily of marine sandstone with minor shale and conglomerate interlayered with basaltic lavas and associated lenses of chert. The Panoche formation consists mainly of interlayered shale and sandstone.

The serpentine uplift is highly mineralized. This area has approximately 300 mining claims; however most of the mining activity is of the casual use variety. Casual use means that no explosives or mechanized equipment are allowed, and surface disturbance is limited to five acres. The only commercial mineral production presently occurring on public land is asbestos extraction from one large mine (approximately 100 acres) called the KCAC Joe Mine. Other potential commercial mineral resources include mercury, chromite, magnesite and other semiprecious gems and mineral specimens.

Some of the ACEC has been withdrawn from locatable mineral entry (1,488 acres in the San Benito Mountain Natural Area, 1,031 acres in Clear Creek Canyon, and 79 acres along the San Benito River).

RECREATION/SOCIAL SETTING

The Clear Creek Management Area has been an important weekend recreation destination for central California residents for the past 25 years. Clear Creek was among the top five most popular areas cited by California off-highway-vehicle users in a 1990 study conducted for the California Department of Parks and Recreation (CDPR, 1990). Clear Creek has been most popular with motorcyclists who use the area for hill climbing, trail riding, and camping. Other common recreation activities include 4-wheel drive off-highway vehicle driving, hobby gem/mineral collecting, and sightseeing. Most visitor use occurs on weekends during the wet winter months between November and April, although some use occurs throughout the year. The area is frequently hot, dry and dusty between May and October; however, the annual August deer season brings a surge of vehicles and campers into Clear Creek even under these dry and dusty conditions. Except for holiday periods, very little use occurs on weekdays.

Figure 9 shows estimates of visitor user days in Clear Creek between 1985 and 1991. These estimates are based on vehicle counts and visitor patrol logs recorded by BLM park rangers. Figure 10 shows a "best-guess" estimate of the breakdown of visitor use averaged over the eight-year period, 1985-1992. Although visitor data was collected prior to 1985 and as far back as 1977, this data was not included as the method for collection, recording and analysis prior to 1985 was not consistent from year to year. Weekend vehicle counts are averaged over the eight-year period. The breakdown by use type during the year is based on-the-ground observation by rangers and other BLM personnel. This figure should be viewed as a reflection of a trend, rather than as absolute. It can be seen from this figure that use generally drops off dramatically in the summer as the Management Area dries out, although hunting and other uses pick up considerably in the summer, particularly around the beginning of the August deer hunting season. Overall, total recreational use drops by about two-thirds in the summer.

FIGURE 8. VISITOR USER DAYS (VUDs) in CLEAR CREEK MANAGEMENT AREA (1985-1992)

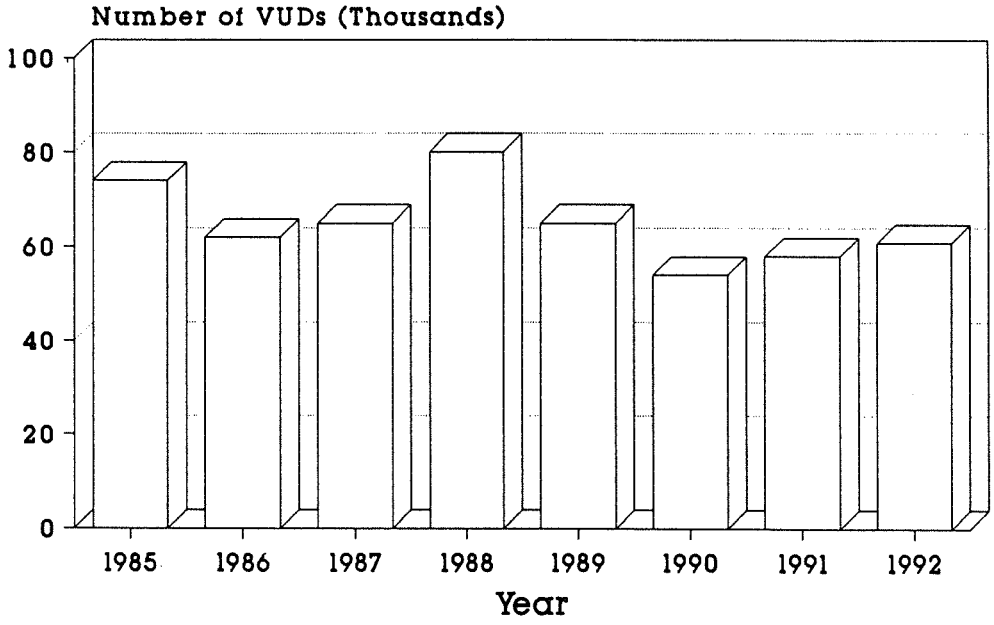
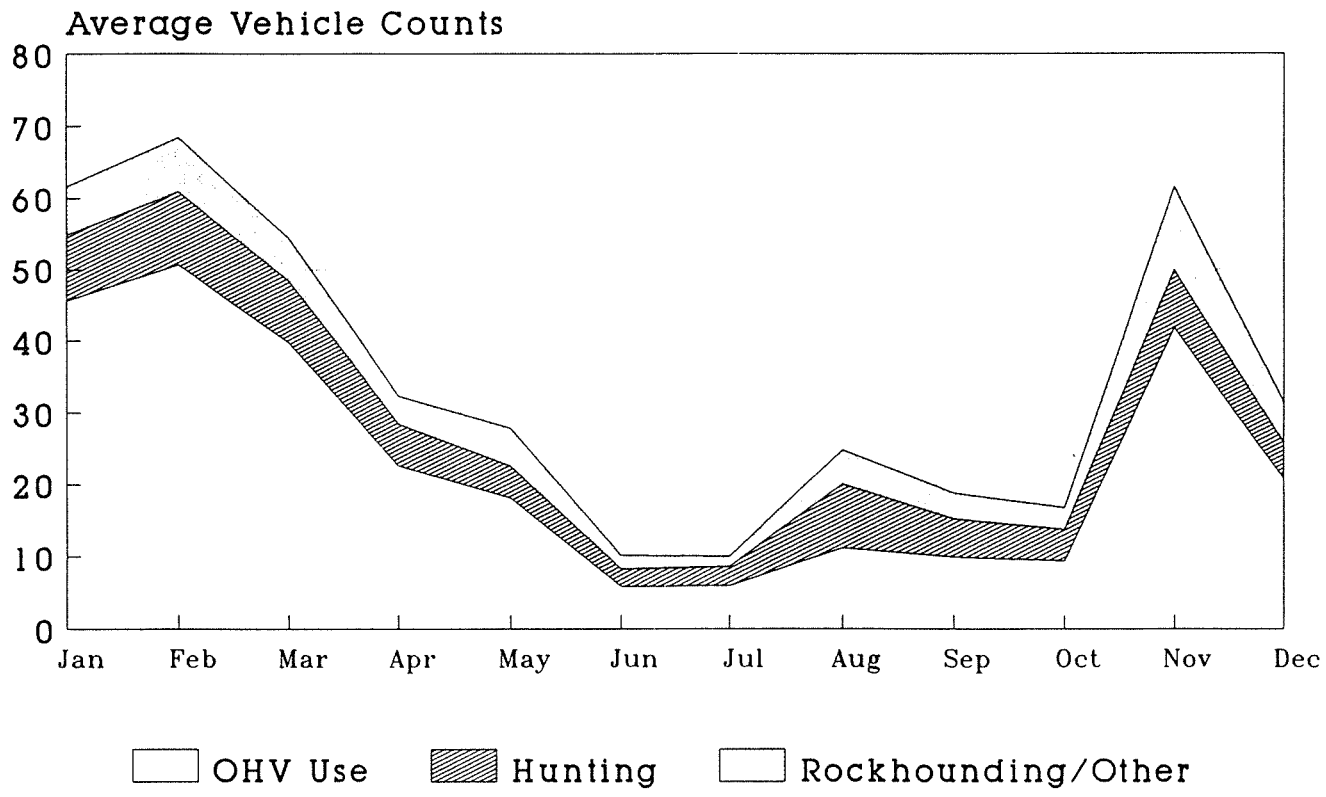


FIGURE 9. BREAKDOWN OF VISITOR USE IN THE CLEAR CREEK MANAGEMENT AREA (1985-1992)



Current estimates of visitor use are about 50,000 visitor user days (12-hour visitor days) per year with use figures remaining stable for the past several years (Leathers, 1991). About 85% of the visitors are off-road motorcycle users.

Visitor facilities are limited to the Oak Flat Campground and six staging areas which have trash receptacles and pit toilets. Bulletin boards with regulatory and visitor-service information are maintained at the campground and staging areas. These facilities receive considerable vandalism: bulletin boards and outhouses are shot, sawed, burned, or damaged with tools such as axes or hammers. Signs throughout the area suffer from the above, and also are run over or removed. Sometimes graffiti obstructs verbiage on signs, or sometimes signs are scratched so that the message is no longer legible. Fences are cut or breached. Locks on gates are sometimes torched or shot off. The BLM personnel spend a great deal of time replacing and repairing facilities, which amounts to thousands of dollars annually, both in terms of time and in terms of materials.

OHV Use -

Most motorcycle users are from the San Jose/San Francisco metropolitan areas with normal travel time of two to three hours to get to the Clear Creek area. These users travel very close to the 6,650 acre Hollister Hills State Vehicle Recreation Area in route to Clear Creek. Although this intensively managed OHV use area is about one and a half hours closer to the urban areas than Clear Creek, interviews with motorcycle users and testimony at public meetings indicate that the lack of regulatory controls (i.e. fencing, signs, designated routes, etc.), the unique challenge of the viscous serpentine soils, and the amount of area available for riding are important factors attracting many of the bike riders to Clear Creek.

A 1989 state-wide survey conducted by the California Department of Parks and Recreation among users of state managed OHV parks, showed Clear Creek as the most frequently cited BLM or U.S. Forest area also used by individuals recreating in the state OHV park system (CDPR 1989). In a statewide survey of OHV users one year later, more than 70% of survey participants "strongly agreed" that OHV recreation "provided a sense of freedom and escape" (CDPR 1990). Clear Creek offers an opportunity for these users to participate in a physically challenging activity in an environment that is a marked contrast to the congestion, urbanization, and regulation that is pervasive in the metropolitan areas where they work and reside. The lack of obvious regulatory constraints contributes significantly to the quality of most OHV users' recreational experience.

Almost all of the motorcycle use in Clear Creek occurs within the 30,000 acre Serpentine ACEC where asbestos is found, with the most concentrated use occurring in the lower six miles of Clear Creek Canyon and in the McCullough Hill area. There are more than 2,800 acres of barren hill climbs and 420 miles of

primitive roads and trails currently available for motorcycle and off-highway-vehicle use. Motorcycle use in Clear Creek appears to be a social activity with riders frequently travelling in groups ranging in size from six to fifteen individuals. The BLM's Oak Flat Campground was designed as a group camp area to meet the users' desire for vehicle-supported group camping opportunities. The six staging areas, lower Jade Mill, and the Aurora Mine are also popular for camping by groups clustering around several support vehicles. Camping by individuals and small groups also occurs at numerous impromptu camping sites, particularly adjacent to the Clear Creek Road in the lower six miles of Clear Creek Canyon.

A combination of regulatory signs and fencing is used to implement the OHV and vehicle closure of the 1,871-acre San Benito Mountain Natural Area and to discourage riding in Clear Creek riparian area. Two BLM park rangers patrol Clear Creek maintaining facilities, providing visitor assistance and information, and warning visitors about regulatory violations. A BLM Law Enforcement Ranger conducts patrols in the area, warning, citing, and/or arresting regulatory violators as appropriate. The BLM also has contracted with the San Benito County Sheriff's Department for additional law enforcement patrols in Clear Creek.

Signs warning visitors of the potential for exposure to asbestos are installed along roads entering the Clear Creek area and on all bulletin boards. BLM Park Rangers state that numerous discussions they have held with Clear Creek users would indicate that most users are aware that soils in the area contain asbestos.

Motorcycle violations of restrictions on vehicle use in the San Benito Mountain Natural Area and in Clear Creek are common, with the natural area and the creek bed frequently riddled with motorcycle tracks.

Several large organized off-road-vehicle events are also conducted annually in the Clear Creek area. These events include the annual Molina Ghost Run 4-wheel-drive tour sponsored by the California 4-Wheel Drive Association, and motorcycle Enduros, time-trials, and poker runs, all sponsored by a variety of local motorcycle clubs and/or the American Motorcycle Association. Among the larger events are the National Points Enduro races which attract racers from throughout the western U.S., and which average between 250 and 400 participants. Organized events account for about 1,600 visitor user days per year.

While motorcycle riding is the most prevalent recreation activity in the Clear Creek area, use of 4-wheel drive vehicles to participate in a variety of other activities is also common. The 420 miles of primitive roads and trails, constructed primarily by historic mining operations, provide many challenging opportunities for 4-wheel-drive off-highway driving. The Molina Ghost Run is an extremely popular organized 4-wheel drive event with participation annually limited to 400 vehicles.

Hunting -

While few game animals are found in the Clear Creek Management Area, it is still important to hunters who camp in Clear Creek or traverse Clear Creek to gain vehicle access to the Condon Peak and Arroyo Leona areas south and east of the Clear Creek watershed.

Hobby Gem and Mineral Collection -

Hobby gem and mineral collectors are drawn to the Clear Creek area by the presence of over 100 semi-precious minerals and gemstones. This is one of the most highly mineralized areas in California. Collectable minerals include jadeite, cinnabar, andradite, tremolite, melanite, topazolite, barkevikite, clinochlore, vesuvianite, artinite, natrolite, neptunite, and benitoite. Some minerals such as benitoite are extremely rare and the Clear Creek Management Area is practically the only place in the world where they can be found.

Highly mineralized areas generally occur along faults and inclusions/intrusions in and around the serpentine body. Hobby gem and mineral collecting (or rockhounding as it is commonly called), accounts for about five percent of the total recreation use in the area. In the past, hobby collecting groups have expressed concern regarding ORV play riding in adjacent to camp sites within the Clear Creek canyon area.

Several commercial gem collectors also maintain mining claims and work infrequently in the area. The only known commercial deposit of benitoite is found on a patented mining claim (private land) in the Clear Creek area. The area's unique geology also attracts geology students and researchers from local and national universities including Stanford and Harvard.

ECONOMIC SETTING

The Joe Pit asbestos mine operated by KCAC, Inc. and three communication sites on prominent peaks are the only major economic activities occurring in the Clear Creek Area. Access to and operation of these facilities will not be affected by this Plan Amendment, and therefore no additional discussion of these commercial uses is warranted.

Several gem and mineral specimen locations are also mined commercially on an infrequent basis. There are about 300 mining claims in the Clear Creek area. Little or no activity occurs on most of these mining claims. The area has been explored for mineral resources since the 1870's. The last economic discovery was in the 1960's when asbestos deposits were commercially developed.

Recreation users contribute to the local economy through expenditures for gas, food, and miscellaneous supplies. On winter weekends, vehicles transporting off-road motorcycles are common at gas stations, restaurants, food stores and convenience stores in Hollister and Coalinga. While most of the visitors observed in Coalinga are probably bound for Clear Creek, many of those observed in Hollister could be in route to the Hollister Hills State Vehicle Recreation Area.

No studies have been conducted to determine local expenditures by Clear Creek recreation users. Studies have been conducted by the State Off-Highway Vehicle Commission to determine expenditures by visitors to the state OHV vehicular recreation area system. These studies indicated that the average motorcycle rider expended about $48.63 per visitor day. While Clear Creek users were not the target of this study, participants in the study did cite Clear Creek as their most frequently visited BLM or Forest Service OHV use area (CDPR 1989). A state-wide study conducted by the California Department of Parks and Recreation indicated that OHV users spent an average of $45.05 per day (CDR 1990). Applying these figures to Clear Creek users would indicate that off-road-vehicle recreation use in the area could contribute as much as $2,325,000 annually to the local economy. Actual expenditures are probably less than this, however, because Clear Creek is remote, and there are therefore few opportunities to purchase supplies or services near Clear Creek.

Off-road-vehicle users also spend considerable sums purchasing the specialized vehicles and support equipment needed to participate in their chosen recreational activity. A conservative estimate is that Californians spent $212 million to purchase off-road-vehicles in 1992 (Schwarz, 1992). These expenditures are not considered in this EIS since it is not possible to determine if changes in recreation opportunities in Clear Creek would affect future purchases of specialized vehicles or equipment.

While changes in Clear Creek management could affect the distribution and quality of some hunting experiences, it is not expected to have an impact on the number of hunter user days for the general region. Since hunting use would probably not be reduced, but rather displaced to other areas in the local region, no measurable economic impact is anticipated. Local income contributed by gem and mineral collectors could be affected since if these visitors do not use Clear Creek, they will probably be displaced to other areas outside the local region.

CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter analyzes the environmental impacts of the Resource Management Plan (RMP) Amendment alternatives presented in Chapter 2, and focuses on the expected physical, biological and social consequences of implementing the land-use decisions described under each alternative. Impact summary tables at the end of this Chapter provide comparative analyses of the alternatives and their impacts on the topics selected for analysis.

ANALYSIS ASSUMPTIONS

Impacts to air quality/human health and safety, watershed/riparian, recreation, economic and vegetation values were analyzed for each of the alternatives, relating back to the issues and concerns described in Chapter 1. For purposes of this evaluation, it is assumed that most of the projected impacts on resource values will vary based upon proposed revisions to the OHV designations (acres of open barren slopes, miles of accessible roads and trails) and proposed management measures (dust suppression, erosion controls).

In most cases, subsequent environmental analysis will be required to implement resource management decisions. More detailed or site-specific studies will be conducted in compliance with the National Environmental Policy Act (NEPA) and its implementing regulations as the need arises.

IMPACT TOPICS CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

The actions proposed under the alternatives did not appear to have significant impacts on cultural, mineral, visual, and wildlife resource values (with the exception of four special status animals and aquatic wildlife), or on prime farmlands, floodplains, wilderness, wild and scenic rivers, or Native American relations, and therefore were dropped from further analysis and discussion.

UNAVOIDABLE ADVERSE IMPACTS COMMON TO ALL ALTERNATIVES

Unavoidable adverse impacts are assumed to be long-term residual impacts which arise in spite of any mitigation described in this section. The following resource values would be affected: Air Quality/Human Health, Watershed, and Vegetation.

Air Quality/Human Health

Air quality would be adversely affected by the use of vehicles on unpaved roads and trails. Fugitive dust containing asbestos fibers and PM-10 components would continue to degrade existing air quality and potentially adversely affect the health of public land visitors.

Vegetation

The continued erosion of topsoil in high vehicle use areas would decrease the productive soil horizons and inhibit natural revegetation of these areas. Direct impacts from vehicle use and indirect impacts from erosion would affect some special-status species (such as rayless layia and talus fritillary) in upland habitat and other sensitive plant habitat in the riparian areas. The accelerated soil loss from disturbed areas would directly affect plant habitat, and this degradation may be significant for these plant species.

Watershed

Any vehicle use on highly erosive areas such as barren slopes and on unpaved roads and trails would remove topsoil and increase erosion and downslope and downstream transport of sediment. Surface water quality would be adversely affected by any increase in the naturally high erosion and sedimentation rates.

IMPACTS OF ALTERNATIVE 1 - NO ACTION

Under this alternative, there would be no change in the existing conditions, however implementation actions contained within the Clear Creek Management Plan that have not yet been completed would be curtailed. Existing vehicle use designations would not change under this alternative. Impacts arising from this management alternative are described below.

IMPACTS TO AIR QUALITY AND HUMAN HEALTH - ALTERNATIVE 1

This alternative would allow OHV use to occur on 420 miles of unpaved roads and trails and 2,876 acres of open hillslopes. The roads, trails and barren hillclimbs are composed of native asbestos-rich serpentine rock. Direct impacts to the air quality and human health would result primarily from continued vehicle use in the area, causing asbestos dust generation and human exposure via the inhalation of asbestos fibers. The result of long-term exposure from the inhalation of asbestos fibers could result in serious illnesses such as lung cancer, and could cause premature death.

Under this alternative, present management would continue to accommodate 50,000 visitor use days per year, and users would continue to have an increased risk of contracting asbestos-related diseases based upon their frequency of use. For the average Clear Creek OHV user (primarily motorcycle user) this increased risk has been estimated to affect five persons out of 100,000 visitors.

Secondary exposure from the offsite transport of asbestos fibers from wind, water and vehicles would continue, causing indirect impacts to non-users of the Clear Creek Management Area. Users of the CCMA would continue to transport asbestos dust out of the area via their clothes and vehicles, potentially exposing their families to the health risks associated with asbestos. No engineering or administrative controls would be enacted to mitigate this impact.

Health risks would be managed under this alternative by administrative controls. OHV use would be restricted during the dry/high dust season when the OSHA airborne asbestos exposure levels were exceeded. This seasonal restriction is expected to reduce OHV visitation by approximately 15 percent, based upon historical vehicle counts during May through September. In addition, any organized event or activity requiring BLM authorization would be permitted only when airborne asbestos concentrations were below OSHA asbestos action levels.

IMPACTS TO VEGETATION - ALTERNATIVE 1

Because of loss of suitable habitat, the San Benito evening primrose could decline, and relisting as endangered and could become extinct could be warranted. Five Category 2 candidate species (talus fritillary, rayless layia, Hernandez spineflower, slender pentachaeta, and Mt. Diablo phacelia) could be listed as threatened. The research value and resource conditions of the San Benito Mountain Natural Area would continue to be adversely impacted by vehicle use and accelerated erosion in some locations. Serpentine barrens throughout the CCMA would continue to degrade under intensive vehicle use. There would be no improvement in many degraded riparian areas or Spanish Lake and nearby vernal pools. Herbaceous

vegetation which includes several special-status and other uncommon species would continue to decline within the acreage designated as "open" ("A" zones) for off-road vehicle recreation. These impacts are further discussed below.

San Benito Evening Primrose. The current status (abundance, productivity, etc.) of known San Benito evening primrose populations and portions of most suitable but unoccupied terrace sites in the lower Clear Creek drainage would be maintained or enhanced due to protection given these areas by past fencing efforts and future enforcement of the lower Clear Creek watershed as a limited use ("B") zone.

Two significant adverse impacts to the primrose would continue:

1) Vehicle and/or camping use could potentially eliminate vegetation and disturb and compact soil at several unoccupied but suitable terrace sites in the upper Clear Creek drainage. These habitat areas could eventually become unsuitable for future primrose colonization, or seeding and/or other recovery efforts by the BLM. Streamside habitat in upper Clear Creek Canyon capable of supporting temporary (between flood events) primrose populations would be similarly vulnerable. Impacts to this streamside habitat would reduce opportunities for primrose seed to germinate on these sites and move to nearby terrace sites. Such losses in upper Clear Creek would significantly impact the status of this primrose.

2) Suitable habitat on public lands in nearby watersheds (such as the San Benito River and Sawmill Creek) would continue to be subject to vehicle impacts.

Portions of six terraces used for camping and off-road vehicle staging areas and 28 terraces used for main roads would remain unsuitable as primrose habitat. These are not considered significant impacts since these areas are no longer suitable for the primrose because of their use for recreational purposes and because there is no assurance that these areas could be successfully rehabilitated for the primrose if such efforts were attempted.

Under Alternative 1 the status of this species could decline sufficiently to warrant relisting from threatened to endangered and the species could become extinct because the limited amount of protected habitat may not be sufficient for the long-term needs of this species.

Proposed Mitigation Measures -

1 - Protect by fencing any new populations of primrose discovered in areas open for vehicle use.

2 - Attempt habitat manipulations such as small scale burning or additional seed or seedling experiments to increase the number of populations in protected areas.

Residual Impacts -

1) Existing populations of C. benitensis which are not yet recorded and suitable habitat for this primrose in CCMA watersheds other than the lower Clear Creek watershed would continue to be subject to impacts from vehicle and camping use.

2) In the Clear Creek watershed portions of six terraces used for camping and off-road vehicle staging areas and 28 terraces used for main roads would remain unsuitable as primrose habitat.

Other Special Status Plant Species. All known populations of special-status plants and nearly all suitable habitat for them within 1/4 mile of Clear Creek and within the current boundaries of the San Benito Mountain Research Natural Area would be protected by existing and planned protective measures such as fencing and vehicle use restrictions to designated routes within these areas. Specifically this protection would extend to the following:

- eight populations of rayless layia (Layia discoidea) (out of the 21 known on public lands within the CCMA);

- the single known populations on public lands within the CCMA of both the slender pentachaeta (Pentachaeta exilis aeolica) and Hernandez spineflower (Chorizanthe biloba immemora);

- all of one, and one-half (because of potential vehicle impact to the other half) of the other known population within the CCMA of talus fritillary (Fritillaria falcata);

- several populations of both the south coast morning glory (Calystegia collina venusta) and San Benito fritillary (Fritillaria viridea);

- some amount of suitable habitat for all six species listed above, possibly including a substantial portion of habitat within the CCMA which is suitable for slender pentachaeta and Hernandez spineflower.

Two important adverse impacts to these species on public lands within the CCMA would continue:

1) Thirteen populations of rayless layia, the single population of Mount Diablo phacelia, and a portion of one talus fritillary population would remain vulnerable to trampling and soil disturbances by off-road vehicle use.

2) Degradation to, or elimination of undocumented populations and some amount of suitable habitat of talus fritillary, rayless layia, slender pentachaeta, Hernandez spineflower, and Mt. Diablo phacelia could occur due to continued vehicle impacts over approximately 25,000 acres of open use ("A") areas outside the San Benito Mountain Research Natural Area and 1/4 mile from lower Clear Creek.

A small amount of habitat for talus fritillary, rayless layia, Hernandez spineflower, slender pentachaeta, and Mt. Diablo phacelia could be impacted along vehicle routes left open leading out of lower Clear Creek Canyon, but this should be insignificant because most routes are already unsuitable for plant life and these areas would only include a very small percentage of lower Clear Creek Canyon.

Some populations of San Benito fritillary and San Benito morning glory and some habitat for these species could be degraded or eliminated, but this is not expected to be significant because there appears to be sufficient numbers of populations distributed over a large enough area that loss of some populations or habitat should not jeopardize these species which may soon be removed from the federal list of special-status species.

Management under Alternative 1 could result in enough degraded habitat and loss of talus fritillary, rayless layia, and possibly Mt. Diablo phacelia populations to increase their rarity and contribute to the need to list them as threatened or endangered. In addition, several plant species such as Andrew's bedstraw (Galium andrewsii ssp. andrewsii) and Brewer's clarkia (Clarkia breweri), which could become special-status species in the future, would decline along with the overall herbaceous community in the CCMA. This herbaceous community often includes the rarer species of the CCMA, and therefore its overall health could indicate the future trends for the area's special-status species.

Proposed Mitigation Measures -

1) Monitor all unprotected populations of rayless layia, Mount Diablo phacelia, and talus fritillary for possible adverse impacts from vehicles and other uses and implement protective actions as warranted.

2) Inventory suitable habitat for talus fritillary, rayless layia, Hernandez spineflower, slender pentachaeta, and Mt. Diablo phacelia.

3) Monitor any new populations of these species documented during future inventories for adverse impacts and implement protective actions as warranted.

Residual Impacts -

1) On-going impacts to sensitive plant populations which are not already protected (as of 1994) would be expected to continue in the 25,000 acres of open use ("A") areas until future monitoring, inventories, and protective actions (where necessary) for sensitive plant populations are completed.

2) Suitable habitat for the various sensitive plant species in the CCMA which is not known to be currently occupied by these species would continue to be subject to degradation by such uses as camping and off-road vehicle use, especially in the 25,000 acres of open use ("A") areas, but also to some extent in limited use ("B") areas.

San Benito Mountain Forests and Natural Area. Installation of fencing and other barriers sufficient to eliminate unauthorized off-road vehicle use in the Natural Area could take several years under current funding and staffing levels, and until then the adverse impacts of off-road vehicle use would continue. Off-road vehicle use on steep hills and barren slopes accelerates soil erosion and breaks the protective surface soil crust typical of Clear Creek's serpentine soils. When the crust is broken, the underlying fine soil particles are exposed to wind and water erosion. When topsoil and surface organic matter is eroded the rate of plant regeneration decreases. Off-road vehicle use also disturbs fallen seeds before they can germinate and prevents seedling survival due to trampling. The soil in the root zones of existing trees becomes compacted, roots are crushed, and the life span of trees is decreased.

Approximately seven and one-half miles of roads and trails in the Natural Area would remain authorized for vehicle use. Vehicle use along the center ridgeline in the Natural Area results in the formation of alternating humps and swales (whoop-de-doos) which are indicators of soil loss from the ridgeline onto the slopes below. Vehicle use on roads located on steep slopes of the Natural Area causes ruts and gullies which also accelerate soil erosion. Both the hump-swale and gully erosional features increase the need for road grading which in turn creates a two to six inch layer of powdered sediment on the road surface. Such powdered sediments are highly prone to removal by wind or water.

The impacts of both authorized and unauthorized vehicle use in the Natural Area, as described above, would continue to accelerate erosion processes, decrease the amount of vegetated acreage in the San Benito Mountain Natural Area and increase the acreage of barren hills. These impacts would decrease the Natural Area's value for future research.

Conifer forests outside the Natural Area would be subject to impacts similar to those occurring inside the Natural Area. Unprotected barren hills and species that colonize these hills would be adversely impacted in the short-term by soil disturbance and, in the long-term, by soil loss.

Riparian areas. Road maintenance and vehicle use inside riparian areas and on adjacent upland slopes would continue to result in the significant impacts listed below:

1. The use of roads and road maintenance would continue to cause approximately 77 tons/acre per year of sediments (or 25 times the natural erosion levels) much of which is immediately transported into creeks during heavy rainfall events (PTI 1993, pg. 38).

2. The use of 2,876 acres for open play areas would continue to cause 14,000-47,000 tons of sediments (2-6 times above natural levels) to erode per year, some amount of which would be directly deposited into riparian areas.

3. Hillside failures (slippage) into riparian areas such as Clear Creek would continue due to the presence of roads (such as the Clear Creek Road) across inherently unstable slopes causing the diversion of streamflow into the bottom of other slopes and repeating the cycle. This would contribute thousands of cubic yards of sediments into CCMA creek channels (Zembsch, pers. communication 1994), much of which moves directly into streams such as Clear Creek and causes physical damage to creek banks and loss of riparian vegetation which is in addition to the impacts to other riparian components (such as fish and amphibian habitat) described above.

4. Camping and off-highway vehicle use along creeks in the CCMA would continue to concentrate foot and vehicle impacts in these areas which results in vegetation removal and soil compaction within these creeks' floodplains.

5. Numerous creek crossings along roads and trails outside of Clear Creek (few of which are stabilized by concrete reinforcements or culverts) would continue to be sites of streambed disturbance caused by the churning of

wheels across creekbeds and deposition of sediments washing off mud-laden tires.

Together, these on-going impacts and a lack of restoration projects under this alternative would continue degrading riparian areas within the CCMA and prevent any stabilization or improvement of impacted riparian areas.

Proposed Mitigation Measures:

1. Investigate and implement techniques to prevent portions of hillslopes from collapsing into riparian areas.

2. Review road maintenance programs and implement additional techniques to reduce sedimentation off road and trail surfaces.

