7.13 CULTURAL AND PALEONTOLOGICAL RESOURCES

7.13 CULTURAL AND PALEONTOLOGICAL RESOURCES

7.13.1 INTRODUCTION

7.13.1.1 Content

This section describes the impacts of the Monterey Amendment and the Settlement Agreement on cultural and paleontological resources. Only some elements of the proposed project have the potential to directly affect cultural resources (see Table 7.13-1). Historic resources that would not be impacted by the project are excluded from the discussion. Cultural and paleontological resources are discussed below.

TABLE 7.13-1

IMPACTS OF PROPOSED PROJECT ELEMENTS ON CULTURAL AND PALEONTOLOGICAL RESOURCES

Proposed Project Element	Potentially Affected Environmental Resources	Impact Number
Monterey Amendment		
Reallocation of water supplies in droughts	Damage or destruction of cultural and paleontological resources associated with changes in agricultural practices	7.13-1
Permanent transfers of water	Damage or destruction of cultural and paleontological resources associated with changes in agricultural practices	7.13-1
Transfer of Kern Fan Element lands	Damage or destruction of cultural and paleontological resources associated with construction and operation of groundwater storage facilities in Kern Fan Element	7.13-3
Water supply management practices	Damage or destruction of cultural and paleontological resources associated with construction and operation of groundwater storage facilities/Changes in reservoir levels	7.13-2, 7.13-4, 7.13-5
Restructured financial arrangements	NA	NA
Settlement Agreement		
Substitute Table A amount for entitlement	NA	NA
Disclosure of SWP delivery capabilities	NA	NA
Guidelines on permanent transfers	NA	NA
Guideline for public participation	NA	NA
Restrictions on Kern Fan Element lands	Damage or destruction of cultural and paleontological resources associated with restrictions on development of 490 acres of land in Kern Fan Element	7.13-3
Watershed forum in Plumas	Damage or destruction of cultural and paleontological resources associated with development of watershed improvement projects	7.13-6
Amendment of Plumas SWP contract	NA	NA
Funding for plaintiffs	NA	NA

Note:
NA – Not Applicable.

During public review of the NOP for this EIR, concerns were raised regarding impacts to resources of cultural significance to Native American sites that occur or may occur within project areas, particularly reservoir fluctuation zones (Patrick Porgans and Associates, March 28, 2002).

7.13.1.2 Analytical Method

Cultural Resources

Archaeological resources evaluated for potential impacts were identified from previous environmental studies, and record searches at the appropriate information centers which are cited in this section.

Paleontological Resources

Paleontological resources evaluated for potential impacts were identified from previous studies of rock units that underlie project areas, rock units similar to those under the project areas, and previous discoveries. Previous studies that provided information for the analysis are cited in this section.

7.13.1.3 Standards of Significance

The following standards of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, impacts on cultural resources would be considered potentially significant if the proposed project would:

- cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- disturb any human remains, including those interred outside of formal cemeteries.

7.13.2 ENVIRONMENTAL SETTING

Definition of Cultural Resources

For the purposes of this analysis, the term “cultural resources” generally encompasses three broad categories: archaeological resources, historical resources, and Native American ethnic and cultural values and concerns. Archaeological resources are byproducts of human activities, either during prehistoric or historic times, and include human remains. In general, archaeological resources occur at or beneath the ground surface. There are exceptions, however, such as petroglyphs, bedrock milling slicks or mortars, or other features which are visible on exposed rocks. Historical resources are defined by their age and generally refer to events and features associated with Euroamerican settlement, primarily structures or other above-ground remains. A site may be both historical and archaeological, particularly if the materials within the site indicate occupation span long periods of time. The subject of Native American ethnic and cultural values and concerns covers a broad range of resources. Most prominent is the use of sacred and traditional lands by contemporary Native Americans for ceremonies, faunal and botanical resource exploitation, or other traditional activities. These areas often correspond to unrecorded archaeological and/or historical sites, such as rock art or petroglyph sites, or traditional funerary areas. Since many Native Americans are reluctant to discuss the location of sacred and traditional lands or associated activities, specific location information for many of these areas are unknown.

Geologic units containing fossils (paleontological resources) are present in many locations in the system. Most of the rock units containing fossils are sedimentary rocks associated with seas that covered most of California during the Mesozoic and early Paleozoic (about 75 to 290 million years ago [mya]). The type and distribution of fossils within a geologic unit provide valuable information that helps expand scientific knowledge about the range of plant and animal species and the ecosystems that were present millions of years ago.

