

**BIOLOGICAL TECHNICAL REPORT
OF FINDINGS FOR THE
INTERNATIONAL FUEL BREAK
SAN DIEGO COUNTY, CALIFORNIA**

Prepared for:

**BUREAU OF LAND MANAGEMENT
South Coast Zone Fire Management
California Desert District
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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. was retained by the Bureau of Land Management (BLM), to conduct a literature review, a reconnaissance-level biological survey, and to prepare a biological technical report of findings for the approximately 438-acre International Fuel Break site.

The purpose of the survey was to document the current biological diversity and assess the habitat for its potential to support native plant and wildlife species for facilitation of ongoing and future fuel break maintenance. Fuel break maintenance includes mechanical and hand clearing, or controlled burning of vegetation that occurs within the fuel break limits. The reconnaissance-level survey also evaluated the potential for sensitive vegetation and wildlife to occur onsite with emphasis on the Quino checkerspot butterfly (*Euphydryas editha quino*).

PROPOSED PROJECT

BLM plans to conduct fuel reduction activities along the International Fuel Break. Due to the lack of maintenance over the years, vegetation has grown back over the fuel break, reducing its effectiveness as a wildfire deterrent. The action would involve the use of hand tools and/or chainsaws to cut the vegetation on the fuel break. The cut material would then either be piled or scattered on the fuel break to be burned later under a prescribed fire plan.

SECTION 2.0 – SITE LOCATION AND DESCRIPTION

The linear project site is located east and west of the city of Tecate, east of State Highway 805 and south of State Highway 94 in San Diego County, California. Specifically, the site is north of the Mexican border and runs from the west slope of Otay Mountain to Campo. The site consists of three sections: Shockey Truck Trail, Tecate Peak, and Otay Mountain (Figure 1). The fuel break is approximately 45 miles in length, 18 miles of which are under the jurisdiction of BLM, and occur approximately 100 to 200 feet on both sides of a dirt access road. The majority of the fuel break has not been maintained for approximately 5 years. Immediate access to each of the fuel break sections was provided through a series of dirt roads heavily patrolled by U.S. Border Patrol. Elevation on the project site ranges from approximately 1,500 feet above mean sea level (MSL) to 3,600 above MSL.

SHOCKEY TRUCK TRAIL

The Shockey Truck Trail portion of the fuel break is located east of the city of Tecate, east of State Highway 805, and south of State Highway 94 in San Diego County, California. The fuel break runs through the city of Campo and ends just west of the Campo Indian Reservation. It can be accessed via Highway 94 and Shockey Truck Trail. Elevation ranges from approximately 2,400 feet above MSL to 3,600 feet above MSL. As identified on U.S. Geological Survey (USGS) topographic quadrangles, the survey area crosses a blue-line drainage (Campo Creek) on the west end of the site along with two unnamed blue-line drainages in the far east end of the site. Specifically, the Shockey Truck Trail portion of the fuel break is located within Sections 19 and 20 of T. 18 S and R. 6 E and Sections 20, 22, 23, and 24 of T. 18 S and R. 5 E on the USGS Campo, California, 7.5-minute topographic quadrangle. The Shockey Truck Trail also runs through Sections 24 and 28 of T. 18 S and R. 4 E on the USGS Potrero, California, 7.5-minute topographic quadrangle (Figures 2.1-1 to 2.1-5).

Disturbances along the Shockey Truck Trail include: a series of dirt roads that are used by U.S. Border Patrol agents on a daily basis and two wildfires that occurred in 1999 (Clay Howe, BLM personal communication).

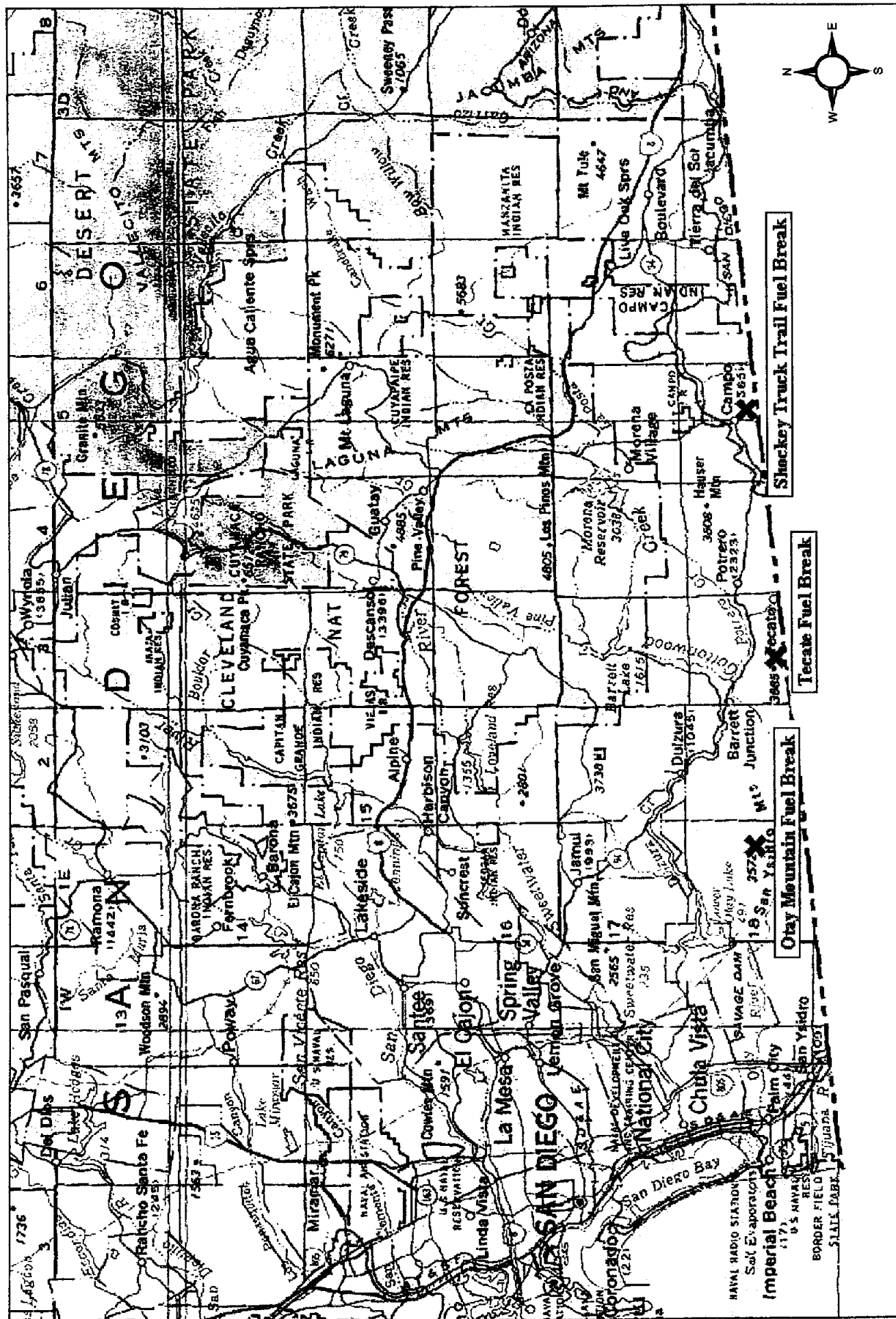
TECATE PEAK

The Tecate Peak portion of the fuel break is located southwest of the city of Tecate, east of State Highway 805, and south of State Highway 94 in San Diego County, California. It begins just south of the Tecate Peak lookout tower and ends east of Tecate Road (Highway 188). The fuel break runs east to west and can be accessed via State Highway 188. Elevation on the Tecate Peak fuel break ranges from approximately 2,200 feet above MSL to 3,200 feet above MSL. Although USGS blue-line drainages do not cross the survey area, there are several USGS blue-line drainages located in the vicinity including: Cottonwood Creek to the west, Potrero Creek to the north and Campo Creek to the east. These are all tributaries of the Tijuana River. Specifically, the site is located within Sections 26 and 28 of T.18 S and R. 3 E on the USGS Tecate, California, 7.5-minute topographic (Figures 2.2-1 to 2.2-2).

Disturbances along Tecate Peak include: a series of dirt roads that are used by U.S. Border Patrol agents on a daily basis, wildfires in 1995 and 1998, a prescribed burn and habitat clearing in 1998 (Clay Howe, BLM personal communication).

OTAY MOUNTAIN

The Otay Mountain section of the fuel break is located west of the city of Tecate, east of State Highway 805 and south of State Highway 94 in San Diego County, California. The site is located north of the Mexican border and runs east to west and can be accessed via State Highway 94 and Marron Valley Road. Elevation ranges from 1,500 feet above MSL to 3,200 feet above MSL. As identified on the USGS topographic quadrangle, a blue-line drainage (Donohoe Spring) occurs at the far east end of the site.



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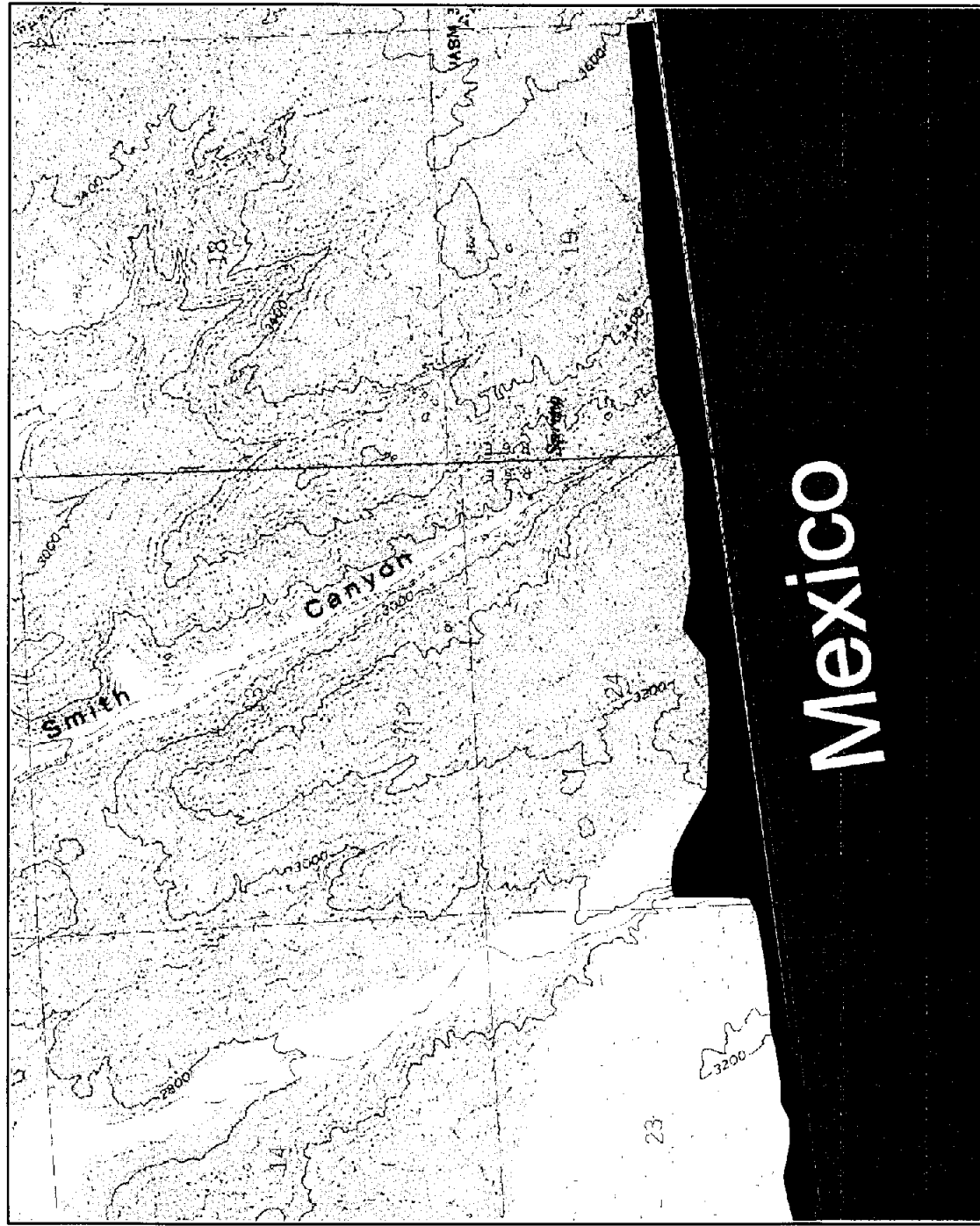
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International Fuel Break
Project Vicinity
Figure 1

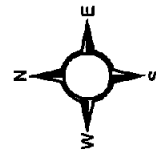


Chambers Group, Inc.

Shockey Truck Trail



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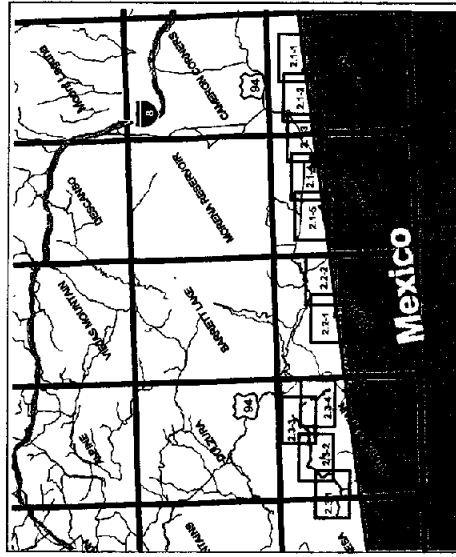
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Survey Area

International Border



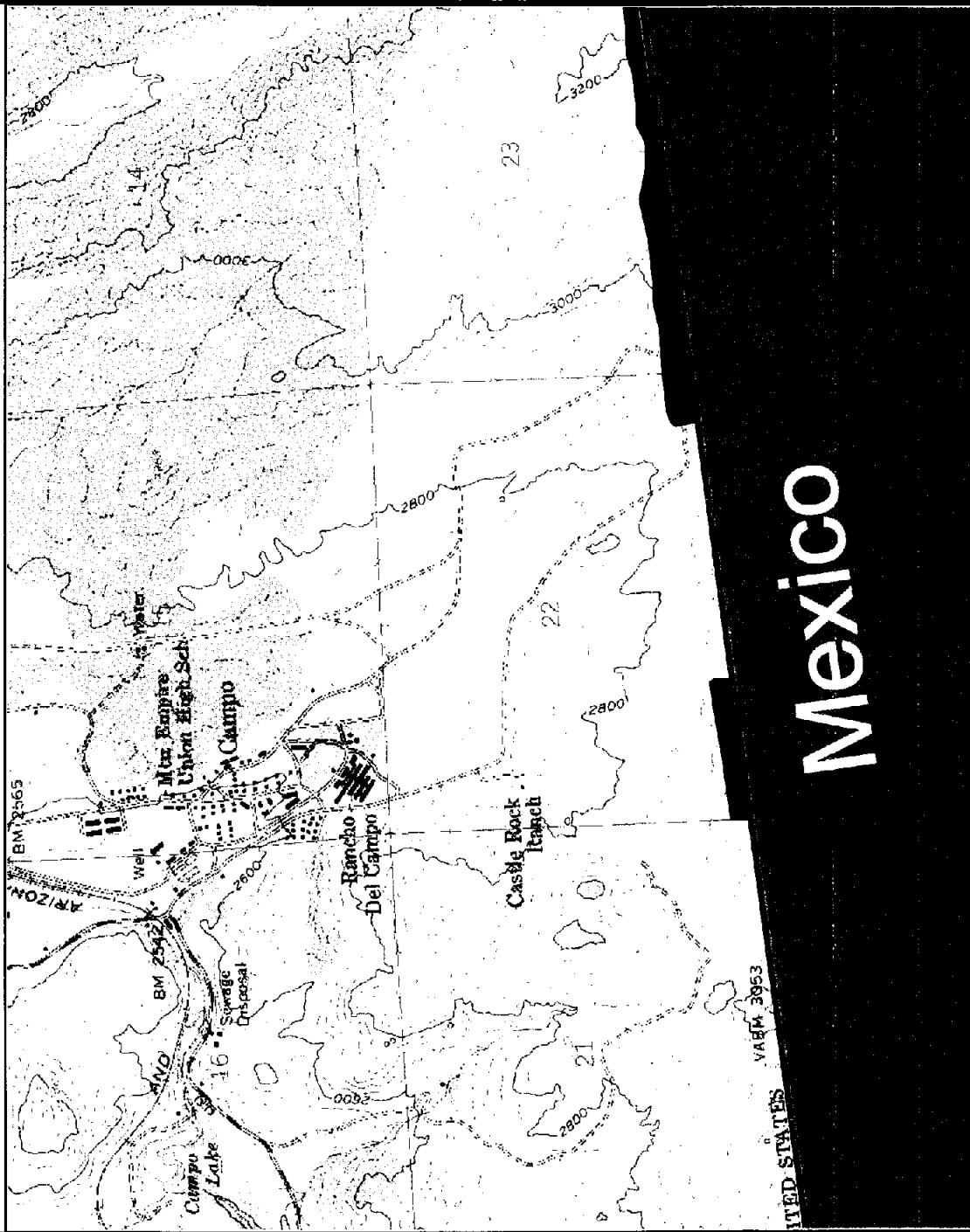
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**Figure 2.1-1
Shockey Truck Trail
Project Location**

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.

International Fuel Break

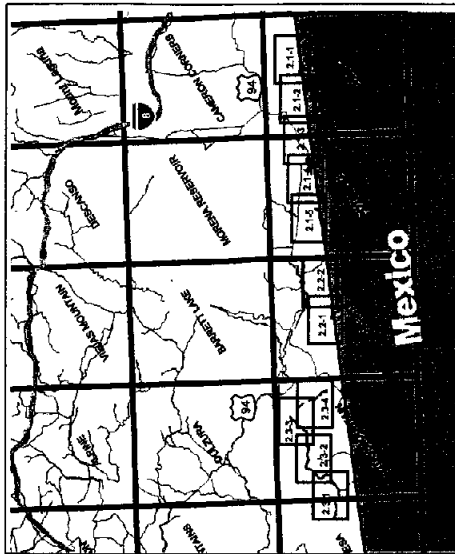
Shockey Truck Trail



Legend

- Survey Area
- International Border

Site Vicinity



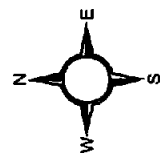
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Figure 2.1-2
Shockey Truck Trail
Project Location

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.



Chambers Group, Inc.



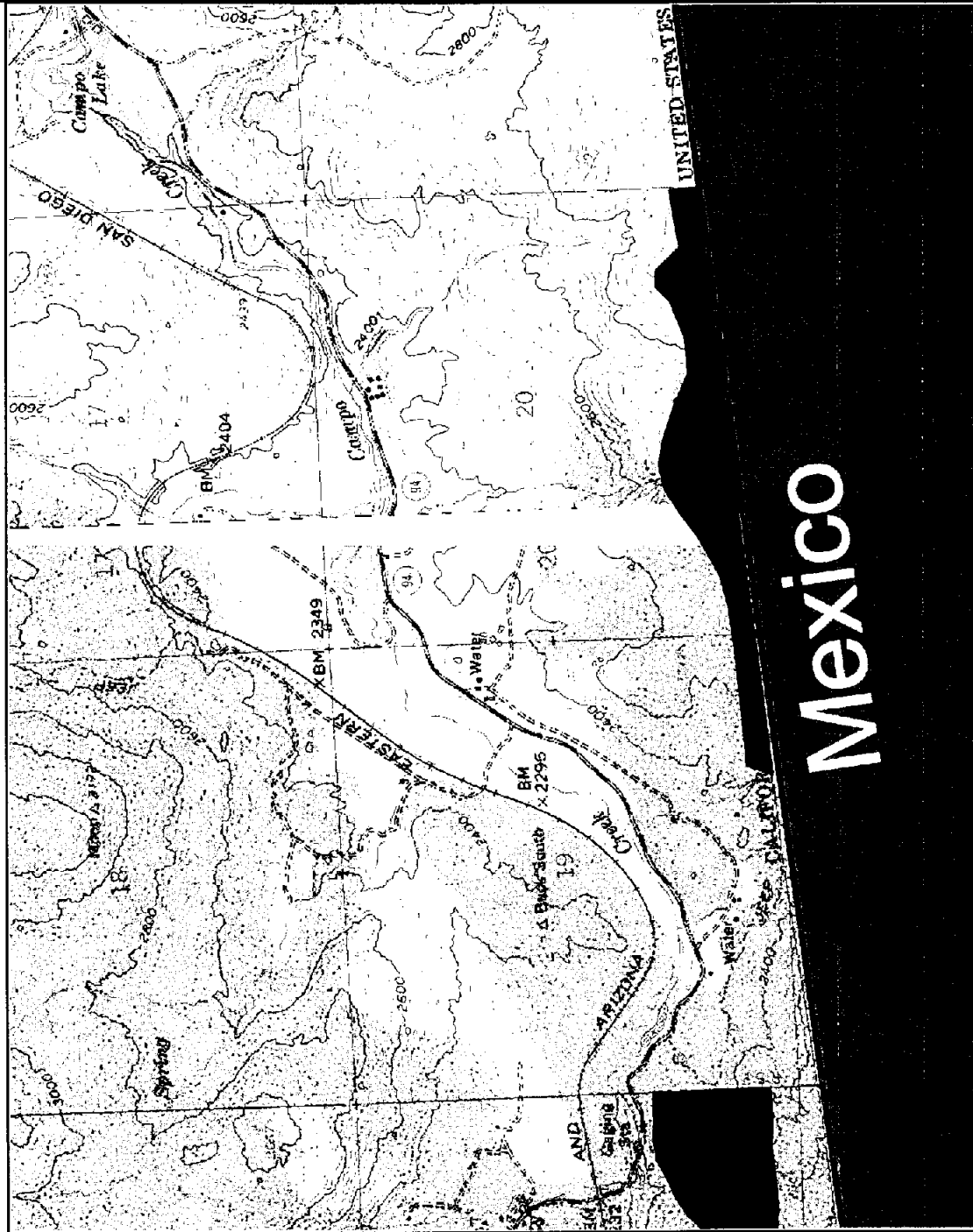
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International Fuel Break

Shockey Truck Trail

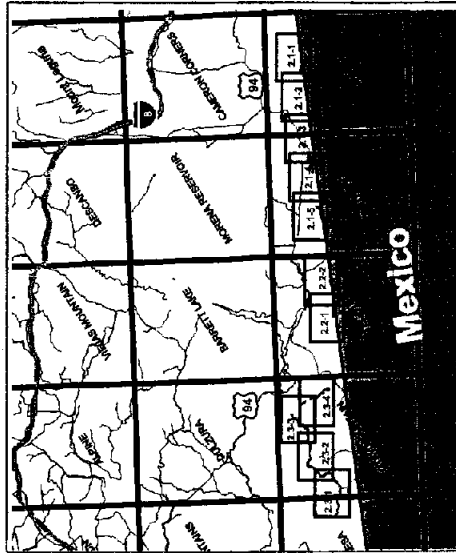


Mexico

Legend

- Survey Area
- International Border

Site Vicinity



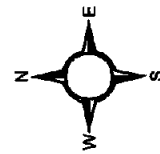
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Figure 2.1-3
Shockey Truck Trail
Project Location

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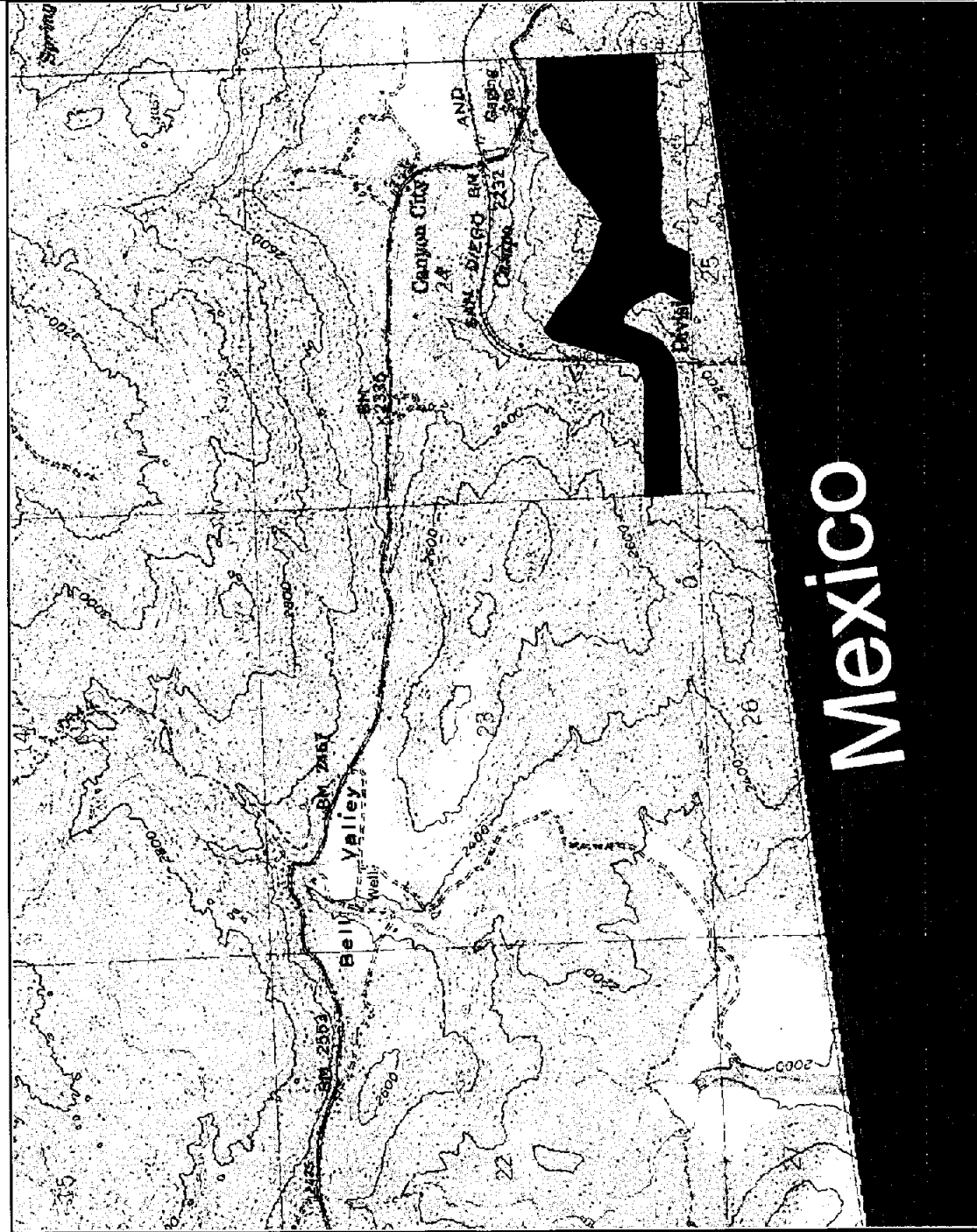
Chambers Group, Inc.



