



## Calaveras County General Plan Baseline Report



## Chapter 9 Natural Resources

### 9.1 INTRODUCTION

This chapter of the Baseline Report summarizes a variety of open space and natural resource topics characteristic of the county. Methodologies for developing these sections, key terms related to their discussion, and local, State, and Federal regulations that pertain to these topics are also addressed. This chapter is organized into the following sections:

- Introduction (Section 9.1)
- Biological Resources (Section 9.2)
- Water Resources (Section 9.3)
- Mineral Resources (Section 9.4)
- Timber Resources (Section 9.5)
- Agricultural Resources (Section 9.6)
- Regulatory Setting (Section 9.7)
- Key Terms (Section 9.8)
- Bibliography (Section 9.9)

### Major Findings—Biological Resources

- The Planning Area is comprised mostly of natural habitat areas. The majority of these areas consist of annual grassland or tree-dominated habitats, such as annual grassland (22 percent of Planning Area total) and Montane Hardwood (15 percent of Planning Area total) habitat areas.
- Calaveras County contains areas designated as critical habitat areas for Central Valley steelhead (*Oncorhynchus mykiss*) and California tiger salamander (*Ambystoma californiense*). Critical habitat in Calaveras County for Central Valley steelhead is found on a portion of Calaveras County below New Hogan Reservoir. Critical habitat in Calaveras County for California tiger salamander is generally located northwestern/western area of the county.
- Calaveras County has dozens of California Natural Diversity Database (CNDDB) reported occurrences of special-status and listed species throughout the Planning Area and there is potential for additional unknown locations of these species. In light of this, there is increasing urgency in Calaveras County to balance the needs of new development and the maintenance of existing development with the needs of sensitive biological resources, such as special-status and listed species.
- There are two sensitive natural communities within the Planning Area: Ione Chaparral and Big Tree Forest.

- The North Fork Mokelumne and the North Fork Stanislaus are eligible for listing in the National Wild and Scenic Rivers System.

## Major Findings–Water Resources

- An abundance of water resources are found throughout Calaveras County, which includes three large river systems: Mokelumne River, Calaveras River, and Stanislaus River. Water supply ditches and reservoirs operated by water districts and public utilities are other major water features in the county.
- Because of the great difference in elevation from west to east in the county, precipitation varies. Average precipitation is 20 inches per year in the western region to 60 inches in the northeast.
- Calaveras County can be broken up into several watersheds: Upper Mokelumne, Lower Mokelumne and Cosumnes, Upper Calaveras, Lower Calaveras, and Stanislaus. These watersheds represent all or part of a surface water drainage basin or distinct hydrologic features.
- The Lower Stanislaus River is listed by the SWRCB as being impaired by Diazinon, Group A pesticides, and mercury. Group A pesticides include chlordane, toxaphene, heptachlor, endosulfan, and several other pesticides. Diazinon and the Group A pesticides likely resulted from agriculture. Mercury likely originated from mining activities.
- Findings from a watershed assessment report prepared for the Upper Mokelumne River identified elevated levels of watershed provide information regarding the quality of water in the determined that the watershed has elevated levels of a variety of constituents, including turbidity, alkalinity, aluminum, nitrate, and pathogens. A majority of the watershed was found to have moderate vulnerability to the transport of these water quality constituents. High to very high vulnerability to the transport of these constituents was also identified for small portions of the county, which are primarily adjacent to waterways.
- A portion of western Calaveras County overlies the Eastern San Joaquin groundwater sub-basin. This sub-basin is a part of the larger San Joaquin Valley groundwater basin. Water quality in the Eastern San Joaquin groundwater basin is impaired. Groundwater quality in the Eastern San Joaquin groundwater basin has been directly affected by the severe overdraft that has occurred in the basin. As water levels in the basin have declined, a saline front originating in the western portion of the basin has moved eastward towards Calaveras County.

## Major Findings–Mineral Resources

- Calaveras County has a long history of mining activity and continues today to host several mineral extraction operations in addition to reclamation of former mining operations. Calaveras County is rich with mineral resources due to its location within the Sierra Nevada foothills and the Mother Lode belt
- As of 2005 the CDMG identifies 14 mines in Calaveras County. Seven of these mines are classified as active, two are idle, and five are closed.

- Asbestos and chromite reserves are located in three general areas. Small reserves of asbestos and chromite are thought to exist north of City of Angels, east of Highway 49. Additional small reserves are known northwest of San Andreas, near Valley Springs.
- Deposits of gold-bearing rock are distributed over most of Calaveras County. The history of gold in the region suggests that significant reserves may still exist.
- Significant reserves of limestone have been classified in the Kentucky House, Calaveritas, and Cave City deposits, located south of San Andreas. In addition, small limestone deposits have been identified generally east-southeast of San Andreas. Additional limestone deposits lie both west and south of Murphys, near the Tuolumne County border.
- The primary sand and gravel deposits lie in the northwestern portion of Calaveras County, generally west of Valley Springs.
- The California Department of Conservation Division of Oil, Gas, and Geothermal Resources does not identify any oil, gas, or geothermal production in Calaveras County.

### Major Findings–Timber Resources

- Calaveras County has a diverse range of forest types and vegetation. Cover types in the county include blue oak foothill pine, blue oak woodlands, montane hardwood, montane hardwood-conifer, Sierran mixed conifer, Ponderosa pine, Jeffrey pine, and Douglas fir. Sierran mixed conifer is dominated by Jeffrey pine and white fir, with incense cedar, ponderosa pine, sugar pine, and red fir found as associated conifer species. The eastern, higher elevations of the county primarily consist of Sierran mixed conifer and large swathes of Ponderosa pine, red fir, and lodgepole pine. Red fir and lodgepole pine are not traditionally used for timber production.
- The Stanislaus National Forest was created in 1897 and covers approximately 900,000 acres throughout Alpine, Calaveras, Mariposa, and Tuolumne Counties. This national forest covers 77,901 acres in Calaveras County (12 percent of the Planning Area).
- The timber industry has played an important role in the agricultural sector of the county's economy, and the County's economy in general. From 1999 to 2005 Christmas trees were one of the top ten agriculture commodities in the County.
- The eastern portion of Calaveras County contains approximately 78,000 acres of land designated as Timber Protection Zone (12 percent of the Planning Area).

### Major Findings–Agricultural Resources

- The value of agricultural production for Calaveras County in 2006 was \$25.2 million. This figure represents a 17 percent increase from the 2005 gross production value of \$21.5 million. However, it also represents a gross agricultural production value decrease of 29 percent from 1999 levels of \$35.5 million.
- In 2005 cattle and calves, poultry, and wine grapes ranked as the top three producing agricultural sectors.

- Lands classified as Deciduous Fruits and Nuts account for the largest portion (acreage) of land in agricultural production within the County and are generally found in the vicinity of West Point and southwest of New Hogan Reservoir.
- Agricultural lands produce commodities that generate various economic benefits, contribute to the aesthetic value of an area, and create a variety of foraging habitats for wildlife species. In addition to the loss of these key benefits, the conversion of agricultural land has hydrological implications, as loss of open space changes the existing watershed and may reduce groundwater recharge areas.
- Development in the Planning Area could eliminate or modify important agricultural and soil resources, and also fragment some existing agricultural areas. Fragmentation of existing agricultural lands may increase the likelihood of increased nuisance effects resulting from urban expansion into agricultural areas. These conflicts may increase costs to the agricultural operation, and combined with rising land values for residential development, encourage the additional conversion of additional farmland to urban uses.

## 9.2 BIOLOGICAL RESOURCES

### Introduction

The Planning Area includes a variety of wildlife habitats and vegetation types where both rare and common wildlife and plant species may be found. This section describes those biological resources known to occur or with potential to occur within the Planning Area. The results of this assessment may be used in planning and management decisions that may affect these biological resources in the Planning Area.

### Methods

This evaluation includes a review of wildlife habitat, vegetation types, special-status species, and jurisdictional “waters of the United States” that occur or may potentially occur within or in the vicinity of the Planning Area. The results of this assessment are based upon literature searches, database queries, and some analysis using existing spatial data. The sources of reference data reviewed include the following:

- U.S. Fish and Wildlife Service (USFWS) Species List for Calaveras County (USFWS 2007);
- California Natural Diversity Database (CNDDDB), Rarefind 3 computer program search of occurrences within Calaveras County (CDFG 2007);
- California Native Plant Society (CNPS), Electronic Inventory computer program search for Calaveras County (CNPS 2007);
- California Department of Forestry and Fire Protection (CDF 2002) Multi-source Land Cover Data v2;
- USGS Digital Orthophoto Quarter Quadrangles (1994).



## Wildlife Habitats

Wildlife habitats provide food, shelter, movement corridors, and breeding opportunities for wildlife species. They are classified in general terms with an emphasis on vegetation structure, vegetation species composition, soil structure, and water availability. Some wildlife species are generalists and may use a variety of habitats, while other species may be adapted to very specific habitats. Species that are limited to a single habitat type are more vulnerable to habitat loss and disturbance than are generalists and, therefore, may be more at risk to experience population declines. Figures 9-1A and 9-1B identify the various types of habitats found throughout the County.

Habitat for many wildlife species includes a mosaic of habitat types. More common wildlife species, such as red-shouldered hawk (*Buteo lineatus*), great-horned owl (*Bubo virginianus*), northern flicker (*Colaptes auratus*), brown-headed cowbird (*Molothrus ater*), raccoon (*Procyon lotor*), and western toad (*Bufo boreas*) frequently use more than one habitat type. They may use riparian habitat for breeding sites, resting sites, cover while moving from one area to another, or thermal cover, and range into open upland grasslands, scrub, or over open water to forage. Frequently the greatest number of these more common wildlife species will be found at the edges, where habitats convert from one type or another.

The Planning Area contains mostly natural habitats (Figure 9-1A, 91-B, and Table 9-1). The majority of the area is annual grassland or tree-dominated habitats. All of these habitats, as classified in California Wildlife Habitats (Mayer and Laudenslayer 1988), are listed and briefly described below. The habitat spatial data are from the California Department of Forestry and Fire Protection's Multi-source Land Cover Data v2. (2002).

TABLE 9-1. HABITAT AND LAND USE ACREAGE FOR THE PLANNING AREA		
Land Use/Habitat	Planning Area Acreage	Percent of Planning Area
Agriculture	960	0.14%
Annual Grassland	144,460	21.79%
Barren	3,220	0.49%
Blue Oak Woodland	55,330	8.35%
Blue Oak-Foothill Pine	2,050	0.31%
Chamise-Redshank Chaparral	21,580	3.26%
Douglas-Fir	10,820	1.63%
Jeffrey Pine	2,180	0.33%
Lodgepole Pine	3,840	0.58%
Mixed Chaparral	44,860	6.77%
Montane Chaparral	6,980	1.05%
Montane Hardwood	102,120	15.41%
Montane Hardwood-Conifer	90,130	13.60%
Montane Riparian	20	0.00%
Ponderosa Pine	53,380	8.05%
Red Fir	5,660	0.85%
Sierran Mixed Conifer	94,140	14.20%

**TABLE 9-1.  
HABITAT AND LAND USE ACREAGE FOR THE PLANNING AREA**

Land Use/Habitat	Planning Area Acreage	Percent of Planning Area
Urban	4,720	0.71%
Water	16,020	2.42%
Wet Meadow	370	0.06%
Total	662,840	100.00%

Source: California Department of Forestry and Fire Protection 2002; and ESA, 2007.

### ***Tree-Dominated Habitats***

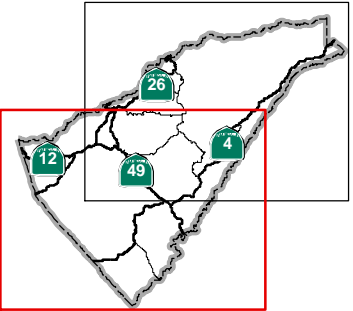
**Blue Oak Woodland.** Blue oak woodland covers approximately 55,330 acres within the Planning Area. This habitat is dominated by blue oak (*Quercus douglassii*), which comprises 85 to 100 percent of the canopy cover. In the Sierra Nevada, common associates include interior live oak (*Quercus wislizeni*), poison-oak (*Toxicodendron diversilobum*), California coffeeberry (*Rhamnus californica*), redberry (*Rhamnus* spp.), California buckeye (*Aesculus californica*), and manzanita species. The ground cover of this habitat is annuals, consisting of brome grass (*Bromus* spp.), wild oats (*Avena* sp.), foxtail barley (*Hordeum murinum*), needlegrass, filaree, fiddleneck (*Amsinckia* spp.), and others. This habitat is typically found at elevations above Annual Grassland and below Blue Oak-Foothill Pine habitats but may be interspersed with those habitats as well.

Oak woodlands are important to many wildlife species in the Planning Area. Acorns are an important food source for acorn woodpeckers (*Melanerpes formicivorus*), western scrub jays (*Aphelocoma californica*), yellow-billed magpies (*Pica nuttali*), western gray squirrels (*Sciurus griseus*), and California ground squirrels (*Spermophilus beecheyi*). Other wildlife species that frequent this habitat include loggerhead shrike (*Lanius ludovicianus*), oak titmouse (*Baeolophus inornatus*), racer (*Coluber constrictor*), and the big brown bat (*Eptesicus fuscus*).

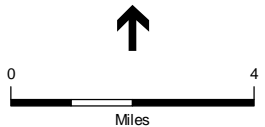


Calaveras County  
General Plan Update  
Habitat Types

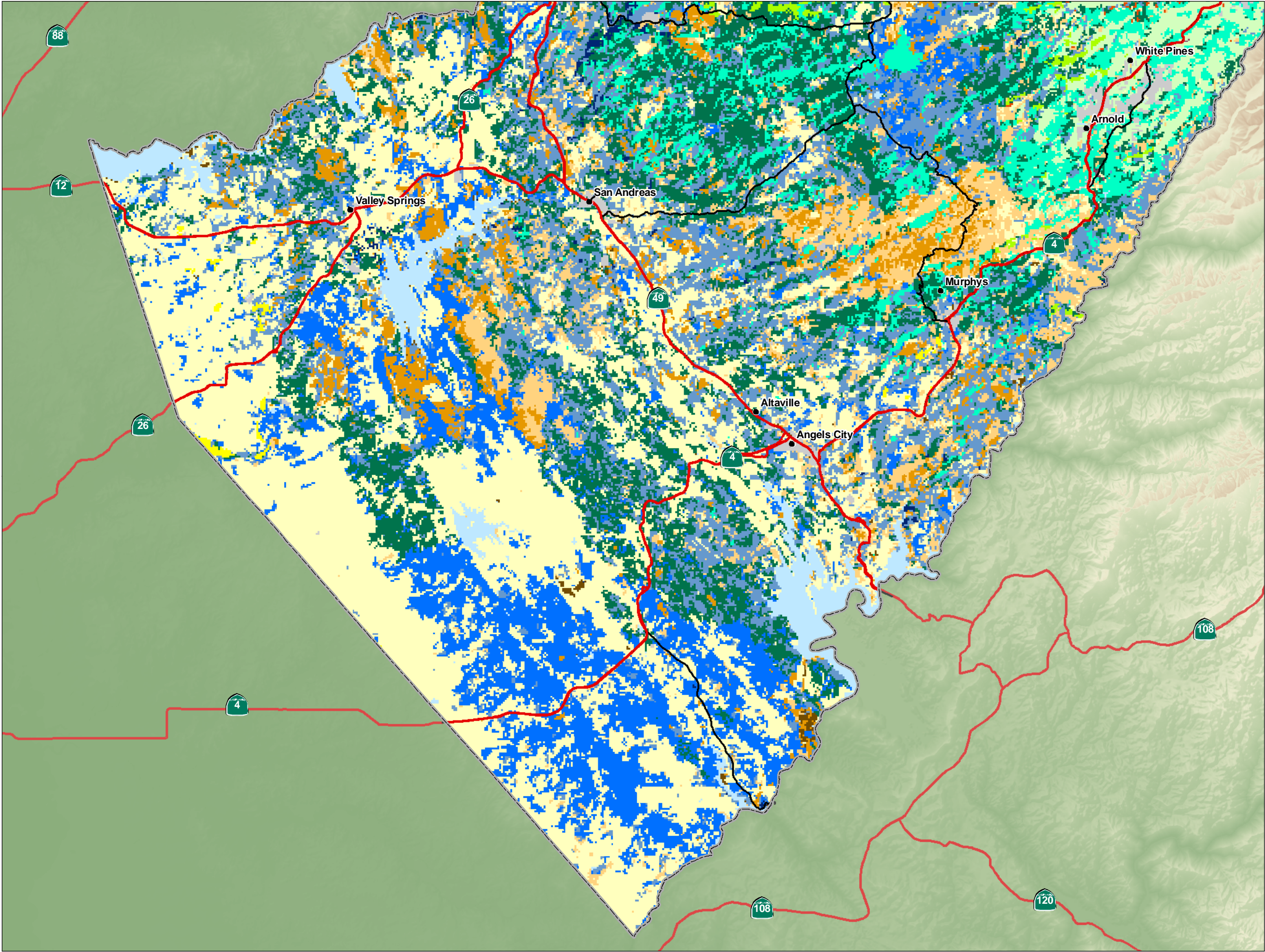
Figure 9-1A



- Habitats**
- Annual Grassland
  - Agriculture
  - Barren
  - Blue Oak Woodland
  - Blue Oak-Foothill Pine
  - Mixed Chaparral
  - Chamise-Redshank Chaparral
  - Montane Chaparral
  - Sierran Mixed Conifer
  - Ponderosa Pine
  - Montane Hardwood
  - Montane Hardwood-Conifer
  - Lodgepole Pine
  - Douglas-Fir
  - Jeffrey Pine
  - Red Fir
  - Montane Riparian
  - Wet Meadow
  - Urban
  - Water
- State Highways
- Major Roads
- Calaveras County Boundary



SOURCE: FRAP, 2002; ESRI, 2006;  
Calaveras County, 2006; and ESA, 2007

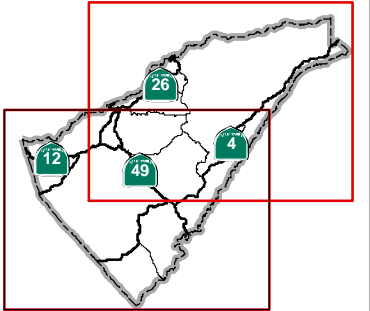




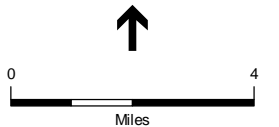


Calaveras County  
General Plan Update  
Habitat Types

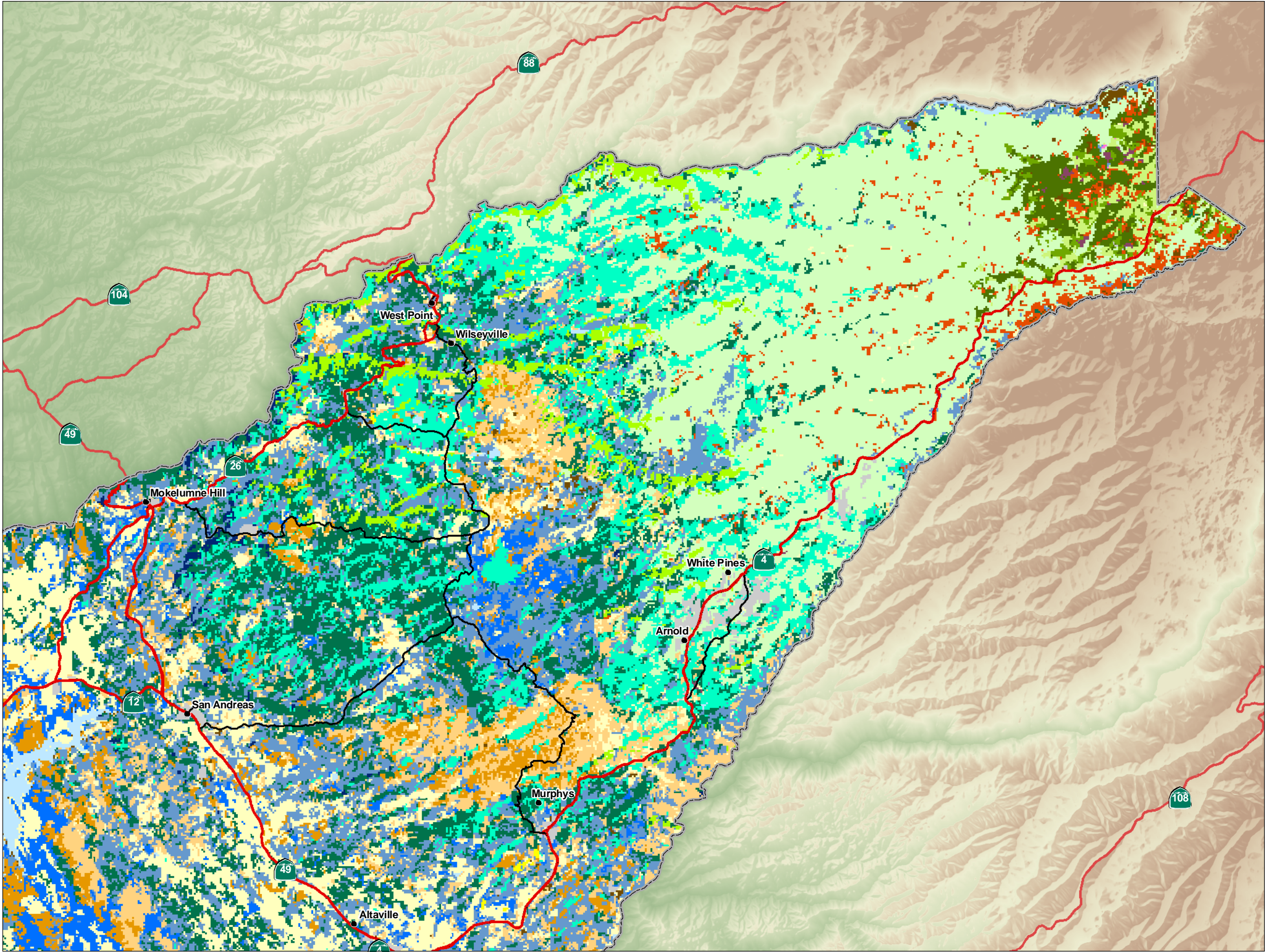
Figure 9-1B



- Habitats**
- Annual Grassland
  - Agriculture
  - Barren
  - Blue Oak Woodland
  - Blue Oak-Foothill Pine
  - Mixed Chaparral
  - Chamise-Redshank Chaparral
  - Montane Chaparral
  - Sierran Mixed Conifer
  - Ponderosa Pine
  - Montane Hardwood
  - Montane Hardwood-Conifer
  - Lodgepole Pine
  - Douglas-Fir
  - Jeffrey Pine
  - Red Fir
  - Montane Riparian
  - Wet Meadow
  - Urban
  - Water
- State Highways
- Major Roads
- Calaveras County Boundary



SOURCE: FRAP, 2002; ESRI, 2006; Calaveras County, 2006; and ESA, 2007







**Blue Oak-Foothill Pine.** Blue Oak-Foothill Pine encompasses approximately 2,050 acres within the Planning Area. This habitat is comprised of blue oak and foothill pine (*Pinus sabiniana*) in the overstory, with blue oak usually dominant. Other tree species typically associated with this habitat include interior live oak and California buckeye. At lower elevations where blue oaks comprise most of the overstory, the understory tends to be primarily annual grasses and forbs. While at higher elevations, where foothill pine comprises most of the canopy, the understory includes annual grasses, forbs, and shrub species. Shrub species may include *Ceanothus* spp., Mariposa manzanita (*Arctostaphylos mariposa*), whiteleaf manzanita (*Arctostaphylos manzanita*), Parry manzanita (*Arctostaphylos parryana*), redberry, California coffeeberry, poison-oak, silver lupine (*Lupinus argenteus*), blue elder (*Sambucus nigra* ssp. *caerulea*), and California redbud (*Cercis orbiculata*). At lower elevations this habitat is surrounded by Annual Grassland and Blue Oak Woodland, while at higher elevations it typically is found near Mixed Chaparral or Ponderosa Pine.