3. Investigate and implement revegetation strategies for closed barren areas and impacted riparian areas.

4. Rock armor creek crossings along major designated routes in the CCMA.

Residual Impacts -

1) Since BLM would not likely be able to protect all hillslopes where slope failure is imminent, portions of some hillslopes would collapse into CCMA creeks (i.e. Clear Creek and Sawmill Creek) in part due to additional stress on those hillslopes caused by roads, road maintenance, and/or vehicle use.

2) Most of the rest of the impacts listed above would continue (though they would be lessened as a result of mitigation) outside of lower Clear Creek and the San Benito Mountain Natural Area since the focus of Alternative 1 would be to manage the CCMA (except for lower Clear Creek and the Natural Area) much like it is being managed currently.

Vernal pools. The vernal pool complex around Spanish Lake would continue to be impacted because the vegetation would be crushed and the soil disturbed and compacted by off-road vehicle use. This would most often occur in late spring-early summer when the pools begin to dry and are more accessible to vehicles. Vernal pools north of Clear Creek Canyon should not be affected since they are already protected by fencing.

IMPACTS TO SPECIAL STATUS ANIMAL SPECIES AND OTHER AQUATIC WILDLIFE - ALTERNATIVE 1

Continued degradation of riparian areas (as described above under riparian areas) would similarly decrease habitat quality for the foothill yellow-legged frog, two-striped garter snake, western pond turtle and other aquatic wildlife.

Proposed Mitigation Measures:

1. Implement long-term studies to determine how disturbances such as human use, storms, and erosion, impact the viability of the above species, and continue monitoring. If appropriate, adjust management in the CCMA to help improve conditions for these species.

Residual Impacts -

Until monitoring and long-term studies document if and how special status animal species were being adversely impacted and actions were taken to improve conditions for affected species, on-going impacts would continue.

IMPACTS TO WATERSHED RESOURCES - ALTERNATIVE 1

All five watersheds in the CCMA would be directly impacted by this alternative, primarily from the increased erosion, transport and deposition of asbestos-laden sediments generated by human disturbance.

A vehicle access network of approximately 2,876 acres of barren hillslopes and approximately 420 miles of unpaved roads and trails would continue to accelerate the erosion and sediment process over existing natural conditions. Based upon PTI's watershed erosion estimates, the result of human surface disturbance under this alternative is expected to increase erosion (excluding landslides and gully erosion) by approximately 20% over the natural background levels. The impact of roads and hillclimbs alone is currently estimated to contribute approximately 30,917 tons of sediment per year over the five watersheds.

These sediments are directed into numerous gullies and intermittent stream channels and migrate into perennial streams and rivers. This erosion and sedimentation degrades water quality and could also affect flood frequency and intensity. Continued OHV use both on and off the extensive road and trail network would increase the production and transport of asbestos-laden sediment. The impacts to the watershed and riparian resources from increased erosion, sedimentation, and decrease in plant cover and soil productivity would not be

mitigated. Sediment yield from storm runoff would be not be decreased and continued erosion might degrade or wash out roads and trails during winter storms.

No reduction in the downstream sedimentation and transport of both topsoil and asbestos fibers would be expected under this alternative. The continued adverse impacts on downstream dams and reservoirs would not change under this alternative. Downstream flooding would also continue to be a problem and intense flooding could cause stream banks to collapse and remove existing riparian vegetation. Storm-damaged roads and streambanks, and the loss of riparian vegetative cover could necessitate emergency repairs that might have serious financial impacts.

The short and long term impacts from erosion and sedimentation occur downstream from the Clear Creek Management Area. These impacts are due to the increased sediment yield that can adversely affect the operation and maintenance and life span of local flood control projects. Two of these projects, the Hernandez Dam and the Arroyo Pasajero ponding basin near Huron, have been identified as having been impacted by human activities which caused erosion and sedimentation within the Clear Creek Management Area.

IMPACTS TO RECREATION RESOURCES - ALTERNATIVE 1

Implementation of seasonal closures on off-road vehicle use is expected to result in about a 10% drop in overall recreational use. Total recreational use figures have remained relatively stable for the past several years and there are no other external factors which would result in appreciable change. Because of seasonal closures, visitor use could probably decline to about 45,000 visitor user days annually.

Additional regulatory signing could diminish the quality of the recreational experience by giving users the impression of a more regulated environment, thus reducing some the sense of escape from a highly regulated urban environment. Subsequent vandalism of regulatory signs would further diminish the quality of the recreational experience for all users.

ECONOMIC IMPACTS - ALTERNATIVE 1

Reduction in visitor use by 10% would result in an estimated decline in local sales of $232,500. This figure may be too high since some displaced Clear Creek users could be expected to recreate at Hollister Hills State Vehicular Recreation Park and therefore would still support the local economy.

Opportunities for continued mineral exploration and subsequent development would not be affected.

IMPACTS OF ALTERNATIVE 2 - IMPLEMENTATION OF EXISTING MANAGEMENT PLANS

Vehicle use designations under this alternative would essentially be the same as under Alternative 1. However, six miles of the lower Clear Creek Canyon Road would be dust-suppressed in addition to the half mile section of road through the Atlas Mine site, a public vehicle wash rack would be installed, and about 18 sediment control projects would be implemented. All known San Benito evening primrose populations and habitat currently capable of supporting the primrose would be protected, and limited-use corridors would be enforced along all five major streams in the CCMA to protect sensitive plant habitat, aquatic wildlife, and water quality.

IMPACTS TO AIR QUALITY AND HUMAN HEALTH - ALTERNATIVE 2

Off-road vehicle use would continue on 405 miles of unpaved roads and trails, and on 2,876 acres of hillclimbs, and these areas would not be dust-suppressed. Under this alternative, the continued OHV use on the remainder of the unpaved vehicle access network would still generate asbestos emissions. Potential health risks and air quality impacts associated with this alternative are reduced compared to Alternative 1, but still include an elevated risk of contracting serious and/or life-threatening asbestos-related diseases from exposure to asbestos fibers.

The impacts from transport via OHV user vehicles and subsequent exposure are expected to be substantially reduced by the construction and use of a public vehicle wash rack for the removal of dust, mud and other asbestos-containing materials from vehicles. Vehicle asbestos emissions and public exposure would be slightly reduced by the restriction of camping to established staging areas and dust-suppressing six miles of the lower Clear Creek Canyon County road. It is expected that dust-suppression would reduce road dust emissions by at least 50 percent. As the Clear Creek Canyon Road is heavily used, the potential for asbestos exposure by use of this road would be greatly diminished. However, it is still estimated that OHV use on unpaved roads and trails would still generate asbestos exposure which would increase the probability of a individual's risk to contracting cancer by 5 in 100,000. Dust suppression on the six miles of the Clear Creek County road would reduce vehicle generated asbestos emissions by at least half, but the associated reduction in health effects has not been quantified.

As under Alternative 1, additional administrative controls would be enacted under Alternative 2 to reduce and manage health risks. During the dry/high dust season, vehicle access would be restricted, with a resulting reduction in OHV use by as much as 10 percent. Furthermore, surface disturbing activities would only be permitted during periods when air concentrations of asbestos fall below OSHA action levels for a given activity.

IMPACTS TO VEGETATION - ALTERNATIVE 2

The status of San Benito evening primrose would stabilize and the probability for recovery would increase markedly as compared to Alternative 1 due to protection given this primrose in all watersheds of the CCMA. However, relisting as endangered could still be warranted due to past habitat degradation. All known populations of special-status plant species would be protected by camping and vehicle use restrictions, but undocumented populations and suitable habitat of these species could decline enough to warrant listing for a few of them as threatened or endangered. The San Benito Mountain Forest and Research Natural Area would be protected within 5 years, but until then the research value of the Natural Area and resource conditions would continue to be adversely impacted by vehicle use and accelerated erosion in some locations. Nearly all riparian habitat in the CCMA would be protected by the establishment of a designated vehicle route network that avoids these areas, but some riparian degradation would still occur until such a network was in place. Spanish Lake and the vernal pools in Clear Creek watershed would be protected, but others near Spanish Lake would not.

Protection of resources listed above would also result from the restriction of camping to Staging Areas, Oak Flat Campground, and other locations away from sensitive plant areas, as well as the installation of vehicle barriers and enforced vehicle restrictions in the San Benito Mountain Research Natural Area and at Spanish Lake.

San Benito evening primrose. The current status (abundance, productivity, etc.) of all 17 known San Benito evening primrose populations on public lands in the CCMA would be maintained or enhanced due to fence protection and habitat manipulations (clearing of brush if necessary). Nearly all remaining suitable primrose habitat (both terraces sites and temporary streamside habitat) along Clear Creek and one of Clear Creek's tributaries, Sawmill Creek, and the San Benito River would be maintained or enhanced due to enforced limited-use area ("B" zones) vehicle restrictions. Since primrose habitat in upper Clear Creek Canyon would be included in these protected areas and is potentially critical for the long-term survival of this species, Alternative 2 would benefit the primrose substantially more than Alternative 1. If successful, the proposed rehabilitation of 2 potential

San Benito evening primrose sites would increase the number of populations by 10% (from 22 to 24 populations).

Potential habitat (mostly along tributaries to the San Benito River) outside limited-use ("B") areas would be protected if the route inventory conducted prior to route designations (see Chapter 2 under "Management Guidance and Determinations Common to All Alternatives") confirms suitable habitat could be impacted by any proposed or existing vehicle routes.

Several terrace sites (such as Slim's Camp) in Clear Creek's watershed would continue to be degraded by off-road vehicle and camping use. Portions of six other terraces used for camping and as off-road vehicle staging areas and portions of 28 terraces used for main roads would remain unsuitable as primrose habitat. These are not expected to be significant impacts since these areas have been severely altered (and so are not currently capable of supporting the primrose) as a result of their use for recreational purposes and because there is no assurance that these areas could be successfully rehabilitated for the primrose if such efforts were attempted.

Under Alternative 2 the status of the San Benito evening primrose would improve in several watersheds but relisting as endangered could still be warranted due to past habitat degradation.

Other special status plant species. The designation and enforcement of routes within limited-use ("B") areas along portions of upper Clear Creek and one of Clear Creek's tributaries, Sawmill Creek, the San Benito River, and several thousand acres of the White Creek watershed could significantly improve the status of three special-status species as compared to Alternative 1. Specifically, additional benefits would include the following:

- Protection for four additional known populations of rayless layia (for a total of 12 of the 21 on public lands within the CCMA), and possibly for a few undocumented populations. Protection of some amount of suitable habitat.

- Protection of several known and possibly several additional undocumented populations of both the south coast morning glory and San Benito fritillary as well as some amount of suitable habitat for these two species.

Two significant adverse impacts to special-status plant species on public lands within the CCMA would continue:

1) Nine populations of rayless layia, the single population of Mount Diablo phacelia in the CCMA, and a portion of one talus fritillary population would remain vulnerable to trampling and soil disturbances by off-road vehicle use.

2) Degradation to, or elimination of undocumented populations and some amount of suitable habitat of talus fritillary (Fritillaria falcata), rayless layia, slender pentachaeta, Hernandez spineflower, and Mt. Diablo phacelia could occur due to continued vehicle impacts over approximately 25,000 acres of open use ("A") areas outside the San Benito Mountain Research Natural Area and limited-use ("B") areas.

A small amount of habitat for talus fritillary, rayless layia, Hernandez spineflower, slender pentachaeta, and Mt. Diablo phacelia could be impacted along vehicle routes left open in limited-use ("B") areas, but this should be insignificant because most routes are already unsuitable for plant life and these areas would include a very small percentage of lower Clear Creek Canyon.

Some populations of San Benito fritillary and south coast morning glory and some habitat for these species could be degraded or eliminated, but this is not expected to be significant because there appears to be sufficient numbers of populations distributed over a large enough area that loss of some populations or habitat should not jeopardize these species which may soon be removed from the federal list of special-status species.

Management under Alternative 2 could result in enough degraded habitat and loss of populations for the five species listed under the significant impacts above to increase their rarity and contribute to the need to list them as threatened or endangered.

In addition, several plant species such as Andrew's bedstraw (Galium andrewsii ssp. andrewsii) and Brewer's clarkia (Clarkia breweri), which could become special-status species in the future, would decline along with the overall herbaceous community in the CCMA. This herbaceous community often includes the rarer species of the CCMA, and therefore it's overall health could indicate future trends for the area's special-status species.

Proposed Mitigation Measures -

1) Monitor all unprotected populations of rayless layia, Mount Diablo phacelia, Hernandez spineflower, and talus fritillary for possible adverse impacts from vehicles and other uses and implement protective actions as warranted.

2) Inventory suitable habitat for talus fritillary, rayless layia, Hernandez spineflower, slender pentachaeta, and Mt. Diablo phacelia.

3) Monitor any new populations of these species documented during future inventories for adverse impacts and implement protective actions as warranted.

Residual Impacts -

1) On-going impacts to sensitive plant populations which are not already protected (as of 1994) would be expected to continue in the 25,000 acres of open use ("A") areas until future monitoring, inventories, and protective actions (where necessary) for sensitive plant populations are completed.

2) Suitable habitat for the various sensitive plant species in the CCMA which is not known to be currently occupied by these species would continue to be subject to degradation by such uses as camping and off-road vehicle use, especially in the 25,000 acres of open use ("A") areas, but also to some extent in limited use ("B") areas.

San Benito Mountain Forests and Natural Area. Within five years vehicle trespass would be eliminated as a result of vehicle barrier installation. Until such barriers are installed the Natural Area would be subject to an increase in trespass vehicle use due to displacement of use from the lower Clear Creek drainage. This increase would result in an unknown amount of soil related impacts and damage to vegetation and a diminished research value of the Natural Area. These impacts are discussed in detail above under Alternative 1.

Riparian areas. The designation and enforcement of vehicle routes in limited-use, ("B") areas along Clear Creek, as well as along San Carlos Creek (one of Clear Creek's largest tributaries), White Creek, and the San Benito River, the exclusion of vehicles from upland slopes within 1/4 mile of lower Clear Creek, dust suppressant along Clear Creek Road, and the stabilization of severely eroded roads and trails would result in significantly less damage to riparian vegetation and creekbanks and lower sediment yields into creeks than under Alternative 1. Alternative 2 would also allow for faster recovery of riparian areas.

Significant impacts which would continue are listed below:

1. The use of roads and road maintenance would continue to cause approximately 77 tons/acre/year of sediments (or 25 times the natural erosion levels), much of which is immediately transported into creeks during heavy rainfall events (PTI, 1993, p.38).

2. The use of 2629 acres for open play areas would continue to cause 12,900-42,900 tons of sediments (2-6 times above natural levels) to erode per year, some amount of which would be directly deposited into riparian areas.

3. Hillside failures (slippage) into riparian areas such as Clear Creek would continue due to the presence of roads (such as the Clear Creek Road) across inherently unstable slopes causing the diversion of streamflow into the bottom of other slopes and repeating the cycle. This would contribute thousands of cubic yards of sediments into CCMA creek channels (Zembsch, pers. communication 1994) much of which moves directly into streams such as Clear Creek and causes physical damage to creek banks and loss of riparian vegetation which is in addition to the impacts to other riparian components (such as fish and amphibian habitat) described elsewhere.

4. Numerous creek crossings along roads and trails outside of Clear Creek (few of which are stabilized by concrete reinforcements or culverts) would continue to be sites of streambed disturbance caused by the churning of wheels across creekbeds and deposition of sediments washing off mud-laden tires.

Overall the implementation of Alternative 2 would allow for the recovery of riparian areas that have been degraded by intensive recreation use while many of the impacts related to erosion off roads and sensitive slopes would continue. These on-going impacts would continue degrading some stretches of riparian areas while others would markedly improve compared to under Alternative 1.

Proposed mitigation measures -

1. Investigate and implement techniques to prevent portions of hillslopes from collapsing into riparian areas.

2. Review road maintenance program and implement additional techniques to reduce sedimentation off road and trail surfaces.

3. Investigate and implement revegetation strategies for closed barren areas and impacted riparian areas.

4. Rock armor creek crossings along major designated routes in the CCMA.

Residual Impacts -

1) Since BLM would not likely be able to protect all hillslopes where slope failure is imminent, portions of some hillslopes would collapse into CCMA creeks (i.e. Clear Creek and Sawmill Creek) in part due to additional stress on those hillslopes caused by roads, road maintenance, and/or vehicle use.

2) The remainder of impacts listed above would continue after mitigation measures were implemented but cause substantially less resource damage than under Alternative 1 since a major focus of Alternative 2 would be to protect all CCMA riparian corridors.

Vernal pools. Spanish Lake would be protected from OHV use under Alternative 2. Two vernal pools adjacent to Spanish Lake would not be protected. Vernal pools north of Clear Creek Canyon should not be affected since they are already protected by fencing.

IMPACTS TO SPECIAL STATUS ANIMAL SPECIES AND OTHER AQUATIC WILDLIFE - ALTERNATIVE 2

The exclusion of most vehicle use along several important riparian areas in limited-use ("B") areas and the protection of Spanish Lake would allow these areas' habitat quality to stabilize for the western pond turtle, two-striped garter snake, foothill yellow-legged frog and other aquatic wildlife. Significant impact to these species from accelerated sediment yields off upland slopes and roads (see Riparian section above), could continue.

Proposed Mitigation Measures:

1. Implement long-term studies to determine how disturbances such as human use, storms, and erosion impact the viability of the above species, and continue monitoring. If appropriate, adjust management in the CCMA to help improve conditions for these species.

Residual Impacts -

Until monitoring and long-term studies document if and how special status animal species are being adversely impacted and actions were taken to improve conditions for affected species, on-going impacts would continue.

IMPACTS TO WATERSHED RESOURCES - ALTERNATIVE 2

Under this alternative, all five watersheds would be impacted by continued vehicle use on barren slopes and on the extensive road and trail network. The use of hillclimbs and the OHV route network would increase the production and transport asbestos-laden sediment. The impacts to the watershed from increased erosion and sedimentation would be mitigated in two main watersheds, Clear Creek and the White Creek (Atlas Mine).

The direct impacts to the watershed resources are primarily from increased erosion and the generation of asbestos laden sediments by human disturbance. Based upon PTI's watershed erosion estimates, human disturbance is estimated to increase erosion by 20% (excluding any sediment due to landslides and gully erosion) over the natural background levels in four of the five watersheds. This alternative would still allow for OHV use to occur on approximately 2875 acres of barren hillslopes and approximately 405 miles of unpaved surfaces road and trails. This vehicle access network would continue to accelerate the erosion and sediment process over existing natural conditions. The impact of roads and hillclimbs is estimated to contribute approximately 28,893 tons of sediment per year over the five watersheds. This alternative would provide for a slight reduction (6%) in sediment production due to increased closure of some roads, trails and hillclimbs. One substantial difference between this alternative and Alternative 1, is the proposed sediment and erosion projects that would be constructed in the Clear Creek watershed.

A reduction in the downstream transport of sediment of both topsoil and asbestos fibers would be expected under this alternative if the proposed sediment dams are constructed along Clear Creek. In other watersheds, erosion problems from historic human disturbance would continue unabated and continued adverse impacts on downstream water quality would occur. In these watersheds downstream flooding would continue to be a problem and intense flooding could cause stream banks to collapse and remove existing riparian vegetation. Storm damaged roads, streambanks and the loss of riparian vegetative cover could necessitate emergency repairs that might have serious financial impacts.

This alternative would still allow for vehicle access on barren hillslopes and unpaved roads and trails. This amount of human disturbance would continue to accelerate erosion and increase sedimentation problems. Approximately 10-25 miles of roads and trails would be scheduled for rehabilitation to reduce major erosion problems. Both short and long term adverse impacts from erosion and sedimentation would continue to occur downstream from the Clear Creek Management Area. These impacts would result from increased sediment yield which adversely affects the operation, maintenance and ultimately reduces the effective project lifespan of local flood control projects. Two of these projects, the

Hernandez Dam and the Arroyo Pasajero ponding basin near Huron, have been identified as having been potentially impacted by increased sedimentation from both natural erosion and increases due to human activities within the Clear Creek Management Area.

These impacts can be reduced with the full implementation of both administrative and engineering controls. Proposed administrative controls, such as seasonal restrictions to OHV use, would result in an immediate reduction in the accelerated erosion associated with vehicle use. Engineering controls, such as sediment dams would take longer (3-5 years) to construct. The net effect of these engineering measures may not be noticeable or measurable until the watershed equilibrium is re-established which could take 1-3 years after final construction is completed.

IMPACTS TO RECREATION RESOURCES - ALTERNATIVE 2

Full implementation of the Clear Creek Management Plan is not expected to result in any changes in the numbers or type of recreation users, with the exception that seasonal restrictions (high dust or extremely wet conditions) could reduce total recreation visitation by as much as 10% (this reduction however, would occur under all alternatives). While additional fencing and barriers may be viewed by some users as an additional regulatory constraint, this impact is expected to be more than offset by the need of fewer regulatory signs once the fencing/barriers are in place.

Restrictions on camping in Clear Creek Canyon (except in the staging areas) could affect the quality of some users' experiences. Those users seeking a quiet or private camping area might seek out alternate sites adjacent to San Carlos Creek or other areas in the backcountry east of the San Benito Mountain Natural Area. This could result in additional motorcycle and off-road-vehicle use in these areas which currently receive light use.

Since changes in recreation use would be qualitative (quality of experience) and not quantitative (numbers of users), this action is not expected to have any cumulative affect on the availability of recreation opportunities. Other trends and anticipated actions that could affect use in Clear Creek include continued closure of other off-highway-vehicle use areas because of liability issues, and imposition of more severe environmental restrictions on the development of new off-road-vehicle use areas. Both of these factors are expected to enhance the value of existing off-highway-vehicle use areas and result in increased demand for more concentrated use within existing OHV areas.

Proposed Mitigation Measures

1 - Establish individual camping sites in the backcountry area for users seeking quiet or private camping experiences.

Residual Impacts

1 - Unless managed properly, damage to these sites could occur by people parking vehicles far off of the main road or trail. In addition, use of these sites would be encouraged, thus concentrating impacts on these currently little used spots.

ECONOMIC IMPACTS - ALTERNATIVE 2

Reduction in visitor use by 10% would result in an estimated decline in local sales of $232,500. This figure may be too high since some displaced Clear Creek users could be expected to recreate at Hollister Hills State Vehicular Recreation Park and therefore would still support the local economy.

Opportunities for continued mineral exploration and subsequent development would not be affected.

IMPACTS OF ALTERNATIVE 3 - DISPERSED OHV USE

Vehicle use designations under this alternative would change, significantly reducing the number of acres of barren hillclimbs open to off-road vehicle access, as well as reducing the size of the vehicle road network. All vehicle travel would be restricted to a network of designated roads and trails, some portion of which would be closed seasonally, depending on weather conditions. In addition, approximately 21 more miles of roads would be dust-suppressed, for a total of 29 miles. Recovery of the San Benito evening primrose would be accelerated as compared to Alternative 2 and the expansion of the San Benito Mountain Research Natural Area would significantly increase the long-term protection of most of the CCMA's unique habitats and special-status species.

IMPACTS TO AIR QUALITY AND HUMAN HEALTH - ALTERNATIVE 3

This alternative would allow vehicle use on upto 270 miles of unpaved roads and trails and allow open OHV use on up to 927 acres of barren hillclimbs, although visitation is expected to decrease from 50,000 user days to 40,000 user days. As under Alternatives 1 and 2, continued OHV use on unpaved roads, trails and

hillclimbs would generate asbestos emissions, and visitors in these areas could have increased cancer risks from exposure to environmental asbestos. However, an overall reduction in the area available for vehicle access should reduce air emissions. In addition, a restriction on use during high dust levels and dust suppression of main routes would decrease the asbestos risk, so that the "average" recreational user would only have an increased probability of developing cancer of 5 in 100,000.

Using current conditions as a baseline, the asbestos emissions from vehicles and subsequent human exposure under this alternative should be significantly reduced, primarily from dust suppression on the 27 miles of main vehicle access roads and from the installation and use of a public vehicle wash rack. Increased dust suppression should result in at least a 50 percent year round reduction of asbestos emissions over the main Clear Creek County road system. Off-site transport of asbestos should be reduced or eliminated by the use of the vehicle wash rack.

Health risks would be additionally managed under this alternative by administrative controls similar to those under Alternative Two. These controls have been designed to allow recreational use while still reducing the overall generation of asbestos emissions, and include a dry season access restrictions (expected to reduce OHV visitation by about 20 percent), camping restrictions within the Serpentine ACEC, and authorization of surface disturbing activities only within acceptable OSHA asbestos concentration levels. One further control would be enacted in that 1,392 acres of barren hillclimbs would be closed to OHV use, which would reduce overall asbestos dust generation.

IMPACTS TO VEGETATION - ALTERNATIVE 3

Alternative 3 would enhance the long-term protection for the San Benito evening primrose and accelerate recovery efforts for it as compared to Alternative 2. Expansion of the San Benito Mountain Research Natural Area would result in high-quality areas containing nearly all of the CCMA's unique habitats and species being included in the Research Natural Area and being withdrawn from future mineral exploration thus ensuring their long-term protection. There would also be a large increase in the overall integrity of the Research Natural Area due to boundary adjustments which would include whole watersheds instead of only portions of them. Closure and rehabilitation of some roads and off-road vehicle "play" areas would benefit riparian vegetation through reductions of sediment yields and increase the acreage of serpentine barrens which would be able to support vegetation and special-status plants. As compared to Alternatives 1 or 2, Alternative 3 would markedly increase the protection given to the south coast morning glory, talus fritillary, San Benito fritillary, and the rayless layia, because

in time - How much time?

management of at least 29,000 acres of the 30,000 serpentine acres in the CCMA would be enforced as limited-use ("B") or closed ("C") areas. The management of vernal pool habitats would be the same as under Alternative 2.

San Benito evening primrose. Under Alternative 3 impacts to the San Benito evening primrose would be similar to those under Alternative 2. The following three planned actions would provide additional benefits to this species:

1) The expansion of the San Benito Mountain Research Natural Area would increase the number of primrose populations and acreage of habitat protected from future mineral exploration and mining claims.

2) If successful, the proposed introduction of San Benito evening primrose at 33 medium and high priority terrace sites could increase the number of populations.

3) The closure of at least 2000 acres of vehicle "play areas" would facilitate the protection of primrose terrace and streamside habitat and populations at the base of these closed "play areas".

Several terrace sites (such as Slim's Camp) in Clear Creek's watershed would continue to be degraded by off-road vehicle and camping use. Portions of six other terraces used for camping and as off-road vehicle staging areas and portions of 28 terraces used for main roads would remain unsuitable as primrose habitat. These are not expected to be significant impacts since these areas have been severely altered (and so are not currently capable of supporting the primrose) as a result of their use for recreational purposes and because there is no assurance that these areas could be successfully rehabilitated for the primrose if such efforts were attempted.

Under Alternative 3 the status of the San Benito evening primrose could improve in several watersheds but relisting as endangered could still be warranted due to past habitat degradation.

Other special status plant species. Under Alternative 3 and in addition to Alternatives 1 and 2, the prohibition of camping and unrestricted vehicle use in special-status plant habitat throughout the CCMA could significantly improve the status of south coast morning glory, talus fritillary, San Benito fritillary, rayless layia, and possibly slender pentachaeta and Mt. Diablo phacelia. The expansion of the San Benito Mountain Research Natural Area would protect 2000 acres of various serpentine habitats and several populations of special-status species from

future mineral exploration and future mining claims. Specifically, additional protection would extend to the following:

- the remaining nine known populations of rayless layia not protected under Alternatives 1 and 2, the single population of Mount Diablo phacelia in the CCMA, and a portion of one talus fritillary population from the impacts of trampling and soil disturbances by camping and off-road vehicle use which would not be protected from such impacts under Alternative 2;

- some amount of suitable habitat within the 2000 or more acres of mapped serpentine barrens which would no longer be potentially impacted by unrestricted vehicle use;

- several known and possibly several additional undocumented populations of both the south coast morning glory and San Benito fritillary as well as an some amount of suitable habitat for these two species.

Besides the potential of mineral exploration outside the San Benito Mountain Research Natural Area there would be no significant adverse impacts to special-status plant species on public lands within the CCMA under Alternative 3.

A small amount of habitat for any of the seven special-status species considered here could be impacted along vehicle routes left open in limited-use ("B") areas but this should be insignificant because most routes are already unsuitable for plant life and these areas would include a very small percentage of lower Clear Creek Canyon.

Management under Alternative 3 could protect enough populations and suitable habitat of south coast morning glory and San Benito fritillary to facilitate their removal from California's special-status species list. The rayless layia and talus fritillary could still be listed as threatened due to past habitat degradation or, if enough habitat was found to be intact for these species, protection afforded them under Alternative 3 could be sufficient to prevent listing.

In addition several uncommon plant species such as Andrew's bedstraw (Galium andrewsii ssp. andrewsii) and Brewer's clarkia (Clarkia breweri), would be benefitted due to the restriction of vehicles in most of the CCMA to designated routes and this would reduce the need for these species to be added to California's special-status species list. Likewise the health of the entire herbaceous community in the CCMA would also be similarly benefitted.

San Benito Mountain Forests and Natural Area. Total acreage within the San Benito Mountain Natural Area would increase from 1,871 acres to 4,082 acres, and would include the following five values for scientific research and resource protection:

1) Added upland habitat that would result in the inclusion of the **majority** of the upper Clear Creek watershed, which supports significant forest stands, and all the pine forest and woodland on the northern and eastern perimeters of the existing Natural Area boundaries.

2) Within the expanded boundaries of the San Benito Mountain Natural Area, two of the known (out of the total 19) San Benito evening primrose populations would be protected instead of the one currently protected, the number of acres of primrose terrace habitat would increase to thirteen acres from zero acres, and three miles of streambank primrose habitat along upper Clear Creek would be protected.

3) Within the expanded boundaries of the San Benito Mountain Natural Area, the number of known populations of Category 2 candidate plant species would be increased to eight (from two) and an unknown amount of these species' habitat would be added.

4) An approximately one-half mile-wide, two mile-long area of transitional habitat between the serpentine and non-serpentine blocks north of the current Natural Area boundaries would be included. Besides a high value for scientific study, this transition zone between serpentine and non-serpentine soils contains the only known population of the Mt. Diablo phacelia within the CCMA.

5) Five miles of serpentine riparian habitat (out of the total 22 in the CCMA) within the Natural Area would be protected, up from the two miles currently protected. This increase would include the three miles of upper Clear Creek.

Riparian areas. In addition to the riparian protective measures incorporated under Alternative 2, Alternative 3 would result in a substantial decrease of total sediment erosion into creeks by an unknown amount because of the closure/rehabilitation of 150 miles of roads and trails over 15 years and because of the 68% reduction (from 2,876 acres to 937 acres) in the amount of barren hills available for off-road vehicle "play" use. Alternative 3 would also double the miles of riparian habitat (from 3 to 6) included in the San Benito Mountain Natural Area and therefore eliminate direct vehicle impacts (such as vegetation trampling) from these areas.

Potentially significant impacts which would continue under Alternative 3 are listed below:

1. The use of roads and road maintenance would continue to cause approximately 77 tons/acre per year of sediments (or 25 times the natural erosion levels) much of which is immediately transported into creeks during heavy rainfall events (PTI 1993, pg. 38).