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International Fuel Break

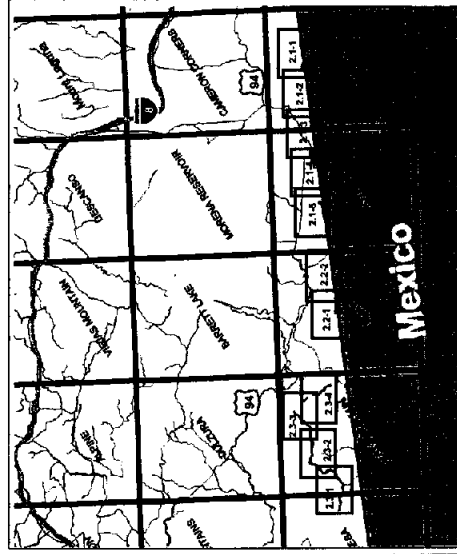
Shockey Truck Trail



Legend

- Survey Area
- International Border

Site Vicinity



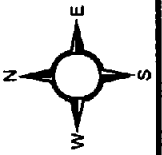
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**Figure 2.1-4
Shockey Truck Trail
Project Location**

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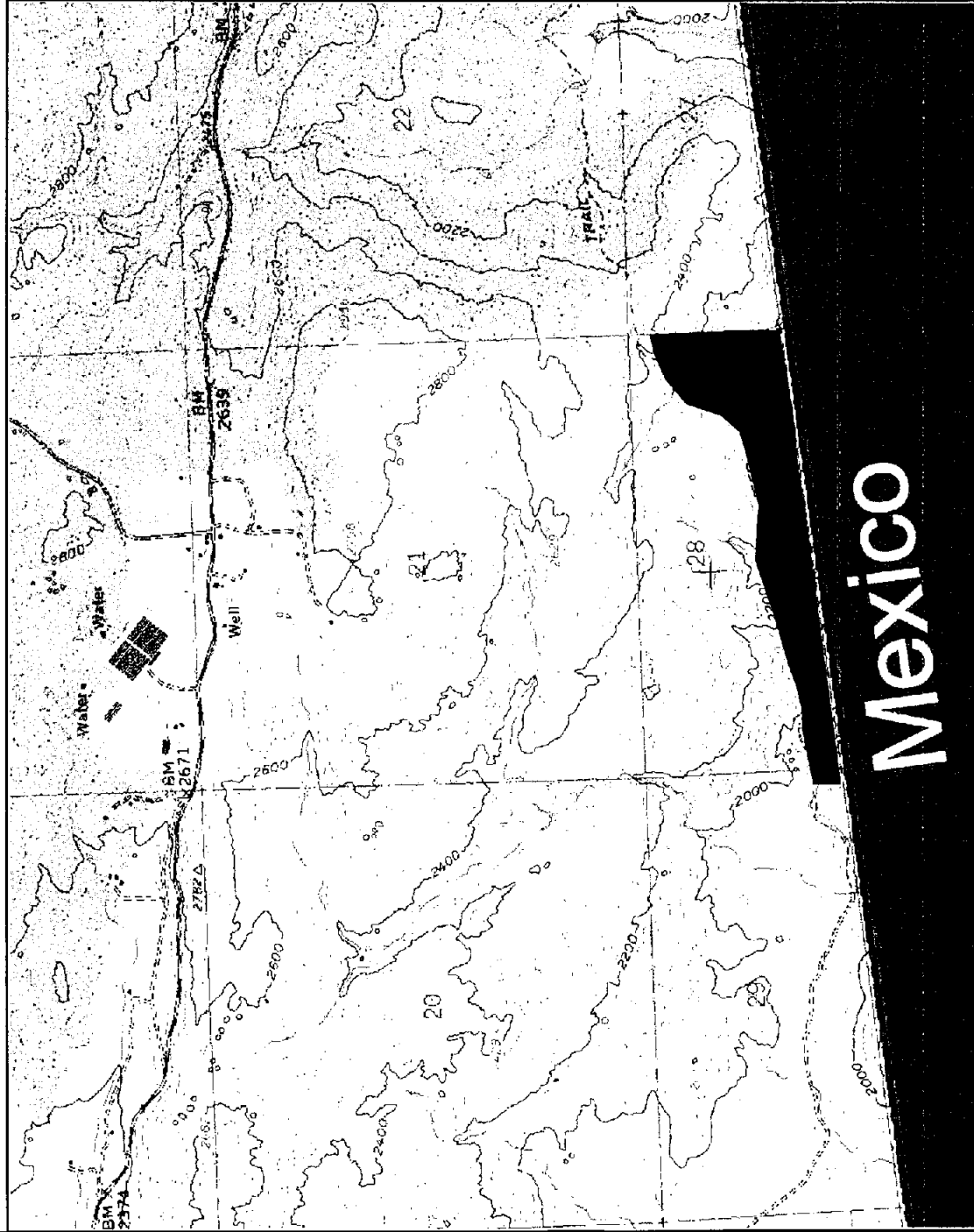
Chambers Group, Inc.



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International Fuel Break

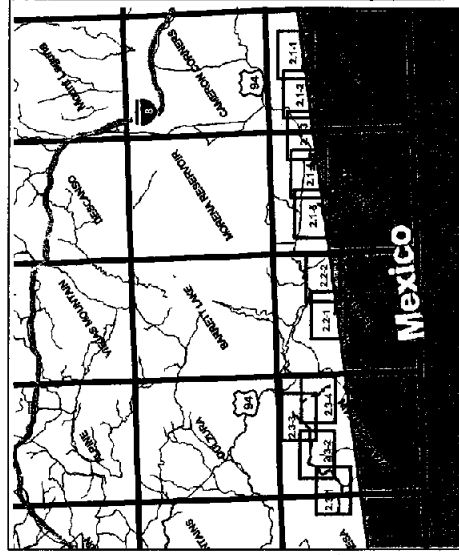
Shockey Truck Trail



Legend

-  Survey Area
-  International Border

Site Vicinity



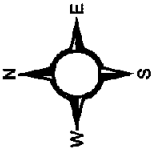
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Figure 2.1-5
Shockey Truck Trail
Project Location

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.



Chambers Group, Inc.



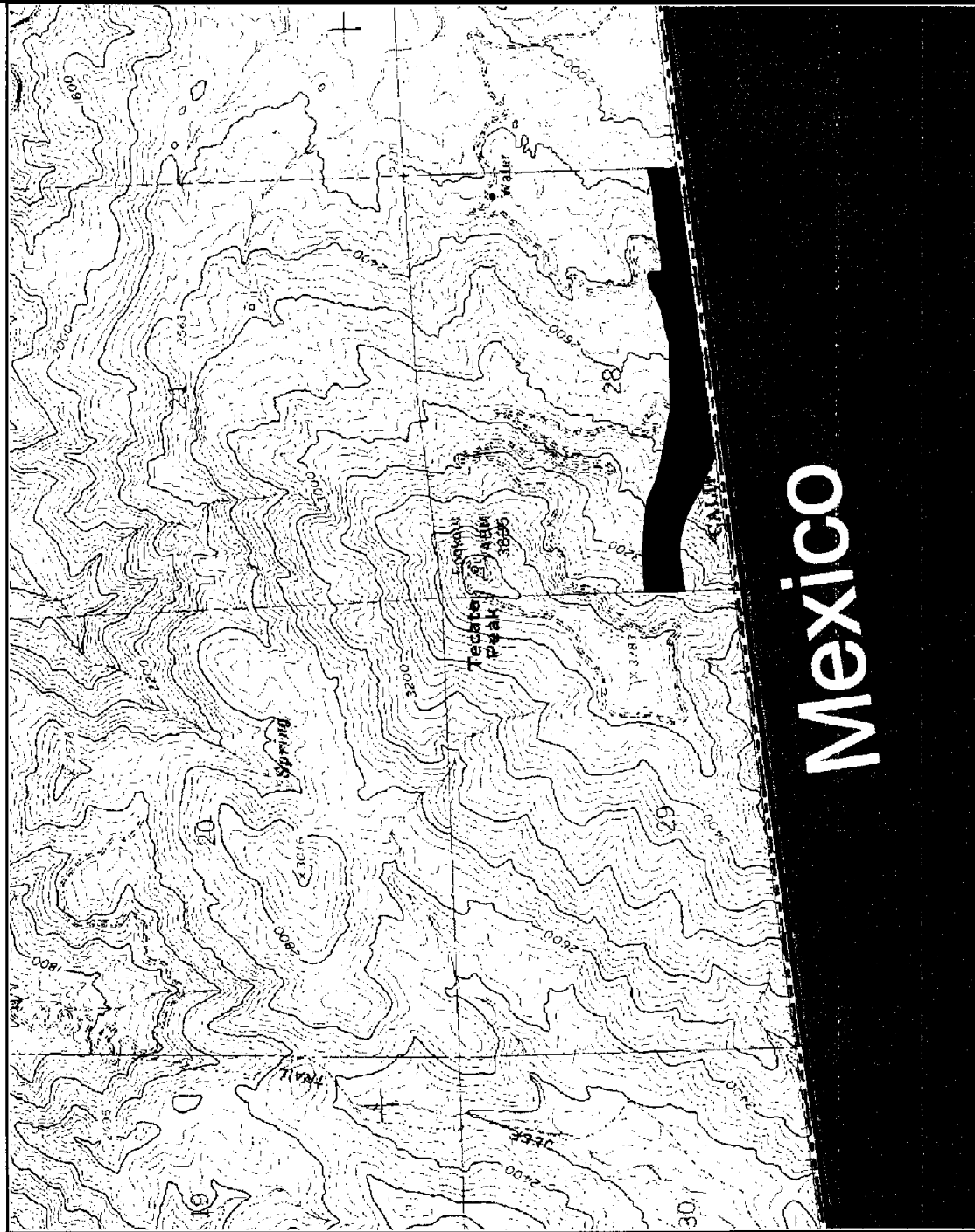
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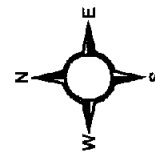
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International Fuel Break

Tecate



Chambers Group, Inc.



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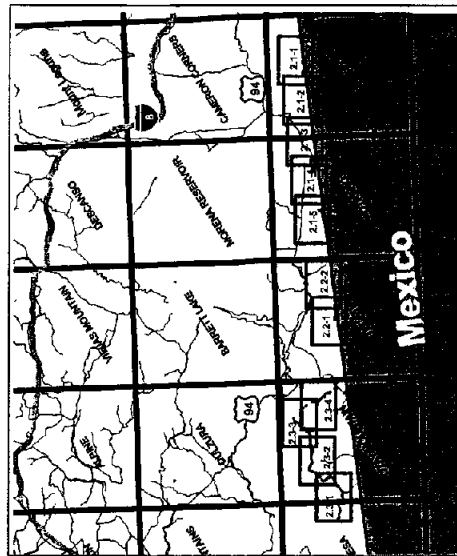
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Legend

Survey Area

International Border

Site Vicinity



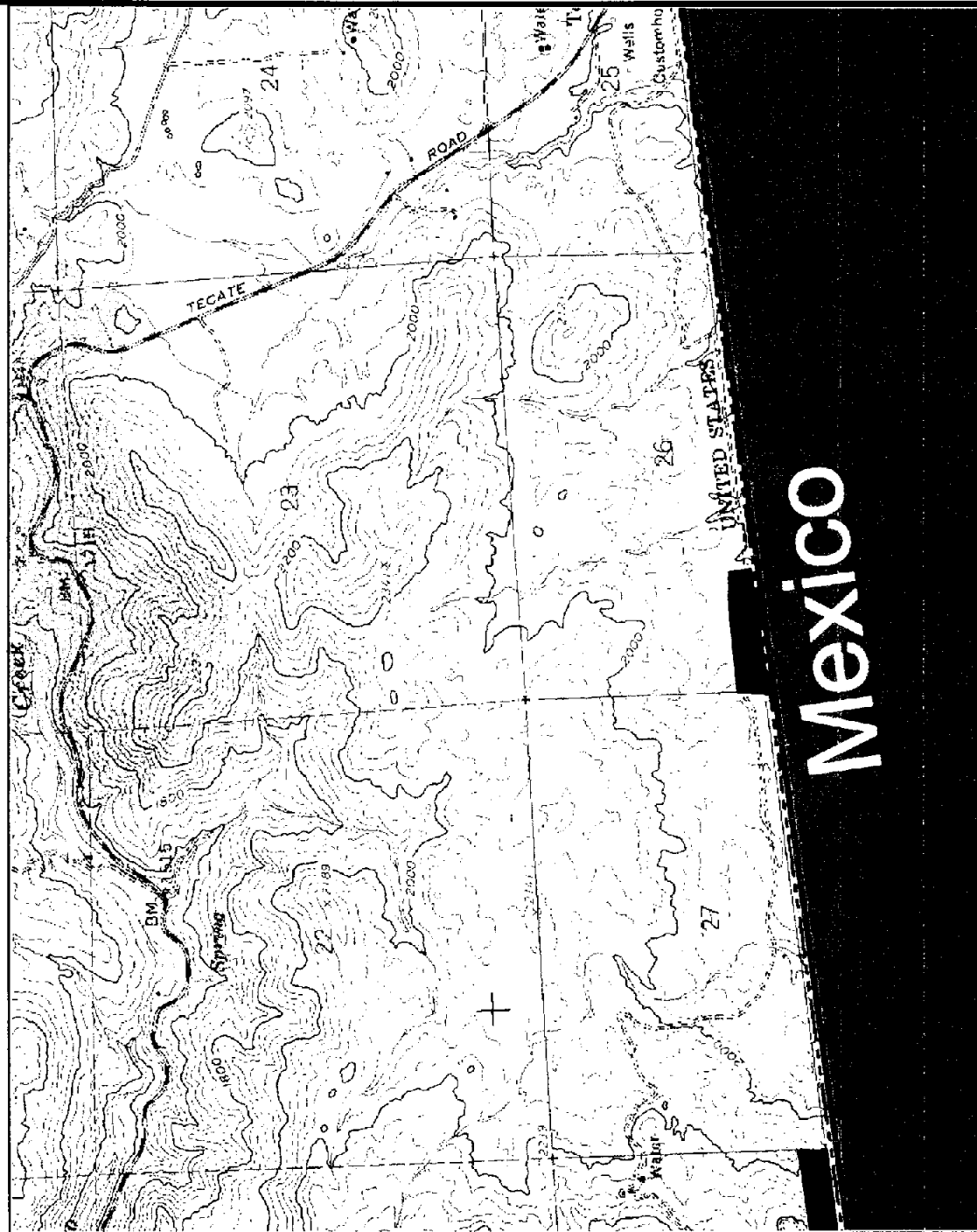
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**Figure 2.2-1
Tecate
Project Location**

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.

International Fuel Break

Tecate

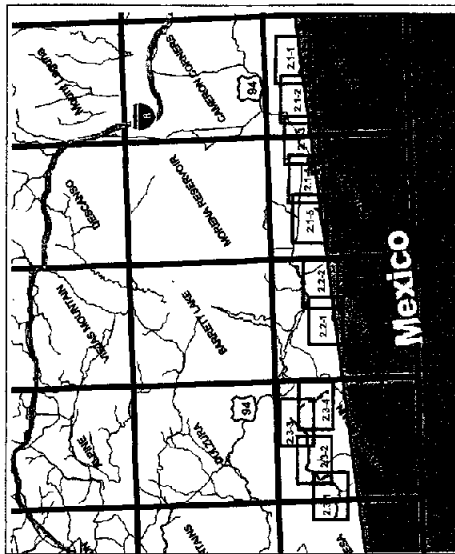


Legend

Survey Area

International Border

Site Vicinity



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Figure 2.2-2

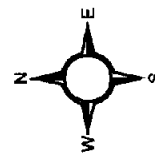
Tecate

Project Location

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.



Chambers Group, Inc.



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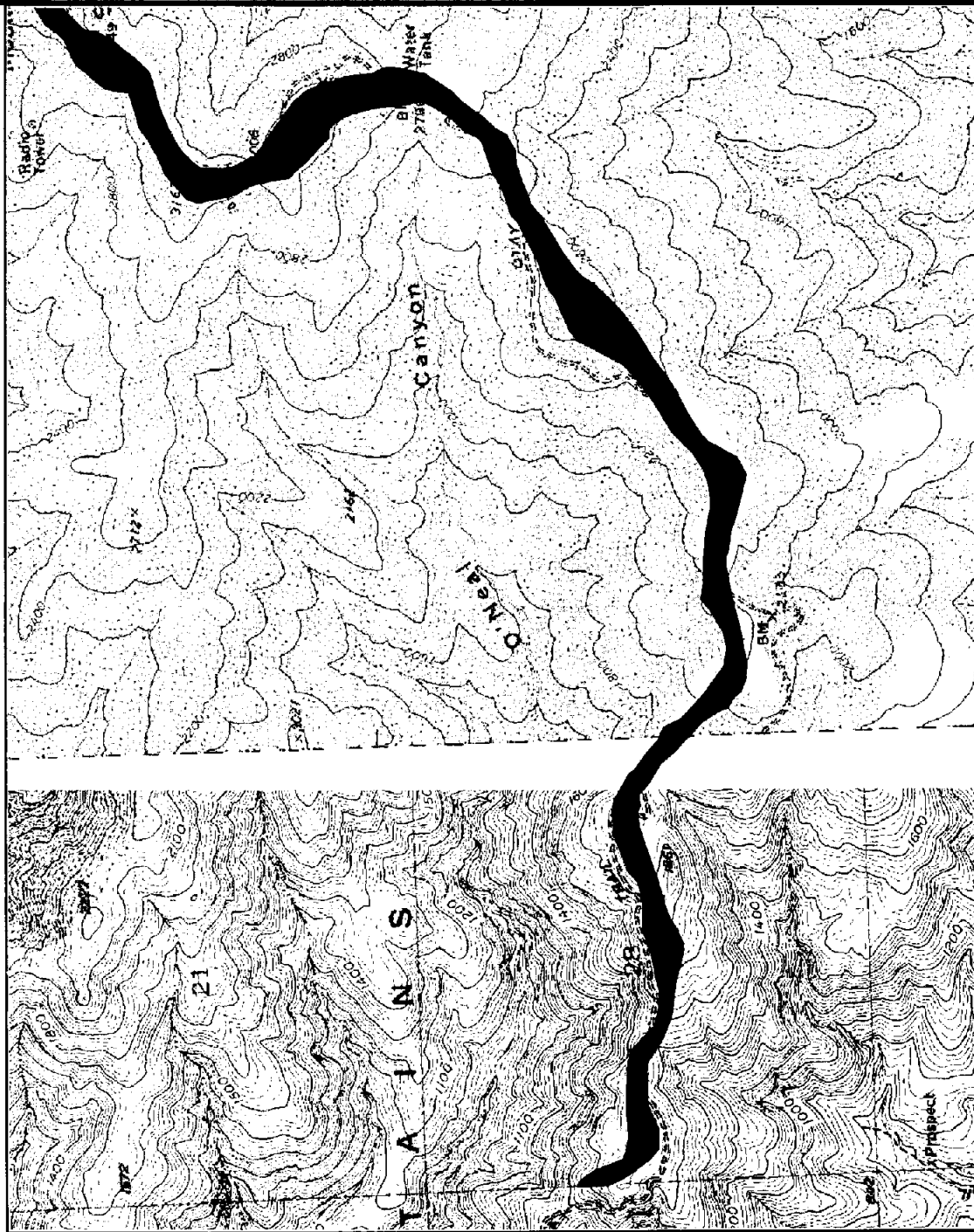
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Specifically, the site is located within Section 28 of T. 18 S and R. 1 E on the USGS Otay Mesa, California, 7.5-minute topographic quadrangle and ends in Section 27 of T. 18 S and R. 2 E on the Otay Mountain, California, 7.5-minute topographic quadrangle. The majority of the linear survey site runs through the San Ysidro Mountains on unnumbered sections of the Otay Mountain Quadrangle (Figures 2.3-1 to 2.3-4).

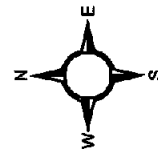
Disturbances along Otay Mountain include: a series of dirt roads that are used by U.S. Border Patrol agents on a daily basis, a wildfire in 1996, and habitat clearing in 2002 (Clay Howe, BLM personal communication).

International Fuel Break

Otay Mountain



Chambers Group, Inc.