Although this habitat provides cover, feeding, or breeding locations for many wildlife species, no wildlife is totally dependent on this habitat for any part of its life cycle. However, wildlife species that frequent this habitat include red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), western fence lizard (*Sceloporus occidentalis*), bobcat (*Lynx rufus*), and the American badger (*Taxidea taxus*).

**Douglas-Fir.** Approximately 10,820 acres of the Planning Area is covered by Douglas-Fir habitat. This habitat type varies based on the soil, moisture, and topography. On dry soils Douglas-fir (*Pseudotsuga menziesii*), tanoak (*Lithocarpus densiflorus*), and Pacific madrone (*Arbutus menziesii*) dominate the habitat. In wetter areas, Douglas-fir is found with Pacific yew (*Taxus brevifolia*) and Port-Orford cedar (*Chamaecyparis lawsoniana*). The shrub layer can be comprised of canyon live oak (*Quercus chrysolepis*), Oregon-grape (*Mahonia aquifolium*), California blackberry (*Rubus ursinus*), dwarf rose (*Rosa gymnocarpa*), salal (*Gaultheria shallon*), Pacific rhododendron (*Rhododendron macrophyllum*), or ceanothus species among others. Forbs and grasses include western swordfern (*Polystichum munitum*), broad-leaf starflower (*Trientalis borealis* ssp. *latifolia*), American deervetch (*Vicia americana*), common whipplea (*Whipplea modesta*), American trailplant (*Adenocaulon bicolor*), or rattlesnake plantain (*Goodyera pubescens*). Douglas-fir habitat occurs at low to moderate elevations surrounded by Sierran Mixed Conifer, Montane Hardwood, Montane Hardwood-Conifer, or Montane Chaparral habitats.

This habitat supports a wide variety of wildlife species. Common bird species in this habitat include spotted owl (*Strix occidentalis*), western flycatcher (*Empidonax difficilis*), golden-crowned kinglet (*Regulus satrapa*), and varied thrush (*Ixoreus naevius*). Typical mammals include the fisher (*Martes pennanti*), deer mouse (*Peromyscus maniculatus*), and Douglas' squirrel (*Tamiasciurus douglasii*).

**Jeffrey Pine.** This habitat covers about 2,180 acres of habitat throughout the Planning Area. Jeffrey pine (*Pinus jeffreyi*) is the dominant species in the upper tree layer, but can be associated with ponderosa pine (*Pinus ponderosa*), Coulter pine (*Pinus coulteri*), sugar pine (*Pinus lambertiana*), lodgepole pine (*Pinus contorta*), and black cottonwood (*Populus trichocarpa*), among others. The lower tree layer contains aspen (*Populus tremuloides*), or California black oak (*Quercus kelloggii*). Common shrubs in the habitat include huckleberry oak (*Quercus vaccinifolia*), manzanita, or mountain misery (*Chamaebatia foliolosa*). The herbaceous layer is often comprised of squirreltail (*Elymus elymoides*), blue wildrye (*Elymus*

*glaucus*), slender hairgrass (*Deschampsia elongata*), western needlegrass, wooly wyethia (*Wyethia mollis*), and pennyroyal (*Mentha pulegium*). This habitat is often surrounded by Douglas-fir, Sierran Mixed Conifer, or Montane Hardwood-Conifer.

The value of this habitat for wildlife species lies primarily in the fact that Jeffrey pine seeds are included in the diet of more wildlife species than any other tree genus excluding oaks. The bark and foliage are also important food sources for squirrels and mule deer (*Odocoileus hemionus*). Jeffrey pines also provide nesting cover for species such as the nuthatches, woodpeckers, brown creeper (*Certhia americana*), and the northern flying squirrel (*Glaucomys sabrinus*).

**Lodgepole Pine.** Lodgepole pine habitat covers approximately 3,840 acres of the Planning Area. This habitat is comprised of open stands overwhelmingly dominated by lodgepole pine in association occasionally with aspen and mountain hemlock (*Tsuga mertensiana*). This habitat is often surrounded by wet meadows and montane riparian habitats. Because this habitat has low structural diversity, this habitat is associated with very few wildlife species. Several of the rare species associated with this habitat include the wolverine (*Gulo gulo*), northern goshawk (*Accipiter gentilis*), bald eagle (*Haliaeetus leucocephalus*), and prairie falcon (*Falco mexicanus*).

**Montane Hardwood.** Approximately 102,120 acres of habitat within the Planning Area is classified as Montane Hardwood habitat. This habitat is composed of a pronounced hardwood tree layer, and undeveloped shrub stratum, and a sparse herbaceous layer. The overstory of this habitat is comprised of canyon live oak, Douglas-fir, California black oak, Digger pine, and tanoak. Understory vegetation includes Oregon-grape, wood rose (*Rosa bymnocarpa*), manzanita, and poison-oak. This habitat is often surrounded by Montane Chaparral, Montane Hardwood-Conifer, Douglas-Fir, and Jeffrey Pine.

The wildlife that use acorns are predominate in this habitat and include scrub jay, Steller's jay (*Cyanocitta stelleri*), acorn woodpecker, wild turkey (*Meleagris gallopavo*), mountain quail (*Oreortyx pictus*), mule deer, black bear (*Ursus americanus*), and California ground squirrel. Additionally, within the forest floor several amphibian and reptile species are present including ensatina (*Ensatina eschscholtzii*), western fence lizard, and California mountain kingsnake (*Lampropeltis zonata*).

**Montane Hardwood-Conifer.** The Montane Hardwood-Conifer habitat type comprises 90,130 acres of habitat throughout the Planning Area. This habitat is typically a closed forest consisting of both hardwood and conifer species. Common associates include California black oak, bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), Pacific dogwood (*Cornus nuttallii*), Douglas-fir, incense cedar (*Calocedrus decurrens*), and ponderosa pine. Unless an area has undergone recent disturbance (i.e., logging or fire) this habitat usually is comprised of very little understory species. This habitat typically merges with Montane Hardwood, Douglas-Fir, Montane Riparian, or Montane Chaparral.

Montane Hardwood-Conifer provides habitat for a wide variety of wildlife species. Mature forests provide nest locations for cavity nesting birds and amphibians are frequently found in the detrital layer. Wildlife that can be found in this habitat includes the acorn woodpecker, dark-eyed junco (*Junco hyemalis*), great horned owl (*Bubo virginianus*), northern goshawk, and the violet-green swallow (*Tachycineta thalassina*).

**Montane Riparian.** Montane riparian habitat includes approximately 20 acres throughout the Planning Area. These areas are surrounded by montane chaparral, montane hardwood, or lodgepole pine habitats. Montane riparian is typically composed of thinleaf alder (*Alnus incana*), aspen, black cottonwood, Pacific dogwood, wild azalea (*Rhododendron occidentale*), and willow. All riparian habitats are of high value to wildlife species. This habitat provides water, cover, migration corridors, and diverse nesting and feeding opportunities. Several rare frog species, including California red-legged frog (*Rana aurora draytonii*), foothill yellow-legged frog (*Rana boylei*), and mountain yellow-legged frog (*Rana mucosa*) use this habitat.

**Ponderosa Pine.** This habitat type comprises approximately 53,380 acres throughout the Planning Area. Ponderosa pine habitat can consist of pure stands of ponderosa pine or stands where at least 50 percent of the canopy cover is ponderosa pine. Associated canopy species include white fir (*Abies concolor*), incense cedar, Jeffrey pine, California black oak, Pacific madrone, and tanoak. Shrub species in this habitat include manzanita, ceanothus, Pacific dogwood, bitter cherry (*Prunus emarginata*), carex, Sierra iris (*Iris hartwegii* ssp. *pinetor*), summer lupine (*Lupinus formosus* var. *formosus*), and purple nightshade (*Solanum xanti*). This habitat often occurs adjacent to blue oak woodland, Jeffrey pine, mixed chaparral, montane chaparral, or Douglas-fir.

Ponderosa pine habitat is often very important to deer species. It is used as migratory routes and is an important part of their diet during the migratory months. Rare species that frequent this habitat include the Sierra Nevada red fox (*Vulpes vulpes necator*), fisher, northern goshawk, and the prairie falcon.

**Red Fir.** Red fir habitat includes approximately 5,660 acres of habitat throughout the Planning Area. Red fir (*Abies magnifica*) dominates the overstory; however, white fir, lodgepole pine, and Jeffrey pine also grow in some locations. Understory shrubs in red fir forests are restricted to openings in the tree canopy, and include pinemat manzanita (*Arctostaphylos nevadensis*), huckleberry oak, and tobacco brush (*Ceanothus velutinus* var. *velutinus*). Red fir stands provide habitat for several rare species including northern goshawk, red fox (*Vulpes vulpes*), pine marten (*Martes martes*), and wolverine.

**Sierran Mixed Conifer.** In the Planning Area Sierran mixed conifer comprises 94,140 acres. The Sierran mixed conifer habitat is an assemblage of conifer species that forms a multilayered forest. Historically, burning and logging have caused wide variability in stand structure, resulting in both even-aged and uneven-aged stands. This habitat is dominated by Jeffrey pine and white fir, with incense cedar, ponderosa pine, sugar pine, and red fir found as associated conifer species. Green-leaf manzanita (*Arctostaphylos patula*), pinemat manzanita, Mahala-mat (*Ceanothus prostratus*), mountain whitethorn (*C. cordulatus*), tobacco brush, Sierra chinquapin (*Chrysolepis sempervirens*), huckleberry oak, gooseberry (*Ribes* spp.), and wood rose are common shrub species in the mixed conifer understory.

The Sierran mixed conifer forest supports a wide variety of wildlife species. Some of the rare species that frequent this habitat include the fisher, pine marten, spotted owl, bald eagle, and American peregrine falcon (*Falco peregrinus anatum*). Additionally, common species present in the habitat include yellow-rumped warbler (*Dendroica coronata*), western tanager (*Piranga ludoviciana*), Steller's jay, long-eared chipmunk (*Eutamias quadrimaculatus*), brush rabbit (*Sylvilagus bachmani*), and Calliope hummingbird (*Stellula calliope*).

## Shrub-Dominated Habitats

**Chamise-Redshank Chaparral.** Chamise-redshank chaparral covers approximately 21,580 acres of habitat throughout the Planning Area. This habitat is dominated by nearly pure stands of chamise (*Adenostoma fasciculatum*) or redshank (*Adenostoma sparsifolium*), or a mixture of both. Common associates include toyon (*Heteromeles arbutifolia*), sugar sumac (*Rhus ovata*), ceanothus, and California buckthorn (*Frangula californica*). This habitat is generally surrounded by mixed chaparral, annual grassland, blue oak-foothill pine, or ponderosa pine habitats.

Wildlife species found in this habitat type also frequently occur in Mixed Chaparral and Montane Chaparral habitats. These species include black-tailed jackrabbit (*Lepus californicus*), California thrasher (*Toxostoma redivivum*), California towhee, (*Pipilo crissalis*), ringtail (*Bassariscus astutus*), and gopher snake (*Pituophis melanoleucus*).

**Mixed Chaparral.** Mixed chaparral habitat covers approximately 44,860 acres within the Planning Area. This habitat type supports a wide variety of plant species. Composition changes with precipitation, aspect, and soil type. Species that are common in this habitat include several species of ceanothus and manzanita, chamise, silk-tassel (*Garrya flavescens*), toyon, yerba-santa (*Eriodictyon californicum*), sumac, hollyleaf cherry (*Prunus ilicifolia*), and California fremontia (*Fremontodendron californicum*). Mixed Chaparral habitats occur in a matrix with Chamise-Redshank Chaparral, Annual Grassland, Blue Oak-Foothill Pine, and Ponderosa Pine.

No wildlife species are restricted to this habitat, however many wildlife species use this habitat including Anna's hummingbird (*Calypte anna*), brush mouse (*Peromyscus boylii*), California quail (*Callipepla californica*), ring-necked snake (*Diadophis punctatus*), sage sparrow (*Amphispiza belli*), spotted towhee (*Pipilo maculatus*), and the wrentit (*Chamaea fasciata*).

**Montane Chaparral.** Montane chaparral habitats cover approximately 6,980 acres within the Planning Area. This habitat type usually occurs on rocky, granitic southern exposures and is characterized by drought-tolerant species. These species include huckleberry oak, Sierra chinquapin, manzanita, ceanothus, bitter cherry, and toyon. Montane Chaparral is adjacent to a wide variety of habitats including Montane Riparian, mixed chaparral, ponderosa pine, Jeffrey pine, red fir, and lodgepole pine.

Montane chaparral provides habitat for a wildlife variety of wildlife. Chaparral habitats are very important to rodent species. Deer are also strongly associated with chaparral habitats which provides summer foraging areas, cover, and fawning habitat. Rabbits and hares eat twigs, and leaves from chaparral during the fall and winter months when grasses are not available. Birds use the seeds, fruits, and insects that are present within this habitat; as well as using chaparral for singing, roosting, and nesting sites.

## Herbaceous-Dominated Habitats

**Annual Grassland.** Annual Grassland covers 144,460 acres in the Planning Area. This vegetation type may be adjacent to natural vegetation types, include vernal pool wetlands or be surrounded by agricultural land. The plant species composition of Annual Grassland varies enormously depending primarily on whether the land was previous cultivated or sown with grain or forage crops. Uncultivated land contains

a large number of native plant species and relatively less Eurasian species. Generally, except during spring wildflower displays, the most noticeable species are herbaceous exotic grasses and forbs, and may include weedy species such as perennial ryegrass (*Lolium perenne*), soft chess (*Bromus hordeaceus*), foxtail barley, ripgut brome (*Bromus diandrus*), wild oats, and stork's bill (*Erodium botrys*). From a wildlife perspective, Annual Grassland habitat that contains or which is adjacent to more complex habitat or habitat features (i.e., riparian areas or vernal pools.) are more likely to have a greater habitat value and support a greater diversity of wildlife species.

Wildlife species that use annual grassland include a variety of sparrows, white-tailed kite, northern harrier, red-tailed hawk, burrowing owl (*Athene cunicularia*), ring-necked pheasant (*Phasianus colchicus*), various rodents, lizards, snakes, and salamanders.

**Wet Meadow.** Wet meadow habitat covers approximately 370 acres of the Planning Area. Wet meadows can be found where water is at or near the surface for most of the growing season following the spring runoff, and generally have a simple structure composed of a layer of herbaceous plants. Shrubs when present are usually willows and alder species. The herbaceous layer is comprised of a wide variety of species, including *Danthonia* spp., *Juncus* spp., *Salix* spp., and *Scirpus* spp. Many wildlife species use wet meadow habitat. Mule deer and elk (*Cervus canadensis*) feed on the forbs and grasses prevalent in this habitat. Yellow-headed (*Xanthocephalus xanthocephalus*) and red-winged blackbirds (*Agelaius phoeniceus*) occasionally nest in the tall vegetation of this habitat. Striped racers (*Masticophis lateralis*), mallard ducks (*Anas platyrhynchos*), and various frog species also frequent this habitat.

## **Aquatic Habitats**

**Water.** Water comprises approximately 16,020 acres of the Planning Area. Water habitat within the Planning Area is composed of lacustrine and riverine. Lacustrine includes lakes, reservoirs, ponds, and ponded areas along streams, while riverine includes rivers, canals, and streams. Water habitats typically support fish species, including the listed Central Valley fall/late-fall run Chinook salmon (*Oncorhynchus tshawytscha*) and also provide foraging, cover, and breeding habitat for other aquatic species such as pond turtle (*Emys marmorata*), amphibians, various waterfowl and fish-eating species such as belted kingfisher (*Ceryle alcyon*), great blue heron (*Ardea herodias*), and bald eagle.

## **Developed Habitats**

**Agriculture.** Agricultural habitat covers approximately 960 acres of the Planning Area. Vegetation composition and structure in agricultural habitats are variable, depending on the type of crops grown and the time of year. For these reasons, habitat value for wildlife is also variable. In addition, the types and timing of operational activities of agricultural lands affects habitat suitability for wildlife. Tall and maintained crops such as vineyards will provide different habitat value and likely support different wildlife species than short crops with a lot of exposed bare ground between rows or pasture land. Refer to the "Agricultural Resources" section for more information regarding agricultural land.

Typical wildlife species that may use agricultural habitat include a variety of rodents—such as California ground squirrel and California vole (*Microtus californicus*)—and birds—such as red-winged blackbird, northern harrier, white-tailed kite, and yellow-billed magpie. Croplands provide food and water for these species, but do not generally provide long-term shelter due to the frequency of disturbance.



**Urban.** Land classified as urban areas encompasses approximately 4,720 acres of the total Planning Area. Wildlife species that use urban habitat are variable, depending on the density of development, the surrounding land use, and the types and availability of vegetation and other habitat features available for foraging, nesting, and cover. In general, however, wildlife habitat in urban areas consists of landscaped areas with a mix of both native and exotic ornamental plant species. Species using these areas are conditioned to a greater level of human activity than those in natural and less developed areas. Generally, the more developed an urban area (example: downtown) is, the less diversity of species occurring in that area will be.

Wildlife species typically found in urban habitat include American crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), American robin (*Turdus americana*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*).

### ***Non-Vegetated Habitats***

**Barren.** Landscape classified as barren only comprises 3,220 acres within the Planning Area. Barren habitat is defined as areas where vegetation is absent. In the Planning Area, this typically includes areas of exposed rock, talus slopes, and any surface permanently covered with snow or ice.

Although no vegetation is present, this habitat still is used by many wildlife species. Several bird species, such as the double-crested cormorant (*Phalacrocorax auritus*) and the American peregrine falcon, use rock ledges as nesting sites. Several bat species, including the pallid bat (*Antrozous pallidus*) and western mastiff bat (*Eumops perotis californicus*) use rocky river canyon walls as preferred foraging and roosting habitat.

### ***Sensitive Natural Communities***

As defined above, a sensitive natural community is a rare vegetation type that provides important habitat opportunities for wildlife, is structurally complex, or which is of special concern to local, state, or federal agencies. Natural communities that are either known or believed to be of high priority for inventory are listed in CNDDDB. CNDDDB identifies two sensitive natural communities in Calaveras County, Big Trees Forest and Ione Chaparral (see Figure 9-2 and Table 9-2).

Big Trees Forest is primarily composed of Sierran Mixed Conifer Forest habitat, which is described above, with the addition of giant sequoia (*Sequoiadendron giganteum*). Big Trees Forest also lacks the more xeric species (i.e., drought-tolerant) species found in Sierran Mixed Conifer Forest habitat.

Ione Chaparral is primarily composed of Ione manzanita (*Arctostaphylos myrtifolia*). Ione Chaparral is found throughout western Amador and northern Calaveras counties on very acidic, nutrient-poor, coarse soils, mostly derived from the Eocene Ione formation (Holland 1986).