7.13.2.1 Physical Setting in 1995

Southern San Joaquin Valley Portion of Kern and Kings Counties Including Kern Fan Element

Archaeological Resources

Since the 1960s, several important studies have been conducted in the southern San Joaquin Valley. Riddell and Olsen's examination of Paleoindian projectile points in private collection from the Tulare Lake basin offered the first evidence of early Holocene use of the region.[1] Fredrickson and Grossman's excavation of KER-116 for the California Department of Water Resources (Department) also indicated a Paleoindian occupation.[2] Hartzell's reexamination of the Buena Vista Lake assemblages further refined the cultural chronology for the area,[3] the results of which were supported by Sutton and Des Lauriers' overview of obsidian research from the southern San Joaquin Valley. To summarize, hydration measurements from localities in the nearby foothills and sites in or adjacent to lakeshore settings suggest exploitation of lacustrine resources was greatest between ca. 2,500 to 1,000 years before present (BP), when those environments were most productive. Prior and subsequent to this time period, hydration readings on obsidian artifacts suggest sporadic exploitation of lakeshore resources.[4]

Numerous cultural chronologies for the southern San Joaquin Valley and nearby regions have been offered by archaeologists, however critical gaps in the extant prehistoric record still exist. Although the cultural sequences differ in some of the details or vary by several hundred years, in general they concur, and identify similar technological and socio-political developments in California prehistory. Currently, the regional cultural sequence is divided into five periods: Paleoindian, Millingstone, Early, Middle, and Late.

Archaeological evidence suggests that California was settled during the **Paleoindian Period** (ca. 12,000-8,000 BP). In the southern San Joaquin Valley, numerous marshes and grassland environments offered early populations opportunities to procure a variety of resources.[5]

Assemblages dating to the **Millingstone Period (ca. 8,500 to 5,500 BP)** show similarities to the San Dieguito complex of Southern California, and contain a variety of flaked and cobble tools. Associated fauna from KER-116 reflect a generalized subsistence strategy, which incorporated artiodactyls, lagomorphs, waterfowl, fish, and turtles.[6]

More definitive evidence of prehistoric populations occurs during the **Early Period** (ca. 5,500 BP to 2,600 BP). Collections from a number of sites in the region typically contain numerous handstones and millingstones, reflecting greater use of seeds and nuts in the diet. Most reconstructions of Early Period economies, however, stress exploitation of faunal resources, such as deer and rodents, or a range of waterfowl and fish species.[7]

An increase in the frequency of ground stone artifacts during the **Middle Period** (ca. 2,600 BP to 1,000 BP) indicates greater reliance on botanical resources than in earlier times. The

presence of pestles in addition to handstones and millingstones suggests incorporation of resources such as roots or perhaps acorns, which have higher processing costs. Waterfowl, fresh water fish taxa, and terrestrial fauna remains indicate exploitation of lakeshore and upland territories. Recovery of artifacts manufactured from exotic materials, such as extra-local obsidian, implies trade with other groups from different regions.[8]

Likely ancestral to the ethnohistoric Emigdiano, Castac, Chumash, Tataviam, and Gabrieliño/Tongva cultures, the **Late Period (ca. 1,000 to 500 BP)** is marked by greater elaboration of social, political, and economic organization. A subsistence strategy based largely on fishing and hunting of marine resources further develops during this time. Affiliations between southern San Joaquin Valley and coastal California groups imply an expansion and intensification of exchange networks during the Late Period.[9]

Ethnographic research in the San Joaquin Valley and the lower Sierra Nevada foothills has identified three cultural groups in the area: the Northern Valley, Southern Valley, and Foothill Yokuts. The Southern Valley Yokuts included a large number of distinct small tribes. The traditional Southern Valley Yokuts' territory included the southern end of the San Joaquin Valley and the area around Tulare, Buena Vista, and Kern lakes. Subsistence practices emphasized lacustrine resources, including waterfowl, fish (trout, salmon, chub, perch, and suckers), turtles, mussels, roots, and seeds. Less important were terrestrial fauna, such as tule elk, pronghorn antelope, mule deer, jackrabbits, and ground squirrels.[10]