2. The use of up to 937 acres for open play areas would continue to cause 4,600-15,200 tons of sediments (2-6 times above natural levels) to erode per year, an some amount of which would be directly deposited into riparian areas.

3. Hillside failures (slippage) into riparian areas such as Clear Creek would continue due to the presence of roads (such as the Clear Creek Road) across inherently unstable slopes causing the diversion of streamflow into the bottom of other slopes and repeating the cycle. This would contribute thousands of cubic yards of sediments into CCMA creek channels (Zembsch, pers. communication 1994) much of which moves directly into streams such as Clear Creek and causes physical damage to creek banks and loss of riparian vegetation which is in addition to the impacts to other riparian components (such as fish and amphibian habitat) described elsewhere.

4. Numerous creek crossings along roads and trails outside of Clear Creek (few of which are stabilized by concrete reinforcements or culverts) would continue to be sites of streambed disturbance caused by the churning of wheels across creekbeds and deposition of sediments washing off from mud-laden tires.

Overall the implementation of Alternative 3 would allow for the recovery of riparian areas that have been degraded by intensive recreation use while many of the impacts related to erosion off roads would continue.

Proposed mitigation measures -

1. Investigate and implement techniques to prevent portions of hillslopes from collapsing into riparian areas.

2. Review road maintenance program and implement additional techniques to reduce sedimentation off road and trail surfaces.

3. Investigate and implement revegetation strategies for closed barren areas and impacted riparian areas.

4. Rock armor creek crossings along major designated routes in the CCMA.

5. Reduce the number of stream crossings throughout the Clear Creek Mgt. Area by 25% by rerouting and/or closing roads and trails.

6. Monitor natural revegetation of impacted riparian areas and barren slopes and success of revegetation efforts.

7. Monitor/research significance of sediment deposits from vehicles at creek crossings.

Residual Impacts -

1) Since BLM would not likely be able to protect all hillslopes where slope failure is imminent, portions of some hillslopes would collapse into CCMA creeks (i.e. Clear Creek and Sawmill Creek) in part due to additional stress on those hillslopes caused by roads, road maintenance, and/or vehicle use.

2) The remainder of impacts listed above would continue after mitigation measures were implemented but cause less resource damage than under Alternative 2 because of mitigation measures 5 and 6 of Alternative 3 (listed above).

Vernal pools. Same as Alternative 2.

IMPACTS TO SPECIAL STATUS ANIMAL SPECIES AND OTHER AQUATIC WILDLIFE - ALTERNATIVE 3

In addition to the riparian protective measures incorporated under Alternative 2, Alternative 3 would include the following two benefits:

1) Populations and habitat of the foothill yellow-legged frog and two-striped garter snake in upper Clear Creek would be protected from future mining impacts as a result of this area being included in the San Benito Mountain Natural Area.

2) The two-striped garter snake, foothill yellow-legged frog, western pond turtle, and other aquatic wildlife would benefit to an unknown degree from the substantial decrease of total sediment erosion into creeks due to road closures and vehicle restrictions (these are described under Alternative 3 Impacts to Riparian section above)

Potentially significant impacts which would continue under Alternative 3 to riparian areas (these are listed above) could also adversely affect these wildlife species.

Proposed mitigation measures -

1. Implement long-term studies to determine how disturbances such as human use, storms, and erosion impact the viability of the above species, and continue monitoring. If appropriate, adjust management in the CCMA to help improve conditions for these species.

Residual Impacts -

Until monitoring and long-term studies document if and how special status animal species are being adversely impacted and actions were taken to improve conditions for affected species, on-going impacts would continue.

IMPACTS TO WATERSHED RESOURCES - ALTERNATIVE 3

Under this alternative only one of the five watersheds would allow OHV hillclimbs on barren slopes (Clear Creek watershed). In the other watersheds, most open OHV play areas and hillclimbs would be closed to vehicles pending further study. Direct impacts to the watershed resources would result primarily from human disturbance accelerating erosion and generating asbestos-laden sediments. Based upon PTI's watershed erosion estimates, this alternative is expected to decrease erosion and sedimentation by approximately 62% from the baseline levels calculated for Alternative One.

Allowing OHV use to continue on approximately 937 acres of barren hillslopes and on approximately 270 miles of unpaved vehicle roads and trails would continue to accelerate the erosion and sediment process over existing natural conditions. The impact of these roads and hillclimbs would contribute approximately 11,327 tons of sediment per year. The erosion associated with roads, approximately 6,736 tons per year would affect 4 of the 5 watersheds. The erosion associated with hillclimbs, approximately 4,591 tons per year would affect the Clear Creek watershed only. This is a reduction from the previous alternative and reflects the expanded closure of some roads, trails and hillclimbs. Approximately 150 miles of roads and trails are scheduled to be rehabilitated to reduce erosion problems. However, it is anticipated that erosion problems under this alternative would still be accelerated by human activities in some watersheds.

The continued off-road vehicle use would increase the production and transport asbestos-laden sediment in the Clear Creek watershed and diminish plant cover and soil productivity. The soil lost from erosion is directed into the numerous gullies

and intermittent stream channels and migrates into perennial streams and rivers. This erosion and sedimentation degrades water quality and could also affect flood frequency and intensity.

These impacts can be reduced with the full implementation of the proposed administrative and engineering controls. Administrative controls, such as the seasonal fire restriction to OHV, would have the immediate effect of reducing emissions associated with dry season vehicle use. However, the net effects of engineering controls such as sediment dams would not be as noticeable or as measurable until the watershed equilibrium is re-established which could take several years after final construction is completed.

A reduction in the downstream sedimentation and transport of both topsoil and asbestos fibers would be expected under this alternative if the sediment dams are constructed along Clear Creek. In watersheds not maintained for erosion control, continued adverse impacts on water quality, downstream dams, and reservoirs would occur. In these non-maintained watersheds, downstream flooding would continue, and this intense flooding could cause stream banks to collapse and remove existing riparian vegetation. Storm-damaged roads, streambanks and the loss of riparian vegetative cover could necessitate emergency repairs that might have serious financial impacts.

Long term impacts from erosion and sedimentation in OHV use areas would continue to occur downstream from the Clear Creek Management Area, although restrictions in OHV use are expected to decrease the existing sediment and erosion problems, and if properly managed could reduce accelerated (human-caused) erosion and offsite transport of sediment out of the Clear Creek canyon. The downstream impacts from OHV use under this alternative are not expected to affect the Hernandez Dam and the Arroyo Pasajero ponding basin near Huron.

IMPACTS TO RECREATION RESOURCES - ALTERNATIVE 3

This alternative would result in the eventual closure and rehabilitation of about 225 miles of roads/trails currently used by motorcycles and 4-wheel-drive vehicles. Most of these roads/trails that would be closed are located in the San Benito River and Los Gatos drainages where visitor use is relatively light. Numerous routes would remain open in these areas, however. The establishment of a designated route system throughout the CCMA would have both positive and negative recreation impacts: Maps, signing and trail maintenance would add a degree of safety and security for those riding in the backcountry, yet the major fencing projects, routine trail maintenance, and designated route system would result in a much more regulated environment. These changes would reduce the quality of the

recreation experience for some users who value recreating in an environment with few obvious societal restraints and controls.

Most areas available for open hill climbing would be eliminated in the short term, during the conditional closure. The most dramatic impact would result from closure of McCullough Hill and the Aurora Mine area to motorcycle hill climb and other open play use. These areas are currently very popular with motorcycle users. After the open area inventory, motorcycle hill climb activity would be restricted to an area of no more than 937 acres, although this acreage could be substantially less. The final open play area acreage would decrease OHV use of play areas anywhere between 67 and 100 percent.

Restrictions on camping in the Clear Creek Management Area would also have a significant impact on numbers of visitors. Clear Creek is located three hours from major population areas and for many users represents a "weekend" opportunity. Camping is an important part of the total recreation experience. With the restriction of the Serpentine ACEC to camping in designated locations, probably only about 100-125 campsites would be available in the CCMA. Overflow campers could be relegated to camping in congested parking areas and pull-outs at Laguna Mountain and Condon Peak. The maximum capacity of these areas is estimated to be around 90 vehicles. At the present time, it is not unusual for more than 300 support vehicles (excluding motorcycles and other off-road-vehicles) to be in Clear Creek on a busy weekend. Camping facilities outside of Clear Creek are inadequate to meet the estimated demand for most busy weekends. All available camping areas would be at full capacity during November, January, and March. During February weekends, Thanksgiving weekend, and when OHV events were scheduled, demand for camping facilities would exceed supply. Because of the lack of campsites, and congestion and noise in the available camping areas, some weekend users are expected to use Clear Creek only for daily trips or to quit using the area. Unless additional camping facilities are developed, the inability to meet demand for suitable camping locations is expected to result in at least a 5-10% reduction in visitor use (current users that cannot be accommodated in available locations adjacent to Clear Creek). This reduction in visitor use is in addition to the 10% reduction that would occur as a result of the seasonal vehicle closures, making a total recreational use reduction of up to 20%.

Available camping areas would be congested during the winter use season with increased conflicts between user groups, particularly during the evening hours when alcohol consumption, noise, illegal fireworks, and gunfire aggravate adjacent users. Similar conflicts are already occurring on the busier weekends.

Seasonal road closures could result in the reduction or elimination of vehicle access to traditional hunting areas south and east of Clear Creek during the August deer hunting season. In recent years the area has been dry and dusty during this

period. Closure of the Clear Creek roads which provide this access could create a market for adjacent private landowners to charge members of the public to gain vehicle access to public lands.

It is anticipated that use of Hollister Hills Vehicular Recreation Park would increase as some users find that the increased regulatory environment, congestion, inability to find suitable camping locations, and the additional driving distance make Clear Creek a less desirable destination than Hollister Hills.

Restrictions on OHV use in Clear Creek, when considered in concert with trends toward closure of other OHV use areas and environmental constraints restricting the development of new OHV areas, could cumulatively affect the ability of the public or private sector to provide ample opportunities to meet public demand for this recreation activity. Motorcycle registration in California increased over 20% between 1980 and 1990 with 254,303 motorcycles registered in 1990 (Schwarz, 1992). While seven and one-half million acres of public land in California are currently open to off-road-vehicle use, land managers estimated in a 1990 study that only about 75,000 acres of public land was actively used by OHVs (CDR, 1990).

While available areas may not be able to meet future demand for off-road-vehicle use, public surveys conducted in 1990 and 1992 indicated that establishing opportunities for OHV users was a very low recreation priority among California residents (CDR, 1987; CICR, 1992).

Summation of Recreation Impacts: Visitor use would decrease by as much as 20%, with annual visitor use estimated to be around 40,000. In the short term, most open areas would be closed. Open use hill climb areas remaining open, and any additional ones re-opened after the inventory, could become more congested with serious accidents more prevalent. Camping areas could be congested with more conflicts between user groups. The overall quality of the recreation experience would be diminished in the Clear Creek watershed due to increased congestion and more imposing regulatory constraints.

Proposed Mitigation Measures -

1 - Encourage the development of private camping facilities near the Clear Creek entrances.

2 - Increase law enforcement patrols of camping areas during evening hours.

3 - If the final route network does not include access to traditional rockhounding sites, allow access on a permitted basis to those individuals with physical limitations making it difficult or impossible for them to reach a site without a vehicle.

Residual Impacts

1 - There is no fee for using BLM camping or staging areas in the CCMA, so the development of private campgrounds would mean that users would have to pay to stay overnight. However, this amount is expected to be nominal.

2 - Increasing the number of night patrols may be perceived by some as increased regulation, but by others as an additional degree of safety. Night patrols are part of a regular patrol routine now, however, and should not alter the overall experience greatly.

3 - Route rehabilitation would be hindered in those areas where rockhounder's vehicles were permitted access. Most sites, however, are accessible by the interim proposed network, so the number of conflicts should be minimal. Also, the overall permitted use under these conditions should be relatively light, and permit conditions would mandate strict adherence to a particular route.

ECONOMIC IMPACTS - ALTERNATIVE 3

Reduction in visitor use by 20% would result in an estimated decline in local sales of $465,000. This figure may be too high since some displaced Clear Creek users could be expected to recreate at Hollister Hills State Vehicular Recreation Park and therefore would still support the local economy.

Opportunities for mineral exploration and establishment of new mining claims would be foregone in most of the upper Clear Creek watershed which would be incorporated into the expanded San Benito Mountain Natural Area and would be subsequently withdrawn from mining. Closure of some vehicle routes could affect mineral exploration; however, this effect is expected to be minimal since many access routes would remain open to vehicle use in the vicinity of the closures.

IMPACTS OF ALTERNATIVE 4 - RESTRICTED OHV USE

Vehicle use designations under this alternative would change, significantly reducing the miles of roads and trails open to motorcycle off-road access, as well as

reducing the size of the 4-wheel drive road and trail network. In addition, approximately 21 more miles of roads would be dust-suppressed, for a total of 29 miles.

IMPACTS TO AIR QUALITY AND HUMAN HEALTH - ALTERNATIVE 4

Health risks would be managed under this alternative through a combination of administrative and engineering controls similar to Alternative 3. This public health risk is estimated to be the same as in the previous alternative, in that the "average" recreational user would have an increased probability of developing cancer of 2 in 100,000. Risk reduction measures, such as the restriction to overnight camping and road dust suppression, have been designed to reduce health risks from exposure to environmental asbestos while still allowing recreational day use. The proposed dust suppression of roughly 30 miles of main access roads would reduce by at least 50% the generation of asbestos emissions and subsequent visitor exposure to asbestos.

While asbestos air emissions would be reduced by an expected 50% from the existing conditions (Alternative 1) on the dust-suppressed, high-use road network, OHV use on the 119 miles of untreated backcountry trails and hillclimbs would still generate some fugitive asbestos emissions, and frequent users in these areas would still risk exposure to asbestos fibers from dust inhalation. Air quality would therefore continue to be impacted by OHV use, because of the estimated 40,000 visitor use days still accommodated under this alternative.

IMPACTS TO VEGETATION - ALTERNATIVE 4

Impacts to vegetation resources would be similar to those described under Alternative 3 with three exceptions: 1) Efforts to protect the San Benito evening primrose and other special-status species outside lower Clear Creek Canyon would be facilitated by less vehicle use but hindered in lower Clear Creek Canyon by more intensive vehicle use; 2) the San Benito Mountain Natural Area would expand an additional 377 acres; and 3) two vernal pools near Spanish Lake would also be protected from vehicle use.

San Benito evening primrose. Under Alternative 4, impacts to the San Benito evening primrose would be similar to those under Alternative 3, although some benefits and adverse impacts to the primrose would occur in different areas of the CCMA. Efforts to protect the primrose in lower Clear Creek Canyon would be

more difficult than under Alternative 3 because new restrictions on motorcycle use would concentrate the impacts from such use in lower Clear Creek and there would also probably be more short-term degradation of primrose habitat in this area before all protective measures were in place. Throughout the remainder of the CCMA, primrose protection would be facilitated due to the prohibition of motorcycle use and there would not be any further degradation to primrose habitat from this type of recreation outside lower Clear Creek Canyon.

Several terrace sites (such as Slim's Camp) in Clear Creek's watershed would continue to be degraded by off-road vehicle and camping use. Portions of six other terraces used for camping and as off-road vehicle staging areas and portions of 28 terraces used for main roads would remain unsuitable as primrose habitat. These are not expected to be significant impacts since these areas have been severely altered (and so are not currently capable of supporting the primrose) as a result of their use for recreational purposes, and because there is no assurance that these areas could be successfully rehabilitated for the primrose if such efforts were attempted.

Under Alternative 4, the status of the San Benito evening primrose would improve similarly as it would under Alternative 3 but relisting as endangered could still be warranted due to past habitat degradation.

Other special status plant species. The impacts to all special-status plant species under Alternative 4 would be similar as under Alternative 3 except that, outside of lower Clear Creek, impacts to them in the short term would be less and management for these species would be facilitated due to the prohibition of motorcycle use in this area. Within lower Clear Creek, there would be an increase in impacts to special-status species in the short term and management for them would be more complicated than under Alternative 3 due to intensive motorcycle use in this area.

San Benito Mountain Forests and Natural Area. Total acreage within the San Benito Mountain Natural Area would increase from 1,871 acres to 4082 acres and would include the following five values for scientific research and resource protection:

1) Added upland habitat that would result in the inclusion of the **entire** upper Clear Creek watershed, which supports significant forest stands, and all the pine forest and woodland on the northern and eastern perimeters of the existing Natural Area boundaries.

2) Within the expanded boundaries of the San Benito Mountain Natural Area, two of the known (out of the total 19) San Benito evening primrose populations would be protected instead of the one currently protected, the number of acres of primrose habitat would increase to thirteen acres from zero acres, and three miles of non-terrace primrose habitat along upper Clear Creek would be protected.

3) Within the expanded boundaries of the San Benito Mountain Natural Area, the number of known populations of Category 2 candidate plant species would be increased from two to nine and an unknown amount of these species' habitat would be added.

4) An approximately one-half mile-wide, two mile-long area of transitional habitat between the serpentine and non-serpentine blocks north of the current Natural Area boundaries would be included. Besides a high value for scientific study, this transition zone between serpentine and non-serpentine soils contains the only known population of the Mt. Diablo phacelia within the CCMA.

5) The miles of serpentine riparian habitat (out of the total 22 in the CCMA) within the Natural Area would increase to five from two; this increase would include the three miles of upper Clear Creek.

Riparian areas. The impacts to all riparian values under Alternative 4 would be similar as under Alternative 3 with the following two exceptions:

1) The use of 1229 acres for open play areas would cause up to approximately 6,000-20,000 tons of sediments (2-6 times above natural levels) to erode, an unknown amount of it directly into channel drainages. This would be a 1,400-4,800 ton per year increase compared to the highest estimates for Alternative 3.

2) Outside of lower Clear Creek, impacts to them in the short term would be less and management for riparian areas would be facilitated due to the prohibition of motorcycle use in this area. Within lower Clear Creek, there would be an increase in impacts to riparian values in the short term and management for them would be more complicated than under Alternative 3 due to the concentration of motorcycle use in this area.

Proposed Mitigation Measures and Residual Impacts -

Same as for Alternative 3.

Vernal pools. Spanish Lake and two adjacent vernal pools would be protected under this alternative. Vernal pools north of Clear Creek Canyon should not be affected since they are already protected by fencing.

IMPACTS TO SPECIAL STATUS ANIMAL SPECIES AND OTHER AQUATIC WILDLIFE - ALTERNATIVE 4

The impacts to foothill yellow-legged frog, two-striped garter snake, western pond turtle, and other aquatic wildlife under Alternative 4 would be similar as under Alternative 3 except for the following two exceptions:

1) The use of 1229 acres for open play areas would cause up to approximately 6,000-20,000 tons of sediments (2-6 times above natural levels) to erode, some amount of which would flow directly into channel drainages. This would be a 1,400-4,800 ton per year increase compared to the highest estimates for Alternative 3.

2) Outside of lower Clear Creek, impacts to these species in the short term would be less and management for them would be facilitated due to the prohibition of motorcycle use in this area. Within lower Clear Creek, there would be an increase in impacts to riparian values in the short term and management for them would be more complicated than under Alternative 3 due to the concentration of motorcycle use in this area.

Proposed Mitigation Measures and Residual Impacts -

Same as for Alternative 3.

IMPACTS TO WATERSHED RESOURCES - ALTERNATIVE 4

Under this alternative primarily the Clear Creek watershed would continue to be impacted by continued OHV use. In the four other watersheds, open OHV play areas and hillclimbs would be closed, with approximately 1500 acres of barren hillslopes closed to vehicles. Motorcycles would be prohibited on all designated routes outside the Clear Creek watershed. The remaining impacts on the watershed resources would be from continued erosion and generation of asbestos laden sediments by human disturbance, although based upon PTI's watershed erosion estimates, human surface disturbance is expected to decrease by approximately 71% from the baseline level calculated by the conditions for Alternative 1.

Continued OHV use would cause erosion and would generate asbestos containing sediments on approximately 1229 acres of barren hills, and vehicle access over 119 miles of unpaved vehicle routes would continue to accelerate the erosion and sediment process over existing natural conditions. The impact of roads and hillclimbs is estimated to contribute about 8,640 tons of sediment per year, primarily in the Clear Creek watershed. This reduction from the previous alternative reflects the additional closure of roads, trails and hillclimbs.

While roughly 300 miles of roads and trails would be scheduled for rehabilitation to reduce erosion problems, it is anticipated that erosion problems under this alternative would still be slightly accelerated by human activities in the Clear Creek watershed. The OHV use both on designated routes and open hillclimbs would still increase the production and transport asbestos-laden sediment in the Clear Creek watershed, and could decrease plant cover and soil productivity. Where possible, these impacts to this watershed and its riparian resources would be controlled by sediment dams and other erosion control projects. A reduction in the downstream sedimentation and transport of both topsoil and asbestos fibers would be expected under this alternative if the sediment dams are constructed along Clear Creek. The sediment yield from storm runoff would be maintained to reduce erosion problems such as gully erosion, sediment migration and mass failures of existing roads and trails during winter storms.

Other adverse impacts associated with erosion and sedimentation are a degradation of water quality and increased flood frequency and intensity. In the four watersheds not intensively maintained for erosion problems, the conditions of downstream water quality and existing dams and reservoirs would still be subject to high natural sedimentation. In these non-maintained watersheds, downstream flooding would continue to be a problem and intense flooding could cause stream banks to collapse and remove existing riparian vegetation. Storm-damaged roads, streambanks and the loss of riparian vegetative cover could necessitate costly emergency repairs.

Long term impacts from erosion and sedimentation in OHV use areas would continue to occur downstream from the Clear Creek Management Area, although restrictions in OHV use are expected to decrease the existing sediment and erosion problems, and if properly managed could reduce human-caused erosion and offsite transport of sediment out of the Clear Creek canyon. The downstream impacts from OHV use under this alternative are not expected to significantly affect the Hernandez Dam and the Arroyo Pasajero ponding basin near Huron.

These impacts can be reduced with the full implementation of the proposed administrative and engineering controls. Administrative controls, such as the dry/high dust seasonal restriction to OHV, would have the immediate effect of reducing emissions associated with vehicle use. However, the net effects of

engineering controls such as sediment dams would not be as noticeable or as measurable until the watershed equilibrium is re-established which could take several years after final construction is completed.

IMPACTS TO RECREATION RESOURCES - ALTERNATIVE 4

Motorcycles would be restricted from using more than 70% of the roads and trails currently available for their use in Clear Creek. Areas available for open hill climbing would also be decreased by about 58%. The 119 miles of trails and 1,229 acres of hill climbs that would remain open constitute the minimum area needed to provide sufficient opportunities to support weekend off-highway-vehicle activity (CDR 1990).

As in Alternative 3, the most dramatic impact would result from closure of McCullough Hill, and the Aurora Mine area to motorcycle hill climb and other open play use. These areas are very popular with motorcycle users. Motorcycle hill climb activity would be restricted to an area of approximately 1,229 acres, increasing the potential for head-on and other serious motorcycle accidents. In addition, the backcountry type of experience would be lost to motorcyclists. Congested use in this area and safety concerns would probably result in some users deciding not to participate in OHV activities.

Other open areas and trails that would be closed to motorcycle use are not currently heavily used by motorcycle riders. These areas are, however, very important to the organizers of major off-road-vehicle events including the California 4-Wheel Drive Association which organizes the Molina Ghost Run and the Salinas Ramblers Motorcycle Club, which organizes major National Enduro races. Trail closures proposed under this alternative could make it difficult for event organizers to find adequate trail routes to continue to make their events viable.

Restrictions on camping in the Clear Creek Management Area would probably have a more substantial impact on numbers of visitors than closure of trails and open areas. Clear Creek is located three hours from major population areas and for many users represents a "weekend" opportunity. Camping is an important part of the total recreation experience. With closure of the Serpentine ACEC to camping, campers would be relegated to camping in congested parking areas and pull-outs at the Oak Flat, Laguna Mt, and Condon Peak. The maximum capacity of these areas is estimated to be around 90 vehicles. At the present time, it is not unusual for more than 300 support vehicles (excluding motorcycles and other off-road-vehicles) to be in Clear Creek on a busy weekend. Camping facilities outside of Clear Creek are clearly inadequate to meet the estimated demand for most busy weekends. All available camping areas would be at full capacity during November,

January, and March. During February weekends, Thanksgiving weekend, and when OHV events were scheduled, demand for camping facilities would far exceed supply. Increased conflicts between user groups, particularly during the evening hours if alcohol consumption, illegal fireworks, and gunfire are evident, aggravate adjacent users. Similar conflicts are already occurring on the busier weekends. Because of the lack of campsites, and the congestion and noise, some weekend users would be expected to use Clear Creek only for day trips or to quit using the area entirely. Unless additional camping facilities are developed, the inability to meet demand for suitable camping locations is expected to result in at least a 10% reduction in visitor use (current users that cannot be accommodated in available locations adjacent to Clear Creek). This is in addition to the 10% drop expected to occur as a result of the dry season closure.

The major fencing projects, routine trail maintenance, and designated route system would result in a much more regulated environment. These changes would reduce the quality of the recreation experience for some users who value recreating in an environment with few obvious societal restraints and controls.

Restrictions on vehicle use outside the Clear Creek watershed could affect the ability of some gem and mineral collectors, since walking two to three miles could be necessary to reach some locations previously accessible by vehicle. Elimination of motorcycle use, however, could result in attraction of some additional backcountry hikers and hobby collectors who have previously avoided the area because of the preponderance of motorcycle use and associated noise.

It is anticipated that seasonal road closures could result in the closure of the road system during the August deer hunting season. In recent years the area has been dry and dusty during this period. Closure of Clear Creek roads, which provide vehicle access to hunting areas south and east of Clear Creek, would eliminate all public vehicle access to these areas. This would create a market for adjacent private landowners to charge members of the public to gain vehicle access to public lands.

It is anticipated that use of Hollister Hills Vehicular Recreation Park would increase as some users find that the increased regulatory environment, congestion, inability to find suitable camping locations, and the additional driving distance make Clear Creek a less desirable destination than Hollister Hills.

Restrictions on OHV use in Clear Creek, when considered in concert with trends toward closure of other OHV use areas and environmental constraints restricting the development of new OHV areas, could cumulatively affect the ability of the public or private sector to provide ample opportunities to meet public demand for this recreation activity. Motorcycle registration in California increased over 20% between 1980 and 1990 with 254,303 motorcycles registered in 1990 (Schwarz,

1992). While seven and one-half million acres of public land in California is currently open to off-road-vehicle use, land managers estimated in a 1990 study that only about 75,000 acres of public land is actively used by OHVs (CDR, 1990).

While available areas may not be able to meet future demand for off-road-vehicle use, public surveys conducted in 1990 and 1992 indicated that establishing opportunities for OHV users was a very low recreation priority among California residents (CDR, 1987; CICR, 1992).

Summary: Visitor use would decrease by 20% with annual visitor use estimated to be around 40,000. Open use hill climb areas would become more congested with serious accidents more prevalent. Camping areas would be congested with more conflicts between user groups. The overall quality of the OHV recreation experience would be diminished in the Clear Creek watershed due to increased congestion and more imposing regulatory constraints.

Proposed Mitigation Measures:

1- Allow organized OHV events to use roads/trails normally closed to OHV use on a permitted basis, but develop a series of set routes which could be used.

2- Develop new public camping facilities or encourage the development of private camping facilities near the Clear Creek entrances.

3- Increase law enforcement patrols of camping areas during evening hours.

4- Monitor hill climb areas and institute one-way traffic if serious accidents cannot be avoided with unregulated use.

Residual Impacts

1 - Allowing concentrated use on routes normally closed to vehicle traffic would increase sedimentation and erosion along these trails in the short term. The allowed trail network, however, would avoid sensitive plant and other resources, and would be based on the latest field and GIS information. Air quality would be negatively impacted in the short term, and dust emissions would be high along utilized routes. However, events would only be permitted when ambient dust levels are below OSHA action levels, and dust impacting air quality should dissipate quickly after these infrequent events.

2 - Users would have to pay for private facilities, and the potential for new public camping areas outside the ACEC could be limited, depending on the number of approved open routes and their proximity to sensitive resources.

3 - Increasing the number of night patrols may be perceived by some as increased regulation, but by others as an additional degree of safety. Night patrols are part of a regular patrol routine now, however, and should not alter the overall experience greatly.

4 - Instituting yet another control on OHV use could result in users deciding to quit using the area entirely, but this could occur also because of the elimination of many OHV opportunities under this alternative.

ECONOMIC IMPACTS - ALTERNATIVE 4

Reduction in visitor use by 20% would result in an estimated decline in local sales of $465,000. This figure may be too high since some displaced Clear Creek users can be expected to recreate at Hollister Hills State Vehicular Recreation Park and therefore would still support the local economy.

Opportunities for mineral exploration and establishment of new mining claims would be foregone in most of the upper Clear Creek watershed which would be incorporated into the expanded San Benito Mountain Natural Area and subsequently withdrawn from mining.

Closure of vehicle routes would adversely affect opportunities for mineral exploration in the San Benito and Los Gatos watersheds since vehicle access to many areas would be restricted. If new mineral deposits were discovered, subsequent development would be more costly because of more stringent standards that would be applied to access road construction and maintenance.

IMPACTS OF ALTERNATIVE 5 - OHV CLOSURE

Vehicle use designations under this alternative would not change from the previous alternative but the size of the San Benito Mountain Natural Area would be slightly expanded. All open and closed roads and trails would be maintained to reduce erosion and sedimentation problems and approximately 29 miles of main routes would be dust suppressed.

IMPACTS TO AIR QUALITY AND HUMAN HEALTH - ALTERNATIVE 5

The administrative and engineering controls under this alternative, including camping restrictions and the elimination of OHV use in approximately 90% of the

Serpentine ACEC, have been designed to minimize health risks by reducing the overall generation of asbestos emissions and the subsequent human exposure to asbestos. However, given the present risk assessment evaluation, visitors are still estimated to be at an increased risk of 2 in 100,000 of contracting an asbestos-related disease.

The elimination of OHV use is expected to reduce overall recreation use to 7,600 visitor use days per year, and although the human health risk from visitor use under this alternative cannot be quantified, both the onsite exposure as well as the generation of airborne emissions from vehicle use are expected to be considerably reduced.

IMPACTS TO VEGETATION - ALTERNATIVE 5

The prohibition of all motorcycle use in the CCMA and the restriction of 4-wheel drive vehicles to a minimal road network would eliminate nearly all vehicle impacts on vegetation resources in the CCMA.

San Benito evening primrose. The impacts to the San Benito evening primrose would be similar to Alternative 4. Two differences between Alternative 4 and Alternative 5 are: 1) The prohibition of motorcycle use in lower Clear Creek Canyon would lessen the amount of primrose habitat degradation that could occur in the short-term prior to completion of BLM's protective efforts in this area; and 2) Rehabilitation of portions of six terraces (currently used as staging areas) could provide for a significant increase of new primrose populations.

Portions of 28 terraces used for main roads would remain unsuitable as primrose habitat. These are not expected to be significant impacts since these areas have been severely altered (and so are not currently capable of supporting the primrose) as a result of their use for roads and because there is no assurance that these areas could be successfully rehabilitated for the primrose if such efforts were attempted.