Calaveras County  
General Plan Update  
CNDDDB Occurrences and  
Designated Critical Habitat

Figure 9-2



CNDDDB Sighting Occurrences

● CNDDDB Species

Critical Habitat

- Central Valley Steelhead
- California Tiger Salamander
- Lakes, Rivers, Streams
- State Highways
- Major Roads
- Calaveras County Boundary

CNDDDB Species

Amphibians

- 07. California Red-Legged Frog
- 08. California Tiger Salamander
- 11. Foothill Yellow-Legged Frog
- 22. Mountain Yellow-Legged Frog
- 41. Western Spadefoot

Birds

- 02. Bald Eagle
- 23. Northern Goshawk
- 29. Sharp-Shinned Hawk
- 35. Tricolored Blackbird

Invertebrates

- 05. Buttor's Sierra sideband (snail)
- 06. California Floater
- 12. Grubbs' Cave pseudoscorpion
- 17. King Tut Cave Harvestman
- 18. Leech's Skyline Diving Beetle
- 20. Martins' Cave Harvestman
- 21. Melones Cave Harvestman
- 32. Tight Coin (Yates' snail)
- 38. Valley Elderberry Longhorn Beetle
- 39. Vernal Pool Fairy Shrimp

Mammals

- 24. Pallid Bat
- 34. Townsend's Big-Eared Bat

Plants

- 01. Ahart's Dwarf Rush
- 04. Bisbee Peak Rush-Rose
- 09. Chinese Camp Brodiaea
- 10. Delta Button-Celery
- 13. Henderson's Bent Grass
- 14. Hoover's Calycadenia
- 16. Ione Manzanita
- 19. Mariposa Cryptantha
- 25. Pansy Monkeyflower
- 26. Pansy's Horkelia
- 27. Pincushion Navamettea
- 28. Red Hills Soaproot
- 30. Stebbins' Lomatium
- 31. Three-Bracted Onion
- 33. Tongue-Leaf Copper-Moss
- 36. Tuolumne Button-Celery
- 37. Tuolumne Iris

Sensitive Natural Communities

- 03. Big Tree Forest
- 15. Ione Chaparral



SOURCE: USGS, 1999; CNDDDB, 20007; ESRI, 2006; Calaveras County, 2006; and ESA, 2007





## Critical Habitat Designation

As stated above, the Endangered Species Act (ESA) requires the Federal government to designate “critical habitat” for any species it lists under the ESA. Critical habitat is defined as:

- Specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection;
- Specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species.

Determining areas to designate for critical habitat is dependent on a variety of physical and biological features needed for life processes and successful reproduction of the species. Some of these features include:

- Space for individual and population growth and for normal behavior;
- Cover or shelter;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Sites for breeding and rearing offspring; and
- Habitats that are protected from disturbances or are representative of the historic geographical and ecological distributions of a species.

A critical habitat designation does not set up a preserve or refuge, and applies only when federal funding, permits, or projects are involved. Critical habitat requirements do not apply to citizens engaged in activities on private land that do not involve a federal agency. The effect designated critical habitat has on a Federal project may only be minor changes to the project. Primarily, designation of critical habitat is supposed to alert the Federal agency to ensure protection to threatened or endangered species (USFWS 2005b, NOAA 2007).

### ***Central Valley Steelhead***

The National Oceanic and Atmospheric Administration (NOAA) issued a final rule on September 2, 2005 designating critical habitat for the Central Valley steelhead (*Oncorhynchus mykiss*), an Evolutionarily Significant Unit (ESU) of steelhead in California. Critical habitat in Calaveras County for this species is found in a portion of Calaveras County below New Hogan Reservoir (see Figure 9-2). The Mokelumne River below Camanche Reservoir in San Joaquin County also contains designated critical habitat for Central Valley steelhead. It is important to note that critical habitat was simultaneously designated for other ESUs of *O. mykiss*. Much of the designated critical habitats of these ESUs overlap with each other. Approximately 2,300 miles of streams in California are designated as critical habitat for Central Valley steelhead. Several watersheds containing Central Valley steelhead have been excluded from designation as critical habitat due in part to the economic benefits available in that watershed. Designated critical habitat for Central Valley steelhead is found in Tehama, Butte, Glenn, Shasta, Yolo, Sacramento, Solano,

Yuba, Sutter, Placer, San Joaquin, Stanislaus, Tuolumne, Merced, Alameda, and Contra Costa counties in addition to Calaveras County. The final rule identified the following activities that threaten the Central Valley steelhead:

- Forestry;
- Grazing and other associated rangeland activities;
- Agriculture;
- Road building/maintenance;
- Channel modifications/diking/stream bank stabilization;
- Urbanization;
- Sand and gravel mining;
- Mineral mining;
- Dams;
- Irrigation impoundments and withdrawals;
- Wetland loss/removal;
- Exotic/invasive species introductions; and
- Impediments to migration (70 FR 52488).

### ***California Tiger Salamander***

On August 23, 2005, U.S. Fish and Wildlife Service issued a final rule designating critical habitat for the central population of California tiger salamander (*Ambystoma californiense*). Critical habitat in Calaveras County for this species is generally located southwest of the town of Valley Springs and is also found throughout the Central Valley, Southern San Joaquin, East Bay, and Central Coast Regions (see Figure 9-2). A total of approximately 200,000 acres of critical habitat was designated for the central population of California tiger salamander throughout California. Calaveras County contains approximately 3,600 acres of designated critical habitat for the central population of the California tiger salamander. The Sonoma County distinct population was excluded from critical habitat designation due to its negative impacts on finalization and implementation of the Santa Rosa Plain Conservation Strategy. The Final Rule identified the following threats to the California tiger salamander in the county:

- Activities that could disturb aquatic breeding habitats during the breeding season, such as heavy equipment operation, ground disturbance, maintenance projects (e.g., pipelines, roads, powerlines), off-road travel, or recreation;
- Activities that impair the water quality of aquatic breeding habitat;
- Activities that create barriers impassable for salamanders or increase mortality in upland habitat between extant occurrences in breeding habitat; and

- Activities that disrupt the ability of vernal pool complexes to support California tiger salamander breeding function (70 FR 49380).

## Wild and Scenic Rivers

Rivers throughout the United States provide valuable services as sources of commerce and industry in addition to providing scenic, recreational, geologic, fish and wildlife, historic, cultural values. It is the intent of preserving these additional values that led to the creation of the National Wild and Scenic Rivers Act and the California Wild and Scenic Rivers Act. These laws are also intended to protect the free flowing nature of rivers throughout California and the rest of the United States. New dams, major diversions, and reservoirs are prohibited from being built on designated National or State Wild and Scenic Rivers. The state and federal laws share similar criteria in including a river into the National and State Wild and Scenic Rivers systems. A river may qualify for designation if it is free flowing and has one or more outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Rivers in the National and State Wild and Scenic Rivers Systems are classified as wild, scenic, or recreational. Both the National and State Wild and Scenic Rivers Acts define these classifications as follows:

- **Wild.** Rivers or segments of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.
- **Scenic.** Rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- **Recreational.** Rivers or sections of rivers readily accessible by road or railroad that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

A river may be deemed eligible for designation as a Wild and Scenic River by a state or federal agency and will only be officially designated a Wild and Scenic River through an act of Congress. The California Legislature has the privilege to designate a river as a California Wild and Scenic River. By listing a river in the National or State Wild and Scenic Rivers Systems, the habitat values associated with those river segments will be preserved and protected. These rivers can continue to provide valuable habitat characteristics that can be seen as diminishing along many waterways throughout California and Calaveras County. Recreational uses will often continue on rivers listed for wild and scenic designation though protection of natural and cultural values is often the primary management emphasis. Protection of these rivers is achieved through local zoning; restrictions on development on floodplains, steep slopes and other incompatible lands; and donations of development rights to land trusts among other methods. Additionally, protection and management of the river occurs through cooperation among State, local, and Federal agencies as well as with organizations and individuals.

No officially designated National or State Wild and Scenic Rivers occur within the county; however, the North Fork Mokelumne and the North Fork Stanislaus are eligible for listing in the National Wild and Scenic Rivers System (NPS 1998, Friends of the River 2007).

## Special Status Species in the Planning Area

The list of sensitive status wildlife species presented in Table 9-2 was developed using information from the sources listed at the beginning of this section. General habitat requirements are included for each species presented. Figure 9-2 shows where CNDDDB-listed species and sensitive natural communities may potentially occur in the Planning Area. The species identified in Table 9-2 and Figure 9-2 originated from CNDDDB, which is a positive sighting database. The identification of a species in this database relies on data obtained in surveys or sightings that positively identify the location of a special status or listed species. This table is not conclusive as to all the possible locations where a special status or listed species may be found in the County.

**TABLE 9-2  
SPECIAL STATUS SPECIES AND HABITATS WITHIN THE PLANNING AREA**

<b>Scientific Name Common Name</b>	<b>Status: Fed/State/ CNPS</b>	<b>General Habitat Requirements</b>
<b>Invertebrates</b>		
<i>Ammonitella yatesi</i> tight coin (=Yates' snail)	--/--/--	Inhabits limestone caves and outcroppings. Favors north-facing slopes. Found in humus in limestone outcroppings.
<i>Anodonta californiensis</i> California floater	--/--/--	Freshwater lakes and slow-moving streams and Rivers. Generally in shallow water.
<i>Aphrastochthonius grubbsi</i> Grubbs' Cave pseudoscorpion	--/--/--	Species lives in caves.
<i>Banksula martinorus</i> Martins' Cave harvestman	--/--/--	Known only from Heater Cave, 8 kilometers north of Columbia. Species lives in caves.
<i>Banksula melons</i> Melones Cave harvestman	--/--/--	Occurs in caves with soil, rocks, and rotting wood.
<i>Banksula tutankhamen</i> King Tut Cave harvestman	--/--/--	Known only from King Tut Cave, Calaveras county. Species lives in caves.
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/--/--	Lifecycle restricted to large, cool-water vernal pools with moderately turbid water.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT/--/--	Lifecycle restricted to vernal pools.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT/--/--	Breeds and forages exclusively on elderberry shrubs ( <i>Sambucus mexicana</i> ) typically associated with riparian forests, riparian woodlands, elderberry savannas, and other Central Valley habitats. Occurs only in the Central Valley of California. Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for "stressed" elderberries.
<i>Hydroporus leechi</i> Leech's skyline diving beetle	--/--/--	Aquatic beetle.
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	FE/--/--	Lifecycle restricted to vernal pools.
<i>Monadenia mormonum buttoni</i> Button's Sierra sideband (snail)	--/--/--	Known from the central Sierra Nevada Counties of El Dorado and Calaveras.
<i>Stygobromus gradyi</i> Grady's Cave amphipod	--/--/--	Known only from central California. Mostly found in caves, but one collection from a spring.
<b>Fish</b>		
<i>Hypomesus transpacificus</i> Delta smelt	FT/ST/--	Open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low



**TABLE 9-2  
SPECIAL STATUS SPECIES AND HABITATS WITHIN THE PLANNING AREA**

<b>Scientific Name Common Name</b>	<b>Status: Fed/State/ CNPS</b>	<b>General Habitat Requirements</b>
		occurrence of predators. May be affected by downstream sedimentation.
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/--/--	This ESU enters the Sacramento and San Joaquin Rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.
<i>Oncorhynchus tshawytscha</i> winter run Chinook salmon, Sacramento River	FE/--/--	This ESU enters the Sacramento River December to May; spawning peaks May and June. Upstream movement occurs more quickly than in spring run population. Young move to rearing areas in and through the Sacramento River, Delta, and San Pablo and San Francisco Bays.
<i>Oncorhynchus tshawytscha</i> Central Valley fall/late-fall run chinook salmon	FC/CSC/--	This ESU enters the Sacramento and San Joaquin rivers and their tributaries from July to April; spawning October to February. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run chinook salmon	FT/ST/--	This ESU enters the Sacramento and San Joaquin Rivers and tributaries March to July; spawning from late August to early October. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.
<b>Amphibians</b>		
<i>Ambystoma californiense</i> California tiger salamander, central population	FT/CSC/--	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.
<i>Bufo canorus</i> Yosemite toad	FC/CSC/--	Found in montane wet meadows, but also occurs in seasonal ponds associated with lodgepole pine and subalpine conifer forests.
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC/--	Breeds in slow moving streams, ponds, and marshes with emergent vegetation; forages in nearby uplands within about 200 feet.
<i>Rana boylei</i> foothill yellow-legged frog	--/CSC/--	Breeds in shaded stream habitats with rocky, cobble substrate, usually below 6,000 feet in elevation. Absent or infrequent when introduced predators are present.
<i>Rana muscosa</i> mountain yellow-legged frog	FC/CSC/--	Eggs are laid in shallow water attached to gravel or rocks. Crouches on rocks or clumps of grass near water. When disturbed, dives into water, and hides under rocks or rests exposed on the bottom. In dry conditions, many enter rodent burrows near water.
<i>Spea (=Scaphiopus) hammondi</i> western spadefoot	--/CSC/--	Occurs seasonally in grasslands, prairies, chaparral, and woodlands, in and around wet sites. Breeds in shallow, temporary pools formed by winter rains. Takes refuge in burrows.
<b>Reptiles</b>		
<i>Thamnophis gigas</i> giant garter snake	FT/ST/--	Generally inhabits marshes, sloughs, ponds, slow-moving streams, ditches, and rice fields that have water from early spring till mid-fall. Emergent vegetation (cattails and bulrushes), open areas for sunning and high ground for hibernation and cover.
<b>Birds</b>		
<i>Accipiter gentilis</i> northern goshawk	--/CSC/--	Within and in vicinity of coniferous forest. Uses old nests and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.

**TABLE 9-2  
SPECIAL STATUS SPECIES AND HABITATS WITHIN THE PLANNING AREA**

<b>Scientific Name Common Name</b>	<b>Status: Fed/State/ CNPS</b>	<b>General Habitat Requirements</b>
<i>Accipiter striatus</i> sharp-shinned hawk	--/CSC/--	Nests in riparian areas and oak woodlands, forages in open areas.
<i>Agelaius tricolor</i> tricolored blackbird	--/CSC/--	Largely endemic to California, most numerous in the Central Valley and nearby vicinity. Typically requires open water, protected nesting substrate, and foraging grounds within vicinity of the nesting colony. Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water. Also nests in agricultural crops (e.g. silage), where colonies are threatened during harvest.
<i>Falco peregrinus anatum</i> American peregrine falcon	FD/SE/--	Breeds on high cliffs, banks, and human-made structures near wetlands, lakes, rivers, or other sources of water.
<i>Haliaeetus leucocephalus</i> bald eagle	FT/SE/--	Nests in large trees with open branches along lake and river margins, usually within one mile of water.
<i>Strix occidentalis occidentalis</i> California spotted owl	--/CSC/--	Nests in late seral stage coniferous forests, usually above 3,500 feet. Structural complex stands with high amounts of dead and down material are most often used. Feeds on small mammals and occasionally birds. May move to lower elevations in winter.
<b>Mammals</b>		
<i>Antrozous pallidus</i> pallid bat	--/CSC/--	Occurs at low elevations. Uses caves, crevices, mines, buildings, some bridges, and hollow trees for day roosts, and more open spaces for nighttime roosts. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	--/CSC/--	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.
<i>Eumops perotis californicus</i> western mastiff bat	--/CSC/--	Isolated occurrences in northern California. Roosts primarily in crevices within cliffs and canyons, occasionally in buildings. Primarily feeds on moths. Maternity colonies active May through July.
<i>Lasionycteris noctivagans</i> silver-haired bat	--/CSC/--	Summer habitats include coniferous forests, woodlands, and riparian habitats. Feeds less than 6 meters above forest streams, ponds, and open brushy areas. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark. Needs drinking water.
<i>Martes pennanti</i> fisher	FC/CSC/--	Inhabits mixed conifer and Douglas fir forests, and red fir, lodgepole pine, and mixed evergreen/broad leaf forest. Dens in cavities near the tops of large trees, hollow logs, talus, and crevices in rock outcrops.
<b>Plants</b>		
<i>Agrostis hendersonii</i> Henderson's bent grass	--/--/3.2	Annual herb occurring in valley and foothill grassland in mesic areas, and in vernal pools. 70-305 meters elevation. Blooms Apr-May.
<i>Allium tribracteatum</i> three-bracted onion	--/--/1B.2	Occurs in volcanic substrate in chaparral, red fir forest, and yellow pine forest between elevations of 4,000-8,000 feet. Blooms Apr-Aug.
<i>Arctostaphylos myrtifolia</i> Ione manzanita	FT/--/1B.2	Evergreen shrub occurring in chaparral and cismontane woodland, particularly in acidic, Ione, clay or sandy soil. 60-580 meters elevation. Blooms Nov-Feb.

**TABLE 9-2  
SPECIAL STATUS SPECIES AND HABITATS WITHIN THE PLANNING AREA**

<b>Scientific Name Common Name</b>	<b>Status: Fed/State/ CNPS</b>	<b>General Habitat Requirements</b>
<i>Brodiaea pallida</i> Chinese Camp brodiaea	FT/SE/1B.1	Occurs in serpentine substrate under vernaly-flooded conditions in riparian habitats, valley and foothill grassland, and often in wetlands, at 385 meters (1,263 feet) elevation. Blooms May-Jun. Two known occurrences near Chinese Camp.
<i>Calochortus clavatus</i> var. <i>avius</i> Pleasant Valley mariposa lily	--/--/1B.2	Josephine silt loam and volcanically derived soil; often in rocky areas in lower montane coniferous forests. 305-1,700 meters. Blooms May-Jul.
<i>Calycadenia hooveri</i> Hoover's calycadenia	--/--/1B.3	Found on exposed, rocky, barren soil in cismontane woodland and valley/foothill grassland habitats. Blooms Jul-Sept.
<i>Chlorogalum grandiflorum</i> Red Hills soaproot	--/--/1B.2	Bulbiferous herb growing in chaparral, cismontane woodland, coniferous forests on serpentinite or gabbroic substrates. At elevations 245-1,170 meters. Blooms May-June.
<i>Clarkia rostrata</i> beaked clarkia	--/--/1B.3	Occurs on north-facing slopes in Valley and foothill grassland and cismontane woodland. Blooms Apr-May.
<i>Cryptantha mariposae</i> Mariposa cryptantha	--/--/1B.3	On serpentine outcrops in chaparral. 200-650 meters. Blooms Apr-Jun.
<i>Eryngium pinnatisectum</i> Tuolumne button-celery	--/--/1B.2	Cismontane woodland, coniferous forests, vernal pools/mesic. 70-915 meters. Blooms Jun-Aug.
<i>Eryngium racemosum</i> Delta button-celery	--/SE/1B.1	Occurs in clay soil under vernaly moist conditions in riparian habitats (riparian scrub). Blooms Jun-Sep.
<i>Eryngium spinosepalum</i> spiny-sepaled button-celery	--/--/1B.2	Occurs under vernaly flooded conditions in vernal pool habitats. 80-255 meters. Blooms Apr-May.
<i>Helianthemum suffrutescens</i> Bisbee Peak rush-rose	--/--/3.2	Evergreen shrub occurring in chaparral, often on serpentinite, gabbroic, or lone soil. 45-840 meters elevation. Blooms Apr-Jun.
<i>Horkelia parryi</i> Parry's horkelia	--/--/1B.2	Openings in chaparral or woodland; especially known from the lone formation in Amador County. 80-1,035 meters. Blooms Apr-Sept.
<i>Iris hartwegii</i> spp. <i>columbiana</i> Tuolumne iris	--/--/1B.2	Occurs in foothill woodland and yellow pine forest. 425-1,400 meters. Blooms May-Jun.
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	--/--/1B.2	Annual herb occurring in mesic valley and foothill grasslands. Found at 30-100 meters elevation. Blooms March-May.
<i>Lomatium stebbinsii</i> Stebbins' lomatium	--/--/1B.1	Occurs in clay gravelly soil on volcanic substrate. 1,245-1,960 meters. Blooms Mar-May.
<i>Mimulus pulchellus</i> pansy monkeyflower	--/--/1B.2	Occurs under vernaly moist conditions in meadow habitats; meadows, seeps, and yellow pine forests. 600-2,000 meters. Blooms Apr-Jul.
<i>Mimulus whipplei</i> Whipple's monkeyflower	--/--/1A	Hillsides and rocky places in yellow pine forest. Known only from the type collection (in 1854) at 670 meters. Blooms in May.
<i>Navarretia myersii</i> spp. <i>myersii</i> pincushion navarretia	--/--/1B.1	Annual herb occurring in valley and foothill vernal pools. 20-330 meters in elevation. Blooms in April and May.
<i>Neostapfia colusana</i> Colusa grass	FT/SE/1B.1	Found in the bottoms of long inundation period vernal pools. Blooms May-Aug.
<i>Scopelophila cataractae</i> tongue-leaf copper-moss	--/--/2.2	Moss on metamorphic substrates. 400 meters.
<b>Sensitive Natural Communities</b>		
Big Tree Forest	--/--/--	Similar to Sierran Mixed Conifer, but lacking many xeric species and having the addition of giant sequoia, <i>Sequoiadendron giganteum</i> , which grows in discrete stands with individuals up to 100 meters tall and 12 meters diameter breast height (dbh).