Early European exploration of the area and the advent of missions appear to have had little effect on the Southern Valley Yokuts. In 1833, however, an outbreak of malaria took an estimated 75 percent of the native population. Subsequent annexation of California severely affected the Southern Valley Yokuts, as they were displaced and their land settled by immigrants.[11]

Paleontological Resources

The Southern San Joaquin Valley has a rich history of paleontological research, largely due to the deposition of faunal and floral remains into a prehistoric, Late Cretaceous marine environment along the western edge of the Valley. Deposited between 80 and 65 mya was a range of fossils, including dinosaur, reptile, fish, invertebrate fauna, and plant remains, that have since been recovered.[12] Northeast of Bakersfield, sediments, fauna, and flora that were deposited into a bay eventually fossilized. Subsequent geologic events uplifted the fossil-rich sediments, which eroded and exposed rich paleontological resources, such as the Sharktooth Hill bone bed. A 100-square-mile formation, this bone bed contains a variety of fossilized remains.[13]

Kings County is home to the Kettleman Hills, which contain three geological rock deposits: the Etchegoin, San Joaquin, and Tulare formations.[14] This region contains an abundance of invertebrate, vertebrate, and botanical fossils dating from the Pliocene Epoch (5.3 to 1.6 million years old). The area contains 370 registered fossil localities of approximately 570 registered fossil localities throughout Kings County.[15] Many of the fossils were preserved in a complex environment that integrated fresh water, estuarine, and marine conditions directly related to the sea that existed during the Tertiary Period (66.4 to 1.6 mya).

Castaic Lake

Archaeological Resources

Archaeological research around Castaic Lake began in the 1930s, when Richard Van Valkenberg initiated a systematic study of the area. In the early 1970s, salvage excavation at Castaic Reservoir was conducted. A records search at the South Central Coastal Information Center identified eight cultural resource surveys within the Castaic Lake area, and fourteen additional studies within a ¼-mile radius of Castaic Lake. Six prehistoric sites are located within the reservoir. Two are at an elevation of 1520 feet (ft) above mean sea level (amsl), and the other four range in elevation from 1275 to 1380 ft amsl.

The cultural chronology for Castaic Lake follows the general prehistory of the central coast and surrounding regions offered by.[16] Currently, the cultural sequence for Castaic Lake does not reflect the antiquity observed in near-by areas; evidence of human occupation of the area prior to 5,500 years ago is yet undiscovered.

Early Period (ca. 5,500 – 2,600 B.P.) sites typically contain contracting-stem and side-notched projectile points, several types of *Olivella* and *Haliotis* beads, mortar/pestle and millingslab/handstone technologies. Several sites show evidence of exploiting terrestrial and marine resources, suggesting a diverse economy.

Middle Period (ca. 2,600 – 1,000 B.P.) assemblages include contracting-stem and side-notched projectile points, several types of *Olivella* beads, and mortar/pestle technology. There appears to be an increase in use of maritime resources, and use of ocean-going vessels. Inland regions are populated during this time, and there is evidence that trade and exchange developed between highly populated coastal and inland villages.

Late Period (ca. 1,000 – 500 B.P.) assemblages imply an increasing cultural sophistication. There appears to be a highly level of craftsmanship, especially in the production of basketry, stonework, beadwork, seaworthy vessels and associated technology. Social and religious development seems to have been highly evolved. There is evidence that the large populations associated with this period were supported by abundant and varied local resources.

The area surrounding Castaic Lake was occupied by two Native American groups: the Interior Chumash and the Tataviam. Very little is known about the Interior Chumash. The Emigdiano appear to be a peripheral Interior Chumash group. The extent of their territory is an approximation, and is estimated to have included Grapevine to the east, Mount Abel Road to the west, Castaic Lake to the east, and Cuddy Valley Road to the south. The northern boundary is poorly defined, but is thought to have been equidistant from Lake of the Woods and Fillmore. While no prehistoric campsites or residences have been identified, some of the most elaborate Chumash pictographs occur within this area. Aside from historical documents which suggest a few Native Americans lived at a village on Tecuya Creek and others worked at the Rancheria of Casteque on the north shore of Castac Lake, there is no enthographical or archaeological data on the Emigdiano or their neighbors to the southeast, the Castac Chumash.[17]