Other special status plant species. The impacts to all special-status plant species under Alternative 5 would be similar to Alternatives 3 and 4, except that the rehabilitation of six staging areas would increase the amount of habitat for the rayless layia. No populations or habitat of special status plants would be threatened since vehicle use would be restricted to a network of roads and which do not support any vegetation.

San Benito Mountain Forests and Natural Area. Same as Alternative 4 - nine additional populations of Category 2 candidate plants and an unknown amount of additional Category 2 candidate plant habitat would be included in closed or restricted areas and therefore be protected from authorized off-road vehicle use. Unauthorized vehicle use could continue to impact these populations and habitat until barriers are installed and enforcement is successful.

Riparian areas. Alternative 5 would nearly maximize the potential for riparian area recovery throughout the entire CCMA by the elimination of sediment yields caused by all vehicle use off roads and the closure/rehabilitation of all but a small network of roads.

Potentially significant impacts which would continue under Alternative 5 are listed below:

1. The use of roads and road maintenance would continue to cause approximately 77 tons/acre per year of sediments (or 25 times the natural erosion levels), much of which would be immediately transported into creeks during heavy rainfall events (PTI 1993, pg. 38).

2. Hillside failures (slippage) into riparian areas such as Clear Creek would continue, due to the presence of roads (such as the Clear Creek Road) across inherently unstable slopes causing the diversion of streamflow into the bottom of other slopes and repeating the cycle. This would contribute thousands of cubic yards of sediments into CCMA creek channels (Zembsch, pers. communication 1994) much of which moves directly into streams such as Clear Creek and causes physical damage to creek banks and loss of riparian vegetation which is in addition to the impacts to other riparian components (such as fish and amphibian habitat) described elsewhere.

3. Accelerated (above undisturbed or "natural" levels) erosion could continue over slopes and roads which are closed but not rehabilitated.

Proposed mitigation measures -

1 Investigate and implement techniques to prevent portions of hillslopes from collapsing into riparian areas.

2. Review road maintenance program and implement additional techniques to reduce sedimentation off road surfaces.

3. Investigate and implement revegetation strategies for closed barren areas and impacted riparian areas.

4. Monitor natural revegetation of impacted riparian areas and barren slopes and success of revegetation efforts.

Residual Impacts -

1) Since BLM would not likely be able to protect all hillslopes where slope failure is imminent, portions of some hillslopes would collapse into CCMA creeks (i.e. Clear Creek and Sawmill Creek) in part due to additional stress on those hillslopes caused by roads, road maintenance, and/or vehicle use.

2) Accelerated erosion on non-rehabilitated slopes would continue but be expected to decrease over time as slopes reformed protective surface crusts and revegetated to some degree.

3) After mitigation measures were implemented, accelerated sediment yields coming off the remaining small network of roads would probably only cause insignificant impacts (other than slope failures listed above) to riparian areas.

IMPACTS TO SPECIAL STATUS ANIMAL SPECIES AND OTHER AQUATIC WILDLIFE- ALTERNATIVE 5

Alternative 5 would nearly maximize the potential to benefit the foothill yellow-legged frog, two-striped garter snake, western pond turtle, and other aquatic wildlife throughout the entire CCMA, because of the great reduction of sediment yields as compared to Alternative 4, and because of the additional improvements to these species' habitat in localized areas such as vehicle creek crossings (i.e. adjacent to Indian Hill) which would be closed to all off-road vehicles.

Remaining impacts to these species would be similar to those listed above under the Impacts to Riparian Areas section.

Proposed Mitigation Measures and Residual Impacts -

Same as for Alternative 3.

IMPACTS TO WATERSHED RESOURCES - ALTERNATIVE 5

Under this alternative all watersheds would be restricted from OHV use and all open OHV play areas and hillclimbs would be closed to vehicles. Motorcycles

would be prohibited in the CCMA. Residual impacts on the watershed resources would result from the historic road access network and intensively used OHV areas that would continue to have erosion and sedimentation problems until their rehabilitation or their return to some natural equilibrium. Based upon the PTI watershed erosion estimates, the impact of human surface disturbance is expected to decrease by approximately 90% from the baseline level calculated for the conditions in Alternate #1.

Approximately 27 miles of unpaved vehicle routes would remain open to vehicle access, which would continue to accelerate slightly the erosion and sediment process over existing natural conditions. The impact of these roads is estimated to contribute approximately 5,249 tons of sediment per year, a reduction of about 82% from the existing situation. This erosion and sediment reduction under this alternative reflects the increased closure of roads, trails and hillclimbs. About 350 miles of roads and trails are scheduled to be rehabilitated to reduce erosion problems.

Direct impacts to the watershed resources would be reduced substantially, since vehicle access to approximately 95% of this area would be restricted. Only minimal disturbances could be expected on existing roads still authorized for vehicle access. However, an erosion problem from both natural causes and past roads and trails and off-road vehicle traffic would remain and would need to be mitigated. Any soil loss from erosion associated with past disturbances such as mining, road construction and OHV use would be evaluated and mitigated on a watershed basis.

The watershed impacts could be reduced with the full implementation of the proposed management under this alternative. Administrative controls, such as a wet season restriction to vehicle access, would have an immediate effect in reducing the accelerated erosion associated with vehicle use. However, the net effects of engineering controls such as sediment dams would not be as noticeable or as measurable until the watershed equilibrium is re-established which could take several years after final construction is completed. It is expected that most accelerated erosion and sedimentation would be reduced to slightly above natural levels.

This alternative should substantially reduce any erosion generated by human activities, but not eliminate natural erosion and sediment yield in the Clear Creek Management Area.

IMPACTS TO RECREATION RESOURCES - ALTERNATIVE 5

This alternative would result in the elimination of all off-road vehicle use. Visitor use would probably drop 85%, with 7,500 expected annual visitor use days.

Restrictions on vehicle use throughout the Clear Creek area could affect the ability of some gem and mineral collectors, since walking three to four miles could be necessary to reach some locations previously accessible by vehicle. Elimination of motorcycle use, however, could result in the attraction of some additional backcountry hikers and hobby collectors who have previously avoided the area because of the preponderance of motorcycle use and associated noise. On the other hand, asbestos warning signs may deter some potential new recreation users.

It is anticipated that seasonal road closures could result in the closure of the road system during the August deer hunting season. In recent years the area has been dry and dusty during this period. Closure of Clear Creek roads, which provide vehicle access to hunting areas south and east of Clear Creek, would eliminate all public vehicle access to these areas. This would create a market for adjacent private landowners to charge members of the public to gain vehicle access to public lands.

Motorcyclists and other off-road-vehicle users would seek out new places to participate in their activity. Hollister Hills State Vehicular Recreation Park would experience substantial increases in visitor use and demand for development of new facilities and trails. Since available use areas would not be sufficient to meet anticipated demand, illegal use in areas closed to off-road-vehicle use would increase. Particularly vulnerable to illegal use would be areas such as the Panoche, Tumey and Ciervo Hills which do have some physical or vegetative barriers to restrict cross-country vehicle access.

Closure of Clear Creek to OHV use, when considered in concert with trends toward closure of other OHV use areas and environmental constraints restricting the development of new OHV areas, would cumulatively affect the ability of the public or private sector to provide ample opportunities to meet public demand for this recreation activity.

Proposed Mitigation Measures:

1 - Increase law enforcement patrols in the Panoche, Tumey, and Ciervo Hills.

2 - Conduct a multi-agency evaluation of potential new OHV use areas within weekend radius of San Jose/San Francisco metropolitan area.

3 - Develop hiking trails and signing to popular gem and mineral collection areas.

Residual Impacts

1 - There are not expected to be residual impacts in the CCMA as a result of this mitigation measure, as the law enforcement presence in the CCMA would continue.

2 - There are not expected to be residual impacts in the CCMA as a result of this mitigation measure.

3 - Recreational opportunities would be diversified by the addition of hiking trails, but these may or may not be used by other hikers, as the trails would not be developed for their scenic qualities. Hiking trails would probably follow old vehicle routes, so their impact in terms of new or additional resource damage would be minimized.

ECONOMIC IMPACTS - ALTERNATIVE 5

Reduction in visitor use by 85% would result in an estimated decline of $1,976,250 in local sales. This figure may be too high since some displaced Clear Creek users can be expected to recreate at Hollister Hills State Vehicular Recreation Area and therefore would still contribute to the local economy.

Opportunities for mineral exploration and the establishment of new mining claims would be foregone in most of the upper Clear Creek watershed as this watershed would be incorporated into the expanded San Benito Mountain Natural Area and subsequently withdrawn from mining. Closure of vehicle routes would adversely affect opportunities for mineral exploration throughout the area since vehicle access would be severely restricted. Additional costs would be incurred in mining gem and mineral specimens from existing claims because of the more stringent standards which would be applied to access road construction and maintenance. This would also increase production costs for any newly discovered mineral deposits.

IMPACTS OF ALTERNATIVE #6 - ENHANCEMENT OF NATURAL VALUES

Vehicle use designations under this alternative would not change from the previous alternative but the size of the San Benito Mountain Natural Area would be significantly expanded. All open and closed roads and trails would be maintained to reduce erosion and sedimentation problems and approximately 29 miles of main routes would be dust suppressed.

IMPACTS TO AIR QUALITY AND HUMAN HEALTH - ALTERNATIVE 6

Under this alternative, the elimination of camping and OHV use off main roads would reduce the overall human exposure to and generation of asbestos emissions. Annual visitation would be accommodated at about 7,500 visitor user days per year. The human health risk from visitor use has been estimated to be 2 in 100,000 under this alternative. Other measures have been developed to minimize airborne emissions and exposure, such as the reduction of 90% of the existing vehicle access. A dry season restriction on vehicle travel is also expected to significantly decrease both airborne asbestos emissions and human exposure during this time (usually May-October).

IMPACTS TO VEGETATION - ALTERNATIVE 6

The expansion of the San Benito Mountain Natural Area to include the entire Clear Creek watershed would maximize protection to all sensitive vegetative resources found there.

San Benito evening primrose. The impacts to the San Benito evening primrose would be similar to Alternative 5; however, the opportunity to recover the primrose and remove this species from the threatened and endangered list would be maximized under Alternative 6. This is because roads that impact this species would be rerouted or closed. Large proportions of the existing Clear Creek Road, Sawmill Creek Road, and San Carlos Creek Road would be managed for the introduction of the primrose.

Other special status plant species. Impacts to special-status plant species under Alternative 6 would be the same as under as Alternative 5.

San Benito Mountain Forests and Natural Area. Total acreage within the San Benito Mountain Natural Area would increase to 17301 acres from 1,871 acres

and would include the entire Clear Creek watershed. The following five resource values for scientific research and protection would be added:

1) Added upland habitat would result in the inclusion of the entire Clear Creek and Sawmill Creek watersheds as well as the headwaters of the San Benito River upstream from its confluence with Sawmill Creek. This would result in the inclusion of nearly all significant stands of pine forest within the Natural Area boundaries.

2) The number of known primrose populations would increase from one to 15, the expanded boundaries would include 73 acres of terrace habitat in the Clear Creek watershed (as opposed to the zero acres included now), and would increase to 17 from two the miles of streamside primrose habitat along Clear Creek, San Benito River, and Sawmill Creek.

3) The number of known populations of Category 2 candidate plant species would increase from two to 24 and an unknown amount of these species' habitat would be included.

4) An approximately one-half mile-wide, two mile-long area of transitional habitat between the serpentine and non-serpentine blocks north of the current Natural Area boundaries would be included. Besides a high value for scientific study, this transition zone between serpentine and non-serpentine soils contains the only known population of the Mt. Diablo phacelia within the CCMA.

5) The miles of serpentine riparian habitat (out of the total 51 in the CCMA) would increase to 17 from five within the Natural Area; this increase would include 11 miles in the Clear Creek watershed, and 3 miles along both Sawmill Creek and the San Benito River.

Riparian areas. Alternative 6 would maximize the potential for riparian area recovery throughout the entire CCMA. In addition to those roads closed under Alternative 5, road closures or rerouted under Alternative 6 would include those such as Clear Creek Road and Sawmill Creek Road - these roads probably cause the greatest impacts to riparian areas in the CCMA.

The potentially significant impact which would continue under Alternative 6 would be the accelerated (above undisturbed or "natural" levels) erosion that could continue over slopes and roads which are closed but not rehabilitated.

Proposed mitigation measures -

1. Investigate and implement revegetation strategies for closed barren areas and impacted riparian areas.

2. Monitor natural revegetation of impacted riparian areas and barren slopes and success of revegetation efforts.

Residual Impacts -

1) Accelerated sediment yields coming off the remaining small network of roads would probably only cause insignificant impacts to riparian areas.

IMPACTS TO SPECIAL STATUS ANIMAL SPECIES AND OTHER AQUATIC WILDLIFE- ALTERNATIVE 6

Alternative 6 would maximize the potential to benefit the foothill yellow-legged frog, two-striped garter snake, western pond turtle, and other aquatic wildlife throughout the entire CCMA because of additional road closures and road rehabilitations, as compared to Alternative 5, which would include such roads as Clear Creek Road and Sawmill Creek Road - these roads probably cause the greatest erosion impacts to these species.

Remaining impacts to these species would be similar to those listed above under Alternative 6 Impacts to Riparian Areas.

Proposed Mitigation Measures and Residual Impacts -

Same as for Alternative 3.

IMPACTS TO WATERSHED RESOURCES - ALTERNATIVE 6

Under this alternative all watersheds would be restricted from OHV use and all open OHV play areas and hillclimbs would be closed to vehicles. Motorcycles would be prohibited on all designated routes. Residual impacts on the watershed resources would result from the historic road access network and intensively used OHV areas which would continue to have erosion and sedimentation problems until their rehabilitation or until their return to some natural equilibrium. Based upon watershed estimates the impact of human surface disturbance is expected to decrease by approximately 82% from the baseline level calculated for the conditions in Alternative 1.

Vehicle access would continue over approximately 27 miles of unpaved vehicle routes, which would continue to slightly accelerate the erosion and sediment process over existing natural conditions. These roads are estimated to contribute approximately 5,249 tons of sediment per year, primarily in the Clear Creek watershed. This a significant reduction from the previous alternative, reflecting the increased closure of most roads, trails and hillclimbs. Approximately 350 miles of roads and trails are scheduled to be rehabilitated to reduce erosion problems.

Direct impacts to the watershed resources would be reduced substantially since vehicle access to approximately 95% of this area would be restricted. Only minimal disturbances could be expected on existing roads still authorized for vehicle access. However, the erosion problem resulting from natural causes, past road and trail construction and off-road open play areas would need to be mitigated. Any soil loss from erosion associated with past disturbances such as mining, road construction and OHV use would evaluated and mitigated on a watershed basis.

This alternative eliminates vehicle travel on the barren hills and restricts vehicle use to a system of approximately 27 miles. Under this alternative, a significant decrease of the area available for vehicle access would reduce the overall erosion and sediment from human activities. It is anticipated that most accelerated erosion and sedimentation would be reduced and be approximately equal to natural levels.

The short and long term impacts from erosion and sedimentation occurring downstream from the Clear Creek Management Area would be managed over a ten year project phase. Management measures would be designed to reduce erosion and sediment and improve downstream water quality conditions at the Hernandez Dam and the Arroyo Pasajero ponding basin near Huron. These two areas have been identified as having been impacted by sedimentation caused by both natural and increases due to human activities within the Clear Creek Management Area.

IMPACTS TO RECREATION RESOURCES - ALTERNATIVE 6

It is anticipated that impacts to recreation users generally would be the same as in Alternative 5. This assumes that major vehicle routes open to public use under Alternative 5 would remain open under Alternative 6. If this alternative resulted in the closure of the remaining vehicle access routes into Clear Creek, then most recreation use would also be eliminated. It is anticipated that some potential new non-vehicular users would be deterred from using the area by asbestos warning signs.

Potential elimination of vehicle use throughout the Clear Creek area would affect the ability of most users to collect gem and mineral samples, since walking 15 to 20 miles could be necessary to reach some locations previously accessible by vehicle.

Road closures would also eliminate all public vehicle access to popular hunting areas south and east of Clear Creek. This would create a market for adjacent private landowners to charge members of the public to gain vehicle access to public lands.

Existing motorcycle and other off-road-vehicle users would seek out new places to participate in their activity. Hollister Hills State Vehicular Recreation Park would experience substantial increases in visitor use and demand for development of new facilities and trails. Since available use areas would not be sufficient to meet anticipated demand, illegal use in areas closed to off-road-vehicle use would increase. Particularly vulnerable to illegal use would be areas such as the Panoche, Tumey and Ciervo Hills, although these hills do have some physical or vegetative barriers to restrict cross-country vehicle access.

Closure of Clear Creek to OHV use, when considered in concert with trends toward closure of other OHV use areas and environmental constraints restricting the development of new OHV areas, would cumulatively affect the ability of the public or private sector to provide ample opportunities to meet public demand for this recreation activity.

Proposed Mitigation Measures:

1 - Increase law enforcement patrols in the Panoche, Tumey, & Ciervo Hills

2 - Conduct a multi-agency evaluation of potential new OHV use areas within weekend radius of San Jose/San Francisco metropolitan area.

3 - Develop hiking trails and signing to popular gem and mineral collection areas.

Residual Impacts

1 - There are not expected to be residual impacts in the CCMA as a result of this mitigation measure, as the law enforcement presence in the CCMA would continue.

2 - There are not expected to be residual impacts in the CCMA as a result of this mitigation measure.

3 - Recreational opportunities would be diversified by the addition of hiking trails, but these may or may not be used by other hikers, as the trails would not be developed for their scenic qualities. Hiking trails would probably follow old vehicle routes, so their impact in terms of new or additional resource damage would be minimized.

ECONOMIC IMPACTS - ALTERNATIVE 6

Reduction in visitor use by 85% would result in an estimated decline in local sales of $1,976,250. This figure might be too high since some displaced Clear Creek users could be expected to recreate at Hollister Hills State Vehicular Recreation Area and therefore would still contribute to the local economy. If all roads into Clear Creek are closed under this alternative, then decline in local sales is estimated to be $2,092,500. Loss of income from hunting use is not considered in this figure since it is anticipated that hunters would be displaced to other locations in the local region and would still contribute to the local economy.

Opportunities for mineral exploration and the establishment of new mining claims would be foregone, since most of the New Idria formation would be incorporated into the expanded San Benito Mountain Natural Area and subsequently withdrawn from mining.

Additional costs would be incurred in mining gem and mineral specimens from existing claims because of more stringent standards which would be applied to access road construction and maintenance.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE/ENHANCEMENT OF LONG-TERM PRODUCTIVITY (PREFERRED ALTERNATIVE)

Under the proposed activity, two-thirds of the Management Area would be managed for natural resource values in the long term. One-third of the Management Area would be managed intensively, to minimize adverse impacts associated with the existing demands for recreation opportunities. Continued OHV use and vehicle access throughout the Management Area would still allow for small increases in erosion and sedimentation in all watersheds in the short term. The existing vehicle access network and the OHV use on unpaved roads, trails and barren hillslopes would cause long term loss of topsoil, reduced vegetation cover and a overall degradation of air and water quality. These increases could adversely affect soil productivity and the ability of native plants, especially special status

plants, to revegetate potential habitat areas. The possible inability of plants to re-colonize habitat areas could result in some long-term loss of plant diversity and abundance.

In the short term, fugitive asbestos dust would continue to be generated, and could be more concentrated in the open Clear Creek Canyon play areas, as unrestricted motorcycle and off-road use would only occur in that Canyon under the proposed alternative. Vehicle exhaust emissions would probably be more apparent in the Clear Creek Canyon. Both exhaust fumes and dust emissions would adversely affect visibility and probably overall enjoyment in the short term, and in the long term, result in some increase in adverse affects to human health because of continued exposure to asbestos dust.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES (PREFERRED ALTERNATIVES)

Impacts to the natural watershed conditions from soil loss and erosion are essentially an irreversible and irretrievable commitment of resources. The potential loss of T&E plant habitat and populations of the San Benito evening primrose could result in the a decrease in vigor of this species resulting in potential irretrievable loss of biological and genetic components.

CUMULATIVE IMPACTS (PREFERRED ALTERNATIVE)

Cumulative impacts are those that result from the incremental impacts of an action added to other past, present and reasonably foreseeable future actions. Cumulative impacts may individually be minor but collectively may significantly affect various resources. Cumulative impacts could occur from this alternative primarily as a result of actions taken by other agencies or entities, including County, State, Federal and private enterprises.

Activities on the part of other entities which could affect the implementation of this alternative include the abandonment of the Clear Creek County Road by the County, reduced available funding for OHV management from both BLM and State budgets, and the development of private campgrounds outside the CCMA.

Any new changes in State and Federal air quality regulations, such as increased restrictions in fugitive dust or vehicle engine emission standards could result in some changes to continued vehicle access and use of this area.

The proposed abandonment of the County Road would shift the maintenance burden to the BLM, which could impact the overall maintenance and funding schedule for Clear Creek, perhaps resulting in delays in repair, grading or dust suppression. This could be further compounded if available funds are reduced from local, State and Federal budgets.

There are possible positive cumulative impacts resulting from the implementation of this alternative. If, for example private campgrounds are developed outside the Serpentine ACEC, this could result in better recreation management opportunities and also regenerate some of the income lost from the projected reduced numbers of OHV users. Local economies would still see visitors purchasing goods on the way to Clear Creek, and in addition would be able to collect income from overnight camping facilities.

CHAPTER 5 - COORDINATION AND CONSULTATION

INTRODUCTION

This Environmental Impact Statement and land use plan amendment was prepared by an interdisciplinary team of specialists from the Bureau of Land Management's Hollister Resource Area, Bakersfield District Office, and California State Office. Reviews for accuracy and consistency were provided by both district and the state office staff. Outside agencies were also consulted frequently. A list of preparers may be found in Table 7. The BLM worked with a Technical Review Team (TRT) throughout the process to discuss alternatives and issues. A list of participating TRT members may be found in Table 8.

Public involvement has occurred throughout the process through public workshops, informal meetings, individual contacts, news releases, and Federal Register notices.

The EIS process began in 1990 with the development of a pre-plan scoping document, which included a public participation plan. Other early efforts included research, inventory, preliminary analysis, and interagency coordination.

CONSISTENCY

Coordination with other agencies and consistency with other plans has been accomplished through frequent communication with agency representatives and judicious review of plans.

Regional water quality plans, air pollution control district plans, and Fish & Wildlife recovery plans have been consulted to assure that all BLM proposed actions are consistent with local and regional plans.

Copies of the Notice of Intent (NOI) were distributed to the California State Clearinghouse to facilitate distribution and comment from interested state agencies.

TABLE 8
LIST OF PREPARERS

Bob Beehler	Management Direction	BA, Geography BLM: 13 Years
Tim Moore	Team Leader,Soil/Water/Air Geology, Haz. Materials	BA, Geology BLM: 12 Years
Steve Addington	Recreation, Quality Control Economics	BA, Anthropology BLM: 13 Years
Bruce Delgado	Vegetation, T&E Species	BS, Wildlife BLM: 6 Years
Mike Leathers	Computer Analysis	MS, Geology BLM; 4 Years
Meg Pearson	Editor, Recreation	MS, Recreation BLM: 2 Years
William Schwarz	Recreation, OHV	MS, Recreation BLM: 2 Years
Lenore AvilaPino	Word Processing	BLM: 7 Years

SUPPORT TEAM/REVIEWERS

Phil Lopez	Soil/Water/Air Qual. Review	BS, Soil Science SCS: 6 Years FS: 8 Years BLM: 3 Years
Patty Gradek	Hazardous Materials Review	MS, Hydrology BLM: 16 Years
Joe Hummel	Recreation Review	BS, Nat. Res. Plng/Interp. BLM: 17 Years
Ed Lynch	Planning/Environ. Review	MA, Botany BLM: 21 Years
Larry Saslaw	Wildlife Biologist	BS, Wildlife Management BLM: 18 Years

TABLE 8 (CONTINUED)

Robert Barney	State Office Review	MS, Geography BLM: 28 Years
Jack Mills	State Office Review	MA, Planning BLM: 14 Years

TABLE 9
LIST OF TRT MEMBERS

John Blake -	BLM Bakersfield District Advisory Council
Bill Dart -	District 36, American Motorcycle Association
Bob Ellis -	Desert Survivors
Ralph Fairfield -	California State Parks, Hollister Hills Vehicle Recreation Area
Ron Fite -	California Association of 4-WD Clubs
Roger Hopper -	KCAC, Inc.
Don Hoskin -	Sierra Club
Luis Ireland -	Sierra Club
Lowell Landowski -	California State OHV Commission
John Motley -	California State OHV Commission
Jim Pittman -	California Native Plant Society, Monterey Bay Chapter
Bob Rose -	Hollister Gem and Lapidary
Gene Strubbing -	California 4-WD Association
Ed Tobin -	Salinas Ramblers Motorcycle Club
Bob Wicke -	Dirt Alert

CONSULTATION AND COORDINATION

Members of the interdisciplinary team have consulted formally and informally with numerous agencies, groups, and individuals during the development of the land use plan amendment and EIS. Following is a list of those that have participated in this planning process.

GOVERNMENT AGENCIES/ELECTED OFFICIALS

CA Dept of Fish and Game
CA Dept of Mines and Geology
Congressman Leon Panetta
Environmental Protection Agency
Fresno County Air Pollution Control Board
Monterey Bay Unified Air Pollution Control District
San Benito County Public Works Department
San Benito County Board of Supervisors
US Fish and Wildlife Service
Westside Resource Conservation District

OTHER ORGANIZATIONS

American Motorcycle Association District 36
Bay Area Gem and Mineral Society
Calif. Four Wheel Drive Club
Calif. Native Plant Society
CORVA
Dirt Alert
Bakersfield District Advisory Council
Hollister Gem and Mineral Club
Sierra Club (Santa Clara Branch)

PUBLIC PARTICIPATION

A public participation plan was prepared to ensure that the public would have numerous opportunities to be actively involved in the planning and environmental process. Both formal and informal input has been encouraged and used throughout the planning process.

A Notice of Intent (NOI) to Prepare the Plan Amendment and an Environmental Impact Statement was sent to the Federal Register on April 30, 1991. Copies of the NOI were mailed to interested and/or affected parties using the Resource Area's updated mailing list. Individuals that did not respond to this mailing were removed from the mailing list. The NOI included times and dates for three scheduled public workshops and a listing of proposed issues to be addressed in the EIS. Publication of the Notice of Intent in the Federal Register initiated a formal 30 day public comment period.

Tentative issues, planning criteria, and alternatives were published in the NOI to serve as a starting point for public and agency dialogue. The final issues and alternatives addressed in the EIS were developed in response to public and agency comment. BLM staff conducted meetings with all affected or interested federal, state, and local agencies. Open houses (workshops) were held in Hollister, San Jose and Coalinga.

The Notice of Availability (NOA) of Planning Criteria was published in the Federal Register on April 23, 1992. Copies of the NOA were mailed to 90 individuals or organizations. Publication of the NOA in the Federal Register initiated another formal 30 day public comment period.

The Clear Creek Management Area Resource Management Plan and Environmental Impact Statement was available for public review beginning in November, 1993. Copies of the Draft RMP Amendment and EIS were sent to individuals and organizations who responded to previous mailings. Copies were also sent to agencies and corporations potentially affected by the plan. Public meetings were held in December of 1993, in the cities of San Jose, Hollister and Clovis to solicit comments on the Draft RMP Amendment and EIS. The public comment period closed on February 15, 1994.

The BLM received over 600 letters in response to the Clear Creek Draft EIS. Of those, 465 were form letters, and 143 were letters from individuals, agencies and organizations.

Form Letters. Although the format of these letters differed, the content was essentially similar. To facilitate response, all form letters were summarized, and the summary and BLM response may be found in Part A of this chapter. Each person submitting a form letter was entered into the master database of addresses maintained at Hollister Resource Area Office, but individuals commenting via form letters will not find their names listed in this chapter.

Agencies, Organizations and Individuals. The BLM received 30 letters from agencies and organizations, spanning a diverse range of Federal, State, and local interests. All agency/organization letters received are listed in Table 10. One-

hundred and forty three letters were received from individuals, the names of whom may be found in Table 11. These also represented a wide variety of interests. All letters were read thoroughly for substance by a team of four BLM staff. All, or portions of a letter were sorted into four categories: 1) The letter contained substantive comments, which were not discussed in any other letter, and to which the BLM responded individually; 2) The letter contained substantive comments, but other letters raised identical concerns - the BLM grouped these into common categories and answered them as a group (see Table 12 for a matrix of common themes); 3) The letter expressed opinions but there were no substantive comments to which the BLM could respond; and 4) The letter provided ideas and recommendations for future management in the Clear Creek Management Area.

The BLM responses to unique, substantive, agency and individual comments are found in Part B. The BLM responses to substantive, but essentially identical agency and individual comments, are found in Part C. Part D summarizes all the ideas and recommendations for future management in Clear Creek - the BLM did not respond formally to these, although some ideas were incorporated into the final preferred alternative, and all are being kept for review during the development of the implementation plan for Clear Creek, once the Record of Decision for this EIS is signed.

Several commentors found typographical errors in the text, which have been corrected in the final EIS.