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Legend

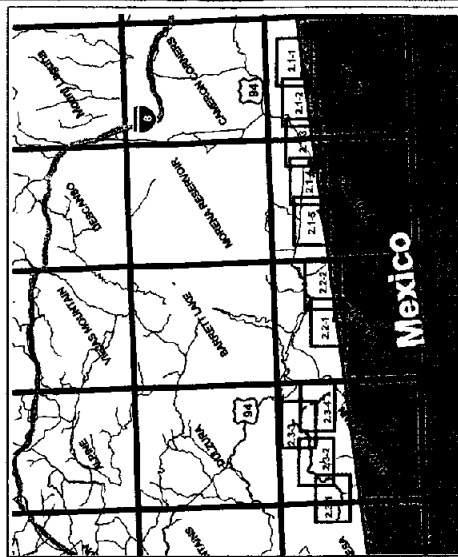
Survey Area



International Border



Site Vicinity



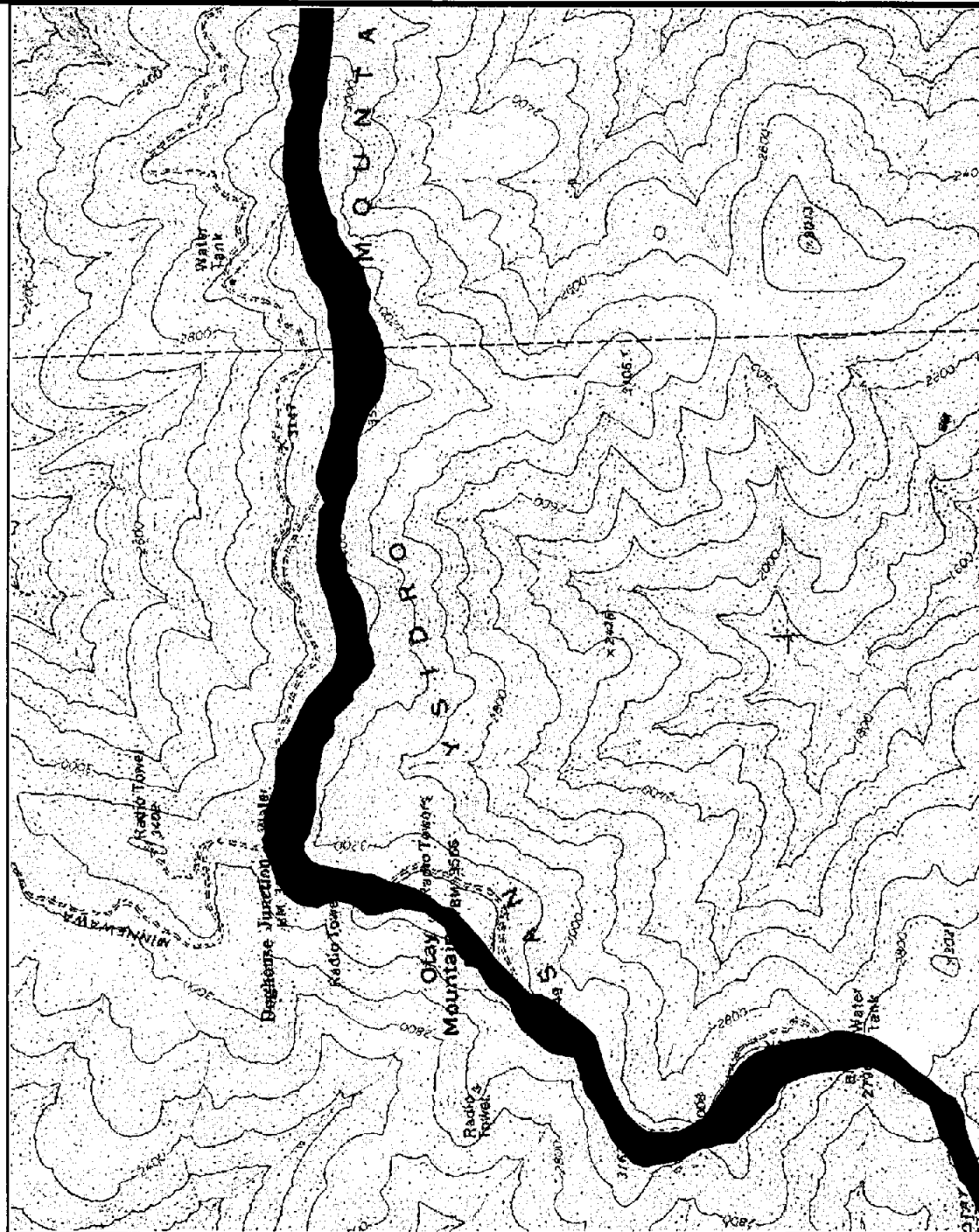
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**Figure 2.3-1
Otay Mountain
Project Location**

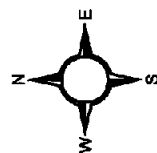
Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.

International Fuel Break

Otay Mountain



Chambers Group, Inc.



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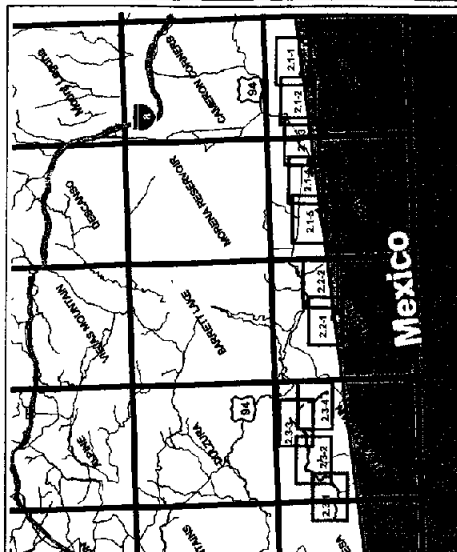
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Legend

Survey Area

International Border

Site Vicinity

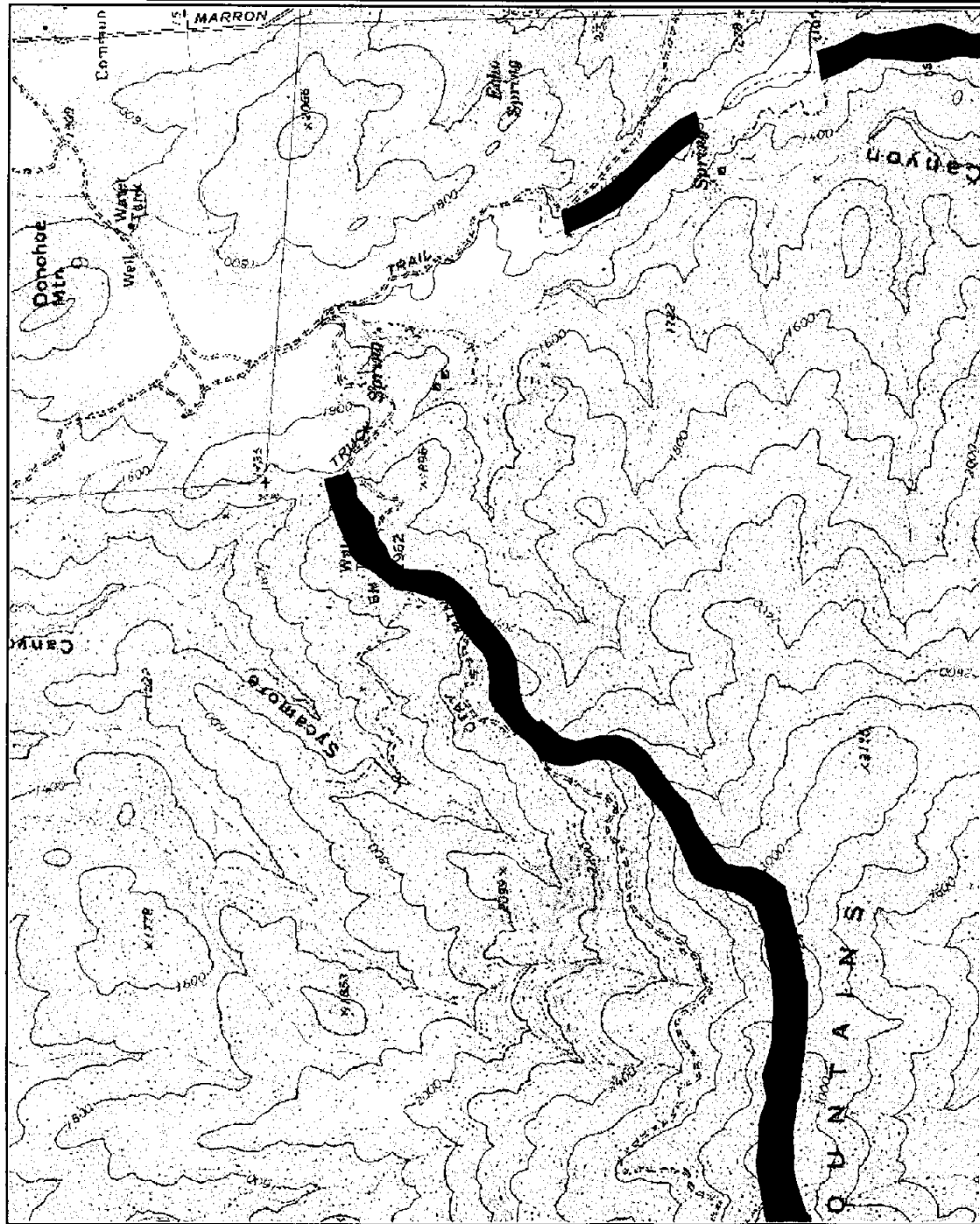


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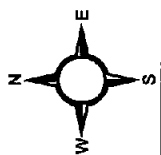
**Figure 2.3-2
Otay Mountain
Project Location**

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.

Otay Mountain



Chambers Group, Inc.



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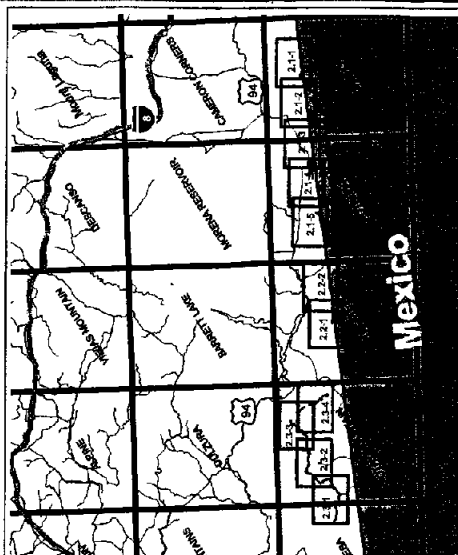
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Survey Area



International Border

Site Vicinity

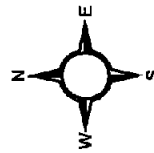
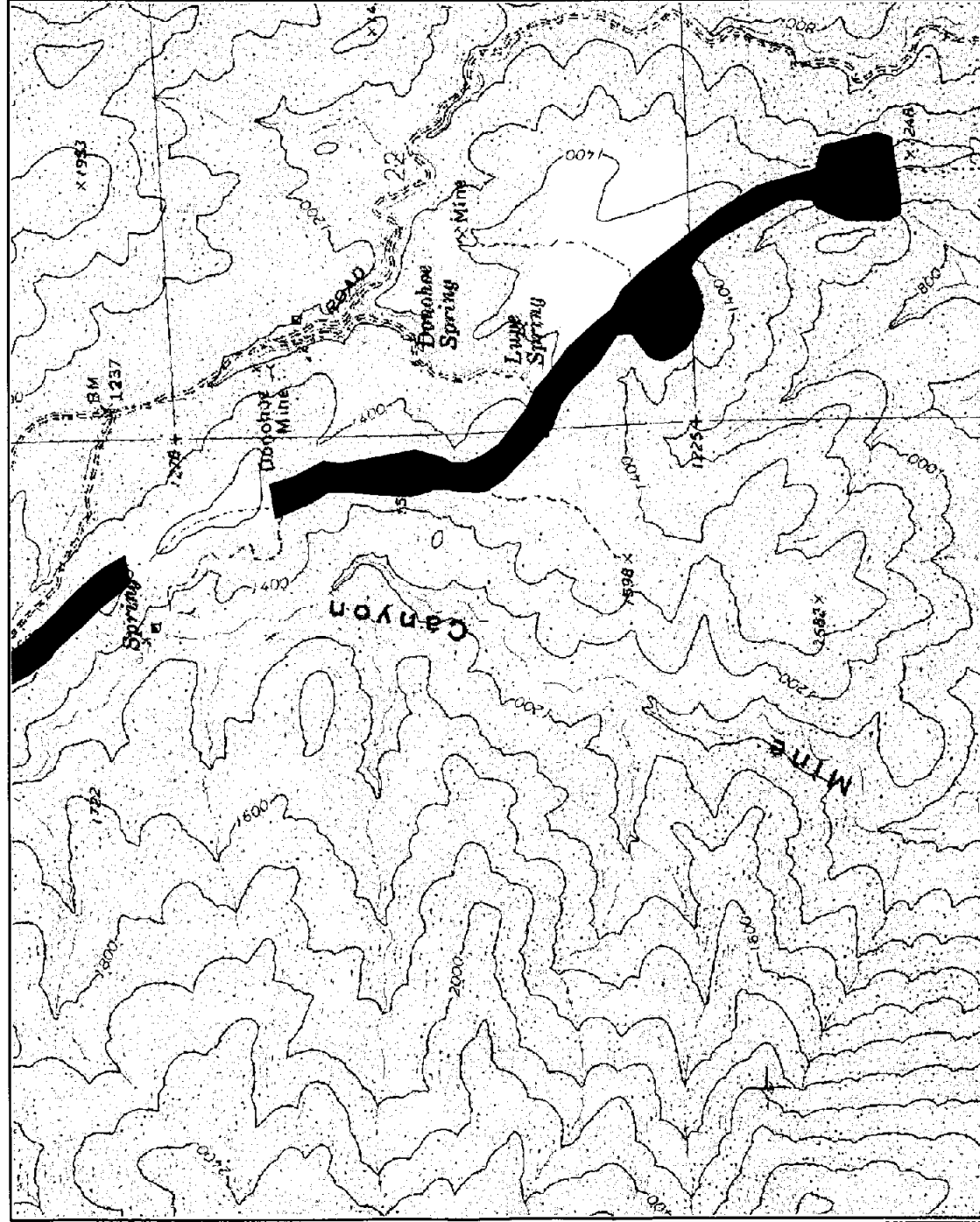


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Figure 2.3-3 Otay Mountain Project Location

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.

Otay Mountain



Chambers Group, Inc.



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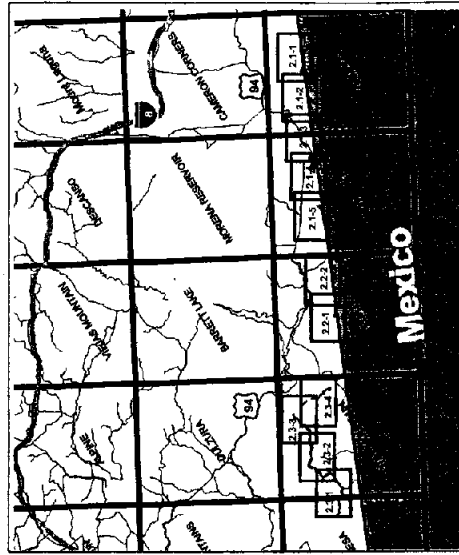
Survey Area



International Border



Site Vicinity



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**Figure 2.3-4
Otay Mountain
Project Location**

Not for site-specific use. All locations are approximate. Background Source: USGS 7.5 Minute Series Quadrangles.

SECTION 3.0 – METHODOLOGY

3.1 GENERAL

Prior to performing the field survey, existing documentation relevant to the project site was reviewed. The most recent records of the California Natural Diversity Database (CNDDB 2002) and the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI 2002) were reviewed for the quadrangles containing and surrounding the project site (i.e., Otay Mountain, Otay Mesa, Portrero, Campo, Tecate, Dulzura, Barrett Junction, Morena Reservoir, and Cameron Corners USGS 7.5 minute quadrangles). These databases contain records of reported occurrences of federal- or state-listed endangered or threatened or proposed endangered or threatened species, Federal Species of Concern (FSC), California Species of Special Concern (CSC), or otherwise sensitive species or habitat that may occur within or in the immediate vicinity of the project site. Lists from the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) were also reviewed, and lists of sensitive wildlife and plant species potentially occurring within the project site were developed.

Reconnaissance-level surveys were conducted on March 1 and 5, 2002, by Chambers Group biologists to identify vegetation communities and the distribution and relative abundance of general and sensitive wildlife resources on the property. A habitat assessment was also performed to determine the relative quality or potential of the habitat types to support sensitive plant and wildlife species.

The survey was conducted by walking the property and recording plant and wildlife observations on standardized field data sheets. Plant communities on the property were identified and qualitatively described. Biological resources on the property were inventoried and the potential for the presence of sensitive plant and wildlife species and sensitive habitats was assessed; focusing on those species listed as threatened or endangered by the state and federal agencies. Notes were made of the general vegetation types, species observed, and the potential for plant and wildlife habitat on the property.

3.2 VEGETATION

A reconnaissance-level botanical survey was conducted on March 1 and 5, 2002, to identify vegetation communities located along the fuel break and to determine the presence or potential presence of sensitive plant species and habitat. Access to all of the sites was obtained via the dirt road that occurs in the middle of the site. Surveyors assessed the resources by walking along the road and on either side of the road within the established limits of the fuel break.

All plant species observed were recorded in field notes. Plants of uncertain identity were collected and subsequently identified from keys, descriptions, and illustration in Abrams (1923, 1944, 1951), Abrams and Ferris (1960), Hickman (1993), and Munz (1974). Separate plant lists for each of the three sections within the fuel break were compiled. The lists of plant species observed at Shockey Truck Trail, Tecate Peak, and Otay Mountain during the surveys are included as Appendices A1, A2, and A3, respectively.

During the field survey, all habitat types were visited to identify dominant species and to classify each vegetation type according to the CNPS's nomenclature (Sawyer and Keeler-Wolf 1995) or other systems, as applicable (e.g., Holland 1986; Beauchamp 1986; Boyd et al. 1995; Mayer and Laudenslayer, Jr. 1988).

3.3 WILDLIFE

3.3.1 General

A reconnaissance-level field survey was performed throughout the site to characterize the distribution and relative abundance of wildlife species, wildlife resources, and wildlife habitat within the project site. The survey was conducted by Chambers Group biologists, Sophie Chiang, Lisa Allen, and Stacie Tennant, on

March 1 and 5, 2002. Habitat types within the project site were investigated, concentrating on sensitive habitat areas (e.g., coastal sage scrub, riparian) within the project site and its immediate vicinity. Wildlife and wildlife sign, including tracks, fecal material, carcasses, nests, excavations, and vocalizations, were noted and recorded on standardized data sheets included as Appendix B. A list of wildlife species observed during the site visits and the focused Quino surveys is included as Appendix C.

3.3.2 Quino Checkerspot Butterfly Habitat Assessment

A Quino checkerspot butterfly habitat assessment was conducted on March 1 and 5, 2002. Conditions during the site visit were mostly clear, with winds of 3 to 10 mph and temperatures ranging from 56°F to 73°F. The entire site was surveyed to determine the suitability of the site as potential Quino habitat. Closed canopy forests or riparian areas, dense chaparral, and small openings completely enclosed within a closed-canopy or dense chaparral area were regarded as unsuitable habitat and designated as excluded areas as in accordance with the guidelines set forth by the USFWS 2002 Quino checkerspot survey protocol. All non-excluded areas (i.e., hilltops, ridgelines, rock outcrops, areas containing host plants or nectar resources) were regarded as potential habitat that will require focused adult surveys.

3.4 SENSITIVE SPECIES POTENTIAL FOR OCCURRENCE CRITERIA

A sensitive species was considered as a potential inhabitant of the project site if its known geographical distribution encompassed part of the project site or if its distribution was near the site and general habitat requirements of the species were present (such as the presence of roosting, nesting, or foraging habitat, or a permanent water source). Furthermore, the potential for each species to occur within the project site was also assessed. The "potential for occurrence" ranking is based on the following criteria:

- Low potential for occurrence – No recent or historical records exist of the species occurring within the project site or its immediate vicinity (within approximately 5 miles) and the diagnostic habitat requirements strongly associated with the species do not occur within the project site or its immediate vicinity.
- Moderate potential for occurrence – Either a historical record exists of the species within the project site or its immediate vicinity (within approximately 5 miles) or the diagnostic habitat requirements associated with the species do occur within the project site or its immediate vicinity.
- High potential for occurrence – Both a historical record exists of the species within the project site or its immediate vicinity (within approximately 5 miles) and the diagnostic habitat requirements strongly associated with the species do occur within the project site or its immediate vicinity.
- Species present – The species was observed within the project site at the time of the survey.
- Absent – Species is concluded to be absent from the project area based on failure to detect the species during focused surveys, or no suitable habitat is present, or the site well outside known geographic or elevational ranges.

SECTION 4.0 – RESULTS

4.1 VEGETATION AND GENERAL PHYSICAL CHARACTERISTICS

4.1.1 General

The project site, encompassing approximately 438 acres, is primarily composed of coastal sage scrub and chaparral communities. The majority of the fuel break has not been maintained for approximately 5 years and vegetation has begun to grow back. A total of eight plant communities occur on the fuel break. In addition, disturbed and ruderal areas are present also. The following sections summarize the principal characteristics of the vegetation communities and general locations of these communities on each of the sites.

4.1.2 Existing Plant Communities

Shockey Truck Trail

A diversity of plant communities occur on the Shockey site. Six plant communities were identified along the Shockey Truck Trail. In addition, ruderal and disturbed areas are present also. A description of each vegetation community is presented below. The list of plant species identified during the surveys along this section of the fuel break is presented in Appendix A1. Representative site photographs are included as Figures 3A and 3B.

Scrub and Chaparral Habitats

The coastal sage scrub and chaparral habitat on the site is highly variable in terms of the quality of habitat. Many areas of the coastal sage scrub and chaparral show evidence of fire and mechanical clearing and are in the process of recovering and slowly growing back. These areas are considered disturbed. Regeneration of shrubs after fire tends to be more rapid than after mechanical removal and is clearly seen. Resprouts of most major species California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and deerweed (*Lotus scoparius*) are evident. Herbs dominate the areas in terms of species, cover, and biomass. Areas with prior disturbance contain an open canopy with sparsely distributed California buckwheat, California sagebrush, deerweed, and chamise and a higher percentage of non-native weedy species. Whereas, areas that haven't been disturbed, the shrub cover is generally more continuous with very little understory present. Three types of shrub/chaparral habitats are present on the site and include: Diegan coastal sage scrub, chamise chaparral, and coastal sage-chamise chaparral.

Diegan Coastal Sage Scrub

The Diegan coastal sage scrub vegetation consists primarily of low, drought-deciduous and evergreen shrubs. It typically occurs on steep, xeric (dry) slopes or clay-rich soils that are slow to release water. Dominant species present onsite include California sagebrush and California buckwheat with laurel sumac (*Malosma laurina*) and white sage (*Salvia apiana*) also occurring. Associated species present include deerweed, California matchweed (*Gutierrezia californica*), and pine bush (*Ericameria pinifolia*) with a sparse understory of felty everlasting (*Gnaphalium canescens*) and golden yarrow (*Eriophyllum confertiflorum*). Non-native weedy species present include black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), soft chess (*Bromus hordeaceus*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). Diegan coastal sage scrub occurs in the western section of the fuel break in dense patches near Scraper Loop Road, within Horse Shoe Canyon through Sacred Canyon and the Rope Road areas (Figure 2.1-3 and 2.1-5). Disturbed coastal sage scrub occurs near Smith Canyon (Figure 2.1-1 and 2.1-2).