**TABLE 9-2  
SPECIAL STATUS SPECIES AND HABITATS WITHIN THE PLANNING AREA**

<b>Scientific Name Common Name</b>	<b>Status: Fed/State/ CNPS</b>	<b>General Habitat Requirements</b>
Ione Chaparral	--/--/--	Chaparral of low heath-like shrubs and scattered herbs. Dominated by Ione Manzanita. Shrub cover in mature stands usually exceeds 50%, with little understory.
<b>Critical Habitat</b>		
Central Valley steelhead	Designated	
California tiger salamander, central population	Designated	
Central Valley fall/late-fall run chinook salmon	Candidate	
Vernal pool fairy shrimp	Designated	

Source: USFWS, 2007; CNDDDB, 2007; CNPS, 2007

**NOTES:**

**STATUS CODES**

*Federal*

FE= Endangered

FT= Threatened

FPE= Proposed Endangered

FPT= Proposed Threatened

FC= Candidate

FPD= Proposed Delisted

FSC= (Former) Federal Species of Concern:

*State*

SE= Endangered

ST= Threatened

SR= Rare

SFP= Fully Protected

CSC= (CA) Department of Fish and Game Special Concern species

*Species of Concern is an informal term, not defined in the federal Endangered Species Act. The Sacramento Office of the United States Fish and Wildlife Service no longer maintains a Federal Species of Concern list. However, these species still meet the definition of "Rare" under Section 15380 of CEQA and are evaluated in this document.*

*California Native Plant Society*

List 1B.x= Plants rare, threatened, or endangered in California and elsewhere

List 2.x = Plants rare, threatened, or endangered in California, but more common elsewhere

List 3.x = Plants about which we need more information—a review list

List 4.x = Plants of limited distribution—a watch list

## 9.3 WATER RESOURCES

### Introduction

The topography in Calaveras County varies greatly, from near sea level in the Central Valley or western portion of the county to elevations around 8,100 feet in the mountainous Sierra Nevada or eastern portion of the County. An abundance of both surface and groundwater resources are found throughout Calaveras County and described further in this section. In addition, please refer to Chapter 10 of this Baseline Report for information pertaining to flooding and dam inundation concerns in the County. Water supply and water rights are described in Chapter 7.

## Methods

A variety of data related to the county's water resources was reviewed in preparing this section. The primary sources of reference data reviewed include the following:

- Calaveras County 1996 General Plan
- Calaveras County Local Agency Groundwater Protection Program (2004)
- Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan (2006)

## Precipitation

Because of the great difference in elevation from west to east in the county, precipitation varies. Average precipitation is 20 inches a year in the western region to 60 inches in the northeast. The rainy season is October 1 through May 1. Precipitation increases with altitude including both snow and rain in the higher elevations. Snow accounts for much of the precipitation in the higher elevations (up to 300 inches per year), while snowfall is rare in the foothills (Calaveras County 1996).

## Surface Water Resources

Three significant rivers are the Mokelumne, Calaveras, and Stanislaus. These rivers carry the runoff of the west slope of the Sierra Nevada from east to west across Calaveras County, and into the Central Valley. These rivers provide significant habitat for wildlife. All three rivers are dammed in one or more places. The lower stretches of the rivers provide irrigation water for valley agriculture and are used as municipal water supplies within and beyond the county (Calaveras County 1996).

Calaveras County can be broken up into several watersheds that are shown in Figure 9-3. These watersheds include:

- Upper Mokelumne,
- Lower Mokelumne and Cosumnes,
- Upper Calaveras,
- Lower Calaveras, and
- Stanislaus.

These watersheds represent all or part of a surface water drainage basin or distinct hydrologic features. The boundaries of these watersheds are not necessarily coterminous with the boundaries of the County. The watersheds primarily consist of a major river system, such as that of the Mokelumne, Calaveras, or Stanislaus, along with its tributaries. Each of these river systems are further discussed below (CalWater Committee 2001).

## ***Mokelumne River***

The Mokelumne River runs in three forks (North, Middle, and South) from the Sierra Nevada Mountains in Alpine County. Snowmelt serves as the primary source of water for the Mokelumne River. The Mokelumne drains an area of about 660 square miles. It flows southwest with the forks all joining near Lodi, then turns northwest to end in the Sacramento River delta lands, emptying into the San Joaquin river about 20 miles north of Stockton.

The river forms the County's northern boundary with neighboring Amador County, and was considered the division between the southern and northern mining districts during the Gold Rush. The river passes through several reservoirs in the County: Salt Springs Reservoir, Pardee Reservoir, and Camanche Reservoir (Calaveras County 1996, RMC 2006).

## ***Calaveras River***

Calaveras River originates in the Sierra Nevada Mountains and extends west-southwest approximately 60 miles toward and through the Stockton metropolitan area, terminating at the San Joaquin River, outside of Calaveras County. In the County, the river runs in two forks (North and South). It is fed almost entirely by rainfall and encompasses approximately 550 square miles.

In the Upper Calaveras watershed above New Hogan Dam and within the County, the primary tributaries are Esperanza, Jesus Maria, Calaveritas, San Antonio, and San Domingo Creeks. Below New Hogan Dam, in the Lower Calaveras watershed, the main tributaries in the County conveying runoff are the Cosgrove, Indian, and South Gulch (Calaveras County 1996, RMC 2006).

## ***Stanislaus River***

The Stanislaus River drains a narrow basin of about 980 square miles above the foothills on the western slope of the San Joaquin River, forming the southern boundary of the county. Elevations range from 15 feet above sea level at the river mouth to 10,000 feet at the crest of the drainage area. There are three tributary forks (North, Middle and South) of the Stanislaus which join above New Melones Lake, about 3 miles north of Parrots Ferry. North Fork is located within Calaveras County while the Middle and South Forks are in Tuolumne County (Calaveras County 1996).

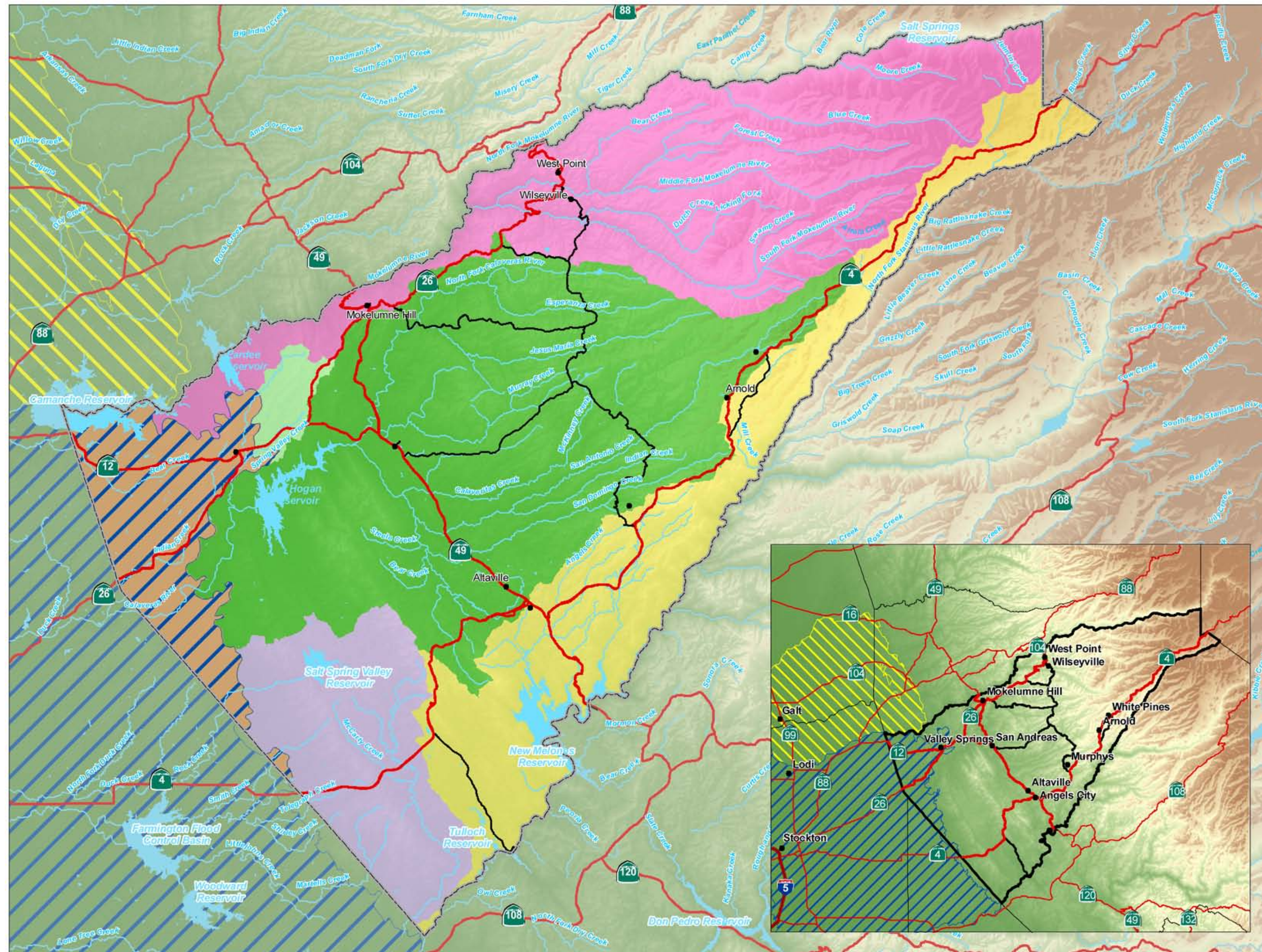
## ***Lakes and Reservoirs***

No naturally-occurring lakes of notable size are located in the County, although some smaller, mountain lakes are found in the Sierra Nevada. The County contains six major reservoirs, which are described below. The locations of the reservoirs are shown on Figure 9-3.



# **Calaveras County General Plan Update** Regional Surface Water and Groundwater Resources

**Figure 9-3**



- Groundwater Basin (sub basin)**
  - San Joaquin Valley (Cosumnes)
  - San Joaquin Valley (Eastern San Joaquin)
- Surface Hydrologic Area**
  - GOPHER RIDGE
  - LOWER CALAVERAS
  - MOKELUMNE
  - NORTH VALLEY FLOOR
  - SAN JOAQUIN VALLEY FLOOR
  - STANISLAUS RIVER
  - UPPER CALAVERAS
- Lakes, Rivers, Streams
- Calaveras County Boundary
- Major Roads
- State Highways



SOURCE: CalWater, 2001; ESRI, 2006;  
Calaveras County, 2006; and ESA, 2007





**Camanche Reservoir.** Owned by the East Bay Municipal Utility District, this reservoir on the Mokelumne River was completed in 1963, with additional recreational and power uses added in 1983. Capacity is 417,000 acre feet (af). There are developed recreation areas at both the north shore (located in Amador County) and the south shore (located in Calaveras County). The lake can be used for swimming, fishing, boating, camping, and motel accommodations. RV hook-ups are available. Undeveloped lands are used for grazing. Camanche Reservoir is a source of municipal and industrial water supplies, as well as providing flood control.

**New Hogan Reservoir.** New Hogan Reservoir was completed by the Army Corps of Engineers in 1964 for purposes of flood control and water supply, and is located 28 miles northeast of Stockton along the Calaveras River. Storage capacity is 317,000 af it is currently owned and managed by the Corps. The reservoir supplies irrigation water to the Stockton East Water District and the Calaveras County Water District. The reservoir provides multiple recreation uses, but is not as developed as Camanche Reservoir. Substantial recreational use includes fishing, boating, swimming, camping, and sightseeing.

**New Melones Reservoir.** One of California's largest reservoirs, New Melones on the Stanislaus River was completed in 1978 by the U.S. Bureau of Reclamation with a capacity for 2,420,000 af. New Melones provides irrigation water, flood control, recreational opportunities, and hydroelectric power.

**Pardee Reservoir.** Also owned by East Bay Municipal Utility District, Pardee straddles the Mokelumne River above Camanche Reservoir. Completed in 1929, its capacity is 198,000 af. Water in this reservoir is subject to strict water quality standards because it is a domestic drinking water supply, so it is not used as intensively for recreational uses as other county reservoirs. Pardee Reservoir provides municipal and industrial water, flood control, recreation opportunities, and hydroelectric power.

**Salt Springs Reservoir.** Located along the North Fork of the Mokelumne River on the Calaveras/Amador County border. Capacity is about 140,000 af. The reservoir was completed in 1931. Owned and operated by Pacific Gas and Electric (PG&E), its primary purpose is to supply hydroelectric power, with fishing and recreation being secondary uses.

**Tulloch Reservoir.** The Tulloch Reservoir was developed as part of the Tri-Dam Project in the 1950s by the Oakdale and South San Joaquin Irrigation Districts, and continues to be managed by them. Tulloch Reservoir is located on the lower Stanislaus River below New Melones Reservoir. Capacity is about 67,000 af. The water is used for irrigation and domestic water purposes. Recreational opportunities include swimming and boating.

In addition to the reservoirs described above, a number of smaller older reservoirs built for irrigation and flood control purposes are found throughout the county. These include Hunter Reservoir, Salt Springs Valley Reservoir, Tiger Creek Reservoir, Calaveras Reservoir, Emery Reservoir, Schaads Reservoir, Old McCormick Reservoir, Copperopolis Reservoir, and the Goodwin Diversion Dam. There are also several reservoirs that were created as part of mine reclamation, such as Mine Run Reservoir near Camanche Reservoir (Alpers et. al. 1999; DWR 2005; Calaveras County 1996).

## ***Major Streams and Diversion Canals***

The following are 23 of the county's major streams and diversion canals; lesser perennial and seasonal creeks are not listed. The locations of these waterways can be found on Figure 9-3.

- Airola Creek
- Angel's Creek
- Bear Creek
- Blue Creek
- Calaveras Public Utility Ditch
- Calaveritas Creek
- Cherokee Creek
- Dutch Creek
- Esperanza Creek
- Forest Creek
- Indian Creek
- Jesus Maria Creek
- Licking Fork
- McCarty Creek
- Moore Creek
- Murray Creek
- San Antonio Creek
- San Domingo Creek
- Steele Creek
- Spring Valley Creek
- Swamp Creek
- Telegraph Creek
- Utica Ditch

## **Surface Water Quality**

Impacts to water quality result from runoff during wet weather events, direct discharge associated with industrial/commercial activities, resource extraction activities, leaking sewer infrastructure, and illicit dumping. Additional pollutant sources within the county include past waste disposal practices,



agricultural chemicals, and chemicals and fertilizers applied to landscaping. Typical contaminants may include sediment, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash.

The SWRCB, in compliance with the Clean Water Act, Section 303(d), has prepared a list of impaired water bodies in the state of California. This list was approved by the US EPA in 2003. The Lower Stanislaus River is listed as being impaired by Diazinon, Group A pesticides, and mercury. Group A pesticides include chlordane, toxaphene, heptachlor, endosulfan, and several other pesticides. Diazinon and the Group A pesticides likely resulted from agriculture. Mercury likely originated from mining activities. The CVRWQCB is required to develop and implement a plan to lower the amounts of these contaminants in this water body to an acceptable level (CVRWQCB 2003).

Findings from a watershed assessment report prepared for the Upper Mokelumne River watershed provide information regarding the quality of water in the watershed (Upper Mokelumne River Watershed Authority 2007). Contaminants and characteristics of concern identified by this assessment include turbidity, alkalinity, aluminum, nitrate, and pathogens. Each of these constituents are found in elevated levels throughout the watershed. High levels of turbidity and low alkalinity were determined to be the result of natural watershed conditions. High levels of aluminum are also the result of natural watershed conditions but also originate from mining activities. High levels of nitrates result from natural watershed conditions and human activities, such as failing septic systems. Elevated pathogen concentrations are a major concern for this watershed and were observed in the Middle Fork, North Fork and Main Stem of the Mokelumne River. A majority of the County was found to have moderate vulnerability to the transport of these water quality constituents. High to very high vulnerability to the transport of these constituents was also identified for areas of the County that had a combination of factors. These factors include close proximity to water (less than 300 feet), high clay content in the soils, and high occurrence of vegetation that has low ability to provide a protective layer between rainfall and soil and stabilize soils with leaf debris and roots (Upper Mokelumne River Watershed Authority 2007).

## Groundwater

A portion of western Calaveras County overlies the Eastern San Joaquin groundwater sub-basin. This sub-basin is a part of the larger San Joaquin Valley groundwater basin. This groundwater sub-basin extends from the western corner of the County to west of the cities of Stockton and Lodi. Use of water from this resource for irrigation and municipal purposes has resulted in a continuous decline of available groundwater over the past 40 years. As of 1990 annual groundwater extractions in San Joaquin County exceeded the estimated safe yield. Overdraft of the groundwater in this sub-basin has created groundwater depressions below Stockton, east of Stockton, and east of Lodi. The Cosumnes groundwater sub-basin of the San Joaquin Valley Basin is located just north of the Eastern San Joaquin groundwater sub-basin and the Modesto groundwater sub-basin of the San Joaquin Valley groundwater basin is located just south of the Eastern San Joaquin sub-basin. Each of these sub-basins can be seen on Figure 9-3 (DWR 2006).

Groundwater resources occur in parts of the rest of the County although there are no officially delineated groundwater basins defining these areas. In fact, most of the groundwater used within the County is obtained from these areas outside of the Eastern San Joaquin groundwater sub-basin. This groundwater may be found in hard rock formations and is retrieved from fractured rock, faults, or changes in stratigraphy (Calaveras County 2004).

The county contains an underground system of eighteen separate channels called the Tertiary Calaveras River Channel System. These channels are generally found throughout the central portion of the County, extending from the boundary with North Fork Mokelumne River to the north to the Stanislaus River to the south (Calaveras County 2004).

### ***Groundwater Quality***

The water quality in the Eastern San Joaquin groundwater basin is impaired. Groundwater quality in the Eastern San Joaquin groundwater basin has been directly affected by the severe overdraft that has occurred in the basin. As water levels in the basin have declined, a saline front originating in the western portion of the basin has moved eastward. From 1994 through 2000, samples taken from wells within the impacted area of the basin yielded water quality results that exceed maximum contaminant levels for constituent pollutants. Constituent pollutants include inorganic and radiological pollutants, nitrates, pesticides, and volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) (DWR 2006).

Continuous monitoring of the groundwater quality from the Wallace Community Services District (WCSD) wells shows little change in the last 15 years. The water from these wells generally has iron and manganese concentrations above the maximum contaminant levels. The implementation of industry standard treatment practices using a potassium permanganate additive and filtering result in concentrations typically in the range of 10 percent of the maximum contaminant levels. (WCSD 2008)

The quality of the remainder of the groundwater found throughout the County, in addition to the Eastern San Joaquin groundwater basin, may be affected by activities that include Class V injection wells, abandoned mines, abandoned wells, underground storage tanks, hazardous waste sites, on-site septic systems, failing septic systems, and solid waste sites. Contaminants that may be released from these sources into groundwater include fecal coliform,  $\text{NO}_2/\text{NO}_3$ , volatile organic compounds, and synthetic organic compounds (Calaveras County 2004).

## **9.4 MINERAL RESOURCES**

### **Introduction**

Calaveras County has a long history of mining activity and continues today to host several mineral extraction operations in addition to reclamation of former mining operations. Active and inactive mining operations are described below. Calaveras County is rich with mineral resources due to its location within the Sierra Nevada foothills and the Mother Lode belt. Though mining activity has slowed in recent years, much of the early development in the county has revolved around extracting such mineral resources as gold and copper among other minerals. Currently, minerals more commonly extracted include clay, sand, and gravel. Also, extraction of minerals from tailings is common.

The California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) does not identify any oil, gas, or geothermal production in Calaveras County (DOGGR 2001).

For additional information specific to soil resource hazards within the Planning Areas can be found in Chapter 10 "Safety".

## Methods

Information used to prepare this section was obtained from a variety of sources including the California Geological Survey, the Calaveras County 1996 General Plan, and the California Department of Conservation's Division of Oil, Gas, and Geothermal Resources.

## Land Use Compatibility and Reclamation

Pursuant to requirements of SMARA, portions of Calaveras County were assigned mineral land classification designations as part of the SMARA studies conducted for the Sierra Nevada foothills. The land studied in Calaveras County was classified for mineral resources other than aggregate, common clay, and dimension stone. These mineral resources include gold, copper, talc, and chromite among other minerals. These resources are discussed below in further detail.

The California Department of Mines and Geology developed the mineral land classification as part of a survey of mineral resources found in the Sierra Nevada foothills. Surveys are based on United States Geologic Survey (USGS) 15-minute quadrangle maps. The San Andreas, Mokelumne Hill, and Sutter Creek quadrangles intersect or are contained within Calaveras County and have been surveyed and classified for mineral resources. The mineral land classification studies identified four types of mineral deposits present, or likely to be present, in the County. These types of minerals include:

- Deposits formed by hydrothermal processes (gold and associated metals);
- Deposits formed by volcanogenic processes (copper, zinc, and associated metals);
- Industrial minerals formed by diverse processes (talc, silica, and carbonate rock);
- Deposits formed by magmatic concentration (chromite); and
- Placer deposits (gold) (CDMG 1987; CDMG 1989).

## Mineral Resources

### *Asbestos and Chromite*

Asbestos and chromite reserves are located in three general areas. Small reserves of asbestos and chromite are thought to exist north of City of Angels, east of SR 49. Additional small reserves are known northwest of San Andreas, near Valley Springs. Former asbestos mining activities located approximately five miles southeast of Copperopolis is now being utilized to accept asbestos-containing waste and waste tires. Hazards associated with asbestos are discussed in greater detail in Chapter 10 "Safety" (Calaveras County 1996; Lamphier-Gregory 2004).

### *Gold*

Deposits of gold-bearing rock are distributed over most of Calaveras County. The history of gold in the region suggests that significant reserves may exist. CDMG information suggests that reserves of lode gold exist in the Royal Mountain King Mine area just north of Copperopolis and the Carson Hill mine located south-southeast of City of Angels.

Potential placer gold deposits exist throughout the county. Placer gold occurs primarily in river deposits; consequently, most major drainages will have potential for such deposits. In particular, the Mokelumne River drainage in the northwestern part of the county and the drainages east of City of Angels are believed to contain placer gold deposits. Finally, several placer gold deposits are thought to exist in the eastern portion of the county; however, the significance of such deposits is not clear.

CDMG information points out that remnants of ancient river channels that have been covered by volcanic or other geologic occurrences may contain significant placer gold deposits. Although many such areas have been prospected in the past, so-called “auriferous gravels” remain a potential source of economically viable placer gold (Calaveras County 1996).