TABLE 10
LETTERS RECEIVED FROM AGENCIES AND ORGANIZATIONS

Letter Number	Agency/Organization
1	USDOI Bureau of Mines
2	USDOI Fish and Wildlife Service
3	US Environmental Protection Agency
4	California Dept. of Fish and Game
5	California Dept. of Parks and Recreation
6	California State Lands Commission
7	California Regional Water Quality Control Board
8	San Benito County Chamber of Commerce
9	San Benito County Planning and Building Dept.
10	Santa Clara Dept. of Planning & Development
11	Monterey Bay UnNified Air Pollution Control District
12	San Joaquin Valley Unified Air Pollution Control District
13	Westside Resource Conservation District
14	California State University - Fresno - Dept. of Geology
15	Stanford University - Center for Conservation Biology
16	Harvard University
17	American Motorcycles Assn., District 36
18	American Motorcycles Assn., Westerville, Ohio
19	Biosystems Analysis, Inc.
20	California Enduro Riders Assn.
21	California Native Plant Society - Carmel Chapter
22	California Native Plant Society - Sacramento Chapter
23	Desert Survivors
24	Los Altos Dirt Bikers
25	Polar Equipment
26	SB Environment Process & Engineering
27	Sierra Club - Loma Prieta Chapter
28	Sierra Club - San Francisco Chapter
29	Sierra Club - Tehipte Chapter
30	World Title Company, Alameda County

TABLE 11: LETTERS RECEIVED FROM INDIVIDUALS

Number	Name
31	Alberts
32	Baker
33	Balbach
34	Beckett
35	Bergena
36	Berman
37	Blake
38	Carlton
39	Catlin
40	Cernac
41	Clonts
42	Colvin
43	Connelly
44	Cornick
45	Corno
46	Cresswell
47	Curylo
48	Cusato
49	Dale
50	DeHart
51	Demaree
52	Denney
53	Dent
54	Donlon
56	Drake
57	Dunning
58	Economou
59	Empasis
60	Fergon
61	Finn
62	Fite
63	Flaig
64	Garcia
65	Gearin
66	Grant
67	Gray
68	Green
69	Hannay
70	Hardham
71	Harrell
72	Hauser
73	Helling
74	Hoffman
75	Hone
76	Hopson
77	Ireland
78	Jansen
79	Jenkins
80	Kangas
81	Krest
82	Lawton
83	Leonard
84	Lingerfelt
85	Lockwood
86	Lueders
87	Matthews (G.)
88	Matthews (Mrs. WVG)
89	McAndrews
90	McBride
91	McCartha
92	McCoy
93	McGinnis
94	McLaughlin
95	Meister
96	Meyner
97	Mill
98	Millar
99	Miller
100	Murphy
101	Nelson
102	Norris
103	O'Brien
104	Orso
105	Ottenberg
106	Panzica
107	Paulsen
108	Peel
109	Percival
110	Perez
111	Piszkiewicz
112	Pittman
113	Quail
114	Ramirez
115	Raymond
116	Rose
117	Ryan
118	Schiltz
119	Seghi
120	Sheel
121	Simone
122	Siraco
123	Smith
124	Spalding
125	Sprenger
126	Stanley
127	Stefanick
128	Stover
129	Strauss
130	Tobin
131	Valle Riestra
132	Vleisides
133	Wallis
143	Ward
134	Weeks
135	Weihe
136	Weitz
137	Westphal
138	Williams
139	Wolfe
140	Wood
141	Wright
142	Zaballos

TABLE 12
MATRIX OF COMMON RESPONSE THEMES

CATEGORY	LETTER #
Access	45, 82, 84
Asbestos & Health Risks	5, 17, 20, 130
Economics	9, 20, 63, 100, 110, 111 117
Implementation - Existing Use Designations - Enforcement - Roads & Trails - Costs	3, 19, 20, 21, 23, 27, 28, 29, 38, 39, 49, 61, 82, 88, 94, 112, 123, 129, 130, 143
NEPA Compliance	3, 17, 20 21, 22, 23, 24, 28, 38, 54, 92, 94, 122, 129, 130,
Plant Communities	19, 21, 22, 34, 61, 88
Recreation	18, 22, 28, 29, 58, 67, 80, 85, 93, 94, 102, 104, 112, 122, 131, 137
Riparian and Vernal Pools	15, 19, 103, 112, 130
San Benito Evening Primrose	19, 31, 60, 90, 122, 130
San Benito Mountain Natural Area	24, 29
Special Status Plants (except San Benito evening primrose)	19, 21, 61, 88, 112, 122
Watershed & Erosion	3, 7, 17, 19, 20, 21, 22, 23, 31, 61, 94, 130, 143
Wildlife	15, 21, 137

PART A. FORM LETTER SUMMARIES

The BLM received 465 form letters, the main points of which are summarized below. BLM's response follows.

Summary of Comments found in Form Letters:

Adoption of Alternative 4, closing the major part of present OHV riding areas, will have negative economic, social and resource impacts.

Local businesses will suffer loss of OHV-user patronage. BLM will face expensive implementation costs. Among the OHV-user community, this unattractive alternative will invite non-compliance while discouraging volunteer help. Traditional "Enduros" will be eliminated. Green Sticker fees, mostly paid by motorcyclists, should be used to create/preserve places to ride.

Concentrating the riding area into Clear Creek Canyon will increase overuse and overcrowding, drastically reduce riding opportunities, eliminate unique OHV backcountry opportunities, and close an area originally opened to replace lost OHV areas elsewhere. Data on health risks from chrysotile asbestos are insufficient for assessing overall Clear Creek risk; camping could be established in reduced exposure areas.

Concentrating use into a small area will increase negative impacts on riparian and endangered species habitat; spreading out the riding area would minimize the impact on Clear Creek Canyon and on the long-range viability of the area. Resource protection can be combined with safe recreation by a management strategy including new staging areas outside the Canyon, proper signing, maps and information, and the fencing off of sensitive areas.

BLM Response: It is not the intent of this plan to totally close the CCMA, thus eliminating revenues from OHV-related business for local economies. However, a diversification of the overall user base and a reduction in the total numbers of OHVers visiting Clear Creek is expected. A net loss in revenues for the short term is also expected, until local businesses shift to meet the needs of the more diverse user base. These impacts are addressed in Chapter 4 - Environmental Consequences, under the Economic Impacts section.

OHV fees supporting the Green Sticker program are collected through the registration of OHV's and through collection of gasoline taxes. In fact, most of the grant monies are generated through gas taxes (about 70%), rather than through actual "Green Sticker" registration (these account for about 8-10%). So, although licensed 4WD vehicles do not register for a green sticker per se, all those who

purchase gasoline, including those who do not recreate in this fashion, contribute to the Green Sticker Fund.

As described in the mitigation section of the alternatives, OHV events such as enduros and qualifiers will be allowed as long as they meet certain criteria and follow the permitting process to which the BLM adheres.

The BLM recognizes that Clear Creek represents a unique OHV experience in this part of California. However, as described in the opening sections of the DEIS, current uses are resulting in resource damage beyond what can be repaired or replaced. The goal of management in the Clear Creek Area is to achieve a balanced program which will allow use, while also protecting the resource values of the area, and while improving measures to protect human health. We are aware of the conflicting information as it pertains to asbestos, but asbestos has been classified as hazardous by the Environmental Protection Agency. The BLM must make policy decisions accordingly. It is the responsibility of the BLM to make the necessary recommendations pertaining to the future use of the area recognizing that asbestos has the potential to be hazardous to one's health.

After re-analysis and review of public comment, however, the BLM has revised the preferred alternative to allow dispersed OHV use in the backcountry and to reduce concentration of use in Clear Creek Canyon. The final EIS documents a plan that will balance the needs of the land with the needs of the users. The new Preferred Alternative (now Alternative 3), preserves the riding opportunity to a great extent, but also affords vital protection to significant resources.

It is the hope of the BLM that not only will this new alternative encourage compliance, but continued volunteerism as well. We hope that a large number of the users that visit Clear Creek will begin or continue to volunteer their time to effectively manage and protect the resources that exist here.

PART B. BLM RESPONSES TO UNIQUE AGENCY AND INDIVIDUAL LETTERS

LETTER # 1 - BUREAU OF MINES

Comment 1-1: "It is not clear why the proposed actions in the Draft RMP/EIS for the Clear Creek Area are found to not have significant impacts on mineral resource values. Proposed mineral withdrawals combined with the area's (sic) mineral potential and mine claim activity suggests otherwise."

1-1 Response: In the early 1980's, BLM performed an intensive inventory for the geology and economic minerals (GEM) for the Clear Creek ACEC. Over the last decade, mining activity this area has been limited to only one active commercial operation on public land, the KCAC Asbestos Mine, and some speculative precious metal exploration.

The preferred alternative does allow for mineral opportunities for exploration and development over 90% of the entire Clear Creek Management Area, and under the preferred alternative, the only area proposed for a mineral withdrawal would be in the expanded boundary of the San Benito Natural Area. This area is approximately 2211 acres in size and is adjacent to the existing area of mineral withdrawal lands.

In other areas of the CCMA where vehicles are restricted to designated routes, potential mineral exploration and development is not specifically precluded. For example, if a mining plan of operation is submitted which requires new road construction or upgrading an existing access way, this activity will be evaluated to see if it can meet the applicable regulations (e.g. air quality PM-10, NESHAP, etc.) The actions contained in the preferred alternative will not create a significant impact on either the mineral development potential or the subsequent mineral production.

LETTER # 2 - UNITED STATES FISH & WILDLIFE SERVICE

Comment 2-1: "Disturbed soil denuded of vegetation and fractured soil crust upslope will have a potential adverse influence on sensitive species and habitat through mass wasting deposition."

2-1 Response: Large portions of hillslopes could fail and either carry whole or portions of sensitive plant populations with them. If such large failures occurred, they could deposit directly onto sensitive populations. BLM does not have any data demonstrating this in Clear Creek. However, staff observations indicate that mass wasting occurs very infrequently and so BLM considered this an insignificant impact for the scope of this study.

Comment 2-2: "Please be advised that the status has changed for ...two plant taxa."

2-2 Response: Table 4 has been revised to reflect these changes.

LETTER # 3 - ENVIRONMENTAL PROTECTION AGENCY

General Comments

Comment 3-1: "...unavoidable adverse impacts should identify the significance of these impacts".

3-1 Response: In response to your comment, we have re-analyzed the unavoidable adverse impacts remaining after implementation of any alternative, and have identified their significance. Changes may be found in the document under the Environmental Consequences chapter.

Comment 3-2:"... reconsider the boundaries of the ACEC to determine whether revisions should be made".

3-2 Response: The ACEC was evaluated to see if an expansion to the ACEC boundary was necessary based upon a field review of the serpentine soils. Based upon this review the ACEC was expanded and the EIS maps reflect this expanded boundary.

Comment 3-3: "We also recommended (in earlier correspondence) that the EIS address in greater detail such issues as how the County roads and CCMA trails would be effectively closed during dry conditions.

3-3 Response: In response to your comment, we have clarified text in Chapter 2 of the FEIS, under "Management Guidance and Determinations Common to All Alternatives", subsection "Measures to Protect Air Quality and Human Health". In this section, we describe closures in greater detail.

HEALTH RISK ASSESSMENT COMMENTS

Comment 3-4: The preferred alternative does not satisfy EPA's concerns regarding public health risks. We urge BLM to adopt additional measures to reduce airborne emissions and their threat to public health in the CCMA.

Response 3-4: EPA's public risk exposure guidelines have been used in the PTI risk assessment report which was previously reviewed by EPA during the preparation of this document. Based upon the EPA's earlier review of this document, we

believe that the EPA considered these exposure assumptions to be within an acceptable range for the potential threat to public health due to asbestos exposure. In comparing human health risks from asbestos inhalation to other everyday risks persons face in society, the inhalation risks from asbestos in Clear Creek are in fact, small compared with the risks from injury and death resulting from motor vehicle accidents.

Comment 3-5: "The discussion on page 40 (DEIS) is misleading in suggesting that the degree of uncertainty associated with the risk estimates is limited to differences in personal habits and is therefore relatively small."

Response 3-5: Comment noted, based upon this comment a modification of this text was prepared. See page 45 (FEIS) for further clarification.

Comment 3-6: "... provide specific assumptions that were used in the risk assessment, including any climatic assumptions user intensity (number of users on an average day) and the definition of the average motorcycle user."

BLM Response 3-6: This information was incorporated in the more technical report that was reviewed previously by the EPA. We do not feel that this information is necessary to be included in a non-technical discussion for the EIS. The technical risk report was prepared by BLM contractor's PTI Environmental Services, and had extensive EPA oversight and review from its inception around April, 1991 to the final report completed in September, 1992.

BLM at this time is not anticipating any revisions to the technical risk assessment report. If any additional information is needed to assist EPA in understanding the findings contained in this report, BLM will forward this data to EPA, when requested.

Comment 3-7: "... the exposure assumptions used by BLM are not consistent with guidelines used by local Air Pollution Control Districts."

Response 3-7: The risk report was performed using EPA guidelines for risk assessment for CERCLA (Superfund) investigations. The State of California Air Pollution Control Districts (APCD) regulations and guidelines (Rule 1000) for permitting toxic air pollutants may be different than the EPA's methodology. The APCD's Rule 1000 is used primarily for permitting industrial air pollution point sources such as factories or incinerators. Since this land-use plan amendment does not require a air quality permit, the APCD's Rule 1000 does not apply.

Comment 3-8: "... we do not believe that the exposure assumptions based upon limited comments by OHV users at an EPA meeting, are appropriate".

Response 3-8: The exposure assumptions used in the PTI risk assessment report were previously reviewed by EPA during the preparation of this document. Based upon the EPA's earlier review of this document, we believe that the EPA considered these exposure assumptions to be within an acceptable range (see Sunnyvale transcripts, pp. 89-90).

Comment 3-9) "The preferred alternative would include dry/high dust seasonal closure...how (will) the (OSHA) standards be applied.

3-9 Response: The exact air monitoring protocol has not yet been determined, but a combination of a fixed and mobile air monitoring stations are being considered. We will involve the EPA and the local APCD's to assist in determining what appropriate air monitoring methodologies are available that could be selected for this purpose.

Comment 3-10: "... there are no OSHA standards for 'public health and safety' (DEIS, p. 38)."

3-10 Response: The final EIS will reflect a wording change "...asbestos emissions, which can exceed established occupational OSHA standards for workers which may be applicable in the CCMA, for a non-occupational public exposure setting."

Comment 3-11: "...chrysotile asbestos is not necessarily short fiber asbestos and it is generally not referred to as such".

3-11 Response: Many of the geological reports and other general historical mining references regarding the Clear Creek area refers to this asbestos as "short-fiber". We acknowledge that other fiber lengths may be present.

Comment 3-12: "... indicate the maximum reasonable exposure for recreationists not riding OHV's".

3-12 Response: Figure 3 (bar graph), shows two main types of recreation activity, pedestrian and motorized. It also shows the combination of these two. This is indicated on the Figure 3 graph as: Riding Off-Road Vehicles; Camping and Other Activities; and Combined Activities.

We believe the middle bar in Figure 3, represents the information you are requesting. The specific assumptions used in preparing this graph can be found in the more detailed technical report forwarded to you in the fall of 1992.

Comment 3-13: "The risk assessment should discuss each alternative's potential health effects on children using the area, who have a much higher risk of developing mesothelioma."

Response 3-13: Comment noted, however the BLM does not have any more specific data that would further illustrate or accurately quantify these risks. The risk assessment estimates were performed using the established EPA methodology.

Comment 3-14: "The risk assessment should address the continuing offsite exposure to individuals who visit the CCMA and their families from asbestos dust carried on clothing and vehicles."

3-14 Response: The approach used in PTI's risk report was reviewed extensively by EPA in 1992 and the offsite exposure issue was not brought up at that time for inclusion in the risk assessment. However, when BLM worked with the EPA to develop its risk assessment for the Clear Creek Management Area, it was concluded that the secondary risks from off-site exposure could not be accurately determined and quantified using the EPA's risk assessment methodology.

Comment 3-15: "... discuss the anticipated effectiveness of additional measures that would be included in the preferred alternative to reduce emissions of and human exposure to asbestos".

3-15 Response: The physical application of dust suppressions have been shown to minimize or reduce emissions, and an 1980 EPA report was prepared which evaluated these specific dust suppression applications. In general, the type of application of dust suppression determines the amount of emission reduction. We expect to reduce vehicle road emissions by at least 50%, depending upon the type of product proposed to be used in the CCMA.

The vehicle wash facility should also reduce the amount of asbestos containing soil transported out of the Clear Creek Management Area by a significant amount, possibly by as much as 75%.

Administrative control such as seasonal OHV use restrictions, road and trail closures, and designation of specific camping locations would provide significant measures to effectively reduce public exposure to asbestos.

AIR QUALITY

Comment 3-16: "... estimate annual PM-10 emissions to air that could result from each alternative."

3-16 Response: We've recently received more definitive information regarding PM-10 emissions and have summarized this in the FEIS, Affected Environment section

under Air Quality and Human Health. The report is available at the Hollister Area Office.

Comment 3-17 "... the EIS should identify the ozone-related air quality impacts that would result from the preferred alternative."

3-17 Response: Since the Draft EIS, we have consulted with the MBUAPCD, and the findings were below action levels. This is noted in the Final EIS, in the Affected Environment, "Air Quality and Human Health" section.

Comment 3-18: "... BLM should routinely monitor air quality in the CCMA in order to determine whether management measures are adequate."

3-18 Response: BLM currently monitors for asbestos fiber levels for OSHA compliance. In addition, we have the ability to monitor dust emissions, primarily for PM-10. We are unaware of any additional requirements for air quality monitoring, if the EPA or local APCD have any information regarding specific air quality monitoring parameters, please let us know.

Comment 3-19: "...The EIS should indicate whether any of the roadways it maintains in the CCMA contain asbestos tailing or waste from any mining activity and, if so, what measures would be implemented to ensure compliance with the NESHAP".

3-19 Response: According to EPA's investigation and report entitled "Characterization of Disturbances Related to Mining & Exploration in the New Idria/Coalinga/Table Mountain Study Area", there are five (5) historic and one (1) active asbestos mines located within the CCMA (excluding the two Superfund mines). The one active asbestos mine, KCAC, currently uses a private paved access road which meets the NESHAP requirement. The Superfund sites are meeting NESHAP under the EPA's guidance.

The other abandoned asbestos mines identified by the EPA report currently have vehicle and pedestrian public access to them via unpaved roads. Under the preferred alternative these asbestos mines will either be closed to public vehicle access or appropriate road engineering treatment measures will be taken to control dust and asbestos emissions.

More specific information regarding these roads and mines will be conducted during a route and trail inventory scheduled for this Fall and Winter. At that time we would welcome any assistance the EPA or local APCD's could provide in determining specific NESHAP compliance.

WATERSHED IMPACTS AND WATER QUALITY

Comment 3-20 "... The EIS should specify what BMP's and nonpoint source pollution control measures would be utilized to assure water quality protection as well as how and when these measures would be implemented and monitored for implementation, effectiveness and validation".

3-20 Response: Some examples of BMP's which BLM could use under alternatives 4-5 include: 1) protection of unstable areas by such measures as reducing vehicle use of hillslopes; 2)stream course protection by such measures as reducing vehicle use near streams and restoring the natural course of streams; and 3) Control of road use during wet periods by such measures as allowing use on stabilized road surfaces only during such wet periods. All BMP's selected would be implemented using BLM staff, contractors, and volunteers funded by BLM's budget and Green Sticker grants during the Plan life. An implementation schedule outlining selected BMP's and their goals and objectives should be completed by BLM in the near future. BLM would request cooperation from agencies such as the EPA and USFWS during the draft stages of the BMP implementation plan. BLM also expects to request personnel or funding from these agencies to help implement selected BMP's and monitor their effectiveness. The Affected Environment, "Watershed Resources" section has been modified to incorporate more information about BMP's, based upon your comment. Discussion of implementation of BMP's has been added to Chapters 2 and 4 of the FEIS.

Comment 3-21: "... The FEIS should identify (1) the designated beneficial uses for water bodies on in (sic) the CCMA; and (2) any waters within the planning area classified as 'high quality'."

3-21 Response: The waterways in Clear Creek are designated for recreational use and warm water fisheries. They are not classified as "high quality", i.e. drinking water quality. In response to your comment, discussion has been added to the Affected Environment and Environmental Consequences sections of the FEIS regarding and beneficial uses and native fishes present throughout the CCMA and the impacts the various alternatives would have on them. Chapter 2 has been augmented to more adequately describe in the FEIS the distribution of aquatic amphibians and reptiles.

Comment 3-22: "... include a summary of the monitoring... program... include a more detailed description of the water quality monitoring that will be conducted in the CCMA."

3-22 Response: The current monitoring program conducted under the existing RMP is not as intense as that which is being considered under the RMP amendment. The EIS does contain a general overview of the specific environmental conditions being considered for monitoring, establishment of specific thresholds which need to be met and actions or decisions which need to be taken if monitoring reveals that thresholds are not being met.

Table 2 in the FEIS has been augmented to include the general conditions that would be monitored, thresholds of impacts, and actions to be taken if thresholds are exceeded as they relate to the biological and physical integrity of riparian areas in the CCMA. A biological section has been added to this table. Specifics of the monitoring plan would be drafted in consultation with other agencies such as the EPA in a subsequent implementation plan, but would probably include such measures as transects along degraded and good riparian stretches, acreage estimates for vegetative cover, species diversity, stream shade, and important water parameters such as temperature and dissolved oxygen (baseline and subsequent years).

Comment 3-23: "... Data collected should be entered into US EPA's STORET database to facilitate sharing data with other water quality managing agencies. We recommend that BLM enter biological data collected into STORET's BIOS database."

3-23 Response: We feel it is important that all scientific data collected should be shared by agencies and organizations that are working with these ecosystems. We are unaware of how to access the EPA's computer database, entitled STORET BIOS. We would like to have more information on how we can incorporate our information into the EPA's database.

Comment 3-24: "BLM should conduct a baseline water quality assessment and include the results in the EIS. If data are available from the U.S Geological Survey monitoring station, they should be included in the EIS."

3-24 Response: The BLM did some limited reconnaissance water quality sampling in this area in the early 1980's. This was a one time water quality sampling program that basically identified that the surface water in the Clear Creek canyon was non-potable and did not meet drinking water quality standards.

We are unaware if there has been any additional water quality sampling by either the WQCB or EPA. If there has been any further data collection by other agencies, we would consider this information along with any new studies we may conduct in the future.

In 1993, the BLM contracted with the USGS to construct a water quality monitoring station, and collect periodic water quality samples for analysis. This information will be collated by the USGS and submitted to the BLM in their annual report; however, to date we have no baseline water quality information available from the USGS.

Comment 3-25 "... the preferred alternative allows for hillclimbs in several stream courses...Executive Order No. 11644 provides that off-road vehicle '[a]reas and trails shall be located to minimize damage to soil, watershed, vegetation, or other resources of the public land'. We urge BLM to effectively close all stream courses to OHV use and implement other erosion control practices to stabilize soils on all affected areas of the watersheds by reestablishing native and endemic riparian and upland vegetation."

3-25 Response: The existing road and trail network was established by historic mining companies and private individuals. The majority of the road network was constructed prior to the enactment of this Executive Order No. 11644.

However, under the modified preferred alternative for the Final EIS (now Alternative 3) we are recommending a significant change to existing OHV designations based upon re-analysis, and agency and public comment. The final EIS preferred alternative provides for a dispersed, designated route system and conditionally open hill climb acreage. The final determination of open acreage will be based upon a Route/Road inventory, other field reviews and inventories, and GIS analysis of sensitive resources. The FEIS describes the process in greater detail.

Revegetation of disturbed serpentine areas can be very costly and success cannot always be assured. However, in sensitive riparian areas, BLM has considered that areas adjacent to the sediment control structures (as proposed in Alternatives #2, #3 and #4) could be ideal areas to improve, restore or stabilize riparian plant communities. Revegetation efforts are proposed as mitigation under alternatives 2-6 (Environmental Consequences) in the revised EIS.

Comment 3-26: "... under the preferred alternative surface water quality would be affected by increases in sedimentation. Are these increases over current (no action) sedimentation rates?"

3-26 Response: No. Please note clarifications in the FEIS, Affected Environment, Watershed Resources section.

BIOLOGICAL RESOURCES

Comment 3-27: "... the U.S. Fish and Wildlife Service has recently conducted formal consultation with the BLM pursuant to the Endangered Species Act Section 7, for the San Benito evening primrose. The EIS should include the biological opinion and discuss the recovery plan which is scheduled to be finalized this year."

3-27 Response: The BLM and U.S. Fish and Wildlife Service (USF&WS) have been coordinating over the last several years on the management decisions which affect the San Benito evening primrose. The agency commented on our 1986 Clear Creek activity plan, and has also provided us comments on this EIS.

The USF&WS draft recovery plan for this plant was first issued in 1988, however it is being updated given the research information gathered by BLM and supplied to that agency. We do not know if the USF&WS draft recovery plan will be completed in time to be included in the FEIS.

The DEIS briefly mentioned the Recovery Plan for the primrose in the Affected Environment section. In response to your comment some discussion of the main points of the Recovery Plan have been added so that reviewers of the FEIS can better understand the role and direction of the Plan.

Comment 3-28 "... The EIS should discuss remedial measures that BLM would take in order to reestablish vegetation in the riparian zone and on closed trails, hillclimbs and other areas that have been denuded from past activities in the CCMA"

3-28 Response: Some riparian areas which contain exposed bedrock and some barrens which are devoid of topsoil are likely this way due to natural stream processes and uplift/erosion processes. Some hill areas and riparian stretches with no apparent or recorded uses by humans display this condition.

Specific revegetation efforts planned within the CCMA are premature, since BLM has just begun this year with experimental revegetation research activities as part of the Atlas Mine Superfund project. We are unsure of the outcome of these revegetation trials, and given the estimated costs of this project, it may not be feasible to expect widespread application of this technology.

We have found that the natural recovery in most instances would provide the initial basis for plant re-colonization. This is based upon observations on protected sensitive riparian "inner gorge" areas in the Clear Creek canyon. BLM understands the need to protect this area's endemic species and biodiversity as a whole, however, and has added revegetation efforts as mitigation, as described in Chapter 4 under all alternatives.

Comment 3-29: "The EIS should describe the existing condition of the Clear Creek riparian zone, the effect that its juxtaposition with the County road has, and what effect current BLM management has on the overall health of the riparian zone. The EIS should give specific baseline information regarding species composition and density. The EIS should also discuss specific mitigation measures that BLM will implement to restore the Clear Creek riparian zone, success criteria for restoration, and effectiveness monitoring measures."

3-29 Response: The existing County road system has been maintained (graded) by the San Benito County Public Works Department. Recently, (within the last few months) the County has begun to re-assess their responsibility for the maintenance of this road network. It is our understanding that the County is in the process of terminating their road maintenance responsibilities.

The BLM does not have any more specific information regarding the impacts of the County road system on riparian ecosystems, other than that the historic road grading was contributing a significant amount of sediment into this sensitive area.

The EIS does contain a monitoring matrix for the preferred alternative which will investigate and review the conditions within the riparian areas. If site specific problems are identified during this riparian monitoring, we will incorporate appropriate BMP's to address the problem areas.

Discussion has been added to Chapters 2-4 of the final EIS which addresses the effects of road maintenance on riparian areas. Also included is a more detailed explanation of stream processes in the CCMA, and a description of mitigation measures which have been added to the FEIS regarding riparian impacts.

The DEIS (pg. 44) does discuss composition of plant species in the CCMA's riparian areas. The BLM does not have good baseline data on riparian species density. However, a riparian inventory of the entire Resource Area should be completed by 1997, a description of which has been included in Chapter 2 of the FEIS, "Measures to Protect Serpentine Riparian Habitats".

ROADS AND TRAILS

Comment 3-30: "... We urge BLM to consider impacts to resources, including riparian habitat, water quality, endemic species populations, and soil conditions, in addition to public health (e.g. closing trails with highly erodible/friable soils or soils containing high amounts of asbestos), when determining the fate of specific roads and trails."

3-30 Response: The road and trail inventory and route closure/rehabilitation efforts will be a important and vital part of the success of the implementation of this plan. The suggestions given above are all critical elements of this process and will be evaluated when this work is being conducted. The route inventory will be the first priority to be completed in the upcoming months.

Comment 3-31: "The EIS should discuss the nonpoint source pollution control measures that BLM will implement at staging areas to prevent erosion and runoff of sediment and other pollutants into Clear Creek."

3-31 Response: We are unaware of any problems from nonpoint source pollution originating from the staging areas. In general these areas were situated outside of the active Clear Creek floodplain on uplifted terraces. During the construction of these areas, the soil was compacted and a soil/dust stabilizer was applied. There appears to be little or no erosion that occurs in this area. However, if erosion or other nonpoint source water quality problems are found to be occurring here, BMP's or other appropriate measures will be taken to correct the situation.

Comment 3-32: "The EIS should clarify what the seasonal (or dry period) closure of roads in the CCMA would entail, describe how such closure would be enforced, and specify the kind of maintenance that would be conducted by BLM."

3-32 Response: Please reference additions in the FEIS which include discussion of closure. These will be found in Chapter 2, "Management Guidance and Determinations Common to all Alternatives". Maintenance requirements would depend on the alternative selected, and on whether the County abandons its maintenance responsibilities. At this time, we are working jointly with the County to administer a Green Sticker grant for road maintenance in Clear Creek. The type of maintenance funded under this grant includes road grading, dust suppression tests, and erosion controls.

LETTER # 4 - CALIFORNIA DEPARTMENT OF FISH AND GAME.

Comment 4-1: "Impacts to sensitive plant communities, including riparian areas, are not adequately characterized. No mitigation are proposed for impacts to sensitive vegetation (i.e. riparian) that would occur with alternatives 1-4."

4-1 Response: Selected beneficial and adverse impacts to riparian areas were stated in the Environmental Consequences chapter (pg. 80) of the DEIS, for the preferred action. The DEIS (p.80) also mentions actions that BLM would pursue under the preferred alternative that would reduce sedimentation into riparian areas such as the establishment of a 1/2 mile wide riparian corridor around Clear Creek where vehicle use would be restricted, and road stabilization and dust suppressant

efforts. While these actions are not included under a separate mitigation heading because they are considered part of the proposed actions and not mitigation for them, they are expected to reduce impacts to Clear Creek's riparian area under this alternative. In response to your comment, discussion of adverse impacts, mitigation, and residual impacts to special status species was augmented in Chapter 4 of the FEIS.

Comment 4-2: "Impacts to special-status animal species have not been adequately characterized and no mitigations are proposed for impacts that would occur under each of Alternatives 1-4."

4-2 Response: Comment noted. The FEIS has been revised to include these issues.

Comment 4-3: "...Panoche peppergrass, (Lepidium jaredii album) and the Indian Valley bush mallow, (Malacothamnus aboriginium) should be included on the list of special-status plant species. Potential impacts to these species under each of the alternatives should be determined and avoided or mitigated."

"Six other species, in addition to those indicated in the EIS, will be listed on list 4 (plants of limited distribution - a watch list): San Benito thorn mint, (Acanthomintha obovata); Andrew's bedstraw, (Galium andrewsii gatense); Guirado's goldenrod, (Solidago guiradonis); oval-leaved snapdragon, (Antirrhinum ovatum); San Benito morning glory, (Calystegia collina venusta); and San Benito fritillary, (Fritillaria viridea)."

4-3 Response: Thank you for pointing out the updated status of Indian Valley bush mallow. Table 4 in the FEIS has been updated accordingly. While BLM recognizes that the Indian Valley bush mallow is List 1B plant, BLM does not officially address it as a special-status species (see definition on page 45 of DEIS). BLM does however, whenever possible, make efforts to survey for and include in planning processes all species listed in the Inventory of Rare and Endangered Vascular Plants of California.

In the case of Panoche peppergrass, recent surveys on public lands have documented approximately 10 populations of this species, all on the San Joaquin Valley side of the Diablo Range and on a very specific soil type which has little potential to occur within the Clear Creek EIS project area. This information has been distributed to the California Natural Diversity Data Base and more detailed information could be made available to you by our staff if you are interested.

In the case of Indian Valley bush mallow, several new populations were documented in 1992 near Laguna Mountain where it appeared to respond well to fire. Because BLM does not have extensive knowledge of this species our botanist

recently discussed it's status with Dr. Dean Taylor (pers. comm. 4/24/94). As a result of this discussion and our staff's own observations, BLM believes it is appropriate to continue documenting occurrences of this species but not to treat it as one of special-status at this time.

Reference and discussion (in the case of San Benito fritillary) of the other six species mentioned in your letter was included in the DEIS (Table 4 & 5 and pg. 50) and BLM will continue to track the distribution of these species on public lands.

4-4) "The impacts analysis does not clearly state which species of sensitive plants would receive increased protection under alternatives 3 and 4. ... Should these protections, for example, extend only to eight or nine populations of the rayless layia, at least three of these species would then likely be regarded as a high priority for listing, possibly for emergency listing."

"Should alternatives 1-4 be adopted as the preferred alternative and implemented as presented, significant impacts to significant resources will continue to occur. It is not appropriate to assume that no impacts need be addressed for alternatives 1-4 because conditions would improve over the status quo with every alternative except Alternative 1. For each of Alternatives 1-4, significant impacts will result from implementation, and these impacts must be addressed as part of the EIS. Until these issues are addressed, this document is not adequate to meet the needs of NEPA."