PHOTO 1. VIEW OF COASTAL SAGE SCRUB HABITAT.

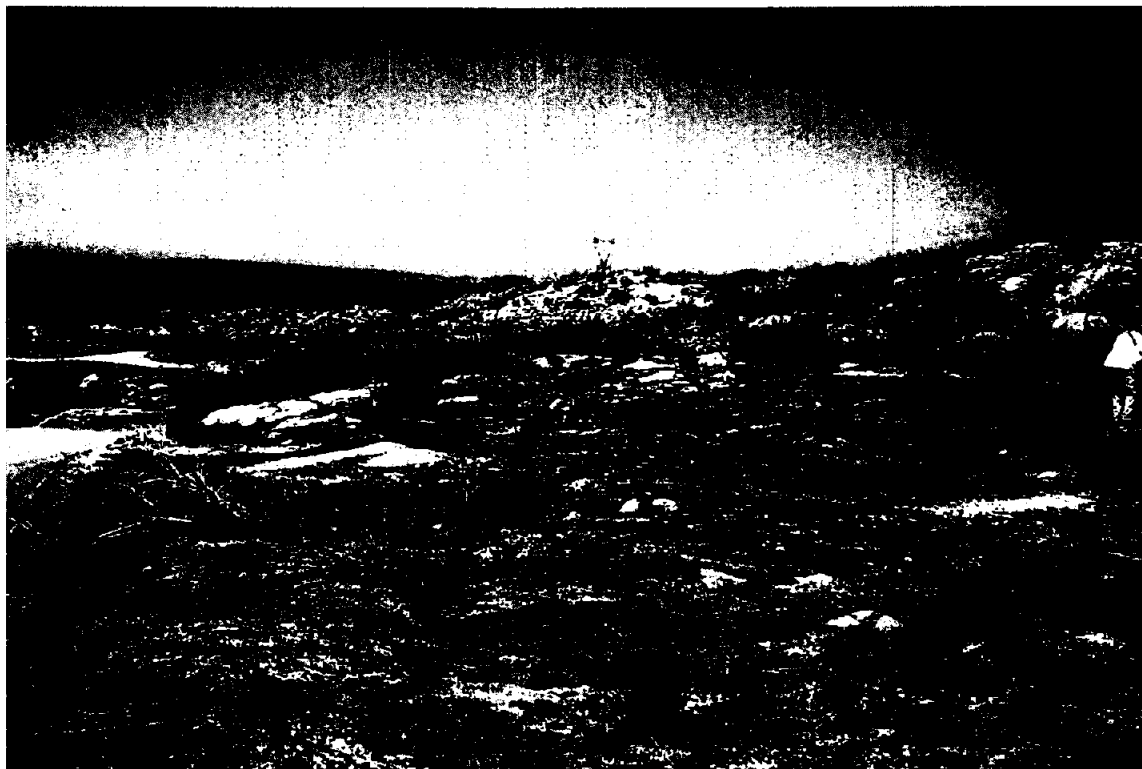


PHOTO 2. VIEW OF RUDERAL HABITAT PRESENT ON FUEL BREAK.



PHOTO 3. VIEW OF FUEL BREAK AND CAMPO CREEK.

Chamise Chaparral

Chaparral generally consists of evergreen, medium to tall shrubs that are adapted to occasional wildfires. Chamise chaparral consists of vegetation that is dominated by chamise. Mature stands are densely interwoven with very little herbaceous understory or litter. Species present on the site include chamise and hairy yerba santa (*Eriodictyon trichocalyx*), with an understory of deerweed, white sage, and California buckwheat. Dense chamise chaparral occurs on steep slopes in the central sections of the fuel break and the Rope Road areas (Figure 2.1-1 and 2.1-3). Several areas of chamise chaparral were disturbed as a result of previous fires and clearing as stated above. These areas occur near Smith Canyon and the east end of the fuel break (Figure 2.1-1).

Coastal sage-Chamise Chaparral

Coastal sage-chamise chaparral scrub is an intergradation of chaparral and sage scrub communities, and is characterized by component plant species of both community types. The species observed in the coastal sage-chaparral scrub onsite include chamise, California buckwheat, California sagebrush, ceanothus (*Ceanothus* sp.), scrub oak (*Quercus berberidifolia*), bigberry manzanita (*Arctostaphylos glauca*), and laurel sumac. Dense coastal sage-chamise chaparral occurs near Scraper Loop Road (Figure 2.1-5) in the west end and disturbed coastal sage-chamise chaparral occurs near Smith Canyon and the east end of the fuel break (Figures 2.1-1 and 2.1-2).

Riparian and Woodland Habitats

Mule Fat Scrub

Mule fat scrub is a tall, herbaceous riparian scrub community dominated by mule fat (*Baccharis salicifolia*). This community is an early seral stage that forms in damp sandy soils and is maintained by frequent flooding. When such flooding is absent, this community usually changes into cottonwood-sycamore riparian forest or woodland (Holland 1986). Mule fat scrub occurs in a small area within Campo Creek in the western portion of the fuel break (Figure 2.1-4).

Southern Cottonwood-Willow Riparian Forest

Southern cottonwood-willow riparian forest is an open, broadleaved, winter deciduous riparian forest dominated by Fremont's cottonwood (*Populus fremontii*) and several species of willow trees (*Salix* sp.). Several herbaceous species onsite including cattail (*Typha latifolia*) and annual beard grass (*Polypogon monspeliensis*) are present in the understory. This vegetation community occurs along Campo Creek (Figure 2.1-4).

Coast Live Oak Woodland

Coast live oak woodland is dominated by coast live oak (*Quercus agrifolia*), but unlike the coast live oak riparian forest, the woodland is not always directly associated with a drainage. The coverage of the canopy is generally more open in this type of woodland than that found in the riparian community. These areas support a dense closed-canopy coast live oak woodland dominated by coast live oak with very little understory. This community occurs within Smith and La Gloria Canyons located in the eastern portion of the fuel break (Figure 2.1-1).

Other Areas

Ruderal

Ruderal areas are generally a result of disturbances caused by humans. Ruderal areas are typically characterized by heavily compacted or frequently disturbed soils. Plant species occurring in ruderal areas are adapted to survive in these conditions and readily colonize disturbed ground. Ruderal areas on the site exhibit varying degrees of past surface disturbance. The plant species that occur in this area

onsite include black mustard, totalote (*Centaurea melitensis*), deerweed, California buckwheat, red-stemmed filaree (*Erodium cicutarium*), felty everlasting, and California matchweed. Ruderal communities within the fuel break occur in the eastern portion near Forest Gate Road and in a large portion of the fuel break after La Gloria Canyon (Figure 2.1-1 and 2.1-2).

Disturbed Areas

Disturbed areas are those areas that are either devoid of native vegetation (cleared or graded) including dirt roads, or areas dominated by a sparse cover of ruderal vegetation. The disturbed areas on the site include the dirt roads that access the fuel break and the numerous immigrant trails scattered throughout the site.

Tecate

Two plant communities were identified on the Tecate site. In addition, ruderal and disturbed areas occur on the site also. The list of plant species identified during the surveys along this section of the fuel break is presented in Appendix A2. Representative site photographs are included as Figure 4A.

Sage Scrub and Chaparral Habitats

Southern Mixed Chaparral

Chaparral habitat is characterized by large, evergreen shrubs that are adapted to occasional wildfires. Southern mixed chaparral, is the most mesic expression of the southern California chaparral types and it is extremely dense. It is present at higher elevations on steep canyon slopes and intergrades with coast live oak woodland and coastal sage scrub communities. Shrub species found in this community onsite include chamise, Eastwood's manzanita (*Arctostaphylos glandulosa*), bigberry manzanita, birch-leaf mountain-mahogany (*Cercocarpus betuloides*), smooth mountain-mahogany (*Cercocarpus minutiflorus*), laurel sumac, and scrub oak. Other species found in the occasional openings in the plant community include felty everlasting, hairy yerba santa, and California matchweed. This community is present in the western section along the steeper elevations of the fuel break (Figure 2.2-1).

Coastal Sage – Chamise Chaparral

The chaparral species observed in the coastal sage-chamise chaparral scrub onsite include chamise, bigberry manzanita, and laurel sumac. California sagebrush, deerweed and California buckwheat are common sage scrub species occurring in this community. This community occurs throughout the fuel break with several disturbed areas recovering from previous fires and habitat clearing (Figures 2.2-1 and 2.2-2).

Other Areas

Ruderal

Ruderal communities occur in the eastern section of the Tecate fuel break along the border fence areas. This community is dominated by broad-lobed filaree (*Erodium botrys*) with black mustard, foxtail chess, and deerweed occurring also.

Disturbed Areas

The disturbed areas on the site include the dirt roads that access the fuel break and the numerous immigrant trails scattered throughout the site.



PHOTO 1. VIEW OF CHAPARRAL HABITAT SURROUNDING THE FUEL BREAK.



PHOTO 2. VIEW OF PROJECT SITE SHOWING FUEL BREAK LIMITS.

Otay Mountain

A diversity of plant communities occurs on the Otay Mountain fuel break. The Otay Mountains contain an assemblage of very restricted and unique plants. The predominant vegetation is chaparral with coastal sage scrub intermixed at lower elevations. Five plant communities were identified within the Otay Mountain fuel break. A description of each vegetation community is presented below. The list of plant species identified during the surveys along this section of the fuel break is presented in Appendix A3. Representative site photographs are included as Figures 5A and 5B.

Sage Scrub and Chaparral Habitats

As stated above, the coastal sage scrub and chaparral habitat on the site is highly variable in terms of the quality of habitat. Many areas of the coastal sage scrub and chaparral show evidence of fire and mechanical clearing and are in the process of recovering. These areas are considered disturbed. Areas with prior disturbance contain an open canopy with sparsely distributed California buckwheat, California sagebrush, deerweed, and chamise and a higher percentage of non-native weedy species. Diegan coastal sage scrub, coastal sage-chamise chaparral, chamise chaparral, and southern mixed chaparral habitats are present on the site.

Diegan Coastal Sage Scrub

This community is dominated by California buckwheat and California sagebrush with a grassy understory. Other vegetation present include hairy yerba santa, deerweed, California matchweed, California bush sunflower (*Encelia californica*), saw-toothed goldenbush (*Hazardia squarrosa*), and laurel sumac. Coastal sage scrub is scattered throughout the fuel break (Figures 2.3-3 and 2.3-4).

Coastal Sage-Chamise Chaparral

The chaparral species observed in the coastal sage-chaparral scrub onsite include chamise, ceanothus (*Ceanothus* sp.), birch-leaf mountain mahogany, manzanita, and laurel sumac. California sagebrush, deerweed, and California buckwheat are common sage scrub species occurring in this community. This community occurs in the central portion of the fuel break with several disturbed areas occurring due to previous fires and clearing (Figures 2.3-3 and 2.3-4).

Chamise Chaparral

Chamise chaparral occurs on steep slopes in the central portion of the fuel break within O'Neal Canyon and other areas along the Otay Mountain Truck Trail. Several areas of chamise chaparral are disturbed as a result of a 1996 fire, which burned throughout the fuel break area. This community is dominated by chamise, laurel sumac, black sage, and hairy yerba santa with an understory of deerweed, bush poppy, and chaparral pea (Figure 2.3-3).

Southern Mixed Chaparral

This community on the site is dominated by mountain misery (*Chamaebatia foliolosa*), manzanita, chaparral pea (*Pickeringia montana* ssp. *tomentosa*), laurel sumac, and birch-leaf mountain-mahogany. Other species found in the understory and in the occasional openings in the plant community include golden yarrow, black sage (*Salvia mellifera*), hairy yerba santa, Pride of California (*Lathyrus splendens*), and bush poppy (*Dendromecon rigida*). This community is present in the central and western sections of the fuel break (Figures 2.3-1 and 2.3-2).



PHOTO 1. VIEW OF PROJECT SITE SHOWING OTAY TRUCK TRAIL AND FUEL BREAK LIMITS.



PHOTO 2. CHAMISE CHAPARRAL HABITAT PRESENT ON THE FUEL BREAK.



PHOTO 3. VIEW OF MIXED CHAPARRAL AND MIXED CHAPARRAL/COASTAL SAGE SCRUB.

Woodland Habitat

Tecate Cypress Stands

Tecate cypress stands is dominated by tecate cypress (*Cupressus forbesii*) and are adapted to infrequent fires as is the chaparral habitat generally adjacent to them. Other species present in this community include chamise, ceanothus, and scrub oak. This community occurs scattered along the fuel break mainly in the western portion of the site (Figure 2.3-1 and 2.3-2).

4.1.3 Sensitive Plant Species

The literature review resulted in a list of 61 sensitive plant species that have the potential to occur on or within the vicinity of the project site, according to the CNDDB and CNPSEI. These species, their current status, and the results of the reconnaissance-level survey are summarized in Table 1.

✓ = BLM Sensitive (CNPS 1B or 2)

* = State and/or FED T&E

Table 1

Sensitive Plant Species Occurring or Potentially Occurring within the International Fuel Break Site (Otay, Tecate, and Shockey combined)

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
* <i>Acanthomintha ilicifolia</i> San Diego thorn-mint	Annual herb. Chaparral, coastal scrub, valley and foothill grassland, vernal pools. Endemic to San Diego county and Baja. Endemic to active vertisol clay soils of mesas and valleys. Occurs at elevations of 33-3,067ft.	April-June	Fed: THR Calif. END CNPS: List 1B R-E-D: 2-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Adolphia californica</i> California adolphia	Shrub (deciduous). Chaparral, coastal sage scrub, valley and foothill grasslands from sandy/gravelly to clay soils. Occurs at elevations of 49 to 984 feet.	December-April	Fed: None Calif. None CNPS: 2 R-E-D: 1-3-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species.
✓ <i>Ambrosia chenopodiifolia</i> San Diego bur-sage	Shrub. Coastal scrub. Occurs at elevations of 180 to 508 feet.	April-June	Fed: None Calif. None CNPS: List 2 R-E-D: 3-3-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
* <i>Ambrosia pumila</i> San Diego ambrosia	Perennial herb. Chaparral, coastal scrub, valley and foothill grassland, and vernal pools, often in disturbed areas. Below 1,400 feet in elevation.	May-September	Fed: END Calif: None CNPS: List 1B R-E-D: 3-3-2	Otay Mountain: Moderate. Suitable habitat is present on the site, but the site is slightly above the upper elevational range of the species. Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species.
✓ <i>Arctostaphylos otayensis</i> Otay manzanita	Chaparral, cismontane woodland, often on metavolcanic soil. Occurs at elevations of 902 to 5,576 feet.	January-March	Fed: SOC CA: None CNPS: List 1B R-E-D:3-2-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Astragalus deanei</i> Dean's milk-vetch	Perennial herb. Chaparral, coastal scrub, riparian forest, often on open brushy, south-facing slopes, occasionally in recently burned areas. Occurs at elevations of 246 to 2,198 feet.	February-May	Fed: SOC Calif: None CNPS: List 1B R-E-D: 3-3-3	Otay Mountain: High. Suitable habitat is present on the site. Tecate/ Shockey Truck Trail: Moderate. Suitable habitat is present on the site, but the site is slightly above the upper elevational range for the species.
✓ <i>Astragalus douglasii</i> var. <i>perstrictus</i> Jacumba milk-vetch	Perennial herb. Chaparral, cismontane woodland, valley and foothill grassland, sandy, rocky or gravelly flats in open oak woodland. Occurs at elevations of 2,952 to 4,494 feet.	April-June	Fed: None Calif: None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Atriplex coulteri</i> Coulter's saltbush	Perennial herb. Coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland, often on alkaline or clay soils. Occurs at elevations of 9 to 1,509 feet.	March-October	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain: Moderate. Suitable habitat is present on the site. Tecate/Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.
✓ <i>Atriplex pacifica</i> south coast saltscale	Annual herb. Coastal scrub, coastal bluff scrub, playas, chenopod scrub on alkali soils. Occurs at elevations of 3 to 1,640 feet.	March-October	Fed: SOC Calif. None CNPS: List 1B R-E-D: 3-2-2	Low. No suitable habitat is present on the site.
* <i>Baccharis vanessae</i> Encinitas baccharis	Shrub (deciduous). Chaparral (maritime), cismontane woodland on sandstone. From 200 to 2,360 feet in elevation.	August-November	Fed: THR Calif. END CNPS: List 1B R-E-D: 2-3-3	Otay Mountain/Tecate/Shockey Truck Trail: Moderate. Suitable habitat is present on the site. For Shockey, the site is slightly above the upper elevational range for the species.
<i>Berberis fremontii</i> Fremont barberry	Shrub (evergreen). Chaparral, Joshua tree woodland, Pinyon and juniper woodland, often on rocky soils. Occurs at elevations of 2,755 to 6,068 feet.	April-June	Fed: None Calif. None CNPS: 3 R-E-D: ?-?-1	Otay Mountain/Tecate/Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Bergerocactus emoryi</i> Golden-spined cereus	Shrub (stem succulent). Chaparral, closed-cone coniferous forest, coastal scrub, often on sandy soils. Occurs at elevations of 10 to 1,297 feet.	May-June	Fed: None Calif. None CNPS: 2 R-E-D: 2-2-1	Otay Mountain: Moderate. Suitable habitat is present on the site, but the site is slightly above the upper elevational range of the species. Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.
✓ <i>Brodiaea orcuttii</i> Orcutt's brodiaea	Perennial herb (bulbiferous). Vernal pools, valley and foothill grasslands, chaparral, meadows on mesic, clay habitats. Occurs at elevations of 98 to 5,297 feet.	May-July	Fed: None Calif. None CNPS: List 1B R-E-D: 1-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Calochortus dunnii</i> Dunn's mariposa lily	Perennial herb (bulbiferous). Closed-cone coniferous forest, chaparral, often on sandstone and gabbro and metavolcanic soils. Occurs at elevations of 1,230 to 6,002 feet.	April-June	Fed: None Calif. Rare CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
<i>Camissonia lewisii</i> Lewis's evening primrose	Annual herb. Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland, often on sandy or clay soils. Occurs up to 984 feet in elevation.	March-June	Fed: None Calif. None CNPS: List 3 R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
<i>Caulanthus simulans</i> Payson's jewel-flower	Occurs in chaparral and coastal scrub, frequently in disturbed areas such as burns and streambeds. Also on steep, rocky slopes. From 295 to 7,220 feet in elevation.	March-June	Fed: None CA: None CNPS: List 4 R-E-D: 1-2-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Ceanothus cyaneus</i> lakeside ceanothus	Shrub (evergreen). Closed-cone coniferous forest, chaparral. Occurs at elevations of 328 to 4,969 feet.	April-June	Fed: None Calif. None CNPS: List 1B R-E-D: 3-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Ceanothus otayensis</i> Otay Mountain ceanothus	Shrub (evergreen). Chaparral, often on metavolcanic or gabbro soils. Occurs at elevations of 1,968 to 3,608 feet.	January-April	Fed: None Calif. None CNPS: List 1B R-E-D: 3-2-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Chorizanthe polygonoides</i> var. <i>longispina</i> long-spined spineflower	Annual herb. Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, often on clay soils. From 100 to 4,760 feet in elevation.	April-July	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Clarkia delicata</i> delicate clarkia	Annual herb. Chaparral, cismontane woodland. From 770 to 3,280 feet in elevation.	April-June	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> summer holly	Shrub (evergreen). Mixed chaparral, sometimes post-burned. Occurs at elevations of 98 to 1,804 feet.	April-June	Fed: SOC Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain: Present. This species was found scattered throughout the site. Tecate: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species. Shockey Truck Trail: Present. This species was found scattered throughout the site.
✓ <i>Cordylanthus orcuttianus</i> Orcutt's bird-beak	Annual herb (hemi parasitic). Coastal scrub Occurs at elevations of 32 to 1,148 feet.	March-September	Fed: SOC Calif. None CNPS: List 2 R-E-D: 3-3-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.
✓ <i>Cupressus forbesii</i> Tecate cypress	Tree (evergreen). Chaparral, closed-cone cone coniferous forest. Occurs at elevations of 836 to 4,920 feet.	N/A	Fed: SOC Calif. None CNPS: List 1B R-E-D: 3-3-2	Otay Mountain Present. This species was found scattered throughout the site. Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
* <i>Deiandra conjugens</i> Otay tarplant	Annual herb. Coastal scrub, valley and foothill grassland, often on clay soils. Occurs at elevations of 80 to 984 feet.	May-June	Fed: THR Calif. END CNPS: List 1B R-E-D: 3-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Deinandra floribunda</i> Tecate tarplant	Annual herb. Coastal scrub, chaparral. Occurs at elevations of 230 to 4,001 feet.	August-October	Fed: SOC Calif: None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Dudleya variegata</i> variegated dudleya	Perennial herb. Chaparral, coastal scrub, cismontane woodland, valley and foothill grassland, vernal pools. Known only in San Diego County. Occurs at elevations of 10 to 1,804 feet.	May-June	Fed: None Calif: None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain: High. Suitable habitat is present on the site. Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.
✓ <i>Erodium macrophyllum</i> round-leaved filaree	Annual herb. Cismontane woodland, valley and foothill grassland, often on clay soils. Occurs at elevations of 49 to 3,936 feet.	March-May	Fed: None Calif: None CNPS: List 2 R-E-D: 2-3-1	Otay Mountain/ Tecate/ Moderate. Suitable habitat is present on the site, but the site is above the upper elevational range for the species. Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Ericameria palmeri</i> ssp. <i>palmeri</i> Palmer's goldenbush	Shrub (evergreen). Chaparral, coastal scrub on mesic soils. Occurs at elevations of 98 to 1,968 feet.	July-November	Fed: SOC Calif. None CNPS: List 2 R-E-D: 3-2-1	<p>Otay Mountain:</p> <p>High. Suitable habitat is present on the site.</p> <p>Tecate:</p> <p>Moderate. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.</p> <p>Shockey Truck Trail:</p> <p>Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.</p>
* <i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego button-celery	Annual/perennial herb. Coastal scrub, valley and foothill grassland, and vernal pools. Occurs at elevations of 66 to 2,034 feet.	April-June	Fed: END Calif. END CNPS: List 1B R-E-D: 2-3-2	<p>Otay Mountain:</p> <p>Moderate. Suitable habitat is present on the site.</p> <p>Tecate:</p> <p>Moderate. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.</p> <p>Shockey Truck Trail:</p> <p>Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.</p>