### ***Limestone***

Significant reserves of limestone have been classified in the Kentucky House, Calaveritas, and Cave City deposits, located south of San Andreas. In addition, small limestone deposits have been identified generally east-southeast of San Andreas. Additional limestone deposits lie both west and south of Murphys, near the Tuolumne County border. Some of the potential limestone deposits also have the potential for talc and silica deposits as well (Calaveras County 1996).

### ***Sand and Gravel***

The primary sand and gravel deposits lie in the northwestern portion of Calaveras County, generally west of Valley Springs. Figure 9-4 identifies three potentially active sand and gravel mines. One is located generally south of Valley Springs, one is located northeast of Valley Springs, and a third is located south of Murphys (Calaveras County 1996; OMR 2007).

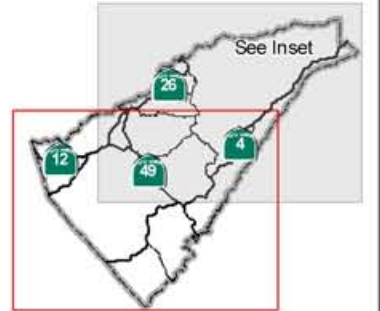
### **Mining Operations**

The CDMG maintains a database of mines and mining activity throughout the state. As of 2005 this source identified 14 mines in Calaveras County. Seven of these mines are classified as active, two are idle, and five are closed. Commodities being extracted at the active mines include clay, sand and gravel, rock, and stone. The locations of these mines are shown in Figure 9-4. Additional detail regarding these mines is provided in Appendix 9-1, and includes a list of the mine name, operating company, the main products, and operational status of each mine for 2000 through 2005 (OMR 2007).



# Calaveras County General Plan Update CDMG Mines Database

Figure 9-4



## Mine Status

### Active

- Clay
- Pumice
- Rock
- Sand and Gravel
- Stone
- Unknown

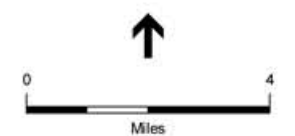
### Idle

- ▲ Clay
- ▲ Rock

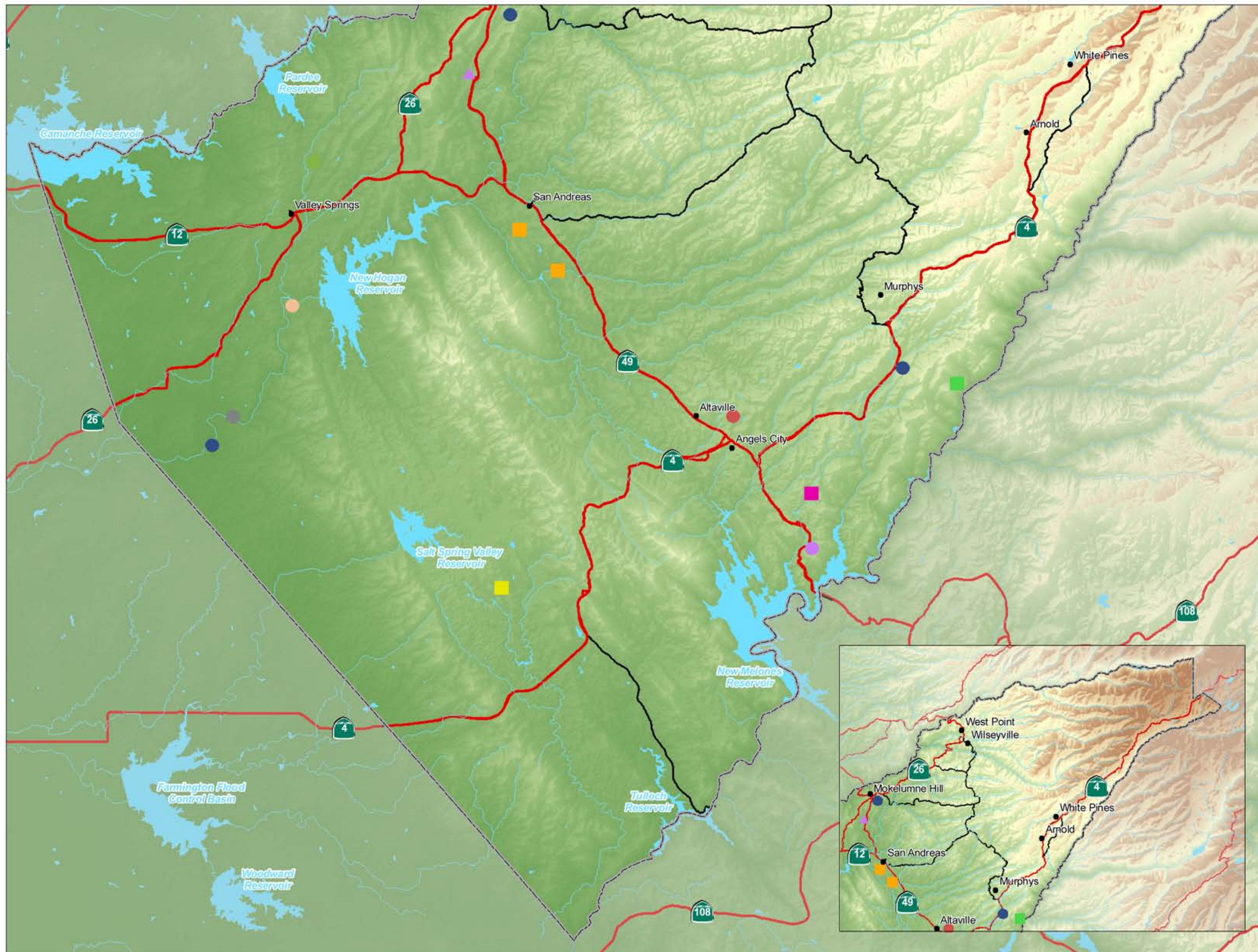
### Closed

- Gold
- Limestone
- Shale
- Talc

- Lake, Rivers, Streams
- State Highways
- Major Roads
- Calaveras County Boundary



SOURCE: CDMG, 2007; ESRI, 2006; Calaveras County, 2006; and ESA, 2007







## 9.5 TIMBER RESOURCES

### Introduction

Forests in Calaveras County are an important natural and economic resource. Forest lands provide opportunities for recreation, natural habitats, and timber production. Recreational activity in these areas is more fully described in Chapter 8, Recreation and Cultural Resources of this Baseline Report. Some natural habitats are briefly discussed below. However, Section 9.2, Biological Resources, of this chapter describes habitats in greater detail.

### Methods

This section was prepared through review of the following resources:

- Calaveras County, Calaveras County 1996 General Plan;
- Calaveras County GIS Data for zoning within the county;
- A variety of USDA Forest Service publications.

### Forest Types and Habitats

Calaveras County has a diverse range of forest types and vegetation. Cover types in the County include blue oak foothill pine, blue oak woodlands, montane hardwood, montane hardwood-conifer, and Sierran mixed conifer, Ponderosa pine, Jeffrey pine, and Douglas fir. Sierran mixed conifer is dominated by Jeffrey pine and white fir, with incense cedar, ponderosa pine, sugar pine, and red fir found as associated conifer species. The eastern higher elevations of the County primarily consist of Sierran mixed conifer and large swathes of Ponderosa pine, red fir, and lodgepole pine. Red fir and lodgepole pine are not traditionally used for timber production. Section 9.2, Biological Resources, contains a description of these habitats and Figure 9-1 shows the distribution of these habitats within the County. As seen in Figure 9-5, the eastern portion of the County contains approximately 78,000 acres of land designated as TPZ.

### Stanislaus National Forest

The Stanislaus National Forest was created in 1897 and covers approximately 900,000 acres throughout Alpine, Calaveras, Mariposa, and Tuolumne Counties. This national forest covers 77,901 acres in Calaveras County (see Figure 9-5). Elevations throughout the Stanislaus National Forest range from 840 feet to 11,570 feet. The forest supports a wide variety of wildlife and plant species due to its range in climate, elevation, and geology. The Stanislaus National Forest contains approximately 325,000 acres of commercial forest land. The National Forest is also home to the Emigrant Wilderness, Mokelumne Wilderness, and the Carson-Iceberg Wilderness (USDA 2005b; USDA 2007).

## Timber Industry

The timber industry has played an important role in the agricultural field, and the economy in general, in Calaveras County. From 1999 to 2006, Christmas trees were one of the top ten agriculture commodities in the County. During 2005, a forest fire in an adjacent county substantially reduced the amount of timber harvested as compared to previous years. Trends for timber production are shown in Table 9-3, below. As discussed above, the value and amount of timber production substantially decreased from 2004 to 2005 due to timber harvesting opportunities in an adjacent county. Production value of timber in 2006 increased by over 100 percent above 2005 production; however, the production value did not reach previous production levels. Section 9.6, Agricultural Resources, further discusses the timber industry as part of the county's overall agricultural production (Calaveras County 1996–2006).

<b>TABLE 9-3 TIMBER PRODUCTION TRENDS FROM 1999-2006</b>		
<b>Year</b>	<b>Amount (Million Board Feet)</b>	<b>Value (Dollars)</b>
1999	67,000	\$19,899,000
2000	67,000	\$19,899,000
2001	49,000	\$15,190,000
2002	48,500	\$13,100,000
2003	50,700	\$12,700,000
2004	50,200	\$13,000,000
2005	15,700	\$3,900,000
2006	34,000	\$8,840,000

*Source: Calaveras County Environmental Management Agency Crop Reports 1999-2006.*

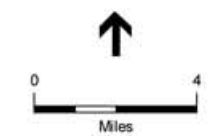


# Calaveras County General Plan Update Timber Resources

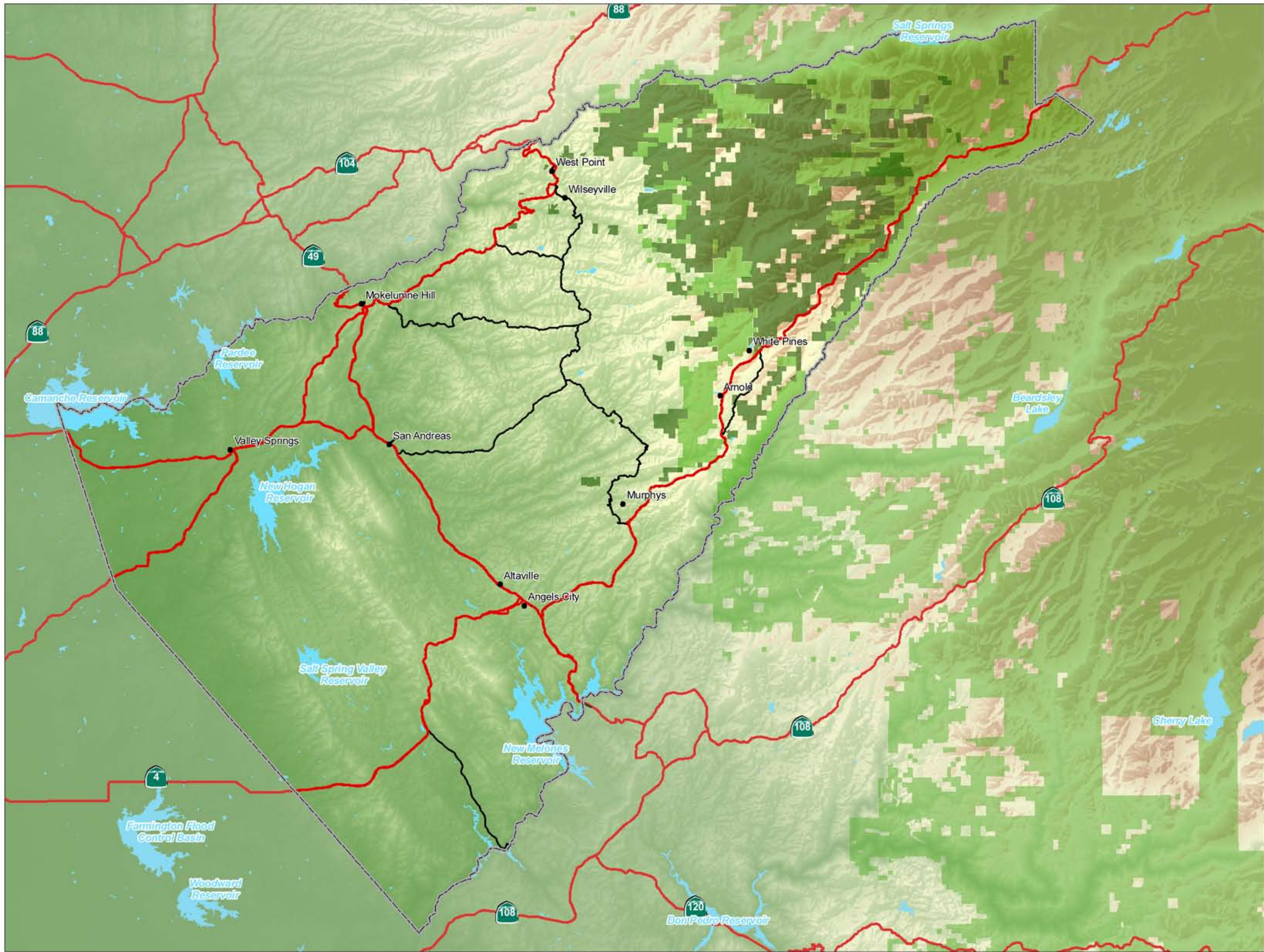
Figure 9-5



- Timber Production Zone
- Stanislaus National Forest
- Lakes, Rivers, Streams
- State Highways
- Major Roads
- Calaveras County Boundary



SOURCE: USGS, 1999; ESRI, 2006; Calaveras County, 2006; and ESA, 2007







## 9.6 AGRICULTURAL RESOURCES

### Introduction

A wide variety of agricultural products are grown and produced in Calaveras County, which allows the County to add to the rich agricultural tradition of California. Many fruit and nut crops, field crops, vegetable crops, wine, olive oils, nursery crops, livestock and poultry, and timber are part of the Calaveras agricultural industry. Cattle and calves are the County's leading farm commodity. This sector of the industry has led the overall County total in production value for the past eight years, from 1999 through 2006. In addition to cattle and calves, poultry and wine grapes are major contributors to county agricultural production. Timber is not considered a farm product, but as an agricultural commodity it is considered an important part of the agricultural industry in Calaveras County. Timber production in the county has been reduced in recent years; however, there has been an increase in production from 2005 to 2006. This chapter provides:

- A general description of existing agricultural operations in the Planning Area;
- Description of dominant crops and trends in county agriculture;
- Discussion of Important Farmlands; and
- Identification of current Williamson Act lands.

### Methods

This evaluation of agricultural resources was based on a review of information from the California Department of Conservation's FMMP and Williamson Act Program, the California Department of Water Resources, and the Calaveras County Agricultural Commissioner's Office. Geographic Information Systems (GIS) data was also obtained and mapped for various agricultural resources including crop types and Williamson Act land.

### Important Farmland

As stated previously, Calaveras County does not have important farmland data mapped by the DOC. No information about Prime, Unique, or other important farmlands is currently available. However, given the rich characteristics of soils and agricultural resources in the county, it is highly plausible that some lands within the Planning Area meet the various criteria for important farmlands.

### Regional Trends in Farmland Use and Conversion

The value of agricultural production for Calaveras County in 2006 was \$25.2 million. This figure represents a 17 percent increase from the 2005 gross production value of \$21.5 million. However, it also represents a gross agricultural production value decrease of 29 percent from 1999 levels of \$35.5 million. The increase in production from 2005 to 2006 was due largely to the more than 100 percent increase in amount of timber harvested in Calaveras County over the amount harvested in 2005. The amount of

timber scheduled for harvest in the county in 2005 was reduced because of a forest fire in an adjacent county. This forest fire forced the harvest of timber outside of Calaveras County. From 2005 to 2006 timber production was increased from 15,700 million board feet (MBF) to 34,000 MBF, which corresponded to an agricultural production value increase of \$4,940,000 from \$3,900,000 in 2005 up to \$8,840,000 in 2006..

The amount of farmland in the county has increased in the past seven years, as shown below in Table 9-4. The county consists of approximately 663,211 acres of total land within the planning boundaries. Of this land, farmland has consisted of approximately 37 percent (in 1999) to 39 percent (in 2006).

<b>TABLE 9-4 OVERALL AGRICULTURAL PRODUCTION TRENDS FROM 1999-2006</b>				
<b>Year</b>	<b>Production Value (dollars)</b>	<b>All Farmland (acres)</b>	<b>Land in Agricultural Preserves (acres)</b>	<b>Land in Timber Preserves (acres)</b>
1999	\$35,480,800	245,116	137,463	76,010
2000	\$32,802,500	245,116	137,463	76,010
2001	\$26,453,900	245,116	130,456	77,321
2002	\$30,816,100	245,116	134,798	77,320
2003	\$28,323,200	245,116	134,798	77,320
2004	\$33,010,700	260,865	137,060	77,365
2005	\$21,476,200	260,865	137,060	77,365
2006	\$25,251,300	260,865	137,700	77,300

Source: Calaveras County Environmental Management Agency 2000-2007a.

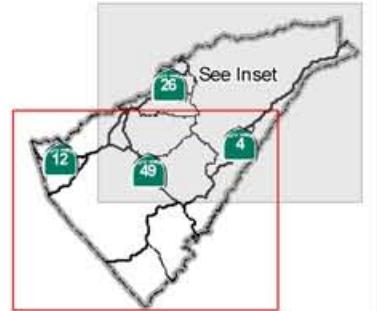
## Williamson Act Contracts

As more fully described above under the Key Terms and Regulatory Setting sections, a Williamson Act contract represents agreements to restrict land to agricultural or open space uses in return for lower than normal property tax assessments. Figure 9-6 provides the locations of parcels within the Planning Area that have an active Williamson Act Contract or a Williamson Act Contract in non-renewal status (California Department of Conservation 2006). The figure also differentiates between land that is defined as prime and non-prime agricultural land. As shown in Table 9-5 below, an estimated 16,380 acres (or 2% of the total County land) of land are currently under an active Williamson Act Contract and designated as Prime Agricultural Land. An estimated 115,210 acres (or 17% of the total county land) of land are currently under an active Williamson Act Contract and designated as Non-prime agricultural land. A total of 4,910 acres (or 1% of the total county land) of land are currently in Non-renewal for Williamson Act contracts. In addition to prime and non-prime designations, the California Department of Conservation data includes identification of Home Sites in both active Williamson Act Contracts and in non-renewal status. Table 9-5 includes total acreage for both designations, and Table 9-6 identifies Home Site characteristics.

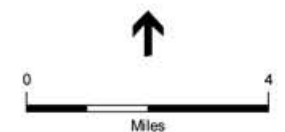


# Calaveras County General Plan Update Williamson Act Lands

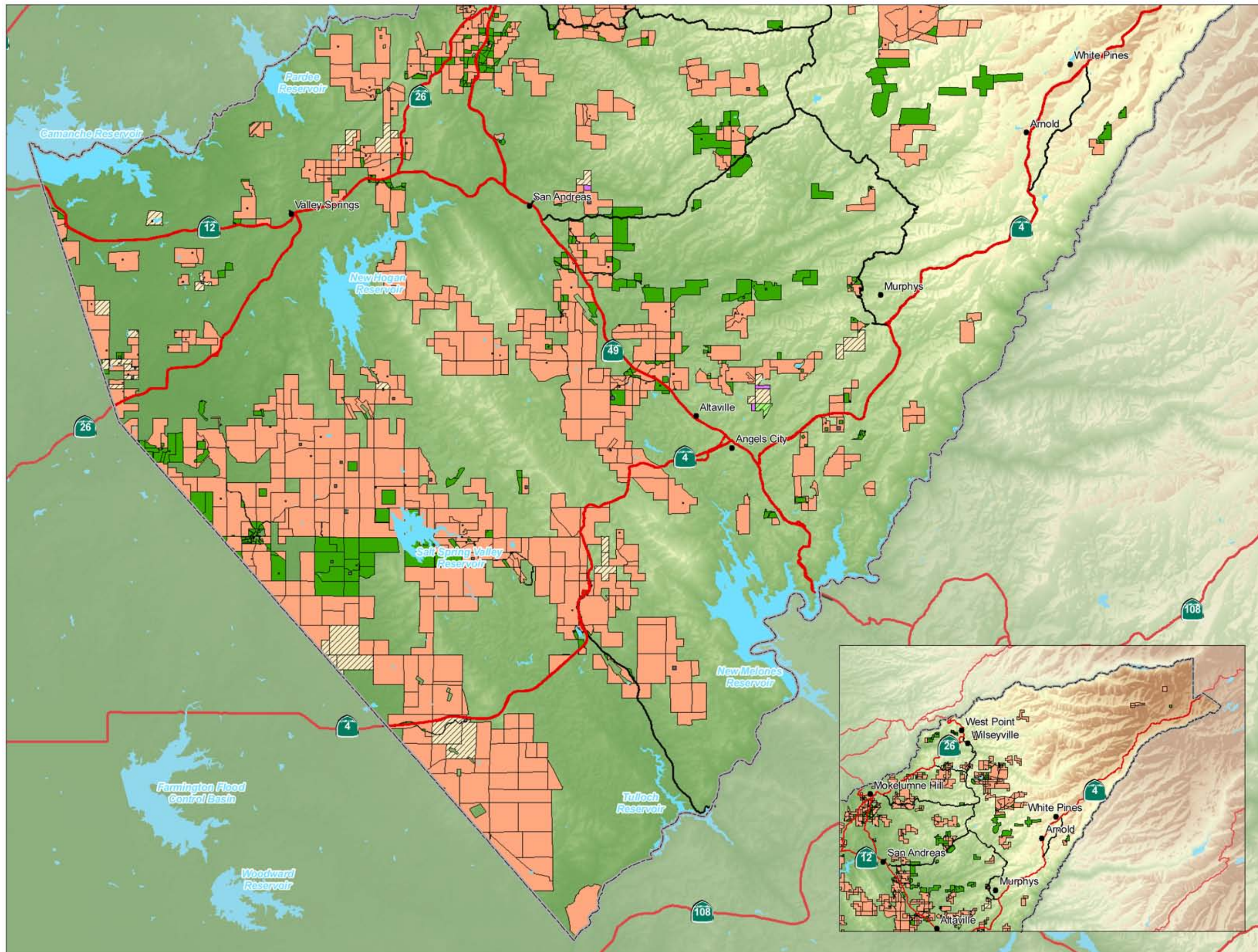
Figure 9-6



- Williamson Act Classification**
- Prime Lands
  - Prime Lands (non-renewal)
  - Non-prime Lands
  - Non-prime Lands (non-renewal)
  - Home Site
  - Urban (non-renewal)
  - Lakes, Rivers, Streams
  - State Highways
  - Major Roads
  - Calaveras County Boundary



SOURCE: USGS, 1999; California Dept. of Conservations, 2004; ESRI, 2006; Calaveras County, 2006; and ESA, 2007







<b>TABLE 9-5 ACREAGE UNDER A WILLIAMSON ACT CONTRACT</b>	
<b>Contract Status</b>	<b>Acreage</b>
Non-Prime Active Contract	115,210
Non-Prime Non-Renewal	4,790
Prime Active Contract	16,380
Prime Non-Renewal	100
Home Site Active Contract	385
Home Site Non-Renewal	18
Urban Non-Renewal	20
<b>Total</b>	<b>136,890</b>

*Source: California Department of Conservation, 2006*

<b>TABLE 9-6 HOME SITES</b>				
<b>Status</b>	<b>Total Parcels</b>	<b>Average Parcel Size (acres)</b>	<b>Smallest Parcel (acres)</b>	<b>Largest Parcel (acres)</b>
Home site–Active Contract	194	1.99	0.15	20.00
Home site–Non- renewal	8	2.24	1	5

*Source: California Department of Conservation, 2006*

## Agricultural Production

The Calaveras County Environmental Management Agency publishes a yearly report describing the agricultural economy of the previous year. This report identifies recent changes in agricultural production and lists the top agricultural producing sectors as ranked by agricultural production value. As noted previously, the number one agricultural commodity in the county is cattle and calves. Table 9-7 shows the top agricultural commodities for the years 1999-2005.