4-4 Response: Impacts to special status plant species under each alternative in the FEIS have been revised in response to your comment.

LETTER # 5 - CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

5-1) "Citizens have put in writing many questions and comments about asbestos issues. Please provide copies of them to the EPA.

5-1 Response: We will contact the EPA to see if they are interested in receiving the asbestos questions and comments which have been raised during the Clear Creek EIS effort.

5-2) "...Alternative four as currently written encourages concentrated use in areas with higher levels of asbestos concentrations. The asbestos levels in soils range from 5% to 90%."

5-2 Response: Our data indicate that asbestos concentrations in the ACEC are fairly uniform and evenly distributed. While some areas in the Clear Creek do contain higher levels of asbestos, these are generally found in the abandoned

mined areas, where the native soils and rock have been refined and processed. We are not allowing OHV use on the loose mine tailings and mine wastes.

LETTER # 6 - STATE LANDS COMMISSION LETTER

6-1) "The proposed project area includes four State-owned School Land parcels under the jurisdiction of the SLC. Proposed development located within these lands are subject to the SLC's permitting process and the Commission would be a Responsible Agency under the California Environmental Quality Act (CEQA)... Specific development involving these lands should be reviewed by the SLC to assure that development is consistent with State interests."

6-1 Response: BLM's EIS alternative maps clearly identify the State land you mention. We are not proposing any development or land use changes on these lands.

LETTER # 7 - CALIFORNIA WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION

This letter was received after the comment period had closed. All comments therein, however, were reviewed, and found to mirror concerns raised by the EPA. Please review responses to the EPA, comment letter 3, subcategory "Water Quality".

LETTER # 12 - SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

12-1) "The BLM should be aware of the SJVUAPCD's ongoing efforts to reduce PM-10 emissions. District Regulation VIII, Fugitive Dust Requirements For Control Of Fine Particulate Matter, was adopted on October 21, 1993 and became effective on December 10, 1993...The SJVUAPCD is also in the process of developing a Serious PM-10 Non-attainment Area Plan for the San Joaquin Valley Air Basin. This plan may result in additional control measures that could impact the Clear Creek Management Area in the future."

12-1 Response: It is our intention that this RMP amendment meet existing SJVUAPCD requirements for control of PM-10 and any future proposed rulemaking for the improvement of the air quality in the San Joaquin Valley. Our agencies should coordinate during the formulation of the proposed rules to incorporate appropriate measures that can be applied to the management of public land.

LETTER # 15 - STANFORD UNIVERSITY - CENTER FOR CONSERVATION BIOLOGY

BLM appreciates your comments regarding serpentine's global biological significance. As such, we have modified the vegetation description in the Affected Environment section of the FEIS to include portions of your comment.

15-1) "As documented in the EIS, three special status animal species are found within the CCMA. In light of statewide decline of these species, the protection of populations within the CCMA is critical to their preservation. In the case of the foothill yellow-legged frog-- numbers of which have plummeted in central California-- presence in the CCMA should mandate protection of the riparian areas."

15-1 Response: Currently populations of yellow-legged frogs appear to be large and reproducing well. The selected alternative would allow for continued improvement in the condition of the CCMA's riparian and wetland habitat. Additionally, BLM would strongly support Stanford or other institutions' efforts to study and collect further information on these and other herpetological populations in the CCMA.

15-2) A strong possibility exists that both red-legged frogs and California tiger salamanders, ..., inhabit the area."

15-2 Response: Due to your comment and similar ones made by other reviewers of the DEIS, the FEIS discusses these taxa in Chapters 2-4 and discusses the potential that other taxa such as these occur in the CCMA. In brief, that potential is low because the few pools that occur in the CCMA are surrounded by chaparral and these species were not observed during searches for them in the most likely pools in 1993. However, the protection which will be given vernal pools and streams in the CCMA, under the selected alternative, should allow for the continued existence of all aquatic amphibians and reptiles in the CCMA.

15-3) "State-wide, vernal pools have been decimated by agriculture and other human uses. These seasonal pools support unique biotic diversity, and it is likely that investigations targeting the pools remaining in the CCMA will identify a host of unusual, and probably endemic, organisms."

15-3 Response: In Chapter 3 of the DEIS, the importance of vernal pools remaining in California is noted. BLM is not aware of any pools which have been eliminated in the CCMA. While BLM will not likely be able to study these pools in the near future, universities such as yours are encouraged to do so.

15-4) "Because of close associations between plants and invertebrates, such as Lepidoptera, the unique flora of the CCMA is virtually assured to be accompanied by equally unique and diverse invertebrate species assemblages. Unfortunately, the biotic diversity of the area in question has not been adequately investigated and it is likely that numerous organisms at risk of extinction inhabit this biologically important region."

15-4 Response: To date, BLM files do not contain information on the invertebrates that inhabit the CCMA. After receiving your comment BLM has made a brief inquiry as to the potential of special status invertebrates to occur in the CCMA. Discussion of invertebrates has been added to Chapters 2-4 of the FEIS.

In the future, BLM would welcome Stanford's research efforts and professional input regarding the CCMA'S unique values.

LETTER #16 - HARVARD UNIVERSITY

16-1) "... the use of estimated cancer risk figures to distinguish among the CCMA management alternatives is unjustified because the underlying science is speculative. Table 3 in the Draft Plan, as well as much as Appendix B, develops risk figures that are not justified or substantiated by scientific research. There are so many unknowns, assumptions, and oversimplifications contained here that the resulting numbers are not a useful guide to public policy.

16-1 Response: The methods used to estimate asbestos health risks in the CCMA were developed using standard guidance manuals written by the EPA. These types of risk assessments typically contain uncertainties, since not all the environmental, chemical and medical interactions are precisely known. The initial scientific evidence linking human health risks to asbestos exposure was made many years ago, but may be refined as new studies are conducted.

Public policy is, in many cases, determined by the existing laws, regulations and their application in specific situations. There are regulatory requirements pertaining to asbestos currently in effect, and the EPA has taken actions to protect human health from asbestos exposure on several Superfund sites.

16-2) "...In particular, use of OSHA asbestos fiber levels for non-occupational exposures represents a misunderstanding and misuse of these standards. There is no epidemiological evidence suggesting human cancer risk due to non-occupational exposure to chrysotile asbestos (Kane, 1993)."

16-2 Response: BLM's employees comply with the OSHA asbestos regulations, and we use this as an appropriate standard to regulate public exposure. BLM's air

monitoring has indicated that depending upon the activity and soil moisture conditions, airborne asbestos concentrations in the CCMA can exceed occupational standards.

LETTER # 19 - BIOSYSTEMS ANALYSIS

19-1) "The hillslopes and serpentine barrens in the Clear Creek watershed have not been systematically surveyed for L. discoidea populations, therefore it is not possible to ascertain potential impacts of alternatives that permit unrestricted use. The Final plan should not allow for un-restricted use of serpentine barrens, or significant impacts to this Category 2 Federal candidate. Until better information is available, open unrestricted use should be avoided. ...permitting areas open to unrestricted use could lead directly to the requirement to list L. discoidea as Endangered and for this reason the Final plan should eliminate any open areas within the range of L. discoidea."

19-1 Response: The FEIS has been augmented with a more detailed assessment of the current status of the rayless layia (layia discoidea) and in part due to this assessment as well as other resource concerns, the preferred alternative (Alternative 3 in the Final EIS) includes the conditional closure of all hill slopes.

19-2) "A hybrid alternative permitting OHV use only on marked, monitored and managed trails and roads is the only management that can comply with the requirements of the Endangered Species Act. Alternatives 1, 2 and 3 fail to meet the requirements of the Endangered Species Act."

19-2 Response: BLM and USFWS have agreed that the preferred alternative, as described in the FEIS, is in compliance with the Endangered Species Act.

19-3) "...serpentine terraces upon which C. benitensis depends are severely degraded, their topsoil eroded. There is no demonstrated evidence that these sites can be rehabilitated as C. benitensis habitat. Therefore all terraces must receive protection in any final plan in order to insure the continued survival of C. benitensis."

19-3 Response: Under the FEIS' selected alternative, all terrace habitat not already eliminated by county roads, major OHV routes which are approved to stay open, or staging areas, will be set aside for the habitat needs of the primrose. This and other protection efforts agreed on by USFWS and BLM should ensure the continued survival of the primrose.

LETTER # 20 - CALIFORNIA ENDURO RIDERS ASSOCIATION

20-1) "...The PTI document also states that erosion is caused by rainfall on the roads, trails and undisturbed areas. Therefore, even if all the roads and trails were closed, there would be no significant improvement in erosion unless the closed roads and trails were rehabilitated back to their original, undisturbed states."

20-1 Response: When highly erosive routes are closed, there should be a significant improvement in the existing conditions, because impacts from road grading to riparian areas and rare plant habitat would be reduced. In addition, within riparian zones and rare plant habitat, and on steep unstable slopes, closure and rehabilitation should significantly reduce erosion damage in these sensitive areas.

20-2) "...What is the ambient air concentration of PM-10 particulates at Clear Creek? How does this compare to ambient EPA air quality standards?"

20-2 Response: The PM-10 emission values have been estimated using California Air Resources Board Methodology, however, no actual air monitoring has yet been done. Based upon these emission estimates, it is possible that State and Regional PM-10 standards are not being met. The FEIS has been revised to reflect this (See Affected Environment). These emission estimates are available upon request.

20-3) "We believe that the inclusion of Alternative 6 (enhancement of natural values) is a clear violation of NEPA practices and policy. This alternative, which prohibits OHVs, is designed to manage the area for **research and resource preservation.** Combinations of the other alternatives which preserve OHV recreation can clearly meet the purpose and need of the EIS stated on page 4 of the draft EIS."

20-3 Response: Since part of the reason the EIS was needed was to update specific decisions for watershed conditions and rare plants and since Alternatives 6 provides for the maximum rare plant protection and watershed rehabilitation efforts offered by any alternative, BLM believes this alternative is clearly a reasonable one and within the appropriate scope of the EIS.

Comment 20-4) "A key component of any EIS is the opportunity for public participation, yet this EIS fails to report the results of the public participation efforts. Please describe in depth:

a) the numbers of people participating in the effort;
b) the number of written comments received to date addressing this EIS;
c) the percentage of public input received that supports the significant reduction of OHV opportunity prescribed by the preferred alternative;

d) the percentage of public input received that supports preserving, enhancing or expanding OHV opportunity at Clear Creek;

20-4 Response: Chapter 5 of both the Draft and Final EIS documents public participation, and reflects a determined effort by the BLM to include the public throughout the EIS process. The information requested in a) and b) may be found in the opening paragraphs of Chapter 5 of the Final EIS. Most people supporting OHV restrictions were in favor of even greater restrictions (Alternatives and 6). Most of those in favor of OHV opportunities at Clear Creek were in favor of Alternatives 1 or 2. We received a tremendous number of comments on both sides, but as you are aware, the outcome of an EIS process is neither pre-determined nor based upon a "vote". The final decision is based upon resource concerns, use compatibility, initial analysis of impacts and re-analysis based upon valid comments pointing out discrepancies and/or errors.

LETTER # 21 - CALIFORNIA NATIVE PLANT SOCIETY - MONTEREY CHAPTER

21-1) "The eastern half of the CCMA has had very light OHV use until this time...Encouraging OHV access to these areas without thorough inventory of existing or potential habitat and inclusion of this inventory in the EIS is not acceptable..."

21-1 Response: Most of the sensitive habitat that we know of is in Clear Creek Canyon and much is located on or near the serpentine barrens. Based upon this and user preference for a dispersed trail system, we feel that we can best meet resource management objectives by reducing the acreage of open hillclimbs, and by implementing a designated route system outside Clear Creek Canyon, using already established trails.

Routes approved for vehicle use in the eastern portion of the CCMA will be inventoried and selected in such a manner that sensitive habitats and special-status species will be avoided or minimally impacted. Please refer to the discussion of the route inventory in the FEIS, "Management Guidelines and Determinations Common to All Alternatives".

LETTER # 22 - CALIFORNIA NATIVE PLANT SOCIETY - SACRAMENTO CHAPTER

22-1) "It was unclear from the DEIS whether the CNPS Inventory of Rare and Endangered Vascular Plants of California had been consulted to determine sensitive

plant species occurrences in the CCMA, particularly in the areas to be left open to OHV use.

22-1 Response: Tables 4 and 5 in the EIS include all special-status plant species known or suspected to occur in the CCMA according to BLM files, the California Department of Fish and Game's Natural Diversity Data Base, as well as the 1994 CNPS Inventory.

22-2) "Although the preferred alternative is presented as "restricting" OHV use, the DEIS states that group OHV events would continue to be allowed in restricted areas on a 'permitted' basis (page 96). What will be the actual OHV use intensity under alternative 4?

22-2 Response: Under Alternative 4, OHV use will diminish to some extent, as described in the impact analysis section. Allowing OHV events on a permitted basis would not significantly alter overall OHV use figures, but would allow a traditional use of the CCMA to continue under carefully regulated conditions.

22-3) "The DEIS (p. 90) also states that under the preferred alterative, continued OHV disturbance would cause an increased lung cancer risk...Is it reasonable public policy for the BLM to promote an activity that is known to cause cancer? What are the effects on wildlife species in the area"

22-3 Response: BLM recognizes the freedom of an individual to make choices about where to recreate. Theoretically, any activity in Clear Creek could increase one's risk of developing cancer. Therefore it is not reasonable to exclude a use based on this criterion alone.

Because asbestos related diseases take many years to develop, it is suspected that asbestos does not affect wildlife to any great extent, given the much shorter life span of wildlife than of humans. No data is available on the effects of asbestos on wildlife, however.

LETTER # 23 - DESERT SURVIVORS

23-1) "Why do you need a plan amendment in an ACEC? You...have the authority to make special management decisions to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to provide safety from natural hazards" (under the authority provided by FLPMA for the establishment of ACECs).

Response 23-4: The plan amendment affects all lands lying within the Clear Creek Management Area. An amendment is required because we could be significantly altering the management prescription for the entire area, based upon new

information and upon regulatory constraints. In addition, the boundaries of the ACEC and of the San Benito Mountain Research Natural Area were analyzed for expansion. An expansion, alteration, or any new designation also requires an amendment to the RMP.

The Serpentine ACEC was designated in 1984, to protect watershed values and in recognition of asbestos-related health hazards. It was also designated to protect sensitive plant habitat. In part because we did not feel that these concerns were being addressed adequately under current management policy, we initiated the RMP Amendment process. Under NEPA and FLPMA, BLM is required to review existing land-use plans and amend them as necessary. The preparation of this EIS is mandated under NEPA to provide for full public involvement in the decision making process.

23-1) What is the role of the EPA in this whole process? (comment summarized - not original verbiage)

23-2 Response: The EPA has several roles. Firstly, under authority given under the Clean Air Act, the EPA reviews all federal EIS's for adequacy. If it is determined by the EPA that an EIS is inadequate (for reasons such as inadequate impact analysis, resource issue discussion, analysis errors, etc.), then the preparing agency is requested to re-do problem sections. If the concerns are still not addressed to the EPA's satisfaction, then the EIS is sent to the President's Council on Environmental Quality, where it is decided whether or not the document fulfills the requirements of NEPA. Secondly, the EPA has a filing role, whereby the EPA puts notice into the Federal Register for each federal EIS. Thirdly, it has a cooperating agency role. Under this role, it has either or both "jurisdiction by law", and "special expertise". Because of its authority under the Superfund Law, it has jurisdiction to veto or approve all or portions of the Clear Creek Plan. It has "special expertise" because of its statutory responsibility under the Clean Air Act.

The primary concerns of the EPA for this EIS are the reduction and possible elimination of asbestos dust emissions in the Clear Creek Management Area, and keeping people out of the Superfund areas. If they determine that under the selected alternative the measures enacted do not go far enough, the EPA can veto the plan.

LETTER # 29 - SIERRA CLUB-TEHIPITE CHAPTER

29-1) "Does the BLM have plans for promoting research in the area?"

29-1 Response: Yes. We plan to do this by developing joint agreements such as Cooperative Management Agreements, and/or by providing supplies and materials to academic institutions or non-profit organizations.

LETTER # 31 - ALBERTS, A.

31-1) "Some good information in documents such as the Clear Creek erosion study (PTI 1993) and San Benito Soil Survey which discusses natural causes of erosion in the CCMA is not noted in the DEIS. Why?"

31-1 Response: The EIS does note the influence of natural causes on erosion processes in the CCMA (see Affected Environment Chapter under Watershed Resources section). The 1993 Clear Creek Erosion Study conducted by PTI is the most detailed report on sedimentation in the CCMA and this report is summarized in Chapter 4 of the DEIS.

31-2) (The) "FEIS states on page 22 that under Alt. 4 "the SBMNA would be expanded to the same boundaries as under Alt. 3." The maps as well as Table 1 indicate this statement is incorrect."

31-2 Response: Thank you for noting this error in the DEIS. The new preferred alternative (Alternative 3 in the FEIS) and Alternative 4 in the FEIS, however, have exactly the same acreage for the San Benito Mountain Research Natural area. No revisions to acreage have therefore been made.

31-3) "Alts. 3 & 4 contain this same land (transition to off serpentine) in the SBMNA (as Alt. 6) but they only state: "This transition area may have important research values".

31-3 Response: Thank you for noting this omission. The FEIS has been revised to correct this.

31-4) "Page 47 lists 19 primrose populations(15 on public lands). Pages 73,79,84,91 state all 14 populations on public lands in the CCMA would be protected. Page 103 states protected populations would increase from 1 to 17. These numbers should be more consistent."

31-4 Response: Page 103 of the DEIS should have read "14" instead of "17". Thank you for noting this error. The FEIS will show it as corrected. The other pages are correct. There were 19 known populations when the DEIS was written (thus page 47 is correct) but only 14 of those are on public land and within the CCMA (thus the other pages are also correct).

LETTER # 45 - CORNO, J.

Comment 45-1: "I am in escrow on a 160 acre piece of land within the Clear Creek Management Area. The parcel is near the natural area and is located between the Santa Rita and San Benito mountain relay towers. From attending the various meetings and county supervisor meetings, I am concerned of the ability to access my future property. I am also concerned with the use thereof as well."

BLM Response - 45-1: The BLM has no intention to deny access to private landowners who hold land within public land boundaries; however, maintenance of existing roads will become an even greater challenge than it is now, if San Benito County abandons maintenance of the County road system in Clear Creek. The BLM is currently investigating other ways to maintain roads, and it may request assistance via small-operator contracts with adjacent landowners to maintain the road network. As described above, the road network open to vehicles will alter somewhat, dependent upon the route inventory, but determination of the final route network open for public use will include planning with the local landowners.

LETTER # 130 - TOBIN, E.

130-1) "According to your GIS information, there are only 65 miles of roads and trails within the Clear Creek watershed. Page 94 indicates that 119 miles are the minimum needed for week-end activity. Please correct the number and breakdown the mileage by motorcycle only vs. 4-WD vehicles."

130-1 Response: The mileages reflected under each alternative are not absolute, but are provided to give the reader an approximate understanding of the differences between each alternative. An "Off-Highway Vehicle" for a weekend activity as referenced on page 94 refers to all motorized off-road vehicle use, and the 119 miles includes the mileage outside the Clear Creek watershed as well as inside the Clear Creek watershed. As described under this draft alternative, only 4WD vehicles would be accessing the roads and trails outside the Clear Creek watershed.

However, in response to user comment and our re-analysis, the final EIS preferred alternative (now Alternative 3) has been modified to allow OHV use on a designated route system throughout all watersheds.

130-2) "Please define the terms OHV and 4WD..."

130-2 Response: The definitions used for OHV and 4WD have been added to the FEIS in Chapter 2. Clarifying wording has also been added to all alternatives in which restrictions of OHV use are proposed.

130-3) "Please define the term "balanced management" given the fact that the CCMA has been designated an OHV recreation area. Also describe what weighting OHV use is assigned compared to all other factors that need to be balanced."

130-3 Response: While Clear Creek has areas within it which are designated open or limited for OHV use, Clear Creek is not an "OHV Recreation Area" per se. The words "balanced management" are part of BLM's mission statement. On page 4 of the DEIS there is a detailed history of the various uses and designations for the CCMA. Also Appendix A details the numerous regulatory guidance that BLM must follow in its land-use planning decisions.

Balanced management does not mean that all uses will be authorized on any given parcel of land. Management determinations are based upon consideration of all uses and resource concerns. Management strategies can change over time, given new and/or better information and given the state of the resources. As described in the Purpose and Need section of Chapter 1, the BLM determined that the new information regarding the San Benito evening primrose, and the continued health and safety concerns over asbestos warranted a reanalysis of the management of the Clear Creek Recreation Area. Public desire for continued OHV use in this area is an important factor in this reanalysis; however, this use must be compatible with resource concerns and regulatory standards.

130-4) "In the FRMP, please identify the negative effects to health that would result from a much smaller, more concentrated use area where accidents will be 'more prevalent'".

130-4 Response: The potential negative health effects are identified in the "Environmental Consequences" section of the DEIS, under both "Impacts to Recreation, and Impacts" to "Air Quality and Human Health".

130-5) "Pg. 18, #4, In the DEIS please explain the statement "Expand the San Benito Mountain Natural Area to include a cross section of resource management decisions."

130-5 Response: This sentence was in error and has been revised in the FEIS.

130-6) "Of the 25% of trees that have disappeared, how many were cut down while alive, and how many succumbed to age, disease or soil compaction and subsequently fell or were cut down? How does this rate of loss compare with other areas of Clear Creek where human impacts are less?

130-6 Response: BLM lacks the data to answer your question. However, BLM's main concern is that trees are being cut down illegally by the public and whether

they are alive or dead when cut, their removal results in soil erosion, loss of wildlife habitat and seed source (if alive) for new trees, and a reduction of the visual aesthetics of the area.

130-7) "In the FRMP, please explain how OHV use is preventing vegetation growth on barren slopes that are historically barren based on photos back over 60 years, long before the 1st OHVer put a track on them."

130-7 Response: The adverse impacts to vegetation from vehicle use on serpentine barrens are described on pg. 74 of the DEIS.

PART C. LETTERS GROUPED INTO COMMON THEMES

Many commentors expressed similar concerns about the issues covered in this EIS. To facilitate response, all substantive, yet essentially identical, comments were grouped into the following categories:

1) Access;

2) Asbestos and Health Risks;

3) Economics;

4) Implementation (this category had several subcategories including: a) Existing Use Designations, b) Enforcement, c) Roads and Trails, and d) Costs);

5) NEPA Compliance;

6) Plant Communities;

7) Recreation;

8) Riparian Areas and Vernal Pools;

9) San Benito Evening Primrose;

10)San Benito Mountain Natural Area;

11) Special Status Plants (other than San Benito evening primrose);

12) Watershed and Erosion; and

13) Wildlife.

To find where and how your letter was answered, please locate your agency name in Table 10 or your last name (alphabetical order) in Table 11, and note your letter number. Then refer to the matrix of categories in Table 12, to see if your letter was grouped into any one of the above categories. Look for your letter number next to each category. One letter may be referenced several times in the matrix. Please check for your letter in Part B, as well, as portions of your letter may have contained unique comments which are answered (in numerical order) in that section.

If you do not find your letter number referenced in the matrix, then either it contained ideas about future management, which are summarized in Part D of this chapter, and to which we did not respond individually, or it did not contain a substantive comment to which we could respond either individually or in a grouped response.

Access

Comment Access-1 "...particularly concerned about the closure of access to the Aurora Mine and the Sampson Mine that appears to be taking place under alternative #4. These areas have been a valuable source of material for the Lapidary arts for many years. The people who visit these areas are of advanced age for the most part and are not capable of visiting the tailings piles of these mines without use of 4WD vehicles....Nationwide, governments make special parking areas for the handicapped individual. It is my sincere hope that you and your agency will do no less in planning for the needs of the rockhound, many of which (sic) possess a handicapped decal on their 4WD vehicle."

BLM Response - Access -1 : The Clear Creek Management Area has an abundance of roads and trails. In addition to County roads, there are old fire roads, mining roads, and traditional motorcycle and ATV trails. Not all of these routes can sustain intensive or even light vehicle use. Our agency will be implementing a route inventory in the near future to assess the condition of these routes and, subsequently, make recommendations as to which roads and trails should be left open and which should be closed. The criteria for making these decisions will take into consideration access needs of both the public and BLM staff, feasibility for maintenance and repair, resource conditions, and the number of existing routes. We have amended the final EIS to include mitigation measures which will allow access for vehicles displaying handicapped decals and/or plates, to designated rockhounding sites, if routes to those sites are otherwise closed.

Additionally, our agency would welcome input from those concerned about access for future decisions in this area.

Asbestos and Health Risk

Comment Asbestos and Health Risk - 1: The recommendation for seasonal closures is weak because the BLM's health risk assessment suggests there is no correlation of health risks and seasonality of use.

BLM Response - Asbestos and Health Risk - 1: The seasonal closure use restriction is based on a combination of factors such as airborne asbestos emissions, actual public use during these periods, and the potential danger for wildland fire. The PTI technical report you cite actually states on page 17: "...The lack of correlation between asbestos concentration and season probably results from variability or absence within a given month of critical factors (i.e. soil moisture, wind speed, and the presence or absence of

precipitation) that would influence asbestos concentrations in air. Thus it appears that season (i.e. month) cannot be used as a predictor of ambient asbestos concentrations in site management". It is for this reason that the BLM has also proposed to include restrictions of use during the normal wet period if airborne asbestos concentrations exceed the OSHA action level of 0.1 fibers per cubic centimeter.

Economics

Comment Economics - 1: Adoption of Alternative 4 will negatively impact local stores and businesses which are currently benefitting from our business. How can it be stated that this document rigorously explores and objectively evaluates all reasonable alternatives when no studies have been conducted to determine the economic impact? You should also specify the costs to other areas which will be absorbing any displaced OHV recreation use, and you should identify costs associated with the asbestos reduction program - unreasonable costs are not acceptable public policy.

BLM Response - Economics 1): We used data from two recent Statewide surveys on OHV recreation (as referenced in the DEIS) to generate our estimates on the economic impacts of OHV activity on the local communities. We did not do an in-depth cost-benefit analysis of our range alternatives, because the staff time and funding required to do such an analysis made it impractical for the scope of this study.

We obtained two other studies (see amended bibliography under State of California), after the draft EIS was printed, and the numbers reflected therein are quite close to our original estimates. Based upon this finding, we did not make any revisions to the Final EIS. These reports are on file at the BLM office and are available for public review.

As we cannot predict with any reasonable certitude where, and in what numbers, any displaced OHV users might choose to recreate, we did not feel that it would be supportable to make estimates as to the costs to other areas of absorbing Clear Creek OHVer's. The implementation costs for each alternative include estimates from our OHV grant requests for asbestos abatement. These grant request proposals are kept on file by the BLM and are available for public review.

Comment Economics - 2: Green sticker monies should pay for resource protection, ranger patrols and enforcement rather than on uses that do not benefit OHV users.

BLM Response - Economics 2): The Green Sticker program provides funds for rehabilitation and restoration work, for law enforcement, and for mitigating environmental damage caused by OHV use. We routinely work these elements into our yearly grant requests. Please also refer to topic "A" of the form letters summarized at the beginning of this chapter.

Implementation

1) Existing Use Designations

It is unclear from BLM maps and signs what difference exists between "Closed", or "C" areas, and "Limited Use", or "B" areas. This confusion is augmented by having a vehicle corridor through a "closed" area (San Benito Mountain Natural Area), by inadequate or non-existent signing of open and closed areas and routes, and by lack of dollars to maintain fences or enforce closures.

BLM Response - Existing Use Designations - 1): Definitions of these designations for OHV have been added to Chapter 2 of the FEIS. Alternative maps have been clarified where possible for the Final EIS. We will endeavor to clarify future editions of the Clear Creek map. Routes through natural areas can be designated by the "authorized official", (CFR 43, subpart 8342.1, (d)). These routes in effect become limited use corridors through a closed area. The Ridge Route through the Natural Area is an example of a limited use corridor through a closed area.

2) Enforcement

2-a) Enforcement measures which would be used to ensure protection of the area's natural resources need to be specified.

BLM Response - Enforcement 2-a: While specific enforcement measures would depend upon the alternative selected, the BLM would use a combination of the following to ensure protection of natural resources and compliance with the selected alternative: 1) Uniformed presence, including a full-time delegated law enforcement ranger; 2) Barriers, fences or other physical closures to protect sensitive resources; 3) Peer pressure through the use of volunteer patrols (such as the newly formed "Friends of Clear Creek"); 4) printed reminders such as maps, fact sheets and signs; and 5) Administrative closures if compliance could not be achieved. Please refer to the FEIS, under "Management Guidance and Determinations Common to All Alternatives" and review the new section entitled "Enforcement".

2-b) "Limited" and "closed" areas are often treated as "open", with motorcycles and other OHVs travelling cross-country or playing on slopes not open to that use. The BLM documents in the draft EIS that enforcement is a problem. How will an alternative that will rely on more money and increased enforcement succeed?

2-c) Over the years, the BLM has been trying to implement various plans and has been working with the motorcycle groups to try to enforce the current restrictions. Not only has the BLM failed to designate routes as described in these plans, but it acknowledges that the current restrictions are not nearly sufficient to attain minimal compliance with their legal mandates to protect soils, water, and special status species. Given its ability to implement previous plans, how can there be any hope of implementing the new plan and gaining compliance?

BLM Response - Enforcement 2-b and 2-c: The BLM tracks RMP decisions and selects certain measures to be implemented every year. Implementation of decisions made for Clear Creek has been hindered by limited funding and staffing, and by legal issues. One of the hurdles has been the designation of routes, which you mention in your comment. The route inventory discussed in the Final EIS is a major step forward, which will greatly assist us in enforcing and implementing decisions for Clear Creek. We are fortunate that San Benito County and the OHV Commission are willing to work with us to use a portion of an OHV grant for this purpose. Using the results of this inventory, we feel confident that implementation of an alternative which allows dispersed vehicle use of the CCMA while limiting use of sensitive open areas, will encourage voluntary compliance by the users. Resource damage should be minimized and eliminated in some areas, health concerns should be minimized, and users would still be able to access the remote areas of Clear Creek which they prefer.

3) Roads and Trails

3-a) Routes to be open, limited or closed under the preferred alternative were not demarcated in the draft EIS, nor were any criteria identified for how these choices were made, making it impossible for the reviewer to judge the merits of the proposed plan. Similarly, OHV corridors through the Canyon were discussed but not identified or enumerated - where will they be, and do they avoid sensitive habitat? What inventories with regard to T&E, riparian and erosion potential have been performed to substantiate these decisions, since no systematic survey data are included in the draft EIS? Is the BLM complying with Executive Orders and regulations regarding the monitoring of OHV use?

BLM Response 3-a) This level of planning does not lend itself to identifying specific sites for route designation. In the near term, our agency will be implementing a route inventory to assess the condition of all routes in the CCMA. Please refer to Chapter 2, "Management Guidance and Determinations Common to All Alternatives", for a discussion of this inventory and what criteria will be evaluated in recommending opening or closing a route. These recommendations will be implemented in the revised Activity Plan for Clear Creek. The BLM monitors OHV and resource conditions, and this EIS process was initiated in part because of documented OHV damage to resources, including those of the Natural Area.