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Ferocactus viridescens</i> San Diego barrel cactus	Shrub (stem succulent). Chaparral, Diegan coastal scrub, valley and foothill grassland. Occurs at elevations of 10 to 1,476 feet	May-June	Fed: None Calif: None CNPS: 2 R-E-D: 1-3-1	Otay Mountain: Moderate. Suitable habitat is present on the site, but the site is above the upper elevational range for the species. Tecate: Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevation range for the species.
* <i>Fremontodendron mexicanum</i> Mexican flannelbush	Shrub (evergreen). Closed-cone coniferous forest, chaparral, cis-montane woodland, often on gabbroic, metavolcanic, or serpentine soils. Occurs at elevations of 33 to 1,640 feet.	March-June	Fed: END Calif: RARE CNPS: 1B R-E-D: 3-3-2	Otay Mountain: High. Suitable habitat is present on the site. Tecate: Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.
✓ <i>Geraea viscida</i> sticky geraea	Perennial herb. Chaparral, often in disturbed and burned areas. Occurs at elevations of 1,476 to 5,576 feet.	May-June	Fed: None Calif: None CNPS: 2 R-E-D: 2-1-1	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Grindelia hirsutula</i> var. <i>hallii</i> San Diego gumplant	Perennial herb. Chaparral, lower montane coniferous forest, meadows valley and foothill grassland. Occurs at elevations of 607 to 5,724 feet.	July-October	Fed: None Calif: None CNPS: List 1B R-E-D: 2-2-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
<i>Hordeum intercedens</i> vernal barley	Annual herb. Coastal dunes, coastal scrub, vernal pools, valley and foothill grassland (saline flats and depressions). Occurs at elevations of 16 to 3,280 feet.	March-June	Fed: None Calif. None CNPS: List 3 R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. <u>Suitable</u> habitat is <u>not present</u> on the site.
✓ <i>Hulsea californica</i> San Diego sunflower	Perennial herb. Chaparral, lower and upper montane coniferous forests, often in openings and on burned areas. Occurs at elevations of 3,001 to 9,562 feet.	April-June	Fed: None Calif. None CNPS: List 1B R-E-D: 2-1-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Isocoma menziesii</i> var. <i>decumbens</i> decumbent goldenbush	Shrub. Chaparral, coastal scrub, often in disturbed areas. Occurs at elevations of 32 to 443 feet.	April- November	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the upper elevational range for the species.
✓ <i>Iva hayesiana</i> San Diego marsh-elder	Perennial herb. Marshes, swamps, and playas. Known only from San Diego County. Occurs at elevations of 33 to 1,640 feet.	April- September	Fed: None Calif. None CNPS: List 2 R-E-D: 2-2-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. No suitable habitat is present on the site.
✓ <i>Lepechinia ganderi</i> Gander's pitcher sage	Shrub. Closed-cone coniferous forest, chaparral, valley and foothill grassland, often on gabbroic or metavolcanic. Occurs at elevations of 1,000 to 3,296 feet.	June-July	Fed: SOC Calif. None CNPS: List 1B R-E-D: 3-1-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
<i>Myosurus minimus</i> ssp. <i>apus</i> little mouse-tail	Annual herb. Valley and foothill grasslands and vernal pools (alkaline). From 65 to 2,100 feet in elevation.	March-June	Fed: None Calif. None CNPS: 3 R-E-D: 2-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is <u>not</u> present onsite.
<i>Nama stenocarpum</i> mud nama	Annual/perennial herb. Marshes and swamps (lake margins, riverbanks). From 15 to 1,640 feet in elevation.	January-July	Fed: None Calif. None CNPS: List 2 R-E-D: 3-2-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. <u>No suitable</u> habitat is present onsite.
<i>Navarretia fossalis</i> spreading navarretia	Annual herb. Vernal pools, chenopod scrub, marshes, swamps and playas. Occurs at elevations of 98 to 4,264 feet.	April-June	Fed: THR Calif. None CNPS: List 1B R-E-D: 2-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. <u>No suitable</u> habitat is present on the site.
✓ <i>Nolina interrata</i> Dehesa nolina	Perennial herb. Chaparral on gabbroic, metavolcanic, or serpentine soils. From 590 to 2,800 feet in elevation.	June-July	Fed: None Calif. END CNPS: List 1B R-E-D: 3-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Opuntia californica</i> var. <i>californica</i> Snake cholla	Shrub (stem succulent). Chaparral, coastal scrub. Occurs at elevations of 98 to 492 feet.	April-May	Fed: SOC Calif. None CNPS: List 1B R-E-D: 3-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species.
<i>Orcuttia californica</i> California Orcutt grass	Annual herb. Vernal pools. Occurs at elevations of 50 to 2,165 feet.	April-August	Fed: END Calif. END CNPS: List 1B R-E-D: 3-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. <u>No suitable</u> habitat is present on the site.
<i>Pogogyne nudiuscula</i> Otay mesa mint	Annual herb. Vernal pools. Only known from San Diego County and Baja. Occurs at elevations of 279 to 820 feet.	May-June	Fed: END Calif. END CNPS: List 1B R-E-D: 3-3-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. <u>No suitable</u> habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Quercus cedrosensis</i> Cedros island oak	Tree (evergreen). Closed-cone coniferous forest, chaparral, coastal scrub. Occurs at elevations of 738 to 1,099 feet.	April-May	Fed: None Calif. None CNPS: List 2 R-E-D: 3-2-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. There is suitable habitat present on the site, but the site is above the elevational range for the species.
✓ <i>Quercus dumosa</i> Nuttall's scrub oak	Shrub (evergreen). Closed-cone coniferous forest, chaparral, coastal scrub on sandy soils near the coast. Occurs at elevations of 49 to 1,312 feet.	February-March	Fed: None Calif. None CNPS: List 1B R-E-D: 2-3-2	Otay Mountain: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species. Tecate/ Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species.
✓ <i>Ribes canthariforme</i> Moreno currant	Shrub (deciduous). Chaparral. From 1,115 to 3,940 feet in elevation.	February-April	Fed: None Calif. None CNPS: List 1B R-E-D: 3-1-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Salvia munzii</i> Munz's sage	Shrub (evergreen). Chaparral, cismontane woodland, coastal scrub on rocky, gabbro soils. Occurs at elevations of 394 to 3,526 feet	March-July	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Satureja chandleri</i> San Miguel savory	Perennial herb. Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland on rocky, gabbroic or metavolcanic soils. From 395 to 3,300 feet in elevation.	March-July	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.

Special Status Species	Habitat and Distribution	Flowering Season	Status Designation	Occurrence Probability
✓ <i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> southern skullcap	Perennial herb (rhizomatous). Chaparral, cismontane woodland, lower montane coniferous forest on mesic soils. From 1,394 to 6,560 feet in elevation.	June-August	Fed: None Calif. None CNPS: List 1B R-E-D: 2-2-3	Otay Mountain/ Tecate/Shockey Truck Trail Moderate. Suitable habitat is present on the site.
✓ <i>Senecio aphanactis</i> Rayless ragwort	Annual herb. Cismontane woodland, coastal scrub, in alkaline soils. From 66 to 1,886 feet in elevation.	January-April	Fed: None Calif. None CNPS: List 2 R-E-D: 3-2-1	Otay Mountain High. Suitable habitat is present on the site. Tecate/Shockey Truck Trail: Low. Suitable habitat is present on the site, but the site is above the elevational range for the species..
✓ <i>Senecio ganderii</i> Gander's ragwort	Herb. Chaparral, often on gabbro outcrops and in burned areas. Endemic to San Diego County. Occurs at elevations of 1,312 to 3,936 feet	April-May	Fed: None Calif. Rare CNPS: List 1B R-E-D: 3-2-3	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Stemodia durantifolia</i> purple stemodia	Perennial herb. Sonoran desert scrub (often mesic, sandy soils). Occurs at elevations of 590 to 984 feet.	January-December	Fed: None Calif. None CNPS: List 2 R-E-D: 3-3-1	Otay Mountain/ Tecate/ Shockey Truck Trail: Low. <u>No suitable</u> habitat is present on the site.
✓ <i>Streptanthus campestris</i> southern jewel-flower	Perennial herb. Chaparral, lower montane coniferous forest, pinyon and juniper woodland, often on rocky soils. Occurs at elevations of 1,968 to 7,544 feet.	May-July	Fed: None Calif. None CNPS: List 1B R-E-D: 2-1-2	Otay Mountain/ Tecate/ Shockey Truck Trail: High. Suitable habitat is present on the site.
✓ <i>Tetracoccus dioicus</i> Parry's tetracoccus	Shrub (deciduous). Chaparral, coastal scrub on stony, decomposed gabbro soil. Occurs at elevations of 492 to 3,280 feet.	April-May	Fed: SOC Calif. None CNPS: List 1B R-E-D: 3-2-2	Otay Mountain/ Tecate/ Shockey Truck Trail: Moderate. Suitable habitat is present on the site.

General references: CDFG 2002, Hickman (ed.) 1993, Munz 1974, CNDDB 2002, CNPSEI 2002, Skinner and Pavlik 1994, Tibor 2001	
Federal designations: (Federal Endangered Species Act, USFWS):	
END:	Federally listed, endangered.
THR:	Federally listed, threatened.
FSOC:	Federal Species of Concern.
Candidate:	Federal Candidate for listing.
State designations: (California Endangered Species Act, CDFG)	
END:	State-listed, endangered.
THR:	State-listed, threatened.
RARE:	State-listed as rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
SCE:	State candidate for listing, endangered
California Native Plant Society (CNPS) designations: (Note: According to CNPS [Skinner and Pavlik 1994, Tibor 2001], plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions. See text.)	
List 1A: Plants presumed extinct in California.	
List 1B: Plants rare and endangered in California and throughout their range.	
List 2: Plants rare, threatened or endangered in California but more common elsewhere in their range.	
List 3: Plants about which we need more information; a review list.	
List 4: Plants of limited distribution; a watch list.	
Definitions of Occurrence Probability:	
Occurs: Observed on the site during surveys described here, or recorded onsite by other qualified biologists.	
High: Observed in similar habitat in region by qualified biologists, or often occurs in habitat similar to that on the site, and within the known range of the species.	
Moderate: Reported sightings in surrounding region, or site are within the known range of the species and often occur in habitat similar to that on the site.	
Low: Site is within the known range of the species but habitat on the site is rarely used by the species.	
Absent: A focused study failed to detect the species, or no suitable habitat is present, or the site is well outside known geographic or elevational ranges.	
Unknown: No focused surveys have been performed in the region, and the species' distribution and habitat are poorly known.	
CNPS R-E-D Code:	
Rarity1: Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.	
2: Occurrence confined to several populations or one extended population.	
3: Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.	
Endangerment 1: Not endangered.	
2: Endangered in a portion of its range.	
3: Endangered throughout its range.	
Distribution 1: More or less widespread outside California.	
2: Rare outside California.	
3: Endemic to California (i.e., does not occur outside California).	

Twelve plants with federal or state status have a potential to occur on the site. A brief description of these plants is provided below.

San Diego Thorn-Mint (*Acanthomintha ilicifolia*)

San Diego thorn-mint is a federally listed threatened species and a state-listed endangered species. This annual herb flowers from April to June. San Diego thorn-mint occurs in chaparral, coastal scrub, valley and foothill grassland and vernal pools. It is found in active vertisol clay soils of mesas and valleys. Suitable habitat occurs onsite, and this species has a high potential for occurrence on all of the sites.

San Diego Ambrosia (*Ambrosia pumila*)

San Diego ambrosia is currently proposed for federal listing as endangered. It is a rhizomatous herb flowering from May through September. It occurs in chaparral, coastal scrub, valley and foothill grassland, and vernal pools. It is often found in disturbed locations, such as roadsides, in sandy or clay soils, and often on alkaline soils, below 1,400 feet in elevation. Suitable habitat is present on all of the

sites, but the elevation of the sites are above the range for the species. San Diego ambrosia has a moderate probability for occurrence on the Otay Mountain site and a low probability for occurrence on the Tecate and Shockey Truck Trail sites.

Encinitas Baccharis (*Baccharis vanessae*)

Encinitas baccharis is a federally threatened and state endangered species. This deciduous shrub flowers from August to November. Encinitas baccharis occurs in chaparral and cismontane woodland on sandstone. Suitable habitat is present on all of the sites; however the elevation for Tecate and Shockey are slightly above the range for the species. This species has a moderate potential for occurrence at all of these sites.

Otay Tarplant (*Delandria conjugens*)

Otay tarplant is a federally listed threatened species and a state listed endangered species. This annual herb flowers from May to June. Otay tarplant occurs in coastal scrub, valley grassland and foothill grassland often on clay soils. Suitable habitat is present on all of the sites; however, the sites are above the elevational range for the species; therefore, this species has a low probability for occurrence.

San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*)

San Diego button-celery is a federally and state listed as endangered species. This annual/perennial herb flowers from April to June. San Diego button-celery occurs in coastal scrub, valley and foothill grassland and vernal pools. Suitable habitat is present on all the sites. This species has a moderate probability for occurrence at Otay Mountain and Tecate since the sites are slightly above the elevational range for the species. San Diego button-celery has a low potential for occurrence at the Shockey Truck Trail since the site is above the elevational range for the species.

Mexican Flannelbush (*Frémontodendron mexicanum*)

Mexican flannelbush is a federally listed endangered species and a state listed rare species. This evergreen shrub flowers from March to June. Mexican flannelbush occurs in closed-cone coniferous forest, chaparral and cismontane woodland often on gabbroic, metavolcanic, or serpentine soils. Suitable habitat is present on the sites, and this species has a high probability for occurrence at the Otay Mountain site. Mexican flannelbush has a low probability for occurrence at the Tecate and Shockey Truck Trail sites since the sites are above the elevational range for the species.

Willowy Monardella (*Monardella linoides* ssp. *viminea*)

Willowy monardella is a federally and state listed endangered species. This perennial herb flowers from June to August. Willowy monardella occurs in riparian scrub, woodland, closed-cone coniferous forest, chaparral in canyons and in rocky/sandy places. Suitable habitat is present on the sites; however, this species has a moderate probability for occurrence at the Otay Mountain site since the site is slightly above the elevational range for the species. Willowy monardella has a low probability for occurrence at the Tecate and Shockey Truck Trail sites since these sites are above the elevational range for the species.

Spreading Navarretia (*Navarretia fossalis*)

Spreading navarretia is a federally listed threatened species. This annual herb flowers from April to June. Spreading navarretia occurs in vernal pools, chenopod scrub, marshes, swamps and playas. No suitable habitat is present on the site; therefore, this species has a low probability for occurrence at all of the sites.

Dehesa Nolina (*Nolina interrata*)

Dehesa nolina is a state-listed endangered species. This perennial herb flowers from June to July. It occurs in chaparral on gabbroic, metavolcanic, or serpentine soils. Suitable habitat is present on the site, and Dehesa nolina has a high probability for occurrence at all of the sites.

California Orcutt Grass (*Orcuttia californica*)

California Orcutt grass is a federally and state listed endangered species. This annual herb flowers from April to August. California Orcutt grass occurs in vernal pools. No suitable habitat is present on the site; therefore, this species has a low probability for occurrence at all of the sites.

Otay Mesa Mint (*Pogogyne nudiuscula*)

Otay mesa mint is a federally and state listed endangered species. This annual herb flowers from May to June. Otay mesa mint occurs in vernal pools. No suitable habitat is present on the sites; therefore, this species has a low probability for occurrence at all of the sites.

Gander's Ragwort (*Senecio ganderii*)

Gander's ragwort is a state listed rare species. This herb flowers from April to May. Gander's ragwort occurs in chaparral often on gabbro outcrops and in burned areas. Suitable habitat is present on the sites, and this species has a high probability for occurrence at all of the sites.

4.2 WILDLIFE

4.2.1 General

The reconnaissance-level wildlife survey was conducted over the entire project site on March 1 and 5, 2002 between the hours of 8:00 a.m. and 5:00 p.m. Weather conditions during the survey were mostly clear with temperatures ranging from 56°F to 73°F. Wind speeds ranged from 3 to 10 miles per hour. Appendix B contains field data sheets and Appendix C contains a list of wildlife species observed during the reconnaissance-level and focused Quino surveys. With the exception of the Quino discussion, the following section details only those species observed during the reconnaissance-level survey.

The project site is characterized by chaparral, coastal sage scrub, riparian, ruderal/grassland, and woodland communities. Wildlife species occurring within the project site are characteristic of these communities. The following paragraphs describe the wildlife species observed during the reconnaissance survey.

Butterflies

Six butterfly species were observed during the biological reconnaissance site visit. These included Sara orangetip (*Anthocharis sara*), cabbage white (*Artogeia rapae*), mourning cloak (*Nymphalis antiopa*), southern blue (*Glaucopsyche lygdamus australis*), perplexing hairstreak (*Callophrys perplexa*), and funereal duskywing (*Erynnis funeralis*). Other common butterfly species are expected to occur, as well.

Amphibians

No amphibians were observed on the project site during the surveys. One pond was observed along Otay Mountain and one drainage with standing water was observed along the Shockey Truck Trail portion of the fuel break during the site visit and several other ephemeral drainages occur within the limits of the fuel break. The pond and the drainages within the fuel break limits may provide suitable habitat for amphibian species including the Pacific slender salamander (*Batrachoseps pacificus*), western toad (*Bufo boreas*), California chorus frog (*Pseudacris cadaverina*), and Pacific treefrog (*P. regilla*).

Reptiles

Seven reptile species, the side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), granite spiny lizard (*S. orcutti*), San Diego horned lizard (*Phrynosoma coronatum blainvillei*), racer (*Coluber constrictor*), speckled rattlesnake (*Crotalus mitchellii*), and western rattlesnake (*Crotalus viridis*), were observed on the project site.

Birds

A total of 23 avian species were observed during the surveys. The ruderal/grassland community on the site provides suitable foraging habitat for a variety of granivorous bird species, as well as raptor species. Birds observed in the ruderal/grassland community included the lesser goldfinch (*Carduelis psaltria*), western meadowlark (*Sturnella neglecta*), and California horned lark (*Eremophila alpestris actis*). Bell's sage sparrow (*Amphispiza belli belli*), California towhee (*Pipilo crissalis*), California quail (*Callipepla californica*), and lark sparrow (*Chondestes grammacus*) were observed within the chaparral and sage scrub communities. Species associated with woodlands, including black-headed grosbeak (*Pheucticus melanocephalus*), western scrub jay (*Aphelocoma californica*), northern flicker (*Colaptes auratus*), and house wren (*Troglodytes aedon*), were observed. Raptor species including the northern harrier (*Circus cyaneus*) and red-tailed hawk (*Buteo jamaicensis*) were also observed.

Mammals

Six mammal species, the California ground squirrel (*Spermophilus beecheyi*), mule deer (*Odocoileus hemionus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), and domestic dog (*Canis familiaris*) were observed during the surveys. Several small rodent burrows were also observed throughout the limits of the fuel break.

4.2.2 Sensitive Wildlife

After a thorough literature review and an assessment of the various habitat types within the project site, it was determined that 16 sensitive wildlife species occur or have the potential to occur within the project site. Six of these species are listed as federal or state endangered or threatened or proposed endangered or threatened. This section provides a summary of those sensitive wildlife species. Table 2 provides a list of the federal- and state-listed endangered, threatened, candidate, and sensitive wildlife species that either occur or have the potential to occur within the project site. A brief description of the sensitive wildlife species follows.

Table 2
Sensitive Wildlife Species Occurring or Potentially Occurring
Within the International Fuel Break Site (Otay, Tecate, and Shockey combined)

				Potential for Occurrence on the International Fuel Break Site and Comments		
Scientific Name	Common Name	Status Listing	Habitat	Otay Mountain	Tecate Peak	Shockey Truck Trail
CLASS BRANCHIOPODA	BRINE, FAIRY SHRIMPS					
ANOSTRACA						
<i>Streptocephalus woottoni</i>	Riverside Fairy Shrimp	FE	Endemic to San Diego County mesas. Prefers moderately deep vernal or ephemeral ponds situated within coastal sage scrub and grassland communities.	Moderate. Limited suitable habitat is present on the site and the closest known occurrence is within 5 miles of the site.	Low. No suitable habitat is present on the site and the closest known occurrence is over 5 miles from the site.	Low. No suitable habitat is present on the site and the closest known occurrence is over 5 miles of the site.
<i>Branchinecta sandiegoensis</i>	San Diego Fairy Shrimp	FE	Endemic to San Diego County mesas. Prefers moderately deep vernal or ephemeral ponds situated within coastal sage scrub and grassland communities.	Moderate. Limited suitable habitat is present on the site and the closest known occurrence is within 5 miles of the site.	Low. No suitable habitat is present on the site and the closest known occurrence is over 5 miles from the site.	Low. No suitable habitat is present on the site and the closest known occurrence is over 5 miles of the site.
CLASS INSECTA	INSECTS					
NYMPHALIDAE	BRUSH-FOOTED BUTTER FLIES					
<i>Euphydryas editha quino</i>	Quino checker-spot butterfly	FE, CSC	Occurs in open areas. Closely associated with its larval host plants. Currently isolated colonies in southwestern Riverside County, southern San Diego County, and northern Baja California.	Present. Four individuals observed along Otay Truck Trail within the fuel break.	High. Suitable habitat occurs throughout the fuel break site and the closest known occurrence is less than 4 miles from the site.	Moderate. Suitable habitat occurs within the fuel break limits and the closest known occurrence is over 5 miles from the site.
CLASS AMPHIBIA	AMPHIBIANS					
BUFONIDAE	TRUE TOADS					

				Potential for Occurrence on the International Fuel Break Site and Comments		
Scientific Name	Common Name	Status Listing	Habitat	Otay Mountain	Tecate Peak	Shockey Truck Trail
<i>Bufo microscaphus californicus</i>	arroyo toad	FE, CSC	Occurs in semi-arid regions near washes or intermittent streams. Require rivers with sandy banks, willows, cottonwoods; loose gravelly areas of streams in drier parts of range.	Low. No suitable breeding or upland habitat within the fuel break limits. The closest known occurrence is within 5 miles from the site.	Low. No suitable breeding or upland habitat within the fuel break limits. The closest known occurrence is over 5 miles from the site.	Moderate. No suitable breeding habitat, but there is limited suitable upland habitat within Smith Canyon and other intermittent drainages throughout this site. The closest known occurrence is over 5 miles from the site.
CLASS REPTILIA		REPTILES				
EMYDIDAE	BOX AND WATER TURTLES					
<i>Clemmys marmorata pallida</i>	southwestern pond turtle	(FSC), CSC	Permanent bodies of water in many habitats. Requires basking sites including partially submerged logs, vegetation mats, or open mud banks. Need suitable nesting sites. Below 6000 ft elev.	Low. No suitable habitat occurs with the fuel break limits. The closest known occurrence is over 5 miles from the site.	Low. No suitable habitat occurs with the fuel break limits. The closest known occurrence is within 5 miles from the site.	Low. No suitable habitat occurs with the fuel break limits. The closest known occurrence is over 5 miles from the site.
IGUANIDAE	IGUANID LIZARDS					
<i>Phrynosoma coronatum blainvillei</i>	San Diego horned lizard	(FSC), CSC	Occurs in coastal sage scrub, open chaparral, riparian woodland, and annual grassland habitats that support adequate prey species.	Present. Observed along Otay Mountain Truck Trail within the fuel break limits.	High. Suitable habitat is present throughout the fuel break limits and the closest known occurrence is within 5 miles from the site.	Present. Observed along Shockey Truck Trail within the fuel break limits.

				Potential for Occurrence on the International Fuel Break Site and Comments		
Scientific Name	Common Name	Status Listing	Habitat	Otay Mountain	Tecate Peak	Shockey Truck Trail
TEIIDAE	WHIPTAIL LIZARDS					
<i>Cnemidophorus hyperythrus</i>	orange-throated whiptail	CSC	Inhabits low-elevation coastal scrub and valley-foothill habitats. Prefers washes and other sandy areas with patches of brush and rocks. Require perennial plants for it's major food source: termites	High. Suitable habitat occurs within fuel break limits and closest known occurrence is within 1 mile of site.	High. Suitable habitat occurs within fuel break limits and closest known occurrence is within 1 mile of site.	High. Suitable habitat occurs within fuel break limits. The closest known occurrence is over 5 miles of the site.
COLUBRIDAE	COLUBRIDS - SNAKES					
<i>Thamnophis hammondi</i>	two-striped garter snake	CSC	Highly aquatic. Found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Low. No suitable habitat occurs within the fuel break limits. The closest known occurrence is within 5 miles from the site.	Low. No suitable habitat occurs within the fuel break limits. The closest known occurrence is over 5 miles from the site.	Low. No suitable habitat occurs within the fuel break limits. The closest known occurrence is over 5 miles from the site.
CLASS AVES	BIRDS					
ACCIPITRIDAE	KITES, EAGLES, BUTEOS					
<i>Accipiter cooperi</i>	Cooper's hawk (nesting)	CSC	Prefers woodland margins with riparian vegetation and trees for nesting.	Low. No suitable nesting habitat occurs with the fuel break limits. The closest known occurrence is over 5 miles from the site.	Low. No suitable nesting habitat occurs within the fuel break limits. The closest known occurrence is over 5 miles from the site.	Moderate. Limited nesting habitat occurs within oak woodland areas throughout the fuel break. However, the closest known occurrence is more than 5 miles from the fuel break site.