To the south, the Tataviam lived primarily on the upper reaches of the Santa Clara River, east of Piru Creek, north to the Antelope Valley, south to the San Gabriel Mountains, and as far east as the Soledad Pass. Early ethnographies indicate that Tataviam territory was bounded by various Chumash groups. Although recognized as a culturally distinct group, archaeological data

recovered from Tataviam-affiliated village sites in the area imply subsistence patterns and ritual practice were similar to those of neighboring Chumash and Gabrielino culture groups.[18]

Paleontological Resources

Los Angeles County is known for paleontological deposits, including fossil marine vertebrates and land vertebrates from rock deposited during the last 25 million years. During the Miocene and Pliocene Periods (from 23.7 to 1.6 mya), most of the greater Los Angeles Basin and the surrounding hills, including the Santa Clarita Valley and the Castaic Lake area, was submerged. Deposition of marine animals and shore birds in this marine environment created more than 1,100 known vertebrate fossil localities within the County. Primarily occurring within 700 square miles of hilly terrain underlain by fossil-producing rock formations, a substantial portion of the region containing these localities has been developed. In addition, much of the remaining area is threatened, particularly areas surrounding the Santa Clarita Valley and Castaic Lake; destruction of fossil sites in the area renders the remaining deposits even more valuable.[19]

Lake Perris

Archaeological Resources

The area surrounding Lake Perris is archaeologically sensitive.[20] Prior to the construction of Perris Dam and the creation of Perris Reservoir, the California Department of Parks and Recreation (DPR) and the University of California, Riverside (UCR) conducted a pedestrian cultural resources survey the Lake Perris State Recreation Area (LPSRA). Approximately 50 percent of the LPSRA was surveyed, including all of the areas adjacent to the reservoir and approximately 615 acres within the reservoir pool itself.[21] The survey identified approximately 110 sites within and immediately adjacent to the LPSRA. Most are on the north and northwest flank of Mt. Russell; only one site is located within the reservoir footprint. All but one site are either prehistoric habitation or resource processing locations. Nearly all sites contain bedrock milling equipment, such as mortars or metates, and many also contain petroglyphs or pictographs. One site identified during the survey is an isolated petroglyph.[22] A records search conducted at the Eastern Information Center identified one prehistoric site within the Perris Reservoir at an elevation of 1565 ft amsl. Recorded in 1970, the site consists of a boulder outcrop with mortar depressions and an associated handstone.

Indications of more recent use of the area are few. Only two sites recorded in the LPSRA contain both historic and prehistoric components. Several sites contain stone walls that may date to the historic era, but this is unverified, and the rock formations may relate to prehistoric times. Although the lack of historic sites may reflect the fact that the area was not used during the recent past or that sites dating to this era may be located outside of the survey corridor, historic resources were not routinely recorded during the 1970s. If DPR and UCR followed common survey methods of the time and essentially ignored historic-era sites, there may be numerous unrecorded historic-age deposits within the LPSRA.[23]

Our current understanding of the prehistory of the area is based on years of archaeological and ethnographical research. The earliest regional cultural chronology was offered by Wallace, later refined by Warren.[24,25,26] Initially the definitions of the horizons was based primarily on artifact assemblages, however subsequent investigations that incorporated radiometric assays and comparative site analyses have not changed the basic chronology offered by Wallace. In addition, although much of the early work that led to the development of a regional prehistoric

framework was conducted along the coast, research has shown the Wallace/Warren model to be applicable to inland southern California as well.[27,28]

The **Early Man Horizon** (ca. pre-6,000 B.C.) represents Paleo-Indian populations in the region. Large projectile points and scrapers may reflect small, nomadic bands of hunters; however, the data are limited; in the near-by Mojave Desert, recent studies have suggested that groups practiced a more generalized economy.

In contrast to the Early Man Horizon, the **Milling Stone Horizon** (ca. 6,000-1,000 B.C.) is well-represented in the area. An extensive tool-kit consisting of ground, battered, and flaked stone speaks to a diversified economy during the Milling Stone Horizon; one that incorporated plants into the subsistence base. An overall lack of projectile points during the early part of the Milling Stone Horizon may reflect a decline in hunting activities, perhaps due to a decrease in faunal populations. The reintroduction of large projectile points during the latter part of this horizon suggests a return to an economy that exploited a variety of resources.