3-b) Closure, restoration, rehabilitation of County roads such as Clear Creek Road is clearly an alternative which could reduce many of the erosion and sensitive plant problems discussed in the EIS, yet County Road closures were never discussed in the EIS. Nor were any costs for restoration of roads discussed, making erosion estimates and implementation schedules suspect. Can OHV monies be used to rehabilitate roads? Will sidecast materials be used to rebuild the roads?

BLM Response 3-b): Closing Clear Creek Road is not a viable option at this time, because it provides the major through access to the CCMA. It is important from an administrative viewpoint, both in terms of emergency services and in terms of accessing other roads for various work projects. This road also is the main access road for most users. Closing and restoring roadbeds that are erosion problems can be a very long process and very costly due to the labor intensive nature of this work. However, this land-use plan will be implemented over a ten to fifteen year schedule, which should allow time for the majority of the road and trail closures and restoration work to be completed. We believe that the erosion reduction figures used in the EIS, based upon planned road closures, are reasonable estimates. The BLM is working with the County to administer an OHV grant for road maintenance in Clear Creek. Sidecast materials will be used to rebuild roads where feasible.

3-c) The BLM needs to identify areas where street legal vehicles, including motorcycles, will be able to go within the CCMA, especially as there is a legal problem with prohibiting street legal motorcycles on routes open to other public vehicle use.

BLM Response 3-c) Street legal vehicles are allowed to use the County Road network, and would continue to be able to do so if the County maintains jurisdiction over that road network. The BLM has the mandate to determine which types of uses are compatible on public lands, and may close an area to certain uses if it is determined that those uses are degrading resources significantly. In the CCMA, the County Road system is open to all street-legal

vehicles, and thus the BLM cannot exclude street-legal motorcycles from it. However, the County road system may be abandoned by the County, and if this occurs, the BLM will have jurisdiction over the type of vehicular use the roads may receive.

3-d) The BLM should evaluate alternatives for management should the County Road system revert to the BLM, and the BLM should evaluate costs associated therewith.

BLM Response 3-d: If the road network reverts to the BLM, then we will manage the roads and trails to meet the objectives of the selected alternative, using the results of a road/route-related erosion inventory currently let for contract. A description of this inventory may be found in the FEIS, under "Management Guidance and Determinations Common to All Alternatives".

4) Implementation Costs

4-a) If funding is simply not available for implementing the adopted alternative, the BLM should have an "escape plan", and should document this in the final EIS.

BLM Response 4-a: While we do not advocate blanket closures as a management tool, if we cannot gain compliance and work with users to implement some of the proposed measures with available funding and staffing, closures will likely result. This has been highlighted in the final EIS, Chapter 2, "Management Guidance and Determinations Common to All Alternatives".

4-b) Closure of the CCMA to OHVs will not increase the cost of managing the area, and to expect non-OHV taxpayers to pay for OHV access that is destroying the area is ridiculous.

BLM Response 4-b): Costs for managing the CCMA if OHV use is discontinued will decrease significantly, as indicated in the Table comparing all alternatives, but some costs will remain. These costs will include extensive rehabilitation of roads and natural systems.

Under the preferred alternative, however, OHV use continues, and commentors should note that funding for the OHV program in California comes from two primary sources. The first is the dedicated OHV fund. The second source is the public treasury of the Federal Government. The general treasury supports management of all publicly-owned lands, and therefore supports a wide range of management and recreation. In effect, all federal taxpayers support all recreational activities on public lands, regardless of whether or not an individual participates in a particular activity.

4-c) "...the current Clear Creek plan has never been fully implemented. Why it was never implemented .... is relevant only in that it indicates the ability of any plan to be implemented....what guarantee is there that all plan elements can be funded and implemented?"

BLM Response 4-c): Every effort is made to achieve the goals set out in an adopted plan, and each fiscal year certain decisions from a plan are targeted for implementation. However, there is no guarantee that all elements will be funded and/or implemented. We recognize our responsibility to develop alternatives which reflect valid estimates of funding and management requirements. However, funding cycles and staffing levels in any given year can vary significantly, making certain elements of a plan unfeasible or impractical. Implementation of the adopted plan will be a priority, and we are confident that our preferred alternative, with the changes noted in the Final EIS, will not only be feasible to implement, but will also have wide compliance.

4-d) Can you please explain the large savings in implementation costs of Alt. 5 & 6, over Alt #2, 3 & 4.

BLM Response 4-d) Alternatives 1-4 implementation costs were based on preliminary information developed for a 1990 OHV grant application for "Green Sticker" funding. The reason Alternatives 5 & 6 implementation costs are lower is that the mitigation costs associated with OHV use have been deleted.

NEPA Compliance

Comment NEPA Compliance -1: The EIS fails to address adequately both direct and cumulative impacts of displaced use on other areas and on the environment outside of Clear Creek environment, including adjacent public lands which could possible become wilderness. In addition, visual impacts of the alternatives are not adequately addressed.

BLM Response NEPA Compliance - 1): In the DEIS, the BLM projected that there would be some impact to the nearby Hollister Hills State Vehicular Recreation Area, which could possibly increase congestion there. However, because the BLM has no defensible method to predict where, or in what numbers, users would be displaced to other areas, we did not analyze or further attempt to quantify these impacts. To do so would be outside the reasonable sphere of foreseeable future impacts which could result from the implementation of management changes in Clear Creek.

To consider impacts on an area not yet nominated or designated wilderness is also beyond the scope of this study, especially as the stated purpose of this

EIS was to review land management decisions for the Clear Creek Management Area. Management plans for lands recently consolidated into public ownership are currently in progress. Any lands which could meet the wilderness nomination criteria will be considered for wilderness designation during the development of management alternatives for those areas.

Most of the Clear Creek Management Area is designated a "Class III" visual area, with the exception of the San Benito Mountain Natural Area, which is designated as a "Class I". Under a Class I management category, management activities should be minimal, with maintenance of the natural landscape being the primary objective. Under a Class III management category, the natural landscape may be modified, but any development should still be subordinate to natural surroundings. These categories are used primarily to evaluate the impacts of potential development projects (such as mining, power lines, pipeline, etc.) on a given landscape.

When this EIS process was initiated, visual impacts were determined to be outside the scope of analysis. In response to your comments, however, this issue has been revisited. We determined that since the revision of the RMP does not involve a development project, and since the alternative selected will ultimately enhance the aesthetics of the entire area because of a reduction of open play areas and a reduction of trespass into the Natural Area, there would be no significant visual impacts resulting from the implementation of the selected alternative.

Comment NEPA Compliance - 2: Alternative 6 falls beyond the scope of the study because it does not meet the stated purpose and need of the EIS. The range of alternatives should include one which closes Clear Creek to OHV use. Also the scoping process did not identify a need to enhance research and resource preservation, so why were alternatives developed which focus on these issues? What was the rationale for expanding the Natural Area? This appears to be outside the scope of issues selected for analysis. The EIS should include a discussion of alternate OHV recreation sites and explain why alternate sites were eliminated from further consideration.

BLM Response NEPA Compliance - 2): Our initial scoping of the issues and range of alternatives were developed with involvement by both the public and regulatory agencies. In addition, the range of alternatives was developed to meet the stated purpose and need of this EIS, which was to update land-use planning decisions in light of human health risks, watershed conditions and rare plant species. Alternative 6 affords the greatest protection to watershed conditions and other resources, and was therefore within the reasonable scope of the project.

The purpose of expanding the Natural Area under Alternatives 3-6 is not to attract more non-OHV users to the area, although this may occur. The purpose, as stated in the Alternatives, is to expand research opportunities for this biologically unique area, in cooperation with the academic community. Vehicle restrictions would apply to all users regardless of activity. Additional OHV areas outside of the Clear Creek Management Area were not studied, as a study of this nature was beyond the scope of this EIS.

Comment NEPA Compliance - 3: "The BLM blithely assumes that OHV recreationists thrown out of Clear Creek will all go to Hollister Hills, and have no impact. OHV recreationists seeking a Clear Creek experience will go elsewhere to find a Clear Creek experience....wherever it is, there will be impacts, and these impacts are ignored by the BLM."

BLM Response NEPA Compliance -3): We have no way of determining where exactly, or in what numbers, any displaced users would choose to recreate in the event of restrictions on OHV use in Clear Creek. We can surmise however, that Hollister Hills and other areas could see some increases, as described in the DEIS. Further analysis is beyond the scope of this document.

Comment NEPA Compliance -4 "The BLM presents a no-action alternative 1, and then indexes the results of all other alternatives to the no-action alternative. Although a no-action alternative is often used in environmental documents as a baseline, this alternative has to be feasible to be worthwhile for consideration. We have been continually told by the BLM that a no-action alternative is not acceptable to the EPA, and would constitute a violation of the Superfund Law. What is the sense of proposing an illegal alternative?" In addition, alternative 6 violates NEPA because it prohibits existing multiple uses.

BLM Response - NEPA Compliance - 4): The range of alternatives identified in an EIS must contain a reasonable range of options, showing the impacts of each and defining the issues of each in order that decisions for management may be made. The "No Action" alternative generally represents one end of the scale and is almost always included. To quote Bass and Herson (1993): "the definition of the "No-Action" alternative depends on the nature of the proposed action. Where the proposed action involves updating an adopted management plan or program, the "No-Action" alternative is the continuation of the current management plan or program....the "No Action" alternative provides a benchmark for comparison, enabling decision-makers to compare the magnitude of the environmental effects of the various alternatives." In addition, "an alternative may be considered reasonable even if it is outside the legal jurisdiction of the lead agency. A potential conflict with local or federal

law does not necessarily render an alternative unreasonable, although such conflicts must be considered."

No federal law requires that all multiple uses possible in a given area be allowed. In fact, it is common to find some multiple uses prohibited in a given area of federally, state, county, or city-managed public lands.

Plant Communities

Comment - Plant Communities - 1: The preferred alternative #4 is not a viable long term manageable alternative due to vegetation crushing, physical vegetation removal, soil erosion, and impacted riparian areas in hillclimb areas. Beyond individual species, the several serpentine communities in the area, including chaparral, vernal pools, and riparian zones, are deserving of protection. The current preferred alternative will not give these communities adequate protection from damage or extirpation. The FEIS should not allow for un-restricted use of serpentine barrens. Until better information is available, open unrestricted use should be avoided. How can a sound management decision can be properly made on the use of the area without such baseline data? Managing this land as a OHV playground is not practicing ecosystem management or protecting biodiversity, two goals of the BLM. We cannot properly revue Alternatives 1-4 unless this document is augmented to describe the areas of potential habitat for and for the serpentine plant communities, especially the San Benito Forest. How many acres of this forest are contained within "A," or open zones? How many acres are in protected areas? How many acres of open hillclimb are truly barren, how many acres now have sparse vegetative cover?

BLM Response - Plant Communities (a):

Chapter 3 of the FEIS has been revised to be more explicit where BLM lacks specific acreage information on potential habitat for sensitive plant communities. In addition Chapter 2 of the EIS has been augmented to include measures BLM would take under each alternative to minimize possible adverse impacts that could occur to these habitats for which little information is available. Chapter 4 has been revised to reevaluate the impacts to habitats due to the difference these new measures will make.

Recreation

Comment Recreation-1: Adoption of Alternative 4 would intensify damage to watershed areas, to their associated wildlife, soil, air and vegetation values

because of concentrated OHV use. Wet season closures should also be considered, and if adopted, the BLM needs to adhere to these closures as rigorously as the public. It would appear that the BLM has a legal responsibility to protect resources by enforcing seasonal closures or by greatly reducing or abolishing OHV use in the CCMA.

BLM Response - Recreation - 1): After reanalysis and in response to public comment, the preferred alternative has been modified to disperse use and to conditionally close all open areas. Please see specific changes in the Final EIS, preferred alternative. Seasonal closures are being considered, as documented in the draft EIS. The BLM generally adheres to all closures, whether for fire, wilderness or other resource reasons. However, for human health and safety, emergency, or extreme resource concern, it maintains the authority to administratively access any area. The BLM has a legal mandate under the Federal Land Policy and Management Act to provide for multiple uses, where compatible, for public lands under its jurisdiction. At this time, blanket closure of the CCMA to all OHV use would not be justified, because the BLM feels that it can manage this use, while still protecting resources, as described in the Final EIS.

Comment Recreation-2: The only beneficial action we've seen by the Bureau was when a ranger would pass out information about minimizing asbestos exposure. Otherwise, all we've seen is constant closure, with miles of barb wire and huge expense. Going to a remote area like Clear Creek to be crowded into a graveled campground is to destroy our right to solitude and enjoyment of nature.

BLM Response Recreation- 2): We recognize the OHV opportunity at Clear Creek and will work to preserve that opportunity. The commentors are directed back to changes in the Preferred Alternative of the Final EIS, and to the mitigation measures outlined in the review of the preferred alternative.

Comment Recreation-3: "BLM has no requirement to run a mechanized recreation park for heavy-impacting vehicle use!"

"...your preferred alternative is inconsistent with the mandate to provide legitimate managed OHV recreation opportunities."

BLM Response - Recreation- 3): Under the Federal Land Policy and Management Act (FLPMA), the BLM has a mandate to provide for balanced multiple use, including recreation. Recreation includes a wide spectrum of activities, from backpacking to OHV opportunity. It is evident that a piece of land cannot accommodate all types of use at all times, and the BLM has the responsibility to determine which mix of uses are compatible with the existing

natural resources. In the 1970's, two Executive Orders were published which established guidelines for classifying areas for their potential for OHV use on public lands. Thus, while the BLM has "no requirement" to run allow OHV use, it has a requirement to review lands under its jurisdiction for this use, and under the planning process, which included public input and comment, OHV use was authorized in the Clear Creek area.

Comment Recreation-4: The BLM fails to consider the value of roadless settings and the associated recreational value of solitude within Clear Creek.

BLM Response Recreation -4): The draft EIS reviews the state of the Clear Creek environment in the "Affected Environment" section. As will be noted under the Recreation portion of this chapter, most use occurring there is OHV-related, with hunting and rockhounding as the next largest categories of use. Many of those users cite Clear Creek's remoteness and uncrowded atmosphere as reasons they like to go there, indicating that they enjoy a degree of solitude. But we did not treat this value separately, nor was it brought up as an issue during the scoping process.

Comment Recreation-5: "Because...OHV recreation has restricted research in the Area, much remains to be learned about the species and communities in the CCMA. OHV recreation is not the most beneficial use of such valuable publicly owned "living laboratories" of biological diversity.

BLM Response Recreation-5): Clear Creek is utilized for a variety of activities, including both consumptive and non-consumptive uses. The San Benito Mountain Natural Area was set aside specifically to protect a biologically unique community and has been and will continue to be studied. Illegal OHV use has negatively impacted resource values in this area, and research could be impacted in the future if this continues. However, we intend to eliminate OHV trespass, by providing an alternative which still allows OHV opportunity. If compliance cannot be achieved, then closures will likely result.

Comment Recreation -6: The "Affected Environment" section of the draft EIS is inaccurate and incomplete in its discussion of hunting opportunities, in that there is more game there than indicated.

BLM Response Recreation -6): The discussion on hunting in the "Affected Environment" section is based upon hunting tag receipts from the California Dept. of Fish and Game, upon observations by the Hollister Wildlife Biologist, and upon observations by hunters over the years. Yearly fluctuations in game species are normal, and hunting opportunities in the CCMA vary accordingly. Serpentine soils have not ben shown to produce optimum forage for wildlife, and usually wildlife numbers tend to be lower in areas dominated by these

soils. The general consensus has been that the CCMA can offer good hunting opportunities, but is not a prime location.

Comment Recreation -7: "No satisfactory explanation as to why OHV use should continue within the ACEC, when there are 20,000 acres of land outside the ACEC...is provided."

BLM Response -Recreation- 7): The areas designated "open" today are primarily located inside the ACEC. These areas contain the majority of the backcountry trail system and all the hillclimbs, and are preferred by OHV enthusiasts. In developing alternatives, we felt we should work within the historical use areas, rather than develop new open areas outside the ACEC.

Comment Recreation -8: "In the FRMP, please document the types of vandalism that are occurring and the annual costs to repair this damage."

BLM Response - Recreation - 8): Facilities such as bulletin boards and outhouses are shot, sawed, burned, or damaged with tools such as axes or hammers. Signs throughout the area suffer from the above, and also are run over or removed. Sometimes we find graffiti obstructing verbiage on signs, or sometimes signs are scratched so that the message is no longer legible. Fences are cut or breached. Locks on gates are sometimes torched or shot off. The BLM personnel spend a great deal of time replacing and repairing facilities, which amounts to thousands of dollars annually, both in terms of time and in terms of materials. No one user group is responsible for this vandalism, and in the DEIS, no one group was meant to be singled out. We have relocated this discussion out of the OHV heading, and put it under its own section in the Affected Environment.

Comment Recreation -9: "Pursuant to Executive Order No 11644, BLM is required to monitor the effects of use of OHVs on lands under its jurisdiction. BLM should routinely monitor air quality in the CCMA in order to determine whether management measures are adequate....Furthermore, pursuant to 1505.2(c), the Record of Decision must include a summary of the monitoring and enforcement program where applicable for any mitigation."

BLM Response Recreation-9): Comment Noted. In response to your comment, text changes have been made to clarify our monitoring programs. These changes can be found in the Affected Environment section of the FEIS, under Air Quality and Human Health, and Recreation/Social Setting, respectively.

Comment Recreation - 10: Provide more detailed information on the user education/awareness program that would be implemented, including whether signs will be posted to warn users of risks.

BLM Response Recreation- 10): The user education/awareness program would consist of both personal and non-personal services; the specifics of the program would depend upon the alternative selected. In response to your comment, we have incorporated a discussion of the education program into a new "Education" section, which may be found in the "Management Guidance and Determinations Common to All Alternatives" of the FEIS.

Riparian Areas and Vernal Pools

Comment Riparian Areas and Vernal Pools - 1: The riparian corridor along Clear Creek received direct and unacceptable use levels since the 1986 plan, accelerating a dramatic decline that began over two decades before when OHV use grew dramatically. Erosion directly caused by OHV's have virtually destroyed the riparian corridor of vegetation along Clear Creek. There are no systematic survey data included in this EIS for riparian areas such as the San Benito River, Sawmill Creek, White Creek or Los Gatos Creek.

BLM Response - Riparian and Vernal Pools - 1:
Though numerous stretches of riparian habitat in the CCMA have been degraded recently, BLM believes this trend will reverse now that substantial fencing has occurred within Clear Creek's riparian zone in the 1990's and additional riparian protection efforts are planned for in the selected alternative. If monitoring shows that riparian degradation continues above established thresholds than additional fencing or closures would result. Though comprehensive riparian inventories have not been conducted in the CCMA the following three measures that have been added to the FEIS would protect the majority of all riparian areas in the CCMA:

1. Riparian inventory (see FEIS Chapter 2 for "Management Guidance and Determinations Common to All Alternatives"),

2. Route inventory (see FEIS Chapter 2 for "Management Guidance and Determinations Common to All Alternatives"),

3. Conditional closure of all open areas as described in the preferred alternative of the FEIS.

Comment Riparian Areas and Vernal Pools - 2: State-wide, vernal pools have been decimated by agriculture and other human uses. These seasonal pools support unique biotic diversity, and it is likely that investigations targeting the

pools remaining in the CCMA will identify a host of unusual, and probably endemic, organisms. The vernal pool known as Spanish Lake and the small vernal pools adjacent to it should have been protected years ago.

BLM Response - Riparian and Vernal Pools -2:In chapter 3 of the DEIS the importance of vernal pools remaining in California is noted. BLM is not aware of any pools which have been eliminated in the CCMA. While BLM is will not likely be able to study the pools in the CCMA anytime soon, universities such as yours are encouraged to do so. The selected alternative in the FEIS would completely protect the habitat of all vernal pools in the CCMA.

San Benito Evening Primrose

Comment - San Benito Evening Primrose - 1: Serpentine terraces upon which C. benitensis depends are severely degraded, their topsoil eroded. There is no demonstrated evidence that these sites can be rehabilitated as C. benitensis habitat. Therefore all terraces must receive protection in any final plan in order to insure the continued survival of C. benitensis. Alternatives 1-4: There is far too little scientific data on the areas outside the Clear Creek drainage. The number of acres of riparian terraces impacted by these alternatives needs to be included. Many of these areas may support the San Benito evening primrose. The preferred alternative only partially protects 40 of the known suitable terrace sites that do not currently support active populations. The DEIS does not contain a description of designated critical habitat. Thus, any evaluation of the preferred alternative relative to its compliance with the ESA is impossible. The FEIS needs to address the designated habitat for the primrose, and the alternative chosen must provide at least for the protection of that habitat.

BLM Response - San Benito Evening Primrose -1: Under the FEIS' selected alternative, all terrace habitat not already eliminated by county roads, major OHV routes which are approved to stay open, or staging areas, will be set aside for the habitat needs of the primrose. Chapter 3 of the FEIS has been revised to include more of the existing information BLM has on acreage of Camissonia benitensis habitat outside of the Clear Creek drainage. Unprotected portions of 40 terraces are sites that are now occupied by one of the three above-listed facilities. Only Alternatives 5 and 6 include proposals of closing some of these facilities for their rehabilitation as primrose habitat.

Protection efforts that are included in the final strategy to conserve the primrose are the result of consultation between the USFWS and BLM and are expected to ensure the continued survival of this primrose.

No critical habitat has been designated for the San Benito evening-primrose. Therefore the DEIS only discusses known locations of this primrose and suitable habitat where this primrose has not yet been documented.

Comment San Benito Evening Primrose - 2: "A few years back the BLM spent lots of money to build a big fence to protect the Primrose. Does anybody know if this helped? Maybe the Primrose likes motorcycles? Why not use San Benito evening primrose seed introductions (transplants) to areas where there is no camping or OHV use?"

BLM Response - San Benito Evening Primrose - 2: Nine of eleven populations fenced prior to the writing of the DEIS appear to be stable while two are presumed to have been eliminated prior to fencing. Some removal of brush may be necessary near some populations to avoid crowding out the primrose. Damage to primrose populations and habitat from vehicle and camping use (including motorcycles) is well documented. Seed introductions to four areas fenced off from vehicle use have been attempted with little success so far.

Comment - San Benito Evening Primrose - 3: Recent discoveries of the primrose at BLM's administrative site and on Laguna Mountain indicate that the plant does not only grow on terraces near streams and that more research is needed to determine it's true habitat and range. Since more populations have been found since the wet season of 1992-1993 doesn't this indicate that the primrose is making a comeback and that statements in the DEIS about detrimental OHV impacts to the primrose may be overstated?

BLM Response - San Benito Evening Primrose 3: The DEIS (pg. 48) describes the different kinds of habitats in which the primrose has been observed. This primrose has not been observed in any other habitat types though many thousands of acres of other habitats have been surveyed by qualified botanists within and adjacent to this primrose's range during the last eleven years. Since some populations have disappeared and new populations have been documented recently, BLM and the USFWS will need to continue reassessing this species' status. As of June, 1994, no information has been collected to indicate this species should be removed from the federal threatened list or that it is making a comeback in habitat areas which have been severely degraded by vehicle and camping use.

San Benito Mountain Natural Area

Comment SBMNA - 1: Alternative 4 increases the size of the San Benito Mountain Natural Area without providing any reasons.

BLM Response - SBMNA- 1: Resource values which would be added to the Natural Area under alternatives 3-6 are listed in Chapter Four of the DEIS.

Comment SBMNA - 2: How will research activities within the CCMA and Research Natural Area be protected from vehicle trespass? Will the threat of destroyed research projects reduce the interest in research?

BLM Response - SBMNA - 2:BLM assumes that enforcement of Natural Area boundaries would prevent damage to research efforts from vehicle trespass.

Special-Status Plant Species (Other than San Benito evening primrose)

Comment - Special-Status Plant Species - 1: The DEIS should reflect the analysis of plant and animal inventories and how they were used in making the determination of which areas would remain open and or closed. There is no mention of any inventory of sensitive resources in the areas to remain open OHV use. The hillslopes and serpentine barrens in the Clear Creek watershed have not been systematically surveyed for L. discoidea populations, therefore it is not possible to ascertain potential impacts of alternatives that permit unrestricted use. Permitting areas open to unrestricted use could lead directly to the requirement to list L. discoidea as Endangered and for this reason the FEIS should eliminate any open areas within the range of L. discoidea.

BLM Response - Special-status Plant Species - 1: The FEIS has been augmented with a more detailed assessment of the current status of the rayless layia (Layia discoidea) and in part due to this assessment as well as other resource concerns, the selected alternative includes the temporary closure of all hill slopes not on an approved trail. Except for known populations of special-status plants and animals and the location of vernal pools, BLM is not aware of any biological survey data for areas which would be designated open use areas under the various alternatives. In response to public comment the FEIS clarifies what impacts to plant communities and, in particular, special-status plants would occur in open use areas and whether they are significant or not under each of the alternatives. Mitigation has been added to those alternatives which identify significant impacts. The selected alternative would only allow unrestricted vehicle use in areas where resource protection criteria are met. Such criteria would include protection for sensitive resources and be would consistent with BLM objectives for ecosystem management and the conservation of biodiversity.

Comment - Special Status Plant Species - 2: There are good potential habitat areas for the Camissonia benitensis and Layia discoidea present outside the

Clear Creek watershed for which no inventories are indicated in the document. This eastern half of the CCMA has had very light OHV use until this time... Encouraging OHV access to these areas without thorough inventory of existing or potential habitat and inclusion of this inventory in the EIS is not acceptable. Alternative 3 would impact and or destroy those areas before an adequate inventory could be made.

BLM Response - Special-status Plant Species - 2:
Most of the sensitive habitat that we know of is in the Clear Creek watershed and much is located on or near the serpentine barrens in this watershed. Based upon this and user preference for a dispersed trail system, resource management objectives can best be met by reducing the acreage of open hillclimbs, and by implementing a designated route system outside Clear Creek Canyon, using already established trails.

Routes approved for vehicle use in the eastern portion of the CCMA will be inventoried and selected in such a manner that sensitive habitats and special-status species will be avoided or minimally impacted. Please refer to the discussion of the route inventory in the FEIS, "Management Guidelines and Determinations Common to All Alternatives".

Watershed and Erosion

Comment Watershed and Erosion - 1: No-one can remotely quantify the individual causes of erosion. Both of the studies done by PTI use unsubstantiated data or draw wrong conclusions or are incorrectly quoted by the BLM EIS. The erosion study is clearly flawed since the PTI study indicates that the amount of sediment produced nearly exceeds that amount found in Hernandez Reservoir.

The sediment estimates in the PTI study should be taken to be median to a probable range of yields, and in some instances, singularly indicative only of the magnitude of sediment yield. The PTI filed (failed) to account for storage at the base of slopes, which is evident in the form of hundreds of locations. It is true that sediment stored on toe slopes can not be mobilized by 2-year events, but these sediment reserves can and are mobilized in 10-year to 15-year events. For this reason, the PTI erosion rates are likely to be underestimates, and therefore ... erosion from unrestricted OHV use in the Clear Creek watershed (is) significant."

How can you allow use of open hillslopes without having done monitoring and impact studies of OHV use on these slopes? What is the legal and biological justification for allowing over 8000 tones of accelerated erosion, including

sheet erosion and stream-bank damage, to continue without a study finding no adverse impact?

BLM Response Watershed and Erosion -1: The report prepared by PTI-Environmental Services was conducted by qualified professional staff and was peer-reviewed by numerous other qualified consultants and BLM staff. We believe that this report was a technically adequate assessment using sound scientific principles. However, given the time limitations of the field study and the use of professional judgement, these numbers should be considered as rough estimates and not absolute or precise figures. One of the purposes of the PTI technical report used in the analysis of the EIS was to determine the approximate ratio between the natural and man-induced erosion rates. Based upon a technical review of this by the USGS and other scientific organizations, this is a reasonable approach to estimate the sediment and erosion conditions in the CCMA.

The PTI erosion study states (on page 4) that "... To accommodate the mining, exploration roads were built throughout the CCW and expanded in the 1930's and 1940's... Most of the soil erosion associated with roads probably occurred within a decade of their construction. Much of this eroded soil appears to have been flushed through the watershed and is deposited at the mouth of Clear Creek or elsewhere downstream in the San Benito river basin...Road related erosion is now a function of grading practices, high OHV traffic, and isolated gullying."

Since the Hernandez Reservoir was constructed in the mid-1960's, it is not expected that the estimated sediment transported from the CCMA from 1930's to the 1960's would have been trapped in the reservoir. Based upon observations by BLM staff, over the last several years the historic road grading practices on the county road system in combination with the natural processes are contributing to high erosion and sediment rates from this area. The open hillclimbs under the selected alternative will be allowed only if these areas meet specific criteria.

Comment Watershed and Erosion - 2: In the Final EIS, please collect and use actual data in developing an erosion model for the CCW. Since the estimated erosion rates have not been verified by field data, therefore they are either too high or too low.

BLM Response Watershed and Erosion - 2: We agree with that the PTI erosion report provides an reconnaissance level estimate of the types and volumes of erosion and sediment within the Clear Creek Management Area. We are not sure however, to what degree PTI's report calculations are over or under

estimates since there has been no more detailed calibration of this model based on actual field measurements.

The BLM is collecting sediment data from a USGS stream gauging station in Clear Creek. The purpose for this monitoring is to do exactly what you suggest. This information will take several years to collect and analyze and will not be available in time for the Final EIS. However, this information will be reviewed and the sediment and erosion estimated will be re-assessed on a periodic basis, probably every five years.

Comment Watershed and Erosion - 3: Please demonstrate how erosion and sedimentation rates were calculated. Under the preferred alternative, the reduction in open roads and hillclimbs would decrease human disturbance by approximately 71%. The EIS should discuss how this figure was calculated.

BLM Response - Watershed and Erosion - 3: The 71% reduction was calculated based upon the technical information contained in the PTI's report entitled "Erosion and Sedimentation of the Clear Creek Watershed". In this report the authors have calculated a erosion index for background erosion ("natural") as well as increased erosion rates ("accelerated") from maintenance and vehicle use of the main roads, secondary roads, motorcycle trails and open hillclimbs.

The mathematical calculation used to determine this 71% reduction figure was to add up the existing area available for OHV use (number of miles of roads, trails and acres of hillclimbs) and compare this number with the proposed amount of reductions of routes and hillclimbs that would be allowed under our preferred alternative. In response to your comment, we have included the methodology described above in the Final EIS.

As discussed in the EIS, based on each alternative's OHV opportunity (road, trail and open hillclimbs) and PTI's erosion factors, a erosion baseline estimate was calculated for each alternative and compared to Alternative #1. The 62%, 71%, and 82% reduction is based on a comparison to Alternative #1.

Comment Watershed and Erosion - 4: Sediment dams have not been clearly detailed as to location, size and cost estimates, and no discussion of their effectiveness is provided. How will disposal of trapped sediments be accomplished?

Specify which type of dams, if any, the BLM proposes to construct and identify the costs associated with different types of structures.