				Potential for Occurrence on the International Fuel Break Site and Comments		
Scientific Name	Common Name	Status Listing	Habitat	Otay Mountain	Tecate Peak	Shockey Truck Trail
FALCONIDAE	FALCONS					
<i>Falco mexicanus</i>	prairie falcon (nesting)	CSC	Inhabits dry, open terrain. Breeding sites are located on cliffs and forages far afield.	Low. No suitable nesting habitat present within the fuel break. The closest known occurrence is over 5 miles from the site.	Low-Moderate. Limited suitable nesting habitat present within the immediate vicinity of the fuel break in this section. However, the closest known occurrence is over 5 miles from the site.	Low-Moderate. Limited suitable nesting habitat present within the immediate vicinity of the fuel break in Smith Canyon. However, the closest known occurrence is over 5 miles from the site.
STRIGIDAE	OWLS					
<i>Athene cunicularia</i> (burrow sites)	burrowing owl	CSC	Found in open, dry annual or perennial grasslands, deserts and scrublands with low growing vegetation. Often uses abandoned ground squirrel burrows for nesting.	Low. No suitable habitat present within the fuel break limits. The closest known occurrence is within 5 miles from the site.	Low. No suitable habitat present within the fuel break limits and the closest known occurrence is over 5 miles from the site.	Moderate. Limited suitable habitat present within the fuel break limits. However, the closest known occurrence is more than 5 miles from the site.
TROGLODYTIDAE	WRENS					
<i>Camplorhynchus brunneicapillus sandiegoense</i>	coastal cactus wren	CSC	Southern California coastal sage scrub. Requires tall <i>Opuntia</i> cactus for nesting and roosting.	Low. No suitable habitat occurs within the fuel break limits. Historically was found within 5 miles from the site.	Low. No suitable habitat occurs within the fuel break limits and the closest known occurrence is over 5 miles from the site.	Low. No suitable habitat occurs within the fuel break limits and the closest known occurrence is over 5 miles from the site.

				Potential for Occurrence on the International Fuel Break Site and Comments		
Scientific Name	Common Name	Status Listing	Habitat	Otay Mountain	Tecate Peak	Shockey Truck Trail
MUSCICAPIDAE	KING-LETS, GNATCATCHERS					
<i>Polioptila californica californica</i>	coastal California gnatcatcher	FT, CSC	Occurs in coastal sage scrub vegetation on mesas, arid hillsides, and in washes.	Low-Moderate. Limited suitable nesting and foraging habitat occurs within the fuel break limits. Historically within 5 miles from the site.	Low. No suitable nesting or foraging habitat occurs within the fuel break limits and the closest known occurrence is over 5 miles from the site.	Low-Moderate. Suitable nesting and foraging habitat occurs at the western end of the survey area; however, the closest known occurrence is over 5 miles from the site.
ALAUDIDAE	LARKS					
<i>Eremophila alpestris actia</i>	California horned lark	CSC	Occurs in short-grass prairies, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low. No suitable habitat occurs within the fuel break limits.	Low. No suitable habitat occurs within the fuel break limits.	Present. Species was observed within the fuel break limits in ruderal/grassland areas during surveys.
VIREONIDAE	VIREOS					
<i>Vireo bellii pusillus</i>	least Bell's vireo	FE, SE	Occurs in moist thickets and riparian areas that are predominantly composed of willow and mule fat.	Low. No suitable riparian habitat present within the fuel break. The closest known occurrence is within 5 miles from the site.	Low. No suitable riparian habitat present within the fuel break. The closest known occurrence is over 5 miles from the site.	Low-Moderate. Limited suitable habitat is present within Campo Creek. However, the quality of habitat within the fuel break is sparse. Historically was found within 5 miles of the site.

				Potential for Occurrence on the International Fuel Break Site and Comments		
Scientific Name	Common Name	Status Listing	Habitat	Otay Mountain	Tecate Peak	Shockey Truck Trail
CLASS MAMMALIA	MAM- MALS					
VESPERTILIONIDAE	BATS					
<i>Corynorhinus townsendii pallescens</i>	pale big-eared bat	CSC	Occurs in a wide variety of habitats but most common in mesic sites. Needs appropriate roosting, maternity and hibernacula sites free from human disturbance.	Moderate. Limited suitable habitat present on the site and the closest known occurrence is less than 1 mile from the fuel break.	Moderate. Limited suitable habitat is present within the fuel break limits and the closest known occurrence is within 5 miles from the site.	Low. No suitable habitat is present within the fuel break limits. The closest known occurrence is more than 5 miles from the site.
LEPORIDAE	RABBITS AND HARES					
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	CSC	Prefers intermediate stages of shrub habitats and open shrub and herbaceous edges.	Moderate. Limited suitable habitat present within the fuel break and the closest known occurrence is over 5 miles from the site.	Moderate. Limited suitable habitat present within the fuel break and the closest known occurrence is over 5 miles from the site.	Present. Observed within the fuel break during surveys.
MUSTELIDAE	WEAS- ELS, SKUNKS, OTTERS					
<i>Taxidea taxus</i>	American badger	CSC	Occurs in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground.	Low. No suitable habitat is present within the fuel break limits and the closest known occurrence is over 5 miles from the site.	Low. No suitable habitat is present within the fuel break limits and the closest known occurrence is over 5 miles from the site.	Moderate. Limited suitable habitat occurs throughout the fuel break; however, the closest known occurrence is over 5 miles from the site.

Status Codes

Federal (FED)

FE = Federally listed; Endangered

FT = Federally listed; Threatened

(FSC) = Federal Species of Concern; not an active term, and is provided for informational purposes only

FPE = Federally Proposed for Listing as Endangered

State

ST = State listed; Threatened

SE = State listed; Endangered

CSC = California Species of Special Concern

- * — Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California.
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California. (e.g., wetland, riparian, old growth forest).

Definitions of Occurrence Probability:

- **Absent from Site** — Species is concluded to be absent from the project area based on failure to detect the species during focused surveys, or no suitable habitat is present, or the site well outside known geographic or elevational ranges.
- **Low Potential for Occurrence** - There are no recent or historical records of the species occurring within the project site or its immediate vicinity (within approximately 5 miles) and the diagnostic habitat requirements strongly associated with the species do not occur within the project site or its immediate vicinity.
- **Moderate Potential for Occurrence** - There is either a historical record exists of the species within the project site or its immediate vicinity (within approximately 5 miles) or the diagnostic habitat requirements associated with the species do occur within the project site or its immediate vicinity.
- **High Potential for Occurrence** - There is both a historical record of the species in or in the immediate vicinity of the project area, (within approximately 5 miles) and the diagnostic habitats strongly associated with the species occur in or in the immediate vicinity of the project area.
- **Species Present** - The species was observed in the project site at the time of the survey.

Source:

California Natural Diversity Data Base (CNDDB), Otay Mountain, Otay Mesa, Portrero, Campo, Tecate, Dulzura, Barrett Junction, Morena Reservoir, Cameron Corners, and Jamul Mountains USGS quads.

This section provides a brief description of the biology of the sensitive species and provides the justification for the potential for occurrence designations.

Riverside Fairy Shrimp

The Riverside fairy shrimp was federally listed as endangered in 1993. The Riverside fairy shrimp is a small aquatic crustacean that occurs in vernal pools, pool-like ephemeral ponds, and human-modified depressions from coastal southern California south to northwestern Baja California, Mexico. Fairy shrimp have delicate elongate bodies, large stalked compound eyes, no carapace, and 11 pairs of swimming legs. They feed on algae, bacteria, protozoa, rotifers, and bits of detritus. Female fairy shrimp carry fertilized eggs in a brood sac and the eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. The "resting" eggs are capable of withstanding heat, cold, and prolonged desiccation until the pool refills in the same or subsequent season. The egg bank in the soil may be comprised of eggs from several years of breeding. The closest known occurrence from the Shockey and Tecate sites is over 5 miles and within 5 miles for the Otay Mountain portion. There is no

suitable habitat on the Tecate and Shockey portion of the fuel break; therefore, the potential for occurrence is low. On the Otay Mountain portion of the fuel break, there is limited suitable habitat present in the pond observed along Otay Mountain Truck Trail; therefore the potential for occurrence is moderate.

San Diego Fairy Shrimp

The San Diego fairy shrimp was federally listed as endangered in 1997. It is a small, delicate freshwater crustacean currently found in vernal pools from Orange County, south to Otay Mesa in San Diego County, Southern California and to extreme northwestern Baja California, Mexico. The San Diego fairy shrimp was first identified as a new species in 1993. Its historical distribution is relatively unknown because the majority of vernal pools in southern California were lost prior to 1990. The closest known occurrence from the Shockey and Tecate sites is over 5 miles and within 5 miles for the Otay Mountain portion. There is no suitable habitat on the Tecate and Shockey portions of the fuel break; therefore, the potential for occurrence is low. On the Otay Mountain portion of the fuel break, there is limited habitat in the pond observed along Otay Mountain Truck Trail; therefore the potential for occurrence is moderate.

Quino Checkerspot Butterfly

The Quino checkerspot butterfly was federally listed as an endangered species (FE) in January 1997 and is also a CSC. It prefers open areas near rocky outcrops that consist of clay soils and native vegetation that also contain its larval host plants, western plantain (*Plantago erecta*), white snapdragon (*Antirrhinum coulterianum*), bird's-beak (*Cordylanthus rigidus*), and purple owl's clover (*Castilleja exserta*). The site falls within Survey Area 2 based on the USFWS 2002 Survey Protocol (USFWS 2002). During the course of the 2002 focused surveys, the sites contain western plantain, bird's-beak, and purple owl's clover, and many nectar sources including, onion (*Allium* sp.), cryptantha (*cryptantha* sp.), popcorn flower (*Plagiobothrys* sp.), California buckwheat (*Eriogonum fasciculatum*), red-stemmed filaree (*Erodium cicutarium*), and coast goldfields (*Lasthenia californica*). The entire fuel break consists of bare ground and sparsely vegetated areas, which provides suitable habitat for the Quino. Some areas were deemed unsuitable (excluded areas) due to the dense chaparral vegetation and steep slopes; however, these areas were minimal. Of the three survey areas along the International Fuel Break during the 2002 flight season, Quino checkerspot butterfly was only observed on the Otay Mountain portion of the fuel break. Although Shockey Truck Trail and Tecate Peak had suitable topographical features (hilltops and ridgelines, etc.), host plants, and nectar sources, the results of the focused surveys were negative at these two locations.

Arroyo Southwestern Toad

The arroyo southwestern toad, a FE and CSC, occurs west of the desert from San Luis Obispo County to Baja California and is most common in high quality sandy washes, brooks, and streams with healthy riparian vegetation. It is also known to distribute into upland scrub habitat relatively far from its breeding grounds. The closest known occurrence from all three portions of the fuel break is 5 miles and there is no suitable habitat in the Otay Mountain and Tecate portions of the fuel break. There is no suitable breeding habitat on the entire fuel break site. However, the intermittent drainages that occur on the Shockey Truck Trail portion may provide suitable upland habitat and therefore this species has a moderate potential for occurrence.

Southwestern Pond Turtle

The southwestern pond turtle, a (FSC) and CSC, is associated with a variety of habitat types including woodland, grassland, and open forest communities. This species is thoroughly aquatic, and is found near deep-water pools, marshes, rivers, streams, and irrigation ditches with adequate cover and basking resources. There is no suitable habitat within the fuel break limits in all three portions of the fuel break. Therefore, the potential for the southwestern pond turtle to occur is low.

San Diego Horned Lizard

The San Diego horned lizard, a (FSC) and CSC, prefers open areas of sandy soil and low vegetation. This species is frequently found near ant colonies and it ranges from southern California to northern Baja California. The San Diego horned lizard is known to occur in a variety of habitats including coastal sage scrub, open chaparral, riparian woodland, and annual grassland. The fuel break provides suitable habitat for this species and the San Diego horned lizard has been observed on the Otay and Shockey portions of the fuel break. Suitable habitat occurs within the Tecate section of the fuel break and therefore, the potential for occurrence is high within this portion.

Orange-Throated Whiptail

The orange-throated whiptail is a (FSC) and CSC. The orange-throated whiptail is found from San Bernardino County to Baja California and frequents sandy washes, rocky hillsides, and scrub communities that provide both open territory and adequate shading. Their diet is comprised of insects and spiders. Due to similar habitat requirements, it typically occurs in association with the San Diego horned lizard. Suitable sandy washes, great basin sage scrub, and chaparral habitat occurs throughout the site. Therefore, this species has a high potential for occurrence.

Two-Striped Garter Snake

The two-striped garter snake, a CSC is associated with permanent fresh water habitats often along streams with rocky beds and riparian growth. No suitable habitat occurs throughout the fuel break limits for all three portions of the fuel break. No known historical occurrences have been recorded in the immediate vicinity of the fuel break. Therefore, this species has a low potential for occurrence.

Cooper's Hawk (Nesting)

The Cooper's hawk, a CSC, typically occurs near riparian vegetation and near patchy, wooded areas. Limited nesting habitat occurs within oak woodland areas within the Shockey Truck Trail portion of the fuel break and the closest known occurrence is more than 5 miles from the site. Therefore, this species has a moderate potential for occurrence within Shockey Truck Trail fuel break. No suitable nesting habitat occurs in the Otay and Tecate portions of the fuel break; therefore the potential for occurrence is low.

Prairie Falcon

The prairie falcon, a CSC, is associated primarily with perennial grasslands, savannahs, rangeland, agricultural fields, and desert scrub habitats. This species requires sheltered cliff ledges for cover and open terrain for foraging. Nesting habitat includes cliffs, rock outcrops, and old raven or eagle nests. Limited suitable nesting habitat occurs along the cliffs within the immediate vicinity of the Tecate and Shockey Truck Trail portions of the fuel break and the closest known occurrence is over 5 miles from the site. Therefore, this species has a low-moderate potential for occurrence within these portions. No suitable nesting habitat is present in the Otay Mountain portion and therefore the potential for occurrence in this portion of the fuel break is low.

Burrowing Owl

The burrowing owl, a (FSC) and CSC, inhabits open, dry, annual or perennial grasslands, and scrublands with low-growing vegetation. It is dependent on small mammal burrows, particularly California ground squirrel burrows, for subterranean nesting. Limited suitable habitat is present in the Shockey Truck Trail portion of the fuel break and the closest known occurrence is more than 5 miles from the site. Therefore, this species has a moderate potential for occurrence within this portion of the fuel break. No suitable habitat is present within the Otay and Tecate portions of the fuel break and therefore this species has a low potential for occurrence.

Coastal Cactus Wren

The coastal cactus wren, a CSC, typically occurs in coastal sage scrub and cactus scrub habitats where it nests, roosts, and forages in the cactus and adjacent scrub. No suitable nesting habitat occurs within the entire fuel break site. The closest known occurrence is more than 5 miles from the site. Therefore, this species has a low potential for occurrence.

Coastal California Gnatcatcher

The coastal California gnatcatcher is a federally-listed as threatened species (FT) and a CSC. This nonmigratory, insectivorous bird nests and forages in moderately dense stands of coastal sage scrub occurring on arid hillsides and mesas, and in washes. Coastal sage scrub communities dominated by California sagebrush, California buckwheat, white sage, and black sage are preferred by this species. Suitable coastal sage scrub habitat does not occur within the Tecate Peak portion of the fuel break site where the vegetation is primarily dominated by chaparral. Therefore, the potential for occurrence in the Tecate Peak section is low. However, there is a limited amount of coastal sage scrub habitat located at the western end of Shockey Truck Trail by the area known as the Brickyard. Additionally, Otay Mountain consists of marginally suitable habitat consisting of mixed chaparral/coastal sage scrub scattered throughout the survey area. Therefore, this species has a low-moderate potential to occur within these sections of the fuel break.

California Horned Lark

The California horned lark, a CSC, occurs in short-grass prairies, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. There is no suitable habitat for the horned lark in the Otay Mountain and Tecate portions of the fuel break. Therefore, the potential for occurrence is low. However, there is suitable habitat in the Shockey Truck Trail section and this species was observed within the limits of the fuel break.

Least Bell's Vireo

The least Bell's vireo is a FE and state-listed as endangered species (SE). This species typically occurs in moist thickets and riparian areas comprised of willow, mule fat, and mesquite. There is limited willow scrub habitat within the Shockey Truck Trail section and historically this species is known to occur in the immediate vicinity (e.g., Campo Creek). Therefore, the potential for occurrence is low-moderate. There is no suitable habitat in the Otay and Tecate sections of the fuel break and therefore, has a low potential for occurrence.

Pale Big-Eared Bat

The pale big-eared bat, a CSC, occurs in a wide variety of habitats but most is commonly found in mesic sites. They require appropriate roosting, maternity, and hibernacula sites, which are free from human disturbance. There are some areas of suitable habitat within the Tecate and Otay Mountain sections and the closest known occurrence is less than 1 mile from the fuel break limits for Otay Mountain. Therefore, this species has a moderate potential for occurrence in these two sections. There is no suitable habitat in the Shockey Truck Trail portion of the fuel break and the closest known occurrence is over 5 miles from the site. Therefore, this species has a low potential for occurrence in the Shockey Truck Trail portion of the fuel break.

San Diego Black-Tailed Jackrabbit

The San Diego black-tailed jackrabbit is a (FSC) and CSC. This species occurs in intermediate canopy stages of shrub habitats and open shrub areas along the edges of herbaceous and tree habitats. It primarily occurs within coastal sage scrub habitats in southern California. Suitable habitat occurs throughout all sections of the fuel break and this species was observed in the Shockey Truck Trail section of the fuel break.

American Badger

The American badger, a CSC, occurs in drier open stages of most shrub forest, and herbaceous habitats. They require sufficient food, friable soils and open uncultivated ground. There is no suitable habitat in the Otay Mountain and Tecate portions of the project site and therefore, the potential for occurrence is low. However, there is limited suitable habitat (i.e., open, dry shrub habitat) in the Shockey Truck Trail portion of the fuel break. Therefore, this species has a moderate potential for occurrence within this portion of the fuel break.

4.3 JURISDICTIONAL ANALYSIS

Tributaries to the Tijuana River and several intermittent drainages (USGS blue-line streams) occur within the fuel break site (e.g., Campo Creek and Donohoe Spring) and are potentially under the jurisdiction of the U.S. Army Corps of Engineers (Corps) and the CDFG.

SECTION 5.0 – CONCLUSIONS AND RECOMMENDATIONS

Prior to maintaining the fuel break, the following recommendations for sensitive plant and wildlife species potentially present on the property occur below. The removal of native vegetation should be limited to retain as much wildlife habitat as possible.

SENSITIVE PLANTS

Focused sensitive plant surveys during the appropriate blooming season are recommended for species that are federal- or state-threatened or endangered or considered sensitive and have a moderate to high potential for occurrence.

SENSITIVE WILDLIFE

Three sensitive wildlife species, San Diego horned lizard, California horned lark, and San Diego black-tailed jackrabbit, were observed on the site during the biological reconnaissance survey and course of the focused Quino surveys. One federally-listed as endangered species, the Quino checkerspot butterfly, occurs on the project site. One federally-listed as endangered species, arroyo southwestern toad; one federally-listed as threatened species, coastal California gnatcatcher; and one federally- and state-listed as endangered species, least Bell's vireo, have the potential to occur onsite.

Riverside and San Diego Fairy Shrimp

The closest known occurrence for both the Riverside and San Diego fairy shrimp are within 5 miles for the Otay Mountain portion of the fuel break and over 5 miles for the Tecate and Shockey Truck Trail portion of the fuel break. These species have a moderate potential for occurrence on the Otay Mountain portion of the fuel break due to limited suitable habitat present in the pond observed along Otay Mountain Truck Trail. A fairy shrimp habitat assessment is recommended along the Otay Mountain portion of the fuel break in a year with a more typical rainfall pattern in order to determine if suitable habitat is present on the project site.

Quino Checkerspot Butterfly

The Quino checkerspot butterfly, a federally-listed as endangered species, occurs within the Otay Mountain portion of the project site. The project site falls within Survey Area 2 based on the USFWS 2002 Survey Protocol for the Quino checkerspot butterfly. Due to suitable topographic features, habitat, the presence of several host plants, western plantain, bird's beak, and purple owl's-clover and several nectar sources (e.g., coast goldfields, sugarbush, and popcorn flower), focused surveys for the adult butterfly were conducted during the 2002 flight season. The results of the surveys are under separate cover.

Arroyo Southwestern Toad

The closest known occurrence from all three portions of the fuel break is over 5 miles away and there is no suitable breeding habitat on the entire fuel break site. While there is no suitable upland habitat in the Otay Mountain and Tecate Peak portions of the fuel break, there are intermittent drainages that occur on the Shockey Truck Trail portion, which may provide suitable upland habitat. Therefore this species has a moderate potential for occurrence on the Shockey Truck Trail portion. An arroyo southwestern toad habitat assessment is recommended along Shockey Truck Trail in a year with a more typical rainfall pattern in order to determine if suitable upland habitat is present on the project site.

Coastal California Gnatcatcher

The coastal California gnatcatcher is a federally-listed as threatened species (FT) and a CSC. Suitable nesting or foraging habitat does not occur within the Tecate Peak portion of the fuel break site where the vegetation is primarily dominated by chaparral. However, there is a limited amount of coastal sage scrub habitat located at the western end of Shockey Truck Trail by the area known as the Brickyard. This habitat is very limited in distribution and does not likely represent suitable nesting habitat, but could potentially be considered foraging habitat. Otay Mountain consists of marginally suitable nesting and foraging habitat consisting of mixed chaparral/coastal sage scrub scattered throughout the survey area. Although the habitat located within Shockey Truck Trail and Otay Mountain can be considered low to moderate quality habitat, focused surveys should be conducted for the coastal California gnatcatcher in these sections of the fuel break.

Least Bell's Vireo

The least Bell's vireo is a federally- and state-listed as endangered species. There is limited willow scrub habitat present within the Shockey Truck Trail section and historically this species is known to occur in the immediate vicinity. Therefore, the potential for occurrence is low to moderate. There is no suitable habitat in the Otay and Tecate sections of the fuel break and therefore, has a low potential for occurrence. Presence/absence surveys for least Bell's vireo are recommended on the Shockey Truck Trail portion only if this area will be impacted for fuel break maintenance activities.

JURISDICTIONAL WETLANDS AND WATERS OF THE UNITED STATES

Several potential jurisdictional drainages (USGS blue-line streams) occur within the fuel break limits. A formal wetland delineation is recommended to determine the limits of Corps and CDFG jurisdictional areas on the project site.

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- 1972 Otay Mountain, California 7.5-minute quadrangle.