**TABLE 9-7  
LEADING FARM COMMODITIES AGRICULTURAL  
PRODUCTION VALUE TRENDS FROM 1999-2006**

<b>Agricultural Commodity</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Cattle and Calves	\$5,478,200	\$6,722,200	\$7,767,400	\$6,188,000	\$5,154,000	\$8,627,000	\$9,778,500	\$8,430,300
Poultry	\$1,259,900	\$1,614,300	\$1,263,500	\$1,931,600	\$1,232,700	\$1,657,000	\$1,625,000	\$1,625,000
Grapes (Wine)	\$1,413,600	\$1,690,000	\$1,536,000	\$1,320,000	\$900,000	\$1,260,000	\$1,560,000	\$1,657,000
Livestock & Poultry Products	\$800,000	\$810,000	\$700,000	\$907,000	\$1,204,000	\$1,221,000	\$15,000	\$17,300
Walnuts	\$369,600	\$660,000	\$440,000	\$651,000	\$520,000	\$572,000	\$546,000	\$840,000
Nursery Products	\$300,000	\$300,000	\$300,000	\$350,000	\$350,000	\$445,000	\$443,000	\$300,000
Apiary Products	\$356,500	\$231,500	\$273,000	\$257,000	\$380,000	\$250,000	\$22,000	\$22,000
Vegetable Crops	\$170,000	\$170,000	\$170,000	\$170,000	\$180,000	\$200,000	\$200,000	\$200,000
Christmas Trees	\$297,000	\$152,000	\$243,000	\$195,000	\$150,000	\$175,000	\$160,000	\$140,000
Sheep and Lambs	\$103,500	\$103,600	--	--	\$105,000	\$110,000	\$95,000	\$95,000
Olives	--	--	--	--	--	--	\$63,800	\$58,800
Apples	--	--	\$120,000	\$210,000	--	--	\$61,300	\$35,000

Source: Calaveras County Environmental Management Agency 2000-2007a.

In addition to identifying the top agricultural production sections in relation to production value, the County Crop Reports also identify the land acreage under production for various agricultural commodity types. Table 9-8 shows the trends in agricultural land use by crop type from 1999-2006 for several of the County's top acreage uses. The last three categories are livestock with quantities listed as number of head instead of acreages. As shown in the table, olives, apples, and native hay have declined in acreage use over the past seven years, specifically between 2001 and 2003. Wine grapes, on the other hand, have shown a consistent increase in acreage harvested, from 320 acres in 1999 to 600 acres in 2006. Cattle and calves have fluctuated between 2002 and 2006, but remain the County's top producing sector.



**TABLE 9-8**  
**ACREAGES HARVESTED BY COMMODITY TYPE: TRENDS FROM 1999-2006**

<b>Agricultural Commodity</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Grapes (Wine)	320	470	470	470	480	500	500	600
Walnuts	700	700	700	650	650	650	650	800
Olives (including oil)	200	200	200	200	140	140	140	140
Apples	140	140	140	140	70	70	70	40
Grain Hay	150	130	200	200	200	200	200	200
Legume Hay	40	40	40	40	40	40	40	40
Native Hay	100	100	100	50	50	50	50	50
Irrigated Pasture	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Rangeland	388,000	388,000	388,000	388,000	388,000	388,000	212,000	212,000
Miscellaneous Field Crops <sup>1</sup>	100	100	100	100	100	100	100	100
Cattle & Calves	16,900 head	17,000 head	17,000 head	14,000 head	9,500 head	15,000 head	17,000 head	15,000 head
Sheep & Lambs	1,200 head	1,300 head	1,200 head	1,150 head	1,200 head	1,200 head	1,000 head	1,000 head
Swine	1,000 head	1,000 head	1,000 head	1,000 head	900 head	1,000 head	500 head	500 head

<sup>1</sup> Includes wheat, safflower, beans, etc.

Source: Calaveras County Environmental Management Agency 2000-2007a.

## Crop Type Distribution

Table 9-9 and Figure 9-7 identify the distribution of crop types within the Planning Area. As shown in both the table and the figure, those lands classified as Deciduous Fruits and Nuts account for the largest acreage of the land in agricultural production. It should be noted that the information provided by the County in Table 9-9 and Figure 9-7 was collected between 2000 and 2004. The data shown in Table 9-8 includes more recent data (through 2006) from the Calaveras County Crop Reports and may provide a better representation of current agricultural conditions and trends within the county.

Of the data depicted graphically in Figure 9-7, four areas of the County with greater densities of agricultural activity are shown in greater level of detail as “insets.” These insets are characterized as follows:

### ***Inset A***

Inset A is located in the western part of the County to the southwest of the community of Valley Springs and the New Hogan Reservoir. This inset is characterized by a variety of crop types. The primary crop types for the inset are Olives and Wine Grapes. Just south of Highway 12 there is a plot of land containing Pistachios. Just southeast of Highway 12 there is a plot of land containing Cherries. Various small water bodies are also located in this inset.

***Inset B***

Inset B is located in the southwestern portion of the County and includes the Salt Springs Valley Reservoir and land to the east. This inset contains two identified crop types, Olives and Wine Grapes.

***Inset C***

Inset C is located in the southeastern portion of the County, covering the community of Murphys and extending southwest towards City of Angels. Crops in this inset primarily consist of Wine Grapes. Several large plots containing Apples are located west of Highway 4 and south of Murphys. This area also contains small plots of land with Christmas Trees and Olives.

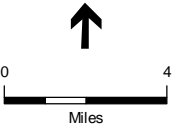


Calaveras County  
General Plan Update  
Crop Types

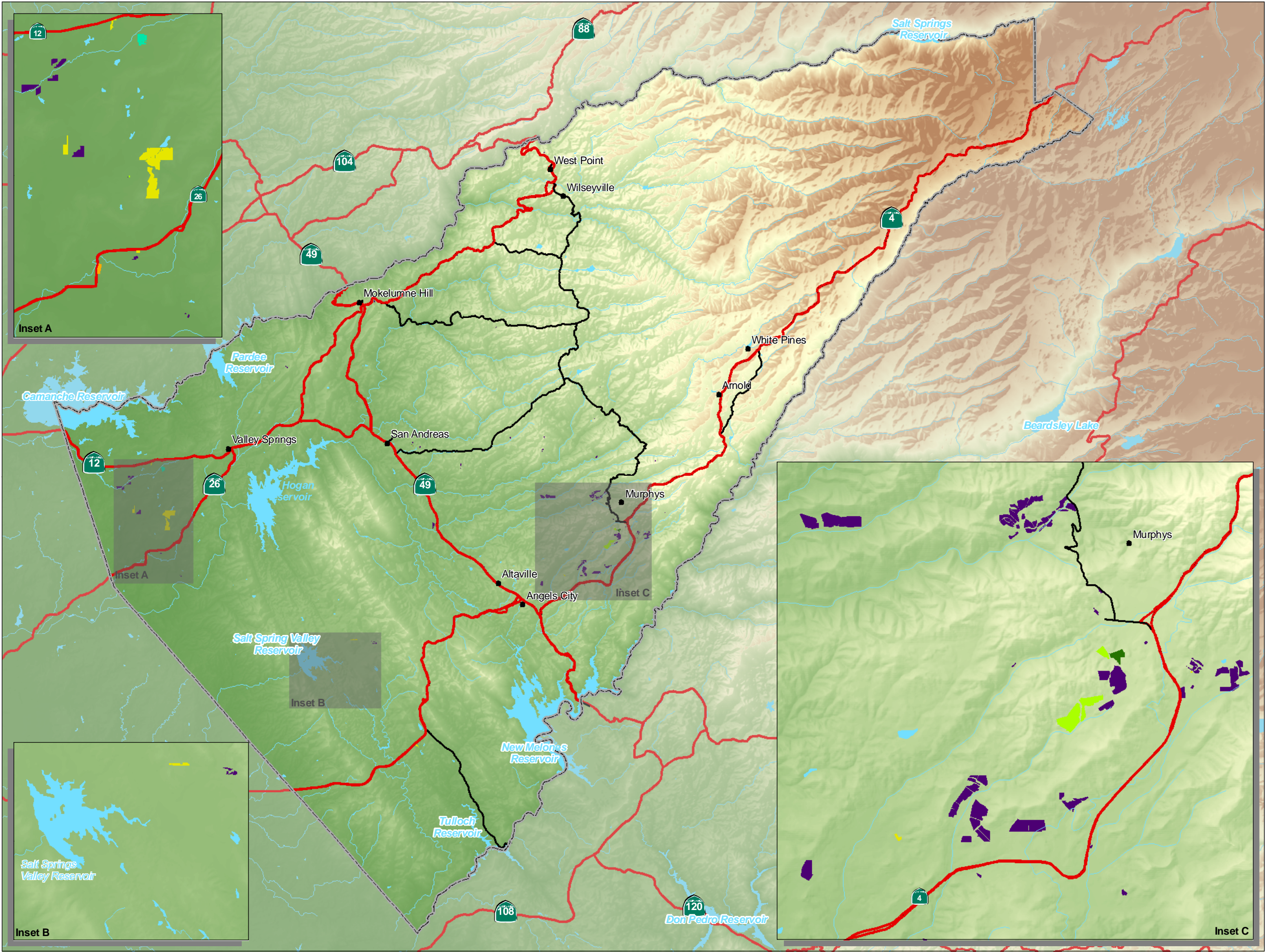
Figure 9-7



- Crop Type**
- Apple
  - Cherry
  - Christmas Trees
  - Grape (Table)
  - Grape (Wine)
  - Olive
  - Pistachio
  - State Highways
  - Major Roads
  - Calaveras County Boundary



SOURCE: ESRI, 2006; Calaveras County, 2006; and ESA, 2007







**TABLE 9-9  
CALAVERAS COUNTY CROP TYPE DISTRIBUTION**

Category	Planning Area Acreage
Apple	69
Cherry	9
Christmas Trees	12
Grape (Table)	1
Grape (Wine)	624
Olive	224
Pistachio	22

*Source: Calaveras County 2007b*

## Timber Industry

Please refer to Section 9.5, “Timber Resources,” for a discussion of the timber industry.

## Planning Issues and Implications

### ***Agricultural Land Loss and Fragmentation***

Agricultural lands provide a variety of important functions and generate a wide variety of benefits to the Planning Area. For example, agricultural lands produce commodities that generate various economic benefits (in the form of local jobs and revenue), contribute to the aesthetic value of an area (i.e., greenbelts or transition zones), and create a variety of foraging habitats for wildlife species. In addition to the loss of these key benefits, the conversion of agricultural land has hydrological implications, as loss of open space changes the existing watershed and may reduce groundwater recharge areas.

Development in the Planning Area could eliminate or modify important agricultural and soil resources. In some cases, it could also fragment some existing agricultural areas. Fragmentation of existing agricultural lands may increase the likelihood of increased nuisance effects resulting from urban expansion into agricultural areas—also known as “edge effects.” These nuisance effects include noise (from farm equipment and crop dusting), dust, odors, and drift of agricultural chemicals. From the agricultural perspective, conflicts with urban development include restrictions on the use of agricultural chemicals, complaints regarding noise and dust, trespass, vandalism, and damage from domestic animals (such as dogs). These conflicts may increase costs to the agricultural operation, and combined with rising land values for residential development, encourage the additional conversion of additional farmland to urban uses.

Maintaining key agricultural land uses, their connectivity to larger agricultural areas, along with a range of agricultural activities that produce a variety of agricultural commodities are important considerations for the Planning Area.

## 9.7 REGULATORY SETTING

### Regulatory Setting–Biological Resources

Relevant federal, State and local regulations specific to biological resource issues are discussed in this section.

#### ***Federal Regulations***

**Clean Water Act–Section 404.** Wetlands and other waters of the U.S. (as defined above) are subject to jurisdiction by the Corps and EPA under Section 404 of the Clean Water Act. Wet areas that are not regulated by this act would include stock watering ponds, agricultural ditches created in upland areas, and features that do not significantly contribute to the ecological function of navigable waters. The discharge of fill into a jurisdictional feature requires a permit from the Corps.

The Corps has the option to issue a permit on a case-by-case basis (individual permit) or at a program level (general permit). Nationwide permits (NWP) are an example of general permits; they cover specific activities that generally have minimal environmental effects. Activities covered under a particular NWP must fulfill several general and specific conditions, as defined by the NWP. If a proposed project cannot meet these conditions, an individual permit may be required.

**Federal Endangered Species Act.** The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) administer the federal Endangered Species Act (16 USC Section 153 et seq.) and thereby have jurisdiction over Federally-listed threatened, endangered, and candidate species. NMFS assumes jurisdiction over all listed and candidate marine species. Species that are “proposed” for listing but not yet listed are generally considered as well, as there is potential for those species to become listed in the near future.

Projects that may result in “take” of a listed species must consult with the USFWS or NMFS. Under the federal Endangered Species Act, “Take” is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 CFR Section 10.12). Federal agencies that propose a project that may affect a listed species are required to consult with the USFWS or NMFS under Section 7 of the federal Endangered Species Act. If it is determined that a Federally-listed species may be adversely affected by the federal action, the USFWS/NMFS will issue a Biological Opinion to the federal agency that describes minimization and avoidance measures that must be implemented as part of the federal action. Projects that do not have a federal nexus must apply for a take permit under Section 10 of the Act. Section 10 of the Act requires that the project applicant prepare a habitat conservation plan as part of the permit application.

Under the federal Endangered Species Act the USFWS/NMFS designates critical habitat, which are areas that are essential for the conservation of a threatened or endangered species and which may require special management considerations. A designation only applies to projects with a federal nexus; it has no specific regulatory impact on landowners who take actions on their land that do not involve Federal funding. However, Federal agencies must consult with the USFWS before taking actions that could harm or kill protected species or destroy their habitat.



**Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act.** The Migratory Bird Treaty Act (MBTA, 16 USC Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668) protect certain species of birds from direct “take.” The MBTA protects migrant bird species from take by setting hunting limits and seasons and protecting occupied nests and eggs. The Bald and Golden Eagle Protection Act (16 USC Sections 668-668d) prohibits the take or commerce of any part of Bald and Golden Eagles. The USFWS administers both acts and reviews federal agency actions that may affect species protected by the acts.

The USFWS has defined the term “disturb” as used in the Bald and Golden Eagle Protection Act. The definition reads as follows: “Disturb means to agitate or bother a bald or golden eagle to the degree that causes injury or death to an eagle (including chicks or eggs) due to interference with normal breeding, feeding, sheltering behavior, or nest abandonment. Injury would be defined as “a wound or other physical harm, including a loss of biological fitness significant enough to pose a discernible risk to an eagle's survival or productivity” (USFWS 2006). The definition must undergo a 30-day comment period, but if approved, will be used to protect the bald eagle if it is removed from the federal Endangered Species List.

## ***State Regulations***

**California Fish and Game Code Sections 1600–1616.** The CDFG regulates the modification of streams, rivers, and lakes under Sections 1600-1616 of the California Fish and Game Code. Modification includes diverting, obstructing, or changing the natural flow or bed, channel, or bank of a regulated feature. While most of the features regulated by the Fish and Game Code meet the definition of other waters of the U.S., the Code may regulate some ephemeral features that do not have all the criteria to qualify as other waters of the U.S. A project proponent, including both private parties and public agencies, who proposes an activity that may modify a feature regulated by the Fish and Game Code must notify the CDFG before project construction. The CDFG will then decide whether to enter into a Streambed Alteration Agreement with the project proponent.

**California Endangered Species Act.** The CDFG administers the California Endangered Species Act of 1984 (Fish and Game Code Section 2080), which regulates the listing and “take” of endangered and threatened species. “Take” may be permitted by CDFG through implementing a management agreement. Under the State laws, the CDFG is empowered to review projects for their potential impacts to listed species and their habitats.

CDFG maintains lists for Candidate-Endangered Species (SCE) and Candidate-Threatened Species (SCT). California Candidate species are afforded the same level of protection as listed species. Species that are “proposed” for listing are also considered as they may become listed during the development of the project. California also designates Species of Special Concern (CSC), which are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future. The CSC list is intended by CDFG as a management tool for consideration in future land use decisions.

## ***Local Regulations***

**Calaveras County 1996 General Plan.** The Open Space Element of the County's existing General Plan contains goals, policies, and several implementations pertinent to biological resources. Several of these are identified in Table 9-10 below.

DRAFT

**TABLE 9-10  
CALAVERAS COUNTY 1996 GENERAL PLAN**

<b>Open Space Element</b>	
<b>Number</b>	<b>Goal/Policy/Implementation Text</b>
Goal V-1	Preserve and enhance the County's significant wildlife and botanical habitats.
Policy V-1A	Review proposed development for potential impacts to significant wildlife and botanical habitats.
Implementation V-1A-1	Allow a maximum density of one dwelling unit per 40 acres on lands within the following significant protected wildlife and botanical habitats outside of Community Centers, Residential Centers, and Community or Special Plan Areas: <ul style="list-style-type: none"> <li>• Railroad Flat Deer Protected Areas</li> <li>• Bald Eagle Wintering Area</li> <li>• Golden Eagle Nesting Area</li> <li>• Big Trees State Park</li> <li>• UOP Research Area</li> </ul>
Implementation V-1A-2	When reviewing discretionary permits, require a vegetative and/or wildlife assessment and appropriate mitigation measures for those areas identified as potentially containing sensitive species as identified in Tables V-1 and V-2.
Implementation V-1A-3	Utilize the Environmental Protection zone of the County Zoning Code to regulate development standards within significant protected wildlife and botanical habitats.
Implementation V-1A-4	Actively solicit assistance from federal and state agencies and non-profit organizations with expertise in habitat management to work cooperatively with public and private property owners located in wildlife and botanical habitats toward the appropriate management of their lands.
Implementation V-1A-5	Encourage the establishment of protective easements in wildlife and botanical habitats under the Open Space Easement Act of 1974 (Government Code section 51070 <i>et seq.</i> ).
Goal V-2	Protect streams, rivers and lakes from excessive sedimentation due to development and grading.
Policy V-2A	Review proposed development projects for potential effects on nearby and adjacent streams, rivers and lakes.
Implementation V-2A-1	Require appropriate grading and drainage plans for proposed development projects.
Implementation V-2A-2	Require erosion control measures for all grading and earth moving activities which may contribute to significant sedimentation.
Implementation V-2A-3	Develop a County grading ordinance.
Implementation V-2A-4	Investigate utilizing the services of the Soil Conservation Service.
Goal V-3	Protect and preserve riparian habitat along streams and rivers in the County.
Policy V-3A	Review proposed development projects for potential impacts to riparian areas.
Implementation V-3A-1	Require that any 100-year flood plains be shown on all plot plans and subdivision maps for areas subject to inundation.
Implementation V-3A-2	Amend the County Zoning and Subdivision Codes to protect riparian habitat.

*Source: Calaveras County General Plan 1996.*



## Regulatory Setting–Water Resources

At a statewide level, the California Water Code provides the overall legal framework and the California State Water Resources Control Board serves as the administrative vehicle for managing water resources. Federally, the Clean Water Act and the Safe Water Drinking Act have established water quality standards and attainment programs which are administered by the EPA. A brief overview of these regulations follows.