We feel that the proposed sediment dams will not be cost effective, or even effective at all. Clear Creek is known for brief, high intensity rain storms that would wash out small sediment dams. Additionally, what will the BLM do with the sediments? "

BLM Response -Watershed and Erosion -4: The reader is referred back to the DEIS alternatives - we discuss projects rather than dams in particular. The 1986 Clear Creek Management plan has preliminary design information regarding sediment retention structures that are being conceptually considered for use. After final determination is made as to whether or not to implement these projects, BLM will refine the engineering, geotechnical and cost estimates. The sediment removal and disposal will also be further evaluated prior to construction, and it is hoped that this material may be used to assist in re-vegetation and rehabilitation of closed roads and trails.

WILDLIFE

Comment Wildlife - 1: References to "Special Status Animals," pp. 51-53 of the DEIS, and the reference to hunting, as p. 57, indicate some consideration of wildlife resource impact. Please revise the draft to include scientific studies of the wildlife within the management area in order to evaluate properly whether or not the actions proposed under Alternatives 1-6 do or do not impact this resource.

BLM Response - Wildlife 1: All special-status animals known or suspected to occur in the CCMA have been addressed in the FEIS. Wildlife species which occur in the CCMA and offer hunting recreation are discussed in the 1986 CCMA Environmental Assessment which is available for review in the Hollister Resource Area office. BLM in not aware of any studies available which focus on wildlife species in the CCMA. Wildlife in general were not considered an issue for analysis in this EIS process because no animals other than those that inhabit the creeks of the area are known to be under any threat from actions authorized by BLM in the CCMA.

Comment Wildlife - 2: As documented in the EIS, three special status animal species are found within the CCMA. In light of statewide decline of these species, the protection of populations within the CCMA is critical to their preservation. In the case of the foothill yellow-legged frog-- numbers of which have plummeted in central California-- presence in the CCMA should mandate protection of the riparian areas. The EIS contains inadequate information on

the three herp species listed in the DEIS and special-status animals possibly present that are not named, such as the California red-legged frog, and California tiger salamander.

BLM Response - Wildlife 2: Comments noted. Currently populations of yellow-legged frogs in most CCMA streams appear to be of substantial size and reproducing well. The selected alternative would allow for continued improvement in the condition of the CCMA's riparian and wetland habitat. Additionally, BLM would strongly support Stanford or other institutions' efforts to study and collect further information on these and other herp populations in the CCMA which have not been studied as of yet. Do to public comment (see also Calif. Dept. of Fish and Game comments) the FEIS discusses the potential for the red-legged frog and Calif. tiger salamander to occur within the CCMA. In brief that potential is low due to the fact that the few pools that occur in the CCMA are surrounded by chaparral and these species were not observed during searches for them in the most likely pools in 1993. However, the complete protection which would be given all vernal pools and the increased protection given to streams in the CCMA, under the selected alternative, should allow for the continued existence of all aquatic amphibians and reptile populations in the CCMA.

Comment Wildlife - 3: An in-depth analysis of the effects of siltation in the CCMA on the foothill yellow-legged frog is missing. A study conducted by the US Forest Service has demonstrated some apparent effects of siltation on this species. The FEIS cannot be considered complete without reference to this literature. Yellow-legged frogs are less common in Clear Creek than other nearby streams and Clear Creek appears to contain a high level of silt. Rigorous surveys should be conducted and documented in the FEIS.

BLM Response - Wildlife -3: Comments noted. The FEIS (Chapters 3-4) has been augmented to include additional pertinent information on these taxa.

PART D. IDEAS SUMMARY - (CROSS-REFERENCED TO INDIVIDUAL COMMENTORS)

Categories

Access
Advisory Committee
Biodiversity
Consequences of non-compliance
Education
EIS Format
Erosion
Health Risk and Dispersed Use
Mining/Superfund
Permits/Registration/User Fees
San Benito Mountain Natural Area
San Benito evening primrose
Stream Crossings
Vernal Pools
Visitor Use Data Base
Volunteers

Access: (Letter #'s 99 and 16)

Summary: Provide access via the Atlas Mine Road to research and education groups. Continue to allow people to pull off the road in the vicinity of San Benito Mountain to do remote camping.

Advisory Group: (Letter # 24)

Summary: Develop an ad-hoc committee to oversee the on ground resource decisions.

Biodiversity (Letter # 23)

Summary: Focus on maintaining biodiversity as a primary resource management objective.

Consequences of Non-Compliance (Letter # 14)

Summary: If violation of the adopted plan occurs, the management plan should contain the stipulation that complete closure of the CCMA will result.

Education (Letter # s 24, 133, 107, 37, 60, 47, 135, 72, 51, 16, 5,and 17)

Summary: Develop, map and sign a trail system. Install more bulletin boards and use specific messages. Post asbestos concentrations at all entries to the area, using a simple scale system such as 1 being low and 10 being high. Provide a phone number to call to allow users to find out if area is closed/will be closed because of asbestos or severe weather. Continue and enhance OHV outreach efforts, provide more BLM presence at Club meetings, publish articles, increase visitor contacts, give campfire/evening presentations, and distribute more materials on site. Post more signs, but use signs which explain why the regulation is being enforced. Reduce OHV backtracking and extra resource damage by identifying dead end trails, using signs or brightly colored markers. Improve mapping and signing in general, and ask map producers (AAA, for example) to include the boundaries of the Hazardous Asbestos Zone on their maps).

EIS Format (Letter #s 133, 37, 17, 20)

Summary: Combine elements from Alternatives 1-4 to meet the resource issues, and in particular, prioritize problems. At the beginning of the document, clearly define terms to reduce confusion for the reader. Include definitions of OHV, 4WD, OHV designations. Also clarify significant differences and key points of alternatives.

Erosion (Letter #s 135, 20, 37)

Summary: Rotate open and closed areas to give habitat a chance to recover and to reduce erosion. Improve maintenance along Clear Creek Road, and close roads that are not needed for through access. Rehabilitate closed roads and close some or all of the hillclimbs in the Clear Creek inner gorge. Or, minimize maintenance along all the main roads and permit passage of only high clearance 4WD vehicles. This minimum maintenance would include keeping culverts clear, constructing water bars, maintaining high side ditches, and riprapping gullies on the downstream side. Grading should only be done to keep roads passable, - try to stabilize road surface without grading wherever possible.

Dispersed Use, Zoning and Reducing Health Risk (Letter #s 17, 135, 20, 25, 133, 24, 33, 87, 37, 109, 91, 57, 16, 5, 44, 21, 19, 23, 34, 139, 49, 143)

Summary: Leave a large route system open to disperse use out of the Canyon, and continue to allow dispersed camping. Develop long, maintained trails as an alternative to hillclimbs. Hillclimb acreage can be reduced.

Close some roads during the rainy/muddy season to reduce maintenance costs. Rehabilitating any closed roads, particularly in the San Benito Natural Area, would lessen resource damage and reduce impacts. Eliminate camping in the serpentine area under all alternatives. Or move camping and staging areas outside of the asbestos zone and Clear Creek Canyon in phases and close them as new ones are provided. Or phase out Clear Creek entirely and pursue developing an alternate area 2-3 hours from the San Jose Metropolitan area.

If a wash rack is installed make it as easy to use as possible to invite voluntary use. Alternatively, encourage use of commercial car washes. Encourage riders not to follow eachother too closely and not to ride in small areas in large groups.

Abandon maintenance of the main road system to encourage dispersal along many routes, and develop a designated route system to channel use out of Clear Creek Canyon. Have one designated route in and out of each staging area. Reduce the size of open areas to encourage trail use as an alternate.

Seek alternate access routes to Clear Creek - perhaps start emphasizing the Idria access immediately. Build parking/camping areas adjacent to the main County Road near the Salinas Ramblers property and near the "Store".

Rotate open and closed hillclimbs to give plants enough time to recover - leaving a hillclimb closed for 2-3 years should be enough. Allow camping at

the staging areas, but also develop/allow camping along the upper San Benito River. Allow camping at the Alpine and Aurora mines.

Allow hillclimbs only in areas which already have tracks for this purpose. Delineate open areas using natural features.Eliminate use on open areas entirely in the Clear Creek watershed. Eliminate all "A" areas throughout the area. Close upper Clear Creek watershed entirely to OHV use, including the ridge routes above the basin. Eliminate all use of open areas throughout the CCMA.

Stop motorcycle play on open areas first, then close roads and trails as needed, and then close or maintain the County Road system.

Fence off all hillclimbs to preclude use and instead channel use to a trail system.

Mining/Superfund (Letter #s 25, 135)

Summary: Hold mining operations responsible for cleaning up excess sediment and erosion problems resulting from their operation. Experiment with planting native serpentine-friendly species such as Leather Oak, chaparral and Jeffrey Pine in quarry areas to stabilize and recover mined sites such as the Superfund site.

Permits/fees/registration (Letter #s 133, 107)

Summary: Charge a use fee. Require riders to log in their name and address before entering the area, and issue each rider a vest with a number - then it would be easier to cite those who are in non-compliance. Implement a use permit and/or a quota system.

San Benito evening primrose (Letter #s 24, 135, 17)

Summary: Use clearly defined routes through sensitive plant areas to protect special status species. Monitor the San Benito evening primrose and try transplanting to areas not affected by roads or trails. Or, relocate routes away from primrose sites.

San Benito Mountain Natural Area (Letter #s 24, 21, 14)

Summary: Leave the area at its present size. Close natural areas to recreational vehicle use, at the very least during the muddy season. Or eliminate off-road vehicle use in the Natural Area entirely to protect habitat.

Stream Crossings (Letter #s 33, 60, 130)

Summary: Reduce the number of creek crossings to a minimum. Build bridges over large creek crossings, perhaps using volunteers. At least one trail should be rerouted to eliminate a crossing of the San Benito river.

Vernal Pools (130)

Summary: Protect all vernal pools in all alternatives.

Visitor Use Knowledge (Letter #s 130, 108)

Summary: Take daily actual vehicle counts along trails thought to be the most sensitive, prior to making a decision. Before completing the Final EIS, complete a comprehensive survey of visitors to establish use patterns.

Volunteers (Letter #s 133, 34, 51)

Summary: Implement volunteer programs to help save money. Choose a less restrictive alternative than 4, but if necessary, make it contingent upon OHVers providing volunteer labor.

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APPENDIX A
PLANNING CRITERIA

Planning criteria are the standards or rules used to form judgments about data collection, analysis and decision making during planning. Planning criteria for this Resource Management Plan include all applicable Federal laws, regulations, executive orders and policies which BLM is required to follow. These planning criteria are listed below.

1. Air Quality

Planning Criteria

Clean Air Act of 1972 (CAA as amended) 1977 & 1990 -

Federal law provides for control of existing stationary sources of pollutants, technology based performance for new stationary sources of pollution and standards for emissions from mobile sources (e.g. cars and trucks). The CAA established the National Emission Standard for Hazardous Air Pollutants (NESHAP) which stipulates no visible asbestos emissions on roadways and abandoned mine sites.

Executive Order 11752 (Air and Water Quality) -

This Presidential order mandates that federal agencies shall provide national leadership to protect and enhance the quality of air, water, and land resources through compliance with applicable federal, state and local pollution standards.

BLM Manual 1621.1 (Supplemental Program Guidance for Environmental Resources: Air Resources) -

Provides BLM guidance and quality standards for air resources during the development of land use plans (Resource Management Plans).

2. Public Health Risks from Asbestos Exposure

Planning Criteria

Occupational Health and Safety Act -

This Act authorized the creation of the Occupational Safety and Health Administration (OSHA) and developed worker exposure thresholds for asbestos. OSHA currently is reviewing these levels and recommending that they lower the 8 hour time-weighted average (TWA) permissible limit (PEL) from 0.2 fiber per cubic centimeter to 0.1 fiber per cubic centimeter. In addition, OSHA has a short-term PEL of 1 fiber (TWA) per 30 minute period. This standard is meant to protect workers in an occupational setting (8 hours per day, 40 hours per week, 52 weeks per year), and not for continuous ambient exposure.

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

CERCLA assigns liability and provides for compensation, clean-up, and emergency response for hazardous substances released into the environment. SARA further defined the authorities and responsibilities under CERCLA and provided for additional authority by establishing Emergency Planning and Community-Right-To-Know Act (EPCRA) responsibilities.

3. Asbestos Sediment Production and Transport

Planning Criteria

The Clean Water Act (CWA as amended) -

This Act establishes water quality standards, effluent limitations, permitting and enforcement systems to regulate the discharge of pollutants, including hazardous substances, into the navigable waters of the Nation. This act also includes nonpoint source pollution which is created by the uncontrolled runoff caused by storm events.

The Safe Drinking Water Act (SDWA) -

This Act requires that National primary drinking water regulations be established for public water systems. This Act provides for either a maximum contaminant level or specific treatment techniques for the reduction of target contaminants.

Contaminant levels will met to ensure that there are no known or anticipated adverse effects on the health or safety of the public.

State Of California Senate Bill 877 -

This state legislation was enacted to provide the California Off-Highway Vehicle Commission (COHVC) with specific guidance and draft standards for soil loss evaluation. These standards are under review by BLM for incorporation into management guidance for Clear Creek OHV activities and future grant proposals.

4. San Benito Evening Primrose Recovery

Planning Criteria

Endangered Species Act of 1973 (ESA as amended)

This act established a national policy for the conservation of Threatened and Endangered (T & E) plants and the ecosystems upon which they depend. It provides for the development and implementation of recovery programs that utilize land acquisition, management of habitat, and protection planning techniques to improve the status of T & E species. Section 7 of the ESA requires the development of programs to conserve the ecosystems of T & E species and provide for their recovery.

Federal Land Policy and Management Act of 1976 -

This Act requires that in the development and revision of all land-use plans and environmental assessments scarce species be considered.

BLM Manual 6840.06 A.1.b, c, and 2.c. -

This policy requires BLM to 1) prescribe management for the conservation of land identified as essential habitat for a listed species in land-use plans, 2) develop and implement plans that will ensure the conservation of listed species and their habitats and, 3) ensure that resource management plans and more detailed site-specific plans are consistent with meeting recovery plan objectives.

5. Watershed and Riparian Management

Planning Criteria

Executive Order 11988 (Floodplain Management) as amended

This presidential order directed the Federal government to take action to avoid long and short term adverse impacts associated with modification of floodplains.

Public Law 74-46 (Soil Conservation & Domestic Allotment Act of 1935)

This public law was enacted to ensure the preservation and improvement of soil fertility, promote economic use and conservation of the land and reduce the wasteful and unscientific use of national soil resources.

Public Law 83-566 (Watershed Protection and Flood Control Act of 1954) as amended

This public law directed the Federal government to coordinate with State agencies, soil and water conservation districts, flood control districts and other local public agencies to prevent erosion or floodwater and sediment damage.

BLM Manual 7000 (Soil, Water and Air Management) and
BLM Manual 6740 (Wetland-Riparian Area Management)

These BLM manual sections establishes the policy for the protection, maintenance, enhancement and management of riparian areas and watersheds. It is also BLM's policy to ensure that deterioration of soil and watershed conditions are prevented where technically and economically feasible and to rehabilitate areas where accelerated erosion and runoff have resulted in unacceptable resource conditions.

6. Re-Define The Boundary Of The Hazardous Asbestos Area

Planning Criteria

The Federal Land Policy and Management Act (FLPMA), 1976

FLPMA authorized the establishment of ACEC's where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources or other natural systems or processes; or to provide safety from natural hazards.

7. Existing Multiple Uses

Planning Criteria

A. Recreation Resources;

Executive Order 11644 & 11989 (Use of Off-Road Vehicles on Public Lands) and BLM Manual 8300 -

These Executive Orders and BLM Manual gives guidance to establish policy and procedures for managing outdoor recreation use and resolving any potential conflicts with other BLM programs.

B. Rights-of-Ways;

Federal Land Policy and Management Act of 1976 (FLPMA)

Title V provides procedures of issuance of right-of-ways on BLM managed federal lands.

BLM Manual 2800 -

The BLM manual establishes the policy to authorize all rights-of-way on Federal lands at the discretion of the authorized officer.

C. Mineral Resources;

General Mining Law of 1872,
Mining and Minerals Policy Act of 1970,
Manual 3000 -

The Mining Law of 1872 states that " all valuable mineral deposits in lands belonging to the United States" are free and open to entry, location and patent.

Mining and Minerals Policy Act of 1970 declared that it is in the national interest to foster the development of domestic mineral reserves and encourage the reclamation of mined lands.

APPENDIX B

HUMAN HEALTH RISK ASSESSMENT FOR THE CLEAR CREEK MANAGEMENT AREA

The Clear Creek Management Area (CCMA) is situated within a mineralogic deposit that is rich in chrysotile asbestos. Therefore, the U.S. Bureau of Land Management (BLM) and the U.S. Environmental Protection Agency (EPA) have been concerned about possible human health risks related to recreational uses of the area. This section provides an overview of a human health risk assessment conducted for BLM to assist in decisionmaking regarding managing the area in a way that reduces human health risks. Risk assessment is a means to estimate the likelihood, or risk, of adverse health effects occurring following a given degree of exposure. Risk assessment has been widely used to help manage hazardous waste sites and to set levels for cleanup of toxic chemicals. The risk assessment conducted for the CCMA followed guidelines for risk assessment set out by EPA (U.S. EPA 1989a,b,c; 1991a,b). Health risk estimates follow this basic formula:

$$\text{Risk} = \text{Exposure} \times \text{Toxicity}$$

Greater exposure, either to higher concentrations or for longer periods of time, will result in higher risks. Similarly, risks associated with exposure to substances are higher for more toxic, or more potent, substances than for less toxic substances.

For carcinogens such as asbestos, risks are expressed as the excess over risks seen in persons not exposed to asbestos. Risks are also expressed over a lifetime. For example, the lifetime risk of developing some type of cancer, in the absence of exposure to some known carcinogen, is about 0.25 because about 1 in 4 people develop cancer. In contrast, risk levels often used by EPA as guidelines for acceptable risks associated with exposure to chemicals in the environment range from 1 in 10,000 (or 1×10^{-4}) to 1 in 1,000,000 (or 1×10^{-6}). These risks are much lower than the risk associated with many everyday activities such as riding in a car, where the lifetime risk of being killed in an accident is 1.4 in a 100 (or 1.4×10^{-2}). Risk estimates for the CCMA are also described as upper-bound risks. That is because the toxicity values and exposure assumptions used in risk assessments were selected to provide the upper-bound estimates of toxicity and exposure.

The risk assessment for the CCMA provided upper-bound lifetime excess cancer risk estimates ranging from 4×10^{-6} to 8×10^{-5} (or 4 in 1,000,000 to 8 in 100,000) (Table 1) associated with off-road vehicle riding and other activities at the CCMA. However, because toxicity and exposure cannot always be

measured accurately in environmental settings, risk assessment results are not an exact quantification of human health risks. Therefore, although the risk assessment for the CCMA provided numeric estimates, the estimates are not precise. Aspects of the risk estimates that may result in over- or underestimates of actual risks are termed uncertainties. Evaluation of uncertainties associated with the CCMA risk assessment indicate that the true risks may be much higher or lower than these estimates. The following sections describe how the toxicity of asbestos and the exposure potential at the CCMA were evaluated and discuss uncertainties in the estimates.

ASBESTOS TOXICITY

Asbestos is the name given to a group of six different fibrous silicate minerals that occur naturally in the environment and are mined for use in various industries. The mineralogic class of asbestos is subdivided into two categories: serpentine fibers, which are characterized as being curly, and amphibole fibers, which are shaped like rods. The mineral form of the asbestos found at the CCMA is predominantly chrysotile, which is the most common of the serpentine fibers. Individual asbestos fibers are very tiny, and because of their small size and fibrous shape, they can easily become suspended in the air through the action of vehicle tires, footsteps, or other physical disturbances of soil containing asbestos.

People may be exposed to airborne asbestos fibers by inhaling them into the lung. Inhalation of asbestos has caused cancer in workers and in laboratory animals. Some evidence of an association with excess cancers has also been seen in persons living in neighborhoods with asbestos factories and/or with asbestos workers. However, most of the data on the effects of asbestos comes from studies on workers with long-term and high-level exposure to asbestos in mining and through use of asbestos in production of insulation, textile, cement, and friction products. Cancers that have increased in these workers include lung cancer, mesotheliomas (cancer of the thin membrane that surrounds the lung), and gastrointestinal cancer. While lung cancer and mesothelioma are typically associated with chronic inhalation of asbestos, several studies in humans and animals show that short-term exposure to asbestos may also result in cancer. Risks of developing lung cancer following exposure to asbestos are multiplied in persons who also smoke tobacco. Nonsmokers who had significant long-term exposure working with asbestos were five times as likely to develop lung cancer as a control group of nonsmoking persons who had no known asbestos exposure. In contrast, lung cancer risks were fifty times higher among smokers in the same group of asbestos workers in comparison with the control group. The risk of developing mesothelioma appears to be unrelated to smoking.

TABLE 1. UPPER-BOUND LIFETIME EXCESS CANCER RISK ESTIMATES ASSOCIATED WITH ACTIVITIES AT THE CCMA[a]

Exposure Scenarios	Excess Cancer Risk at Exposure Levels[a]		
	1-Day	RME	High Estimate[b]
Off-road riding	4×10^{-6}	2×10^{-5}	6×10^{-5}
Other activities	1×10^{-5}	3×10^{-5}	--[b]
Combined activities	1×10^{-5}	5×10^{-5}	9×10^{-5}

Note: CCMA - Clear Creek Management Area
RME - reasonable maximum exposure

[a] Risk estimates are based on inhalation exposures only.

[b] The high estimate was derived from a site visitor's estimate of site use for off-road vehicle riding. The RME estimate for other activities was combined with this estimate.

Table 1.

Besides causing cancer, breathing asbestos can also cause asbestosis, which results from a slow accumulation of scar-like tissue in the lung. This tissue does not expand and contract like normal tissue so breathing becomes difficult and, as a result, asbestosis can be a debilitating disease. However, asbestosis has been seen primarily in workers who have been exposed to high concentrations of asbestos over long periods of time. It would not be expected to occur following exposure to asbestos in the environment where exposure levels are much lower. Asbestosis and cancer caused by asbestos often do not occur until many years after exposures first began. For this reason, asbestos is said to have a long latency period.

Toxicity Value for Asbestos

In risk assessment, numeric estimates of the toxicity of substances, or toxicity values, are used together with the exposure term to derive risk estimates. To derive a toxicity value for asbestos, EPA used data from studies of workers exposed to a variety of different kinds of asbestos in various industries to calculate a unit risk factor (URF) for inhalation of asbestos of 0.23 per fiber per cubic centimeter $[(f/cc)^{-1}]$ (U.S. EPA 1991a). The URF for asbestos is a quantitative estimate of excess cancer risks per f/cc breathed and can be combined with an estimate of the asbestos exposure in f/cc to derive a unitless risk estimate. For example, if there was only one fiber in every 100,000 cm^3, the concentration would be 1×10^{-5} f/cc and the estimated risk would be 2.3×10^{-6}.

The EPA URF for asbestos is based on exposure to a variety of types of asbestos in various industries, but it does not incorporate data from studies of workers engaged in mining and milling chrysotile asbestos. Estimates of risks based on data from mining and milling chrysotile are 7- to 200-fold lower than the current URF for all types of asbestos combined. Exposure to chrysotile asbestos at the CCMA may be closer to exposure to chrysotile in mining and milling than to exposures to other types of asbestos in other industries. Thus, use of the URF based on a variety of types of asbestos may yield risk estimates that are 7 to 200 times greater than actual risks associated with exposure to chrysotile at the CCMA.

Another aspect of the URF that may tend to over- or underestimate risks associated with asbestos at the CCMA relates to the lack of reliability in measurements of asbestos concentrations. The methods of analysis used in studies that formed the basis for the URF were not able to accurately determine asbestos concentrations in the air. Although a precise estimate of the influence of this variable is not possible, preliminary results of EPA-sponsored research evaluating methods used to measure asbestos suggest that these measurements could be off by a factor of 50. In other words, risks estimated using the EPA URF could be up to 50 times greater, or 50 times less than actual risks.

EXPOSURE ASSESSMENT

Exposure estimates in risk assessment are based on the concentration and on how often (frequency) and for how many years (duration) people may be exposed a given concentration of a toxic substance. This section describes how those variables were estimated.

Concentration

In determining the potential for exposure to asbestos at the CCMA, several sources of concentration data for asbestos in air were evaluated, including data sets gathered at the CCMA by EPA and BLM and by researchers from the University of California at Berkeley. Data collected by BLM were selected as the basis for the risk estimates because these data included the largest number of sample points and were collected over all areas of the CCMA during a variety of activities including walking, riding in a vehicle, and motorcycle riding. However, concentration data for motorcycle riders collected by Berkeley researchers indicated that concentrations of asbestos in air might be up to 84 times higher during motorcycle riding than indicated by the BLM data and, therefore, the Berkeley data were also considered in the risk assessment.

In addition, the asbestos in air samples collected by BLM was measured using a method called phase contrast microscopy (PCM). Although PCM analyses are commonly used to measure exposure to asbestos in the work place, this method is not very precise and may over- or underestimate concentrations of asbestos fibers that may cause disease. However, no more precise data were available for the CCMA. Thus, although the BLM data set was selected, the fact that samples were analyzed by PCM may mean that the actual concentrations of asbestos are over- or underestimated. Although the Berkeley data were also collected using the PCM method under similar field conditions, the Berkeley data set showed higher concentrations of asbestos, which indicates that the BLM data may underestimate asbestos concentrations.

Frequency and Duration of Exposure

In risk assessment, the kinds of activities occurring in an area are evaluated to estimate exposure duration and frequency. Although the CCMA is located in a sparsely populated area, the unique characteristics of the area draw visitors from population centers such as San Jose and San Francisco. CCMA visitors come to ride off-road vehicles, camp, hike, hunt, and collect rocks. In estimating exposure for these user groups, records were reviewed from a public meeting in which people described how they used the site (the Atlas Asbestos Company Superfund site community meeting on May 30, 1990 [U.S. EPA

1990b]). In addition, estimates prepared by EPA on national averages of time spent in similar outdoor activities (U.S. EPA 1989a,b; 1991b), and estimates derived by U.S. EPA (1990a) in the risk assessment for the nearby Atlas and Coalinga sites were reviewed.

Exposure estimates were selected that were intended not to underestimate exposure and, therefore, these estimates are likely to be overestimates for many people. Such estimates are termed reasonable maximum exposure (RME) estimates. To make it easier to evaluate risks associated with various exposure frequencies, exposure estimates were derived ranging from a 1-day exposure to the highest exposure estimate derived based on statements made by site visitors. Exposure estimates for off-road vehicle riders and for other activities are described below.

Off-Road Vehicle Riders

An exposure estimate of about 5 rides per year of approximately 5.4 hours in duration each year for 30 years was determined to represent the maximum exposure frequency and duration for most site visitors (i.e., the RME). Because at least one site visitor who spoke at a public meeting for the site indicated that they ride even more frequently, an exposure estimate of 9 rides per year of 5.4 hours duration each year for 30 years was also calculated to provide a range of exposure estimates for off-road vehicle riders.

Other CCMA Uses

An RME estimate of about 3.2 days per year spent in activities other than off-road vehicle riding (e.g., camping, hunting, collecting rocks) at the CCMA over 30 years was derived from the EPA estimates and from the transcripts of the public meeting regarding the CCMA. Use of these exposure assumptions is likely to overestimate exposures for most site visitors because this estimate incorporates the assumption that people spend all of their time in these activities at the CCMA (i.e., they would not camp or hunt elsewhere) over a 30-year period. Therefore, to evaluate a range of exposures, an exposure estimate for visitors who spend a single day per year at the CCMA for 30 years also was calculated.

Combined Off-Road Vehicle Use and Other Uses

Estimates for off-road vehicle riding and for other site uses were combined to evaluate exposures for individuals who engage in more than one activity at the CCMA during a year. This combined exposure scenario is based on the assumption that people who ride off-road vehicles in the area may also camp in the CCMA. However, because both estimates include a number of conserva-

tive assumptions, it is expected to be much higher than lifetime exposures for most people who visit the CCMA. For example, exposure estimates for off-road vehicle riding and other site uses are both based on national estimates of time spent in a broader range of outdoor activities than are available at the CCMA. The estimates, are also based on the assumption that all of the time spent in these activities takes place within the CCMA. In addition, the estimates incorporate the assumption that visitors would continue this high level of use of the CCMA over a 30-year exposure duration.

UNCERTAINTIES IN THE RISK CALCULATIONS

As described above, several factors tend to over- or underestimate risks associated with exposure to asbestos at this site. Table 2 provides a summary of these factors. In addition, Figure 1 provides a graphic presentation of the degree to which risks change as exposure changes and the effect on risk estimates of use of the data from the Berkeley researchers. When data from researchers Berkeley researchers are used in the risk calculations, all estimates are greater than the 1×10^{-4} risk level considered by governmental agencies to be in the acceptable range. In addition, as indicated in Table 2, there are many other factors that may over- or underestimate risks associated with exposure to asbestos at the CCMA. Thus, the true risks may be much higher or much lower than the risk estimates provided in Table 1.

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TABLE 2. CONTRIBUTION OF SELECTED VARIABLES TO UNCERTAINTY

Variable	Over- or Underestimate; Magnitude	Basis
PCM data	Over- or underestimate	Imprecision of PCM method may result in over- or underestimate of exposures and risks
BLM data set (PCM)	May underestimate; up to 38- to 84-fold	Popendorf and Wenk asbestos concentration data are considerably higher than BLM data
Asbestos unit risk factor	Overestimate; 7 to 200-fold	URFs derived based on exposure to chrysotile asbestos in mining and milling are much lower than the EPA URF based on exposure to a variety of types of asbestos in various exposure settings
Asbestos unit risk factor	Under- or overestimate; unknown, may be 50-fold or greater	URF for asbestos may not account for all biologically active fibers
Tobacco smoking	Over- or underestimate	Risks of developing lung cancer following asbestos exposure may be substantially increased in persons who smoke tobacco
Exposure assessment	Overestimate for most individuals, underestimate for some; unknown	Site use is expected to be highly variable with individuals

Note: BLM - U.S. Bureau of Land Management
CCMA - Clear Creek Management Area
EPA - U.S. Environmental Protection Agency
PCM - phase contrast microscopy
URF - unit risk factor

Table 2.

ESTIMATED INCREASE IN RISK OF DEVELOPING CANCER
(Excess cancers per number of people)
1 in 1,000
1 in 10,000
1 in 100,000
1 in 1,000,000
DAYS PER YEAR*
1
3
3.2
5
9
12
24
36
48
60
Risk range often considered acceptable by EPA and other government agencies
Combined Activities
Camping and Other Activities
Riding Off-Road Vehicles
RME Exposure Scenario
This figure only addresses uncertainties related to exposure duration. Other sources of uncertainty may span several orders of magnitude.
* Exposure is evaluated in days per year over a 30 year exposure duration.

Figure 1.

U.S. EPA. 1991a. Integrated risk information system: asbestos file dated April 2, 1991. U.S. Environmental Protection Agency, Office of Health and Environmental Assessment, Cincinnati, OH.

U.S. EPA. 1991b. Risk assessment guidance for superfund. Volume I: Human health evaluation manual supplemental guidance: standard default exposure factors. Interim Final Report. OSWER Directive 9285.6-03. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC.

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