APPENDIX A1

**PLANT SPECIES OBSERVED
ON SHOCKEY TRUCK TRAIL**

Appendix A1
Plant Species Observed on Shockey Truck Trail

Scientific Name	Common Name	Map Location
VASCULAR PLANTS		
FERNS AND FERN ALLIES		
PTERIDACEAE	BRAKE FAMILY	
<i>Pellaea andromedifolia</i>	coffee fern	2.1-1
<i>Pellaea mucronata</i>	bird's-foot fern	2.1-1, 2.1-3
SELAGINELLACEAE	SPIKE-MOSS FAMILY	
<i>Selaginella bigelovii</i>	Bigelow's spike-moss	2.1-5
<i>Selaginella cinerascens</i>	ashy spike-moss	2.1-1, 2.1-2
GYMNOSPERMS		
PINACEAE	PINE FAMILY	
<i>Pinus</i> sp.	pine	2.1-3
ANGIOSPERMS (DICOTYLEDONS)		
ANACARDIACEAE	SUMAC OR CASHEW FAMILY	
<i>Malosma laurina</i>	laurel sumac	All map locations
<i>Rhus ovata</i>	sugar bush	2.1-1, 2.1-2, 2.1-3
<i>Toxicodendron diversilobum</i>	poison oak	2.1-3, 2.1-5
ASTERACEAE	SUNFLOWER FAMILY	
<i>Ambrosia psilostachya</i>	western ragweed	2.1-3, 2.1-5
<i>Artemisia californica</i>	California sagebrush	2.1-3, 2.1-5
<i>Artemisia tridentata</i>	Great Basin sagebrush	2.1-1, 2.1-2
<i>Baccharis salicifolia</i>	mule fat	2.1-1, 2.1-3, 2.1-5
<i>Baccharis sarothroides</i>	broom baccharis	2.1-3, 2.1-5
<i>Centaurea melitensis</i> *	tocalote	2.1-1, 2.1-2, 2.1-3, 2.1-4
<i>Cirsium occidentale</i>	cobweb thistle	2.1-1
<i>Cirsium vulgare</i> *	bull thistle	2.1-1
<i>Encelia californica</i>	California bush sunflower	2.1-5
<i>Encelia farinosa</i>	brittlebush	2.1-3, 2.1-5
<i>Ericameria pinifolia</i>	pinebush	2.1-1, 2.1-2, 2.1-3, 2.1-4
<i>Eriophyllum confertiflorum</i>	golden yarrow	2.1-1, 2.1-2, 2.1-5
<i>Filago californica</i>	California fluffweed	2.1-1, 2.1-2, 2.1-3, 2.1-4
<i>Gnaphalium bicolor</i>	bicolored cudweed	2.1-5
<i>Gnaphalium canescens</i>	felty everlasting	2.1-1
<i>Gutierrezia californica</i>	California matchweed	2.1-1, 2.1-2, 2.1-3, 2.1-5
<i>Hazardia squarrosa</i>	saw-toothed goldenbush	2.1-3, 2.1-5
<i>Heterotheca grandiflora</i>	telegraph weed	2.1-5
<i>Isocoma menziesii</i>	coastal goldenbush	2.1-3
<i>Lasthenia californica</i>	coast goldfields	2.1-1, 2.1-2
<i>Lessingia filaginifolia</i>	cudweed aster	2.1-1, 2.1-2, 2.1-3
<i>Malacothrix saxatilis</i>	cliff malacothrix	2.1-1
<i>Sonchus oleraceus</i> *	common sow thistle	2.1-1
<i>Tetradymia comosa</i>	hairy horsebrush	2.1-5
<i>Xanthium strumarium</i>	cocklebur	2.1-3
BORAGINACEAE	BORAGE FAMILY	
<i>Amsinckia menziesii</i>	common fiddleneck	2.1-5
<i>Cryptantha</i> sp.	cryptantha	2.1-3
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	slender pectocarya	2.1-1, 2.1-5

Scientific Name	Common Name	Map Location
<i>Plagiobothrys</i> sp.	popcorn flower	2.1-1, 2.1-2
<i>Plagiobothrys collinus</i>	California popcorn flower	2.1-1, 2.1-2, 2.1-3
BRASSICACEAE	MUSTARD FAMILY	
<i>Arabis</i> sp.	rock cress	2.1-1
<i>Arabis glabra</i>	tower-mustard	2.1-1
<i>Brassica nigra</i> *	black mustard	2.1-1, 2.1-2, 2.1-3
<i>Caulanthus heterophyllus</i>	San Diego jewelflower	2.1-3
<i>Lepidium</i> sp.	peppergrass	2.1-4
<i>Rorippa nasturtium-aquaticum</i>	water-cress	2.1-3
<i>Sisymbrium irio</i> *	London rocket	2.1-5
CACTACEAE	CACTUS FAMILY	
<i>Opuntia littoralis</i>	coastal prickly pear	2.1-1
<i>Opuntia prolifera</i>	coast cholla	2.1-1, 2.1-2, 2.1-3
CAPPARACEAE	CAPER FAMILY	
<i>Isomeris arborea</i>	bladderpod	2.1-5
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY	
<i>Lonicera subspicata</i>	southern honeysuckle	2.1-1
<i>Sambucus mexicana</i>	Mexican elderberry	2.1-1, 2.1-2, 2.1-5
CHENOPODIACEAE	GOOSEFOOT FAMILY	
<i>Atriplex canescens</i>	four-wing saltbush	2.1-5
<i>Salsola tragus</i> *	Russian thistle	2.1-1, 2.1-2, 2.1-3
CONVOLVULACEAE	MORNING-GLORY FAMILY	
<i>Calystegia macrostegia</i>	western bindweed	2.1-5
CRASSULACEAE	STONECROP FAMILY	
<i>Dudleya</i> sp.	dudleya	2.1-1, 2.1-2
CUCURBITACEAE	GOURD FAMILY	
<i>Cucurbita foetidissima</i>	calabazilla	2.1-1
<i>Marah macrocarpus</i>	wild cucumber	2.1-1
CUSCUTACEAE	DODDER FAMILY	
<i>Cuscuta californica</i>	California dodder	2.1-2
ERICACEAE	HEATH FAMILY	
<i>Arctostaphylos glandulosa</i>	Eastwood's manzanita	2.1-1, 2.1-2, 2.1-3
<i>Arctostaphylos glauca</i>	bigberry manzanita	2.1-1, 2.1-2, 2.1-3
<i>Comarostaphylis diversifolia</i>	summer holly	All map locations
EUPHORBIACEAE	SPURGE FAMILY	
<i>Eremocarpus setigerus</i>	dove weed	2.1-2
FABACEAE	LEGUME FAMILY	
<i>Astragalus</i> sp.	milkvetch	2.1-1
<i>Lathyrus</i> sp.	beauty pea	2.1-5
<i>Lotus argophyllus</i>	silver leaf lotus	2.1-1, 2.1-2, 2.1-3
<i>Lotus scoparius</i>	deerweed	2.1-1, 2.1-2, 2.1-3, 2.1-5
<i>Lupinus</i> sp.	lupine	2.1-3
<i>Lupinus bicolor</i>	miniature lupine	2.1-3
<i>Lupinus hirsutissimus</i>	stinging lupine	2.1-5
FAGACEAE	OAK FAMILY	
<i>Quercus agrifolia</i>	coast live oak	2.1-1, 2.1-2, 2.1-3
<i>Quercus berberidifolia</i>	scrub oak	2.1-1, 2.1-2, 2.1-3, 2.1-5

Scientific Name	Common Name	Map Location
GERANIACEAE <i>Erodium botrys</i> * <i>Erodium cicutarium</i> *	GERANIUM FAMILY broad-lobed filaree red-stemmed filaree	2.1-5 2.1-1, 2.1-2, 2.1-3
HYDROPHYLLACEAE <i>Eriodictyon trichocalyx</i> <i>Phacelia</i> sp. <i>Phacelia minor</i>	WATERLEAF FAMILY hairy yerba santa phacelia wild canterbury-bell	2.1-1, 2.1-3, 2.1-5 All map locations 2.1-4
LAMIACEAE <i>Marrubium vulgare</i> * <i>Salvia apiana</i> <i>Salvia columbariae</i> <i>Trichostema parishii</i>	MINT FAMILY horehound white sage chia bluecurls	2.1-5 All map locations 2.1-1, 2.1-2, 2.1-3, 2.1-5 2.1-1, 2.1-2, 2.1-3
MALVACEAE <i>Malacothamnus fasciculatus</i>	MALLOW FAMILY mesa bushmallow	2.1-1, 2.1-5
ONAGRACEAE <i>Camissonia</i> sp.	EVENING PRIMROSE FAMILY camissonia	2.1-1
PAEONIACEAE <i>Paeonia californica</i>	PEONY FAMILY California peony	2.1-1, 2.1-2, 2.1-3, 2.1-5
PAPAVERACEAE <i>Dicentra chrysantha</i> <i>Dendromecon rigida</i> <i>Eschscholzia californica</i>	POPPY FAMILY golden ear-drops bush poppy California poppy	2.1-1 2.1-5 2.1-1
PLATANACEAE <i>Platanus racemosa</i> <i>Navarretia</i> sp.	SYCAMORE FAMILY western sycamore navarretia	2.1-5 2.1-1, 2.1-4
POLYGONACEAE <i>Eriogonum fasciculatum</i> <i>Eriogonum gracile</i>	BUCKWHEAT FAMILY California buckwheat slender woolly buckwheat	All map locations 2.1-1
RANUNCULACEAE <i>Clematis ligusticifolia</i>	BUTTERCUP FAMILY virgin's bower	2.1-1
RHAMNACEAE <i>Ceanothus</i> sp. <i>Ceanothus cuneatus</i> <i>Ceanothus spinosus</i> <i>Rhamnus crocea</i>	BUCKTHORN FAMILY ceanothus buck brush green bark ceanothus spiny redberry	2.1-3, 2.1-5 2.1-3, 2.1-4 2.1-1, 2.1-2, 2.1-5 2.1-1
ROSACEAE <i>Adenostoma fasciculatum</i> <i>Adenostoma sparsifolium</i> <i>Cercocarpus betuloides</i> <i>Prunus ilicifolia</i>	ROSE FAMILY chamise red shanks birch-leaf mountain-mahogany holly-leaved cherry	All map locations 2.1-1, 2.1-2 2.1-1, 2.1-2, 2.1-3 2.1-1, 2.1-2, 2.1-3
RUBIACEAE <i>Galium</i> sp. <i>Galium angustifolium</i>	MADDER FAMILY bedstraw narrow-leaved bedstraw	2.1-4 2.1-1, 2.1-2, 2.1-3
SALICACEAE <i>Populus fremontii</i> ssp. <i>fremontii</i> <i>Salix</i> sp. <i>Salix lasiolepis</i>	WILLOW FAMILY Fremont's cottonwood willow arroyo willow	2.1-4 2.1-1, 2.1-3 2.1-1
SCROPHULARIACEAE <i>Castilleja</i> sp.	FIGWORT FAMILY paintbrush	2.1-3

Scientific Name	Common Name	Map Location
<i>Castilleja affinis</i>	coast paintbrush	2.1-3
<i>Cordylanthus rigidus</i>	bird's-beak	2.1-1
<i>Keckiella antirrhinoides</i>	chaparral beard-tongue	2.1-1, 2.1-3, 2.1-4, 2.1-5
<i>Mimulus aurantiacus</i>	orange bush monkey-flower	2.1-1, 2.1-3, 2.1-4, 2.1-5
<i>Penstemon spectabilis</i>	royal penstemon	2.1-1, 2.1-2, 2.1-3
<i>Scrophularia californica</i>	California figwort	2.1-1, 2.1-2
SOLANACEAE	NIGHTSHADE FAMILY	
<i>Nicotiana glauca</i> *	tree tobacco	2.1-5
ANGIOSPERMS (MONOCOTYLEDONS)		
LILIACEAE	LILY FAMILY	
<i>Allium</i> sp.	onion	2.1-3
<i>Bloomeria crocea</i>	common goldenstar	2.1-1, 2.1-2, 2.1-3
<i>Calochortus</i> sp.	mariposa lily	2.1-4, 2.1-5
<i>Dichelostemma capitatum</i>	blue dicks	2.1-1
<i>Nolina cismontana</i>	California beargrass	2.1-1, 2.1-2
<i>Yucca schidigera</i>	Mojave yucca	2.1-1
<i>Yucca whipplei</i>	Our Lord's candle	2.1-1, 2.1-2, 2.1-3, 2.1-5
POACEAE	GRASS FAMILY	
<i>Achnatherum coronatum</i>	giant needlegrass	2.1-1, 2.1-2
<i>Bromus hordeaceus</i> *	soft chess	All map locations
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	foxtail chess	All map locations
<i>Leymus condensatus</i>	giant wild rye	2.1-3
<i>Nassella</i> sp.	needlegrass	2.1-1, 2.1-5
<i>Nasella lepida</i>	small-flowered needlegrass	2.1-1, 2.1-5
<i>Polypogon monspeliensis</i> *	annual beard grass	2.1-3
<i>Stipa</i> sp.	needlegrass	2.1-3, 2.1-5
TYPHACEAE	CATTAIL FAMILY	
<i>Typha latifolia</i>	Broad-leaved cattail	2.1-4
* = non-native		

APPENDIX A2

**PLANT SPECIES OBSERVED
ON TECATE FUEL BREAK**

Appendix A2
Plant Species Observed on Tecate

Scientific Name	Common Name	Map Location
VASCULAR PLANTS		
FERNS AND FERN ALLIES		
PTERIDACEAE	BRAKE FAMILY	
<i>Pellaea mucronata</i>	bird's-foot fern	3.1-1
SELAGINELLACEAE	SPIKE-MOSS FAMILY	
<i>Selaginella bigelovii</i>	Bigelow's spike-moss	3.1-1
ANGIOSPERMS (DICOTYLEDONS)		
ANACARDIACEAE	SUMAC OR CASHEW FAMILY	
<i>Malosma laurina</i>	laurel sumac	3.1-1, 3.1-2
ASTERACEAE	SUNFLOWER FAMILY	
<i>Artemisia californica</i>	California sagebrush	3.1-2
<i>Baccharis salicifolia</i>	mule fat	3.1-2
<i>Baccharis sarothroides</i>	broom baccharis	3.1-1
<i>Centaurea melitensis*</i>	toocalote	3.1-1
<i>Centaurea solstitialis*</i>	yellow star-thistle	3.1-1, 3.1-2
<i>Encelia</i> sp.	sunflower	3.1-1, 3.1-2
<i>Eriophyllum confertiflorum</i>	golden yarrow	3.1-1, 3.1-2
<i>Filago californica</i>	California fluffweed	3.1-1, 3.1-2
<i>Gnaphalium canescens</i>	fely everlasting	3.1-1, 3.1-2
<i>Gutierrezia californica</i>	California matchweed	3.1-1, 3.1-2
<i>Hazardia squarrosa</i>	saw-toothed goldenbush	3.1-1
<i>Lasthenia californica</i>	coast goldfields	3.1-1
<i>Senecio</i> sp.	butterweed	3.1-1
<i>Senecio californicus</i>	California butterweed	3.1-1
BORAGINACEAE	BORAGE FAMILY	
<i>Cryptantha</i> sp.	cryptantha	3.1-1
<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	slender pectocarya	3.1-1
<i>Plagiobothrys collinus</i>	California popcorn flower	3.1-1, 3.1-2
BRASSICACEAE	MUSTARD FAMILY	
<i>Brassica nigra*</i>	black mustard	3.1-2
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY	
<i>Lonicera subspicata</i>	southern honeysuckle	3.1-2
CRASSULACEAE	STONECROP FAMILY	
<i>Crassula connata</i>	pygmy-weed	3.1-1
<i>Dudleya</i> sp.	dudleya	3.1-1
<i>Dudleya edulis</i>	ladies-fingers	3.1-1
<i>Dudleya lanceolata</i>	lance-leaved dudleya	3.1-1
ERICACEAE	HEATH FAMILY	
<i>Arctostaphylos glandulosa</i>	Eastwood's manzanita	3.1-1
<i>Arctostaphylos glauca</i>	bigberry manzanita	3.1-1
EUPHORBIACEAE	SPURGE FAMILY	
<i>Eremocarpus setigerus</i>	dove weed	3.1-2
FABACEAE	LEGUME FAMILY	
<i>Lathyrus vestitus</i>	wild sweet pea	3.1-1, 3.1-2
<i>Lathyrus</i> sp.	beauty pea	3.1-1
<i>Lotus argophyllus</i>	silver leaf lotus	3.1-1, 3.1-2
<i>Lotus purshianus</i>	Spanish clover	3.1-1

Scientific Name	Common Name	Map Location
<i>Lotus scoparius</i>	deerweed	3.1-2
<i>Lotus strigosus</i>	strigose lotus	3.1-1
<i>Lupinus</i> sp.	lupine	3.1-1
<i>Medicago polymorpha</i> *	bur clover	3.1-2
FAGACEAE	OAK FAMILY	
<i>Quercus berberidifolia</i>	scrub oak	3.1-1, 3.1-2
FRANKENIACEAE	FRANKENIA FAMILY	
<i>Frankenia salina</i>	alkali heath	3.1-1
GERANIACEAE	GERANIUM FAMILY	
<i>Erodium botrys</i> *	broad-lobed filaree	3.1-1, 3.1-2
<i>Erodium cicutarium</i> *	red-stemmed filaree	3.1-1
HYDROPHYLLACEAE	WATERLEAF FAMILY	
<i>Eriodictyon trichocalyx</i>	hairy yerba santa	3.1-1
LAMIACEAE	MINT FAMILY	
<i>Marrubium vulgare</i> *	horehound	3.1-2
<i>Salvia apiana</i>	white sage	3.1-1, 3.1-2
<i>Salvia columbariae</i>	chia	3.1-2
<i>Trichostema parishii</i>	bluecurls	3.1-1, 3.1-2
MYRTACEAE	MYRTLE FAMILY	
<i>Eucalyptus</i> sp. *	gum tree	3.1-2
PAPAVERACEAE	POPPY FAMILY	
<i>Eschscholzia californica</i>	California poppy	3.1-1
<i>Romneya coulteri</i>	Coulter's matilija poppy	3.1-1
PLANTAGINACEAE	PLANTAIN FAMILY	
<i>Plantago erecta</i>	western plantain	3.1-1
POLEMONIACEAE	PHLOX FAMILY	
<i>Navarretia</i> sp.	navarretia	3.1-1
POLYGONACEAE	BUCKWHEAT FAMILY	
<i>Eriogonum fasciculatum</i>	California buckwheat	3.1-1, 3.1-2
PRIMULACEAE	PRIMROSE FAMILY	
<i>Dodecatheon clevelandii</i>	Padres' shooting star	3.1-1
RHAMNACEAE	BUCKTHORN FAMILY	
<i>Ceanothus spinosus</i>	green bark ceanothus	3.1-1
ROSACEAE	ROSE FAMILY	
<i>Adenostoma fasciculatum</i>	chamise	3.1-1, 3.1-2
<i>Cercocarpus betuloides</i>	birch-leaf mountain-mahogany	3.1-1
<i>Cercocarpus minutiflorus</i>	smooth mountain-mahogany	3.1-1
<i>Prunus ilicifolia</i>	holly-leaf cherry	3.1-1
SCROPHULARIACEAE	FIGWORT FAMILY	
<i>Castilleja exserta</i>	purple owl's-clover	3.1-1
<i>Cordylanthus rigidus</i>	bird's-beak	3.1-1
<i>Mimulus aurantiacus</i>	orange bush monkey-flower	3.1-1
<i>Penstemon spectabilis</i>	royal penstemon	3.1-2
<i>Scrophularia californica</i>	California figwort	3.1-1
SOLANACEAE	NIGHTSHADE FAMILY	
<i>Solanum xanti</i>	chaparral nightshade	3.1-1
TAMARICACEAE	TAMARISK FAMILY	
<i>Tamarix ramosissima</i> *	Mediterranean tamarisk	3.1-2

Scientific Name	Common Name	Map Location
ANGIOSPERMS (MONOCOTYLEDONS)		
LILIACEAE	LILY FAMILY	
<i>Bloomeria crocea</i>	common goldenstar	3.1-2
<i>Calochortus</i> sp.	mariposa lily	3.1-2
<i>Dichelostemma capitatum</i>	blue dicks	3.1-1, 3.1-2
<i>Yucca whipplei</i>	Our Lord's candle	3.1-2
POACEAE	GRASS FAMILY	
<i>Achnatherum coronatum</i>	giant needlegrass	3.1-1, 3.1-2
<i>Avena barbata</i> *	slender wild oat	3.1-2
<i>Avena fatua</i> *	wild oat	3.1-1
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	foxtail chess	3.1-1, 3.1-2
<i>Lamarckia aurea</i> *	goldentop	3.1-1
<i>Leymus condensatus</i>	giant wild rye	3.1-1
* = non-native		

APPENDIX A3

**PLANT SPECIES OBSERVED
ON OTAY MOUNTAIN FUEL BREAK**

Appendix A3
Plant Species Observed on Otay Mountain

Scientific Name	Common Name	Map Location
VASCULAR PLANTS		
FERNS AND FERN ALLIES		
DENNSTAEDTIACEAE	BRACKEN FAMILY	
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken	4.1-1, 4.1-2
PTERIDACEAE	BRAKE FAMILY	
<i>Pellaea andromedifolia</i>	coffee fern	4.1-1
<i>Pellaea mucronata</i>	bird's-foot fern	4.1-1, 4.1-2, 4.1-3
SELAGINELLACEAE	SPIKE-MOSS FAMILY	
<i>Selaginella bigelovii</i>	Bigelow's spike-moss	4.1-1, 4.1-3, 4.1-4
<i>Selaginella cinerascens</i>	ashy spike-moss	4.1-4
GYMNOSPERMS		
CUPRESSACEAE	CYPRESS FAMILY	
<i>Cupressus forbesii</i>	Tecate cypress	4.1-1, 4.1-2, 4.1-3
ANGIOSPERMS (DICOTYLEDONS)		
ANACARDIACEAE	SUMAC OR CASHEW FAMILY	
<i>Malosma laurina</i>	laurel sumac	All map locations
<i>Rhus integrifolia</i>	lemonadeberry	4.1-1, 4.1-3
<i>Rhus ovata</i>	sugar bush	4.1-1, 4.1-3
<i>Toxicodendron diversilobum</i>	poison oak	4.1-3
APIACEAE	CARROT FAMILY	
<i>Daucus pusillus</i>	rattlesnake weed	4.1-1
<i>Lomatium</i> sp.	lomatium	4.1-3
<i>Sanicula</i> sp.	sanicula	4.1-1, 4.1-3
ASTERACEAE	SUNFLOWER FAMILY	
<i>Artemisia californica</i>	California sagebrush	4.1-1, 4.1-3, 4.1-4
<i>Baccharis salicifolia</i>	mule fat	4.1-3
<i>Baccharis sarothroides</i>	broom baccharis	All map locations
<i>Centaurea melitensis</i> *	tocalote	All map locations
<i>Cotula coronopifolia</i> *	brass-buttons	4.1-1
<i>Encelia californica</i>	California bush sunflower	4.1-4
<i>Eriophyllum confertiflorum</i>	golden yarrow	All map locations
<i>Filago californica</i>	California fluffweed	4.1-1, 4.1-3, 4.1-4
<i>Geraea canescens</i>	desert sunflower	4.1-1, 4.1-2
<i>Gnaphalium bicolor</i>	bicolored cudweed	4.1-1
<i>Gnaphalium californicum</i>	California everlasting	4.1-1, 4.1-2, 4.1-3
<i>Gnaphalium canescens</i>	felty everlasting	4.1-3
<i>Gutierrezia californica</i>	California matchweed	4.1-1, 4.1-3
<i>Hazardia squarrosa</i>	saw-toothed goldenbush	4.1-1, 4.1-2, 4.1-3
<i>Helianthus</i> sp.	sunflower sp.	4.1-3
<i>Hemizonia</i> sp.	hemizonia sp.	4.1-3, 4.1-4
<i>Hypochaeris glabra</i> *	smooth cat's-ear	4.1-1, 4.1-2
<i>Isocoma menziesii</i>	coastal goldenbush	4.1-4
<i>Lasthenia californica</i>	coast goldfields	4.1-4
<i>Lessingia filaginifolia</i>	cudweed aster	4.1-1
<i>Medicago indica</i> *	sourclover	All map locations
<i>Porophyllum gracile</i>	odora	4.1-4