### ***Federal Regulations***

**Clean Water Act.** The Federal Clean Water Act (CWA, 33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s water.” Important applicable sections of the federal CWA are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to “waters of the United States” to obtain certification from the state that the discharge will comply with other provisions of the Act. The local Regional Water Quality Control Board (RWQCB) provides certification.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the RWQCB, and is discussed further below.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. The U.S. Army Corps of Engineers (Corps) administers this permit program.

### ***State Regulations***

**California Water Code.** The California Water Code establishes the foundation for acquisition and protection of water rights. The code is derived from several sources, including the riparian doctrine taken from English common law, Spanish pueblo rights, the appropriative doctrine of western mining and irrigation tradition, and the correlative doctrine as it relates to groundwater. These water doctrines, with some originating hundreds of years ago, remain relevant to current water law discussions to varying extents, and they have been used by the court system over the years to resolve conflicts and establish precedents.

During the middle to late 1800s when the mining and agricultural industries were growing throughout California, questions often arose regarding who had rights to how much surface water. In general, the deciding factor was who was there first. This is characterized as the appropriative doctrine of water rights: “first in time, first in right.” Currently, new acquisitions of surface water are obtained under the appropriative doctrine, as constrained by the reasonable and beneficial use test and California’s public trust doctrine.

Rights to groundwater are more complex and groundwater as a resource is generally considered in three separate classes: (1) as stream underflow, (2) as definite underground streams, and (3) as percolating waters. The first two are treated legally as surface water, and all underground water is legally considered percolating water unless proven otherwise.

Landowners whose property overlies an aquifer have rights to develop the water. That right is conditional, however, through provisions of the correlative doctrine. Under the correlative doctrine, all landowners must share scarce water resources during shortages and must limit their use to the amount of water reasonably required to meet each landowner's beneficial needs. This doctrine assumes that all landowners have similar and equal rights to the underlying groundwater.

To provide a basis for groundwater management, the California State Legislature has passed law to allow for the creation of groundwater management districts.

**Porter-Cologne Water Quality Control Act.** The State of California's Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) provides the basis for water quality regulation within California. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. Waste Discharge Requirements (WDRs) resulting from the Report are issued by the RWQCB.

**California State Water Resources Control Board (SWRCB).** Responsibility for administering California water rights procedures lies with the SWRCB, which also is responsible for managing and administering various federal and state water quality control programs (see Table 9-11). Procedures are provided by statute, but the board has the authority to establish rules and regulations to help it carry out its work. All board activities are governed by State water policy and are administered in accordance with policies and procedures in the California Water Code.

TABLE 9-11 SUMMARY OF STATE AGENCY RESPONSIBILITIES	
State Agency	Primary Responsibilities
State Water Resources Control Board	Administers water rights, water pollution control, and water quality functions
Regional Water Quality Control Board	Conducts planning, permitting, and enforcement activities

The SWRCB carries out its water quality protection authority through the adoption of specific Water Quality Control Plans (Basin Plans). These plans establish water quality standards for particular bodies of water. California water quality standards are composed of three parts: the designation of beneficial uses of water; water quality objectives to protect those uses; and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The SWRCB recently adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. This policy provides implementation measures for numerical criteria contained in the California Toxics Rule, promulgated in May 2000 by the U.S. EPA (SWRCB 2005). When combined with the beneficial use designations in the Basin Plan, these documents establish statewide water quality standards for toxic constituents in surface waters.

**Central Valley Regional Water Quality Control Board (CVRWQCB).** Within the Planning Area the CVRWQCB is responsible for the protection of beneficial uses of water resources. Designation of beneficial uses defines the resources, services, and qualities of the aquatic system that are the ultimate goals of protecting and achieving high water quality. The CVRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility, and has adopted the Central Valley Region Water Quality Control Plan (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses of surface waters are described in the Basin Plan and are designated for major surface waters and their tributaries. In addition to identification of beneficial uses, the Basin Plan also contains water quality objectives that are intended to protect the beneficial uses of the Basin. The CVRWQCB has region-wide and water body/beneficial use specific water quality objectives.

Beneficial uses of the surface waters of the Delta include municipal, agricultural, industrial, and recreational uses, freshwater habitat, migration, spawning, wildlife habitat, and navigation. Beneficial uses for all groundwater resources in the Central Valley region include or potentially include municipal, agricultural, and industrial uses.

The CVRWQCB has set water quality objectives for all surface waters in the region concerning bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and ammonia. Water quality objectives for groundwater include standards for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity.

The CVRWQCB also administers the NPDES stormwater permitting program for both construction and industrial activities. NPDES requirements for these two activities are more fully described below.

### **Construction Activities**

Construction sites disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). For qualifying projects, the project applicant must submit a Notice of Intent (NOI) to the RWQCB to be covered by the General Construction Permit prior to the beginning of all construction activities. The General Construction Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which also must be completed before construction begins. Implementation of the plan starts with the commencement of construction and continues through the completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination to the RWQCB to indicate that construction is completed.

### **Industrial Activities**

Stormwater discharges associated with industrial facilities are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities excluding Construction Activities (General Industrial Permit). The regulations defining “storm water discharges associated with industrial activity” were published on November 16, 1990, with the EPA identifying eleven categories of industrial activities that are required to obtain permit coverage. To obtain authorization for continued and future storm water discharge under the General Industrial Permit, each



facility operator must submit a NOI. All storm water discharges from industrial sites must meet all applicable provisions of Sections 301 and 402 of the Clean Water Act. These provisions require control of pollutant discharges using the best available technology (BAT) that is economically achievable and best conventional pollutant control technology (BCT) to prevent and reduce pollutants and to meet water quality standards. Stormwater discharges from an industrial site shall not cause or contribute to a violation of all applicable water quality standards, which include all federal receiving water standards and all state standards under the Regional Board Basin Plan. The General Industrial Permit generally requires facility operators to:

- Eliminate unauthorized non-storm water discharges;
- Develop, retain on site, and implement a Storm Water Pollution
- Prevention Plan (SWPPP) to identify sources of pollution and to prescribe implementation of best management practices (BMPs) to reduce or prevent pollutants in industrial storm water discharges and authorized non-storm water discharges; and
- Perform monitoring of storm water discharges and authorized non-storm water discharges.

Areas of industrial activity where surface runoff must be controlled and treated include all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and rinsing areas, and all other areas of industrial activity that are potential pollutant sources. Any changes to the industrial site or activity require an update of the SWPPP and implementation of new control measures.

### ***Local Regulations***

**Calaveras County 1996 General Plan.** The Conservation Element of the County's existing General Plan contains several goals, policies, and implementations pertinent to a variety of water resources issues. Several of these are identified below in Table 9-12.

**TABLE 9-12**  
**CALAVERAS COUNTY 1996 GENERAL PLAN**

<b>Conservation Element</b>	
<b>Number</b>	<b>Goal/Policy/Implementation Text</b>
Goal IV-9	Preserve the County's current water rights and additional water rights necessary to support the County's full development potential
Policy IV-9A	Support the development of water projects in the County for domestic and irrigation purposes
Implementation IV-9A-1	Pursue available funding sources for the development of water projects in the County
Goal IV-10	Provide for adequate domestic water supplies
Policy IV-10A	Encourage continued cooperation among water suppliers in meeting the water needs for the County as a whole
Implementation IV-10A-1	Achieve orderly expansion of water districts in the County through Local Agency Formation Commission (LAFCO) review

*Source: Calaveras County 1996*

## Regulatory Setting—Mineral Resources

Relevant federal, State, and local regulations specific to mineral resource issues are discussed in this section.

### Federal Regulations

**Mine Safety and Health Administration.** The Mine Safety and Health Administration (MSHA), a division of the U.S. Department of Labor, administers the provisions of the Federal Mine Safety and Health Act of 1977. MSHA develops and enforces mandatory safety and health regulations pursuant to the Code of Federal Regulations that apply to all surface and underground mines located in the United States through inspections, rigorous training, and providing educational programs for employers and employees in the mining industry. The ultimate purpose is to eliminate fatal accidents, reduce the frequency and severity of nonfatal accidents, minimize health hazards, and promote improved safety and health conditions in mines throughout the nation. Project operations would be regulated by MSHA and periodic inspections would be performed under MSHA regulations to ensure maximum worker safety during project operation. The MSHA also conducts periodic safety inspections at specific project sites.

### State Regulations

**California Surface Mining and Reclamation Act of 1975 (SMARA).** SMARA, enacted by the California Legislature, addresses the need for continuous supplies of resources, acts to minimize adverse effects of mineral resource extraction operations, and encourages conservation and production of minerals while giving consideration to values relating to recreation, watershed, wildlife, open space, and aesthetic enjoyment. The Department of Conservation's Office of Mine Reclamation (OMR) and the State Mining and Geology Board, (SMGB) ensures proper administration of the SMARA requirements. Chapter 17.56 of the Calaveras County Code is Calaveras County's regulatory mechanism for implementation of SMARA.

The law specifically mandates a two-phased process, commonly referred to as classification-designation, for mineral resources. The California Geological Survey (CGS; previously called the California Division of Mines and Geology) is responsible under SMARA for carrying out the classification phase of the process. The California Mining and Geology Board is responsible for the second phase, which allows the board to designate areas within a production-consumption (P-C) region that contain significant deposits of Portland cement concrete (PCC)-grade aggregate (valued for its versatility and its importance in construction) that may be needed to meet the region's future demand.

SMARA requires the State Geologist to classify lands into Mineral Resource Zones (MRZ) based on the known or inferred mineral resource potential of that land. The classification process is based solely on geology, without regard to land use or land ownership. The primary goal of mineral land classification is to help ensure that the mineral resource potential of lands is recognized and considered in the land use planning process. The MRZ categories are as follows:

- **MRZ-1.** Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
- **MRZ-2.** Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- **MRZ-3.** Areas containing mineral deposits the significance of which cannot be evaluated from available data.
- **MRZ-4.** Areas where available information is inadequate for assignment to any other MRZ.

In addition to mineral resource conservation, the SMARA regulates surface mining operations within California. The California Mining and Geology Board has established reclamation regulations that fulfill the reclamation requirements of SMARA. These regulations are summarized below.

SMARA requires that a mining report be submitted annually and include such information as the amount of land disturbed during the previous year, acreage reclaimed during the previous year, and amendments to local reclamation plans.

Before a mining project is approved by a local jurisdiction, a reclamation plan must be prepared and approved. In general, the plan must include and satisfy the following requirements:

- Maximum anticipated depth of extraction;
- A description of the reclamation land use;
- A description of the manner in which reclamation will be accomplished;
- A description of the manner in which affected streambed channels and stream banks will be rehabilitated to a condition to minimize erosion;
- Final slope stability as determined by a registered geotechnical engineer;
- Compaction of areas sited for roads, buildings, or other improvements; and
- Location of planned temporary stream or watershed diversions.

A reclamation plan is also required to include performance standards for:



- Revegetation;
- Drainage and erosion controls;
- Reclamation of prime agricultural land and other agricultural land;
- Stream protection, including protection of surface water and groundwater; and
- Top soil salvage.

### ***Local Regulations***

**Calaveras County 1996 General Plan.** The Conservation Element of the County's existing General Plan contains several goals, policies, and implementations pertinent to a variety of mineral resource issues. Several of these are identified below in Table 9-13.

**TABLE 9-13  
CALAVERAS COUNTY 1996 GENERAL PLAN**

<b>Conservation Element</b>	
<b>Number</b>	<b>Goal/Policy/Implementation Text</b>
<b>Goal IV-5</b>	Preserve and manage the production of minerals to meet society's needs.
Policy IV-5A	Encourage the development of mining uses on lands containing commercially valuable mineral resources.
Policy IV-5B	Allow owners of land containing commercially valuable mineral resources outside of Mineral Resource Areas 2A and 2B to apply for appropriate mineral extraction zoning.
Implementation IV-5B-1	Utilize the Mineral Extraction combining zone to identify lands with commercial mineral potential.
Implementation IV-5B-2	Investigate the establishment of a Mineral Advisory Committee to make recommendations to the County regarding mineral resources potential.
<b>Goal IV-6</b>	Protect mineral resources from encroachment by incompatible land uses.
Policy IV-6A	Allow placement of the Mineral Extraction combining zone on lands identified for residential, commercial or industrial uses.
Policy IV-6B	Allow alternative uses and reduced parcel sizes on lands in Mineral Resource Areas 2A and 2B which do not contain commercially valuable mineral resources, if consistent with mining on nearby or adjacent properties.
Implementation IV-6A-1	Utilize the Mineral Extraction combining zone to identify property on which future mining activities may be proposed.
Implementation IV-6B-1	Consult the local mining association for recommendations when considering less than one dwelling unit per 20 acres on lands in Mineral Resource Area 2A outside of Community Centers, Residential Centers, Community and Special Plan areas, and the City of Angels Sphere of Influence.
Implementation IV-6B-2	Consult the local mining association for recommendations when considering less than one dwelling unit per 10 acres on lands in Mineral Resource Area 2B outside of Community Centers, Residential Centers, Community and Special Plan areas, and the City of Angels Sphere of Influence.
Implementation IV-6B-3	Develop regulations for permitting mining uses within Community Centers, Residential Centers, Community, Special and Specific Plan areas.
<b>Goal IV-7</b>	Balance the interest of the County's mining industry and residence.
Policy IV-7A	Review proposed mining activities for potential negative impacts such as noise, dust and traffic.
Implementation IV-7A-1	Require buffer areas or other mitigation measures for new mining activities locating near existing residential uses.
Implementation IV-7A-2	Require a use permit for all new mining operations in the County, except for small mines less than or equal to 5 acres or mines located in the M2 zone.
<b>Goal IV-8</b>	Protect public health and safety, and enable mined lands to be put to subsequent beneficial use.
Policy IV-8A	Review proposals for mineral extraction to assure minimal disturbance to the environment.
Implementation IV-8A-1	Require that newly mined lands are reclaimed for open space, conservation, agriculture, recreation or other beneficial uses.
Implementation IV-8A-2	Support and apply the Surface Mining and Reclamation Act of 1975 (Public Resources Code section 2710 et seq.).

*Source: Calaveras County 1996*

## Regulatory Setting–Timber Resources

Relevant federal, State, and local regulations specific to timber resources are described in this section.

### ***Federal Regulations***

**United States Forest Service - Sierra Nevada Forest Plan (SNFP).** The SNFP directs the management of 11 national forests and 11.5 million acres of national forest land. The intent of the SNFP is to improve the protection of old forests, wildlife habitats, watersheds and communities in the Sierra Nevada Mountains. Some specific actions will be undertaken to reduce fire fuels and protect California spotted owl nesting habitat along with managing other natural resources, such as timber, minerals, and grazing land. The SNFP delineates management activities by identifying several problem areas and assigning objectives to them. These problem areas and their objectives include:

- *Old Forest Ecosystems.* Preserve and enhance old-forest ecosystems and associated species.
- *Aquatic, Riparian, and Meadow Ecosystems.* Preserve and enhance aquatic, riparian, and meadow ecosystems and associated species.
- *Fire and Fuels.* Identify and implement effective techniques for fire and fuel management.

The SNFP was finalized in 2001 as the culmination of over a decade of regional planning efforts to manage species and ecosystems within the Sierra Nevada bioregion. As directed by the Chief of the Forest Service, the Regional Forester, along with an interdisciplinary team, conducted a review of this document and its initial implementation and presented recommendations for revision of the SNFP. These recommendations resulted in an amendment to the SNFP in 2004, the Sierra Nevada Forest Plan Amendment (SNFPA) (USDA 2004).

**Stanislaus National Forest Land and Resource Management Plan.** The Stanislaus National Forest Land and Resource Management Plan (Forest Plan) was created in October 1991 and has been revised following the completion, and subsequent amendment, of the SNFP. The Forest Plan provides management guidelines for the Stanislaus National Forest based upon the goals and policies contained in the SNFP and other relevant laws, regulations, and National and state policies. The Forest Plan is intended to provide long-range direction for management of the Stanislaus National Forest through implementation of identified goals, strategies, and implementation programs. The Forest Plan addresses the five problem areas discussed in the SNFP (old forest ecosystems and associated species; aquatic, riparian, and meadow ecosystems and associated species; fire and fuels management; noxious weeds; and lower westside ecosystems). In addition, the Forest Plan also identifies Management Areas based on their predominant management emphasis. For the Stanislaus National Forest, these Management Areas include:

- Wilderness and Proposed Wilderness
- Wild and Scenic Rivers and Proposed Wild and Scenic Rivers
- Near Natural
- Wildlife



- Special Interest Areas
- Research Natural Areas
- Experimental Forest
- Scenic Corridor
- General Forest
- Developed Recreation Sites
- Pinecrest Basin
- Winter Sports Sites
- Developed (Non-Recreation) Sites

The discussions for each Management Area includes a description of the physical area, a management emphasis statement, and a description of specific practices, activities, and standards and guidelines that are apply to each Management Area (USDA 2005).

### ***State Regulations***

**California Department of Forestry and Fire Protection (CDF)-California Forest Practice Act (CFPA).** The California Forest Practice Act was enacted in 1973 to ensure that logging is done in a sustainable manner that will preserve and protect our fish, wildlife, forests, and streams. The CFPA is applicable to all commercial harvesting activities conducted by landowners of small parcels and large timber companies alike. A Timber Harvesting Plan (THP) is required for all commercial timber harvesting within California. The CFPA outlines all of the requirements and contents of a THP. The THP serves as the environmental review document submitted by landowners that outlines what timber will be harvested, the methods used for harvesting, and the measures taken to prevent impacts to the environment (CDF 2007a).

The California Department of Forestry and Fire (CDF) is responsible for enforcing the laws that regulate logging on privately-owned lands in California. CDF and the State Board of Forestry and Fire Protection are responsible for approving THPs. THPs are prepared by Registered Professional Foresters (RPFs) who are licensed to prepare these plans. Once a THP is approved, CDF inspectors periodically inspect the logging operation to ensure compliance with the approved THP and all laws and regulations. When a THP operation has been completed, the timber owner is responsible for submitting a completion report to CDF. CDF then inspects the area to certify that all rules were followed. The landowner is also responsible for restocking (or replanting) the area according to the Forest Practice Rules requirements. There are currently two THPs in Calaveras County that have been submitted to CDF for public review and approval. These THPs range in size from approximately 200 acres to 1,800 acres (CDF 2005; CDF 2007b).

**Forest Taxation Reform Act of 1976.** The Z'Berg-Warren-Keene-Collier Forest Taxation Reform Act of 1976 allows local governments to designate qualifying private timberland as a Timberland Production Zone (TPZ). The primary purpose of this Act is to reduce property tax assessments on land used for timber production with the ultimate goal of preserving these lands for timber production. Use of land zoned TPZ is restricted to timber growing and compatible uses, including outdoor recreation or grazing.

The TPZ designation lasts ten years. Unless the land is taken out of the TPZ, the restriction on use will be renewed each year after the initial ten years and the landowners continuing to benefit from reduced property taxes. CDF implements the Forest Taxation Reform Act and passes down that responsibility to the local county agricultural commissioner. Approval of conversion of timberland from TPZ to another designation is carried out by CDF (Shih 2002).

## Local Regulations

**Calaveras County 1996 General Plan.** The Conservation Element of the County's existing General Plan contains several goals, policies, and implementations pertinent to timber resource issues. Several of these are identified below in Table 9-14.

TABLE 9-14 CALAVERAS COUNTY 1996 GENERAL PLAN	
Conservation Element	
Number	Goal/Policy/Implementation Text
<b>Goal IV-3</b>	Preserve and encourage the expansion of high capability timber lands for timber protection and harvest.
Policy IV-3A	Allow lands located within high capability timberlands to remain available for timber production.
Implementation IV-3A-1	Allow a maximum density of one dwelling per 20 acres on high capability timber lands outside of Community Centers, Residential Centers, Community, Special and Specific Plan areas, and the City of Angels sphere of influence.
Implementation IV-3A-2	Utilize Timber Production Zones and contracts with private property owners under the California Timber Productivity Act of 1982, and the Forest Taxation Reform Act of 1976.
<b>Goal IV-4</b>	Maintain and increase timber land productivity.
Policy IV-4A	Encourage sustained yield timber production and harvest.
Implementation IV-4A-1	Utilize applicable provisions of the Forest Improvement Act of 1978 (Public Resources Code section 4790 et seq.).

Source: Calaveras County 1996.

**Calaveras County Code-Chapter 17.12 General Forest (GF) Zone.** Lands designated as GF are intended to be utilized as areas for commercial timber production and related uses. Timber production activities in GF zones are not subject to limitations on hours of operation for logging activities. Some of the permitted uses in the GF zone include commercial agriculture, lumber mill, Christmas tree farm and sales, and limited recreation opportunities (Calaveras County 2007).

**Chapter 17.14 Timber Production (TP) Zone.** The purpose of this ordinance is to implement the Forest Taxation Reform Act. Lands designated as within the TP zone are subject to all the requirements of the Forest Taxation Reform Act discussed previously. Lands within the TP zone may also be referred to as timber preserves. No development deemed incompatible with the purposes of timber production may be permitted within the TP zone (Calaveras County 2007).

## Regulatory Setting–Agricultural Resources

Relevant State and local regulations specific to agricultural and soil resource issues are described in this section.

### *State Regulations*

**Farmland Mapping and Monitoring Program (FMMP).** The California Department of Conservation (DOC), under the Division of Land Resource Protection, has developed the FMMP that monitors the conversion of the State’s farmland to and from agricultural use. County-level data is collected and a series of maps are prepared that identify eight classifications and uses based on a minimum mapping unit size of 10 acres. The program also produces a biennial report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates the Important Farmland Series Maps every two years (Department of Conservation 2004).