Scientific Name	Common Name	Map Location
<i>Rafinesquia californica</i>	California chicory	4.1-1
<i>Taraxacum officinale</i> *	common dandelion	4.1-4
BORAGINACEAE	BORAGE FAMILY	
<i>Cryptantha</i> sp.	cryptantha	4.1-1
<i>Plagiobothrys collinus</i>	California popcorn flower	4.1-1, 4.1-2
BRASSICACEAE	MUSTARD FAMILY	
<i>Brassica nigra</i> *	black mustard	4.1-1, 4.1-4
<i>Lepidium</i> sp.	peppergrass sp.	
<i>Sisymbrium irio</i> *	London rocket	4.1-1, 4.1-2
CACTACEAE	CACTUS FAMILY	
<i>Opuntia littoralis</i>	coastal prickly pear	4.1-4
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY	
<i>Lonicera subspicata</i>	southern honeysuckle	4.1-3
CARYOPHYLLACEAE	PINK FAMILY	
<i>Silene gallica</i> *	common catchfly	4.1-4
CHENOPODIACEAE	GOOSEFOOT FAMILY	
<i>Salsola tragus</i> *	Russian thistle	4.1-4
CISTACEAE	ROCK-ROSE FAMILY	
<i>Helianthemum scoparium</i>	peak rush-rose	4.1-1, 4.1-3
<i>Calystegia macrostegia</i>	western bindweed	4.1-1, 4.1-3, 4.1-4
CRASSULACEAE	STONECROP FAMILY	
<i>Crassula connata</i>	pygmy-weed	4.1-1
<i>Dudleya</i> sp.	dudleya	4.1-4
<i>Dudleya edulis</i>	ladies-fingers	4.1-3
<i>Dudleya pulverulenta</i>	chalk dudleya	4.1-4
CUSCUTACEAE	DODDER FAMILY	
<i>Cuscuta californica</i>	California dodder	4.1-4
ERICACEAE	HEATH FAMILY	
<i>Arctostaphylos glandulosa</i>	Eastwood's manzanita	4.1-1, 4.1-2, 4.1-3
<i>Arctostaphylos glauca</i>	bigberry manzanita	4.1-1, 4.1-2, 4.1-3
<i>Comarostaphylis diversifolia</i>	summer holly	All map locations
EUPHORBIACEAE	SPURGE FAMILY	
<i>Eremocarpus setigerus</i>	dove weed	4.1-2, 4.1-3, 4.1-4
FABACEAE	LEGUME FAMILY	
<i>Astragalus</i> sp.	milkvetch sp.	4.1-2
<i>Astragalus didymocarpus</i>	two-seeded milkvetch	4.1-1, 4.1-2
<i>Lathyrus vestitus</i>	wild sweet pea	4.1-3
<i>Lathyrus</i> sp.	mountain pea	4.1-3
<i>Lotus agrophyllus</i>	silver leaf lotus	All map locations
<i>Lotus scoparius</i>	deerweed	All map locations
<i>Lupinus</i> sp.	lupine	4.1-3
<i>Lupinus bicolor</i>	miniature lupine	4.1-1
<i>Melilotus indica</i> *	sourclover	4.1-2, 4.1-3
<i>Melilotus officinalis</i> *	yellow sweetclover	4.1-2, 4.1-3
<i>Psoralea sp.</i>		4.1-1, 4.1-2, 4.1-3
FAGACEAE	OAK FAMILY	
<i>Quercus berberidifolia</i>	scrub oak	4.1-3, 4.1-4

Scientific Name	Common Name	Map Location
GERANIACEAE <i>Erodium botrys</i> * <i>Erodium cicutarium</i> *	GERANIUM FAMILY broad-lobed filaree red-stemmed filaree	All map locations All map locations
HYDROPHYLLACEAE <i>Eriodictyon trichocalyx</i> <i>Phacelia</i> sp. <i>Phacelia minor</i>	WATERLEAF FAMILY hairy yerba santa <i>Phacelia</i> sp. wild canterbury-bell	4.1-1, 4.1-2, 4.1-3 4.1-1 4.1-3
LAMIACEAE <i>Marrubium vulgare</i> * <i>Salvia</i> sp. <i>Salvia mellifera</i> <i>Trichostema parishii</i> <i>Trichostema lanatum</i> <i>Trichostema lanceolatum</i>	MINT FAMILY horehound <i>salvia</i> sp. black sage bluecurls woolly bluecurls vinegar weed	4.1-1 4.1-1, 4.1-3, 4.1-4 4.1-1, 4.1-2, 4.1-4 4.1-1, 4.1-3 4.1-1, 4.1-3 4.1-3
LYTHRACEAE <i>Lythrum californicum</i>	LOOSESTRIFE FAMILY California loosestrife	4.1-3
MALVACEAE <i>Malacothamnus</i> sp. <i>Malacothamnus fasciculatus</i>	MALLOW FAMILY shrub mallow mesa bushmallow	4.1-1, 4.1-2 4.1-1, 4.1-3
MYRTACEAE <i>Eucalyptus</i> sp. *	MYRTLE FAMILY gum tree	4.1-4
NYCTAGINACEAE <i>Mirabilis californica</i>	FOUR O'CLOCK FAMILY California wishbone bush	4.1-4
PAPAVERACEAE <i>Dendromecon rigida</i> <i>Dicentra chrysantha</i> <i>Romneya coulteri</i>	POPPY FAMILY bush poppy golden ear-drops Coulter's matilija poppy	4.1-1, 4.1-2, 4.1-3 4.1-3 4.1-1, 4.1-3
PLANTAGINACEAE <i>Plantago erecta</i>	PLANTAIN FAMILY western plantain	4.1-4
POLEMONIACEAE <i>Navarretia</i> sp.	PHLOX FAMILY <i>navarretia</i> sp.	4.1-1
POLYGONACEAE <i>Eriogonum fasciculatum</i> <i>Rumex crispus</i> *	BUCKWHEAT FAMILY California buckwheat curly dock	4.1-1, 4.1-3, 4.1-4 4.1-1
PRIMULACEAE <i>Anagallis arvensis</i> * <i>Dodecatheon clevelandii</i>	PRIMROSE FAMILY scarlet pimpernel Padres' shooting star	4.1-2 4.1-3
RANUNCULACEAE <i>Clematis ligusticifolia</i>	BUTTERCUP FAMILY virgin's bower	4.1-2
RHAMNACEAE <i>Ceanothus</i> sp. <i>Ceanothus crassifolius</i> <i>Ceanothus spinosus</i> <i>Rhamnus crocea</i>	BUCKTHORN FAMILY ceanothus hoary leaf ceanothus green bark ceanothus spiny redberry	4.1-4 4.1-1, 4.1-2 4.1-1, 4.1-2 4.1-3, 4.1-4
ROSACEAE <i>Adenostoma fasciculatum</i> <i>Cercocarpus betuloides</i> <i>Heteromeles arbutifolia</i>	ROSE FAMILY chamise birch-leaf mountain-mahogany toyon	All map locations 4.1-1 4.1-3

Scientific Name	Common Name	Map Location
SCROPHULARIACEAE	FIGWORT FAMILY	
<i>Castilleja affinis</i>	coast paintbrush	4.1-4
<i>Castilleja densiflora</i>	dense-flowered owl's clover	All map locations
<i>Castilleja exserta</i>	purple owl's-clover	All map locations
<i>Cordylanthus rigidus</i>	bird's-beak	All map locations
<i>Keckiella antirrhinoides</i>	chaparral beard-tongue	4.1-4
<i>Mimulus aurantiacus</i>	orange bush monkey-flower	All map locations
<i>Mimulus cardinalis</i>	scarlet monkey-flower	4.1-1, 4.1-3
SOLANACEAE	NIGHTSHADE FAMILY	
<i>Solanum xanti</i>	chaparral nightshade	4.1-3, 4.1-4
ANGIOSPERMS (MONOCOTYLEDONS)		
IRIDACEAE	IRIS FAMILY	
<i>Sisyrinchium bellum</i>	blue-eyed-grass	4.1-4
LILIACEAE	LILY FAMILY	
<i>Calochortus</i> sp.	mariposa lily	All map locations
<i>Chlorogalum pomeridianum</i>	soap plant	4.1-2, 4.1-3
<i>Dichelostemma capitatum</i>	blue dicks	4.1-1, 4.1-2, 4.1-3
<i>Nolina cismontana</i>	California beargrass	4.1-2, 4.1-3
<i>Yucca whipplei</i>	Our Lord's candle	All map locations
<i>Zigadenus fremontii</i>	Fremont's star-lily	4.1-1, 4.1-2, 4.1-3
POACEAE	GRASS FAMILY	
<i>Achnatherum coronatum</i>	giant needlegrass	4.1-1, 4.1-2, 4.1-3
<i>Avena barbata</i> *	slender wild oat	4.1-4
<i>Avena fatua</i> *	wild oat	4.1-4
<i>Bromus diandrus</i> *	ripgut grass	4.1-1
<i>Bromus hordeaceus</i> *	soft chess	4.1-1, 4.1-3
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	foxtail chess	All map locations
<i>Lamarckia aurea</i> *	goldentop	4.1-1
<i>Melica imperfecta</i>	coast range melic	4.1-2, 4.1-3
<i>Nassella pulchra</i>	purple needlegrass	All map locations
<i>Polypogon monspeliensis</i> *	annual beard grass	4.1-1
<i>Vulpia myuros</i> *	fescue	4.1-1, 4.1-3, 4.1-4
TYPHACEAE	CATTAIL FAMILY	
<i>Typha latifolia</i>	broad-leaved cattail	4.1-1
* = non-native		

APPENDIX B

FIELD DATA SHEETS

Temperature (Start) 56° 59' (End) _____

[illegible]

Notes: 172 N 15

FIELD SURVEY DATA SHEET

PROJECT NAME & SITE # <u>International Fuel break</u>		PROJECT # <u>5321(B1)</u>	
GENERAL DATA		WEATHER DATA	
Date <u>2/5/02</u>	Air temp. (C at 6" above surface in the shade)		
Time start <u>10:30 am</u> end <u>3:30 pm</u>	Start <u>65°</u>	End <u>73°</u>	
Surveyor(s) <u>ST/SC/LA</u>	Cloud cover (%) <u>90/35% cc/10%</u>		
		Precipitation <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
		Est. wind speed (mph) <u>3-6 mph / 23 mph</u>	
PHYSICAL CHARACTERISTICS			
Adjacent Land Uses (Ex: residential, commercial, open space - draw on map)			
North		East	
South		West	
Slope %	Soil description <u>Sandy and clay soils</u>		
Aspect			
Is there an obvious wildlife movement corridor?		<input type="checkbox"/> yes (draw on map) <input checked="" type="checkbox"/> no	
Existing structures		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no describe and draw on map	
Is the site staked or marked? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no			
Previous disturbances (natural and human disturbances) - describe and draw on map <u>fire</u>			
POTENTIAL JURISDICTIONAL ISSUES (Take photos and draw on field map)			
Are there drainages on the site?		<input checked="" type="checkbox"/> yes (fill out the section below) <input type="checkbox"/> no	
shelving	<input type="checkbox"/> yes <input type="checkbox"/> no	sediment deposits	<input type="checkbox"/> yes <input type="checkbox"/> no
debris lines	<input type="checkbox"/> yes <input type="checkbox"/> no	destruction - upland vegetation	<input type="checkbox"/> yes <input type="checkbox"/> no
OHWM	<input type="checkbox"/> yes <input type="checkbox"/> no	riparian vegetation	<input type="checkbox"/> yes <input type="checkbox"/> no
water marks	<input type="checkbox"/> yes <input type="checkbox"/> no	flowing and/or standing water	<input type="checkbox"/> yes <input type="checkbox"/> no
Notes on Potential Jurisdictional Issues on and adjacent to the site			

VEGETATION COMMUNITIES

Communities on the project site (add abbreviations and draw on map)

Disturbed ~~Buckwheat~~ scrub, Disturbed - emergent deerweed, ERFA
Chamise UT
Oak woodland - understory of ERFA deerweed, Chamise

[illegible]

Notes

some areas ^{loose} ~~biological~~ / disturbed
emergent vegetation other areas
very sparse - ^{medium} ~~hardly~~ veg. shrub cover
varies + vegetation size varies

* 1 = individual, 2 = rare, 3 = frequent, 4 = common, 5 = abundant

WILDLIFE COMMUNITIES

WILDER COMMONWEALTH			
Species	Sign*	Species	Sign*

Notes

multifl scrub w/ *Scirpus yoderi* ssp
calc woodland *Fagopyrum*
Slopes of CSS.

* B = burrow, C = carcass, Fe = feathers, Fu = fur, N = nest, O = observed, S = scat, T = tracks, V = vocalization

Other forms needed for this site

[] photo log

[] NDDB form

Project Name BLM - Int'l Food Bank Project # 6698 Survey Type Bio-Ress GCB Holo AS

Location SD Gauri

Surveyor(s) S. Chian S. Tennant, LALM Date 5-Mar-2002 Time (Start) 1040 (End) 1530

General Habitat Description of Area mostly fuel break - managed some areas burned in the
past 3-5 yrs. CSS, Chaparral, Red-shank,

Weather (Cloud cover, Estimated wind speed) 97% sunny; wind 4 mph - 6 mph

Temperature (Start) 65°F (End) 73°F 10% cc @ end w/ wind meter end wind: 2-5 mph

[illegible]

General Comments:

doed / stressed blue disks

Butterflies Observed (larvae or adults)	Number	Comments
Papilionidae-Swallowtails		
Pale Swallowtail (<i>Papilio eurymedon</i>)		
Anise Swallowtail (<i>P. zelicaon</i>)		
Western Tiger Swallowtail (<i>P. rutulus</i>)		
Pieridae-Whites, Sulfurs, & Orangetips		
Sara Orangetip (<i>Anthocharis sara</i>)	1	
Felder's Orangetip (<i>A. cethura</i>)		
Grinnell's Marble (<i>A. lanceolata australis</i>)		
Cabbage White (<i>Artogeia rapae</i>)	1	
Sleepy Orange (<i>Eurema nicippe</i>)		
Common White (<i>Pontia protodice</i>)		
California Dogface (<i>Zerene eurydice</i>)		
Alfalfa Butterfly (<i>Colias eurytheme</i>)		
Harford's Sulfur (<i>C. harfordi</i>)		
Satyrinae-Satyrids		
California Ringlet (<i>Coenonympha californica</i>)		
Danaidae-Milkweed Butterflies		
Monarch (<i>Danaus plexippus</i>)		
Queen (<i>D. gilippus</i>)		
Nymphalidae-Brush Footed Butterflies		
Henne's Checkerspot (<i>Euphydryas chalcedona hennei</i>)		
Chalcedon Checkerspot (<i>E. chalcedona chalcedona</i>)		
Quino Checkerspot (<i>E. editha quino</i>)		
Gabb's Checkerspot (<i>Charidryas gabbii</i>)		
Leanira Checkerspot (<i>Thessalia leanira wrighti</i>)		
Mylitta Crescent (<i>Phyciodes mylitta</i>)		
California Patch (<i>Chlosyne californica</i>)		
Painted Lady (<i>Vannessa cardui</i>)		
West Coast Lady (<i>V. annabella</i>)		
Virginia Lady (<i>V. virginensis</i>)		
Red Admiral (<i>V. atalanta</i>)		
Buckeye (<i>Junonia coenia</i>)		
Mourning Cloak (<i>Nymphalis antiopa</i>)	1	
California Tortoiseshell (<i>Nymphalis californica</i>)		
California Sister (<i>Adelpha bredowii californica</i>)		
Satyr Anglewing (<i>Polygonia satyrus</i>)		
Lorquin's Admiral (<i>Basilarchia lorquini</i>)		
Blues		
Western Tailed Blue (<i>Everes amyntula</i>)		
Southern Blue (<i>Glaucopsyche lygdamus australis</i>)	111	
Echo Blue (<i>Celastrina ladon echo</i>)		
Sonoran Blue (<i>Philotes sonorensis</i>)		
Marine Blue (<i>Leptotes marina</i>)		
Acmon Blue (<i>Icaricia acmon</i>)		
Edward's Blue (<i>Lycaeides melisa samuelis</i>)		
Pygmy Blue (<i>Brephidium exilis</i>)		
Hairstreaks		
Gray Hairstreak (<i>Strymon melinus</i>)		
Brown Elfin (<i>Incisalia augustinus</i>)		
Perplexing Hairstreak (<i>Callophrys perplexa</i>)	111	
Great Purple Hairstreak (<i>Atlides halesus</i>)		
Metalmarks		
Behr's Metalmark (<i>Apodemia mormo virgulti</i>)		
Wright's Metalmark (<i>Calephelis wrightii</i>)		
Hesperiidae-Common Skippers		
Common Checkered Skipper (<i>Pyrgus communis</i>)		
Duskywings		
Funereal Duskywing (<i>Erynnis funeralis</i>)	111	
Mourful Duskywing (<i>Erynnis tristis</i>)		
Lacustra Duskywing (<i>Erynnis brizo lacustra</i>)		

Project Name Intern. Fuel Break Project # _____ Survey Type Bio-reconn. / Quino
 Location Campo Hab.
 Surveyor(s) L. Allen Date 3/5/01 Time (Start) 10:30 (End) _____ Ass.
 General Habitat Description of Area _____

Weather (Cloud cover, Estimated wind speed, precipitation) 4³ mph (random gusts 6) 97% sun
 Temperature (In C, taken at 6" above the ground in the shade) (Start) 65°F (End) _____

[illegible]

General Comments:

Y

Small
mammal
burrows

* B = Burrow, C = Carcass, Fe = Feathers, Fu = Fur, N = Nest, O = Observed, S = Scat, T = Tracks, V = Vocalization

APPENDIX C

**LIST OF WILDLIFE OBSERVED
AT THE INTERNATIONAL FUEL BREAK**

Appendix C
Wildlife Species Observed at the International Fuel Break Site

Scientific Name	Common Name	Sign*
CLASS INSECTA		
PAPILIONIDAE	PARNASSIANS, SWALLOWTAILS	
<i>Papilio eurymedon</i>	pale swallowtail	○
<i>Papilio zelicaon</i>	anise swallowtail	○
<i>Papilio rutulus</i>	western tiger swallowtail	○
PIERIDAE	WHITES & SULPHURS	
<i>Anthocharis sara</i>	Sara orangetip	○
<i>Artogeia rapae</i>	cabbage white	○
<i>Pontia protodice</i>	common white	○
<i>Colias eurytheme</i>	alfalfa butterfly	○
<i>Pontia beckeri</i>	Becker's white	○
SATYRIDAE	SATYRS OR BROWNS	
<i>Coenonympha californica</i>	California ringlet	○
NYMPHALIDAE	BRUSH-FOOTED BUTTERFLIES	
<i>Euphydryas chalcedona chalcedona</i>	Chalcedon checkerspot	○
<i>Euphydryas editha quino</i>	Quino checkerspot	○
<i>Vanessa cardui</i>	painted lady	○
<i>Vanessa virginiensis</i>	Virginia lady	○
<i>Nymphalis antiopa</i>	mourning cloak	○
<i>Speyeria callippe</i>	Comstock's fritillary	○
LYCAENIDAE	GOSSAMER WINGS	
<i>Everes amyntula</i>	western tailed blue	○
<i>Glaucopsyche lygdamus australis</i>	southern blue	○
<i>Celastrina ladon echo</i>	echo blue	○
<i>Philotes sonorensis</i>	sonoran blue	○
<i>Icaricia acmon</i>	acmon blue	○
<i>Strymon melinus</i>	gray hairstreak	○
<i>Incisalia augustinus</i>	brown elfin	○
<i>Callophrys thornei</i>	Thorne's hairstreak	○
<i>Callophrys perplexa</i>	perplexing hairstreak	○
RIODINIDAE	METALMARKS	
<i>Apodemia mormo virgulti</i>	Behr's metalmark	○
HESPERIIDAE	TRUE SKIPPERS	
<i>Erynnis brizo lacustra</i>	lacustra duskywing	○
<i>Erynnis funeralis</i>	funereal duskywing	○
<i>Erynnis tristis</i>	mournful duskywing	○
<i>Pyrgus communis</i>	common checkered skipper	○
CLASS REPTILIA		
REPTILES		
IGUANIDAE	IGUANID LIZARDS	
<i>Phrynosoma coronatum blainvillei</i>	San Diego horned lizard	○
<i>Sceloporus occidentalis</i>	western fence lizard	○
<i>Uta stansburiana</i>	side-blotched lizard	○
COLUBRIDAE	COLUBRID SNAKES	
<i>Coluber constrictor</i>	racer	○
VIPERIDAE	VIPERS	
<i>Crotalus mitchellii</i>	speckled rattlesnake	○
<i>Crotalus viridis</i>	western rattlesnake	○

Scientific Name	Common Name	Sign:
CLASS AVES	BIRDS	
CATHARTIDAE	NEW WORLD VULTURES	
<i>Cathartes aura</i>	turkey vulture	O
ACCIPITRIDAE	HAWKS, KITES, EAGLES	
<i>Buteo jamaicensis</i>	red-tailed hawk	O
<i>Circus cyaneus</i>	northern harrier	O
ODONTOPHORIDAE	NEW WORLD QUAIL	
<i>Callipepla californica</i>	California quail	O
COLUMBIDAE	PIGEONS & DOVES	
<i>Zenaida macroura</i>	mourning dove	O
TROCHILIDAE	HUMMINGBIRDS	
<i>Calypte anna</i>	Anna's hummingbird	V
<i>Selasphorus rufus</i>	rufous hummingbird	O
PICIDAE	WOODPECKERS	
<i>Colaptes auratus</i>	northern flicker	O
TYRANNIDAE	TYRANT FLYCATCHERS	
<i>Myiarchus cinerascens</i>	ash-throated flycatcher	O
ALAUDIDAE	LARKS	
<i>Eremophila alpestris</i>	horned lark	O
CORVIDAE	JAYS & CROWS	
<i>Aphelocoma californica</i>	western scrub-jay	O
<i>Corvus corax</i>	common raven	O, V
AEGITHALIDAE	BUSHTITS	
<i>Psaltiriparus minimus</i>	bushtit	O, V
TROGLODYTIDAE	WRENS	
<i>Salpinctes obsoletus</i>	rock wren	O, V
<i>Troglodytes aedon</i>	house wren	O
TIMALIIDAE	BABBLERS	
<i>Chamaea fasciata</i>	wrentit	V
TURDIDAE	THRUSHES	
<i>Catharus guttatus</i>	hermit thrush	O
LANIIDAE	SHRIKES	
<i>Lanius ludovicianus</i>	loggerhead shrike	O
ICTERIDAE	BLACKBIRDS	
<i>Sturnella neglecta</i>	western meadowlark	V
EMBERIZIDAE	EMBERIZIDS	
<i>Aimophila ruficeps canescens</i>	southern California rufous-crowned sparrow	V
<i>Amphispiza belli belli</i>	Bell's sage sparrow	O
<i>Chondestes grammacus</i>	lark sparrow	O, V
<i>Pipilo crissalis</i>	California towhee	O, V
<i>Pipilo maculatus</i>	spotted towhee	O, V
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	O
CARDINALIDAE	CARDINALS	
<i>Pheucticus melanocephalus</i>	black-headed grosbeak	O
<i>Passerina amoena</i>	lazuli bunting	O

Scientific Name	Common Name	Sign*
FRINGILLIDAE <i>Carduelis psaltria</i>	FINCHES lesser goldfinch	V
LEPORIDAE <i>Lepus californicus bennettii</i> <i>Sylvilagus audubonii</i> <i>Spermophilus beecheyi</i>	HARES & RABBITS San Diego black-tailed jackrabbit desert cottontail California ground squirrel	O O O,B
CANIDAE <i>Canis familiaris</i> <i>Canis latrans</i>	WOLVES & FOXES domestic dog coyote	O O,T
CERVIDAE <i>Odocoileus hemionus</i>	DEER mule deer	O,T
*O=Observation V=Vocalization T=Tracks B=Burrow		