The FMMP is an informational service only and does not constitute State regulation of local land use decisions. Agricultural land is rated according to several variables including soil quality and irrigation status with Prime Farmland being considered the most optimal for farming practices. Other FMMP designations include Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, Other Land and Water. Calaveras County does not currently have important farmland mapping data available. The Planning Area has not been mapped and the Division of Land Resource Protection does not have important farmland maps or acreages available. Because of this, important farmlands will not be discussed further in this report.

**California Land Conservation Act of 1965 (Williamson Act).** The California Land Conservation Act (CLCA) of 1965, Sections 51200 et seq. of the California Government Code, commonly referred to as the Williamson Act, enables local governments to restrict the use of specific parcels of land to agricultural or related open space use. Landowners enter into contracts with participating cities and counties and agree to restrict their land to agriculture or open space use for a minimum of 10 years. In return, landowners receive property tax assessments that are much lower than normal because they are based upon farming and open space uses as opposed to full market value. Local governments receive an annual subvention of foregone property tax revenues from the State via the Open Space Subvention Act of 1971. Contracts are automatically renewed every year, extending out to 10 years.

The DOC reports that the Land Conservation Act Program has remained stable and effective as a mechanism for protecting agricultural and open space land from premature conversion of land to urban uses. The DOC indicates that the program might have remained small if not for the addition of Article 28 (now part of Article 13) to the State Constitution. Article 13 declares the interest of the state in preserving open space land and provides a constitutional basis for valuing property according to its actual use. The amendment originated with groups interested in the preservation of open space land. Agricultural interests added their support after recognizing the importance of a constitutional backing for preferential tax assessments. Article 13 allows preferential assessments for recreational, scenic, and natural resource areas as well as areas devoted to the production of food and fiber.



## Legislation Affecting the Williamson Act

**Farmland Security Zones.** In August 1998 the Williamson Act's farmland security zone (FSZ) provisions were enacted with the passage of Senate Bill 1182 (California Government Code Section 51296-51297.4). This sub-program, dubbed the "Super Williamson Act," enables agricultural landowners to enter into contracts with a specific county for 20-year increments with an additional 35 percent tax benefit over and above the standard Williamson Act contract.

**Senate Bill 1835 (Johnston, Chapter 690, Statutes of 1998) and the Cortese-Knox Local Government Reorganization Act.** Senate Bill 1835 requires the appropriate Local Agency Formation Commission (LAFCO) to determine whether a particular city is required to succeed (adhere) to the rights, duties and powers of the county under the contract or whether the city may exercise an option to not succeed to the rights, duties and powers of the county. The determination would be required pursuant to any proposal by a city that would result in the annexation of Williamson Act contracted land.

**Senate Bill 2227 (Monteith, Chapter 590, Statutes of 1998).** Senate Bill 2227 added new requirements to the Cortese-Knox Local Governmental Reorganization Act regarding any proposed annexation of Williamson contract land. If the proposal would result in the annexation of land that is subject to the Williamson Act, then the petition shall state whether the City shall succeed (adhere) to the contract or whether the City intends to exercise its option to not succeed to the contract.

## Local Regulations

**Calaveras County 1996 General Plan.** The Conservation and Land Use Elements of the County's existing General Plan contain several goals and policies pertaining to agricultural resources. Several of these are identified below in Table 9-15.

TABLE 9-15 CALAVERAS COUNTY 1996 GENERAL PLAN	
Conservation Element	
Number	Goal Text
<b>Goal IV-1</b>	Preserve and encourage the use of land for agriculture purposes.
Policy IV-1A	Allow resource production lands to remain available for agriculture and rural use.
Policy IV-1B	Encourage Williamson Act contracts on lands outside of Community Centers, Residential Centers, Community, Special and Specific Plan Areas, and Mixed Use/Master Project Areas.
<b>Goal IV-2</b>	Protect legally established agriculture from encroachment by incompatible land uses.
Policy IV-2A	Review development proposals for possible encroachment upon legally established agriculture.
<b>Goal IV-3</b>	Preserve and encourage the expansion of high capability timber lands for timber protection and harvest.
Policy IV-3A	Allow lands located within high capability timberlands to remain available for timber production.
<b>Goal IV-4</b>	Maintain and increase timber land productivity.
Policy IV-4A	Encourage sustained yield timber production and harvest.

**TABLE 9-15  
CALAVERAS COUNTY 1996 GENERAL PLAN**

<b>Land Use Element</b>	
<b>Goal II-3</b>	Preserve and manage those lands identified as Natural Resource Lands for the future good of the general public.
Policy II-3A	Restrict density in Natural Resource Lands to ensure future use and conservation and use of the resources.
<b>Goal II-5</b>	Maintain Special Plans for areas of the County possessing unique resource or development issues.
Policy II-5E	Consider and balance the impacts of resource production and community development uses within Special Plan areas.
<b>Goal II-6</b>	Provide long term, comprehensive development planning for large projects involving multiple land uses.
Policy II-6B	Encourage the use of Specific Plans for large projects with multiple land uses.
Policy II-6D	Consider and balance the impacts of resource production and community development uses within Specific Plan areas.
<b>Goal II-14</b>	Achieve consistency between land use designations and zoning.
Policy II-14A	Permit resource production zones for agriculture, timber, and mining on lands designated future single-family residential when compatible with adjoining land uses and zoning.

*Source: Calaveras Count, 1996.*

## 9.8 KEY TERMS

### Key Terms—Biological Resources

**Critical Habitat.** Specific areas within the geographical area occupied by a species listed under the Endangered Species Act at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection. Critical habitat can also be specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

**Endangered.** A species whose survival and reproduction in the wild is in immediate jeopardy from one or more causes including: loss or change of habitat, over exploration, predation, competition, disease, or other factors. See the discussions for Federal Endangered Species Act and California Endangered Species Act under “Regulatory Setting—Biological Resources”.

**Evolutionarily Significant Unit (ESU).** A population or group of populations inhabiting a defined geographical area that comprises a unique segment of the species. A distinct population, reproductively isolated from other populations of the same species and is an important evolutionary legacy of the species.

**Mesic.** Pertaining to a moderately moist habitat.

**Riparian.** Of, on, or pertaining to the bank of a natural course of water.

**Sensitive Natural Community.** A sensitive natural community is a vegetation type that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or which is of special concern to local, State, or Federal agencies. The California Environmental Quality Act (CEQA) identifies the elimination or substantial degradation of such communities as a significant impact. The California Department of Fish and Game (CDFG) monitors sensitive natural communities in the California Natural Diversity Database. There are two sensitive natural communities within the Planning Area, Ione Chaparral and Big Tree Forest (see Figure 9-2).

**Special-Status Species.** Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies, regulations, and expertise of State resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as "special status species" in this section, following a convention that has developed in practice but has no official sanction. For the purposes of this assessment, the term “special-status” includes those species that are:

- Federally-listed or proposed for listing under the Federal Endangered Species Act (50 CFR 17.11-17.12);



- Candidates for listing under the Federal Endangered Species Act (61 FR 7596-7613);
- State-listed or proposed for listing under the California Endangered Species Act (14 CCR 670.5);
- Species listed by the National Marine Fisheries Service (NMFS) or CDFG as a species of concern (NMFS), rare (CDFG), or of special concern (CDFG);
- Fully protected animals, as defined by the State of California (California Fish and Game Code Section 3511, 4700, and 5050);
- Species that meet the definition of threatened, endangered, or rare under CEQA (CEQA Guidelines Section 15380);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.); and
- Plants listed by the California Native Plant Society (CNPS) as rare, threatened, or endangered (List 1A and List 2 status plants, CNPS, 2007).

**Wetlands and Other Waters of the U.S.** Wetlands are ecologically complex habitats that support a variety of both plant and animal life. In a jurisdictional sense, the federal government defines wetlands in Section 404 of the Clean Water Act as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b] and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include saline and freshwater marshes, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other waters of the U.S (see definition below for "other waters of the U.S."). The U.S. Army Corps of Engineers (Corps) is the responsible agency for regulating wetlands under Section 404 of the Clean Water Act, while the Environmental Protection Agency (EPA) has overall responsibility for the Act.

“Other waters of the U.S.” refers to those hydric features that are regulated by the Clean Water Act but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes.

The CDFG does not normally have direct jurisdiction over wetlands unless they are subject to jurisdiction under Streambed Alteration Agreements or they support state-listed endangered species; however, CDFG has trust responsibility for wildlife and habitats pursuant to California law.

Examples of jurisdictional waters that occur in the Planning Area would include the Calaveras River and potentially jurisdictional features such as agricultural and urban drains where they replaced natural waterways.

**Xeric.** Drought-tolerant.

## Key Terms–Water Resources

**Acre foot.** The amount of water that covers one acre (43,560 square feet) to a depth of one foot; equal to 325,851 gallons.

**Aquifer.** An aquifer is an underground layer of permeable rock, sand, or gravel that contains water. An aquifer is the area underground that stores groundwater resources and is sometimes referred to as a water table.

**Beneficial Use.** Use of water either directly by people or for their overall benefit as legally defined and identified.

**Discharge.** A rate of surface flow, typically expressed as a unit of volume of water per unit of time.

**Groundwater.** Water that occurs beneath the surface of land, specifically within pore spaces of soil, sediment, or rock formations, excluding soil moisture held by capillary action in the upper, unsaturated zones.

**Groundwater Basin.** A groundwater basin is the aboveground area from which water flows or seeps into a particular aquifer or series of linked aquifers.

**Overdraft.** Overdraft is a condition of a groundwater basin or aquifer in which withdrawals exceed inflow (i.e., more water is removed than put back in).

**Runoff.** Precipitation that is not used by plants, evaporated, or absorbed by soils and is transported across land surfaces to streams or other bodies of surface water.

**Total Maximum Daily Loads.** A total maximum daily load (TMDL) refers to the amount of a specific pollutant a river, stream, or lake can assimilate and still meet Federal water quality standards as provided under the Clean Water Act.

**Watershed.** Similar to a groundwater basin, a watershed is the area or region from which surface water flows to a particular water body.

## Key Terms–Mineral Resources

**Aggregate.** A resource composed of sand, gravel, and crushed stone used in the construction buildings, roads, and concrete.

**Auriferous Gravels.** Gold-bearing mineral deposits that originated from ancient streambeds or riverbeds.

**Hydrothermal Processes.** Hydrothermal processes involve the transportation of elements dissolved in hot water and subsequent precipitation, or crystallization, of minerals when the water cools.

**Industrial Minerals.** Earth materials that are of economic value.

**Magma.** Molten rock material within the earth from which igneous rock results by cooling.

**Mineral Deposits.** A concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in a location and in such an amount that extraction of the commodity for economic benefit is feasible.

**Mineral Resources.** A concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in a location and in such an amount that economic extraction of the commodity is feasible. Typical materials with economic value include gold, precious metals, and materials used in construction, such as sand, gravel, and clay.

**Mineral Resource Zone.** Mineral resource zones are lands classified by the State Geologist based on the known or inferred mineral resource potential of the land. The classification process is based solely on geology, without regard to land use or land ownership.

**Placer Deposits.** Concentrations of heavy minerals that are localized by the energy of wave or current action of water or air.

**Volcanogenic Processes.** Formed by processes directly connected with volcanism; specifically, said of mineral deposits (massive sulfides, exhalites, banded iron formations) considered to have been produced through volcanic agencies and demonstrably associated with volcanic phenomena.

## Key Terms–Timber Resources

**Commercial Forest Land.** Forested land which is capable of producing new growth at a minimum rate of 20 cubic feet per acre per year, excluding lands withdrawn from timber production by statute or administrative regulation.

**Timberland.** Defined by Public Resource Code Section 4526 as land, other than federal land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees.

**Timber Production Zone (TPZ).** A zoning classification applied to private timberland and State forests by local government under the Forest Taxation and Reform Act of 1976. Land zoned TPZ is restricted for use in timber growing or compatible uses, such as outdoor recreation or grazing. This restriction on use lasts ten years and is renewed each year; in return, landowners receive reduced property tax assessments on the land.

## Key Terms–Agricultural Resources

**Commodities.** Any unprocessed or partially processed good (e.g., fruits, vegetables, or grains) used for trade or commerce.

**Important Farmlands.** Collective term for farmlands designated as Prime, Unique, or as Farmlands of Statewide Importance under the Department of Conservation's Farmland Mapping and Monitoring Program (FMMP).

**Williamson Act Contract.** A contract between a landowner and a City or County to restrict land to agricultural or open space uses in return for lower than normal property tax assessments. The minimum



term for a Williamson Act contract is 10 years. Since the term automatically renews on each anniversary date of the contract, the actual term can be indefinite.

**Williamson Act Contract–Non-Renewal.** Contracts may be terminated at the option of the landowner or local government by initiating the process of non-renewal. Under this process, the remaining contract term (nine years in the case of an original term of 10 years) is allowed to lapse, with the contract null and void at the end of the term. Property tax rates gradually increase during the non-renewal period, until they reach normal (i.e., non-restricted) levels upon termination of the contract.

**Williamson Act–Home Site.** A designated Williamson Act parcel may or may not contain a home. In the case that the parcel does contain a home, the acreage of the home site must be tabulated and reported. For any home site that occupies a significant amount of the Williamson Act parcel, approximately 10% or more of the parcel acreage, the home site acreage must be tabulated and represented spatially in the parcel data.

**Williamson Act–Prime Agricultural Land.** Land enrolled under California Land Conservation Act contract which meets any of the following criteria:

1. Land which is class I or class II in the Natural Resources Conservation Service land use capability classification system;
2. Land which rates 80 to 100 in the Storie Index Rating system;
3. Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture;
4. Land planted with fruit or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars per acre;
5. Land returned from the production of unprocessed agricultural plant production having an annual gross value of not less than two hundred dollars per acre for three of the previous five years.

**Williamson Act–Non-Prime Agricultural Land.** Land enrolled under California Land Conservation Act contract which does not meet any of the criteria for classification as Prime Agricultural Land. Non-Prime Land is defined as Open Space Land of Statewide Significance under the California Open Space Subvention Act and may be identified as such in other documents. Most Non-Prime Land is in agricultural uses such as grazing or non-irrigated crops. However, Non-Prime Land may also include other open space uses which are compatible with agriculture and consistent with local general plans.

**Williamson Act–Urban (Non-Renewal).** Land enrolled under the California Land Conservation Act contract and has urban influence, such as potential residential development or commercial development. It may also fall within the City of Angels sphere of influence. This land is also in non-renewal under the California Land Conservation Act.

## 9.9 BIBLIOGRAPHY

### Reports/Publications

Alpers, Charles N., Scott N. Hamlin, and Michael P. Hunerlach. Alpers et. al. 1999. Hydrogeology and Geochemistry of Acid Mine Drainage in Ground Water in the Vicinity of Penn Mine and Camanche Reservoir, Calaveras County, California: Summary Report, 1993-95. U.S. Geological Survey.

Calaveras County. 1996. Calaveras County 1996 General Plan. December 9, 1996.

Calaveras County. 1996. Calaveras County 1996 General Plan.

Calaveras County. 2000. 1999 Crop Annual Report.

Calaveras County. 2001. 2000 Crop Annual Report.

Calaveras County. 2002. 2001 Crop Annual Report.

Calaveras County. 2003. 2002 Crop Annual Report.

Calaveras County. 2004. 2003 Crop Annual Report.

Calaveras County. 2005. 2004 Crop Annual Report.

Calaveras County. 2006. 2005 Annual Crop Report.

Calaveras County. 2007a. 2006 Annual Crop Report.

Calaveras County. 2007b. Calaveras County GIS Data: Crops.

Calaveras County Environmental Health Department. Calaveras County 2004. Calaveras County Local Agency Groundwater Protection Program. August 31, 2004.

California Department of Conservation. 2004. A Guide to the Farmland Mapping and Monitoring Program, 2004 Edition. Sacramento, CA.

California Department of Conservation. 2006. Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Sacramento, CA.

California Department of Conservation, Division of Mines and Geology. CDMG 1987. Mineral Land Classification of the Camino and Mokelumne Hill 15-Minute Quadrangles, El Dorado, Amador, and Calaveras Counties, California. DMG Open-File Report 87-2.

California Department of Conservation, Division of Mines and Geology. CDMG 1989. Mineral Land Classification of the San Andreas 15-Minute Quadrangles, Calaveras County, California. DMG Open-File Report 89-1.

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources. DOGGR 2001. Oil, Gas, and Geothermal Fields in California 2001, Map S-1.

California Department of Conservation, Office of Mine Reclamation. OMR 2007. Office of Mine Reclamation Database (MINEFILE.DBF). Accessed June 14, 2007.

California Department of Fish and Game (CDFG). 2007. California Natural Diversity Database (CNDDDB) Rarefind 3 computer program. Database search for Calaveras County, CA. Biogeographic Data Branch, Sacramento, CA. May 2007 Data.

California Department of Forestry and Fire Protection. CDF 2005. CDF's Role in Timber Harvesting. July 2005.

California Department of Forestry and Fire Protection. CDF 2007a. California Forest Practice Rules 2007. January 2007.

California Department of Forestry and Fire Protection (CDF). 2002. Multi-source Land Cover Data v2. (Spatial Data.)

California Department of Water Resources. 2006. Calaveras County Land Use Data. Sacramento, CA.

California Department of Water Resources. DWR 2006. California's Groundwater Bulletin 118: San Joaquin Valley Groundwater Basin, Eastern San Joaquin Subbasin. Updated January 20, 2006.

California Department of Water Resources. DWR 2005. California Water Plan Update 2005, A Framework for Action: Bulletin 160-05. December 2005.

California Interagency Watershed Mapping Committee. CalWater Committee 2001. California Watersheds. March 5, 2001.

California Native Plant Society (CNPS). 2007. Electronic Inventory of Rare and Endangered Plants (v7.06d 10-03-2006). Database search for Calaveras County, CA. Sacramento, CA.

Central Valley Regional Water Quality Control Board. CVRWQCB 2003. 2002 CWA Section 303(d) List of Water Quality Limited Segment. Approved by USEPA July 2003.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. October 1986.

Lamphier-Gregory (for Calaveras County). 2004. California Asbestos Monofill EIR Addendum. September 2004.

Mayer, Kenneth E., and W.F. Laudenslayer, Jr. 1988. A Guide to Wildlife Habitats of California. State of California Resources Agency, Department of Fish and Game. Sacramento, CA. Accessed from the following URL: [http://www.dfg.ca.gov/whdab/html/wildlife\\_habitats.html](http://www.dfg.ca.gov/whdab/html/wildlife_habitats.html).



National Oceanic and Atmospheric Administration (NOAA). 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California. Final Rule. Federal Register 70 (170): 52488-52627.

RMC. 2006. Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan: Public Draft. October 2006.

Shih, Tian-Ting. Shih 2002. Timberland Conversion in California from 1969 to 1998. September 19, 2002.

United States Department of Agriculture, Forest Service. USDA 2004. Sierra Nevada Forest Plan Amendment—Final Supplemental Environmental Impact Statement and Record of Decision. January 2004.

United States Department of Agriculture, Forest Service. USDA 2005a. Stanislaus National Forest, Forest Plan Direction. July 2005.

United States Department of Agriculture, Forest Services. USDA 2005b. Business Plan for the Stanislaus National Forest. October 2005.

Upper Mokelumne River Watershed Authority. 2007. Technical Memorandum Number 9: Watershed Assessment. Upper Mokelumne River Watershed Assessment and Planning Project. April 2007.

U.S. Fish and Wildlife Service (USFWS). 2005a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population. Final Rule. Federal Register 70 (162): 49380-49458.

USFWS. 2005b. Critical Habitat: What is it? December 2005.

USFWS. 2006. News Release: U.S. Fish and Wildlife Service Releases Draft Environmental Assessment for the Definition of Disturb under the Bald and Golden Eagle Protection Act. December 12, 2006. Accessed online from the following URL: <http://www.fws.gov/news/NewsReleases/showNews.cfm?newsId=77F1D9D4-F22D-B7F9-E105A71D37E51687>

USFWS. 2007. List of Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in Calaveras County, CA. Document Number 070531045728. Database Last Updated March 5, 2007. Sacramento Fish and Wildlife Office, Sacramento, CA.

U.S. Geological Survey (USGS). 1994. USGS Digital Orthophoto Quarter Quadrangles. (Spatial Data.)

U.S. National Park Service (NPS). 1998. An Introduction to Wild and Scenic Rivers. November 1998.

## Websites

Calaveras County. 2007. Calaveras County Municipal Code. Passed March 27, 2007. <http://municipalcodes.lexisnexis.com/codes/calaveras/> Accessed June 19, 2007

California Department of Forestry and Fire Protection. CDF 2007b. Timber Harvesting Status Table. Viewed July 27, 2007. [http://www.fire.ca.gov/rsrc-mgt\\_forestpractice\\_thpstatus.php](http://www.fire.ca.gov/rsrc-mgt_forestpractice_thpstatus.php)

Friends of the River. 2007. California Rivers: The California Wild and Scenic Rivers Act. Website accessed August 7, 2007. <http://www.friendsoftheriver.org/site/PageServer?pagename=FORCaliforniaWildScenic&AddInterest=1002>

NOAA. 2007. ESA Critical Habitat. Website accessed August 6, 2007. <http://www.nwr.noaa.gov/Salmon-Habitat/Critical-Habitat/Index.cfm>

United States Department of Agriculture, Forest Services. USDA 2007. Frequently Asked Questions. Website accessed July 25, 2007. <http://www.fs.fed.us/r5/stanislaus/faq/index.shtml>

## **Persons Consulted**

Cantoni, Charles W. President, Wallace Community Services District Board of Directors. Personal communication via email January 2008.