The **Intermediate Horizon** (ca. 1,000 B.C.-750 A.D.) appears to be a transitional time in the archaeological record. Very little is known about this horizon. While Intermediate Horizon assemblages appear similar to those attributed to the Middle Horizon, differences in projectile point morphology and the introduction of portable mortars and pestles (used in acorn processing) implies that a significant technological shift occurred.

Finally, the **Late Prehistoric Horizon** (ca. 750 A.D. to Spanish contact [1769 A.D.]) is a time of increased sedentism and technological sophistication. Tool-kits become more diverse, and included steatite bowls, asphaltum, cremations, funerary objects, an elaborate shell industry, and the introduction of bedrock milling slicks. The continued use of mortars and pestles implies a constant need for reliable food resources. The presence of small projectile points (reflecting the introduction of the bow and arrow) suggests a shift in hunting technologies, one that was more efficient over the spear.

Regional ethnographies identify the Cahuilla as the primary Native American group in the Lake Perris vicinity. The Cahuilla of central southern California utilized a large area, including mountain ranges and passes, foothills, canyons, valley floors, and lower desert environs. Villages were typically located in canyons where resources were most plentiful. Subsistence practices included hunting small animals, and gathering acorns, mesquite, screw beans, piñon nuts, seeds, tubers, roots, and greens. Interaction with other tribes was common, as the Cahuilla territory was bisected by the Cocopa-Maricopa Trail, a major trade route, and was adjacent to two other well-used routes.[29]

The Cahuilla initially were hostile to Europeans; however, interaction with several *assistencias* in 1819 led the Cahuilla to adopt some European practices. In 1863 a small pox epidemic killed many Cahuilla. In 1877 reservations were established, and the traditional lifeways of the Cahuilla were suppressed.[30]

Paleontological Resources

Lake Perris has been designated as a highly sensitive paleontological area. This area contains an extensive fossil record, ranging from diverse marine mollusks in the Jurassic Period (about 150 mya) to the oldest known Tertiary flora (about 60 mya) in Southern California, and includes a wide range of large, ice age mammals from the Pliocene and Pleistocene Epochs (2.5 mya to10,000 years ago).[31] These remains chronicle marine advances, beach and lake formation,

and climate change. Fossils from the Miocene Epoch (23.7 to 5.3 mya) are known to be present in project lands in the Coachella Valley, particularly in Western Riverside County, where fossiliferous layers occur in sediments lying on the surface of crystalline bedrock or that have been exposed by faulting activity. Pleistocene Epoch fossils have been found within four ft of the ground surface in large areas of the Perris Plain, which includes the area surrounding Lake Perris.[32]

San Luis Reservoir

Archaeological Resources

In the 1960s, several state agencies conducted salvage excavation at San Luis Reservoir. Treganza surveyed the area, followed by excavations of a single component, Late Period site, CA-MER-14, by Crabtree and, later, Riddell. In 1966 and 1967 the Grayson site (CA-MER-S-94) was excavated by Olsen and Payen. Based on their work, Olsen and Payen hypothesized the local population practiced a hunting and acorn-gathering economy.[33] A records search conducted at the Central California Information Center identified 26 cultural resources within the San Luis Reservoir. Of these, twenty-two sites are located at an elevation of at least 400 ft amsl, and four sites occur between elevations of 250 and 275 ft amsl.

Unlike other areas of California, where there is evidence of prehistoric populations dating to at least 10,000 B.P., the archaeological record for the San Luis Reservoir area dates back just 5,200 years. Four complexes have been identified in the region: Positas, Pacheco, Gonzaga, and Panoche complexes.

The **Posita Complex** dates ca. 5,200 - 4,500 B.P. This complex is distinguished by a lack of burials. Artifacts associated with this complex include perforated discoidals, seed and grain processing technologies (mortars, pestles, millingstones, and handstones), formalized flaked stone tools (scraper planes and small flake scrapers), spire-lopped *Olivella* beads, and perforated pebble pendants.

Following the Posita Complex, the **Pacheco Complex** is divided into two phases. The earlier of the two phases, **Pacheco Complex B** dates between 4,500 - 2,600 B.P. Assemblages attributed to this phase include large leaf-shaped or foliate projectile points, small quantities of ground stone (slabs and mortars), thick rectangular *Olivella* and *Haliotis* beads, and freshwater mussel beads. Use of this phase is provisional, as it manifests at only one site and is largely intuitive and based on artifact typologies within the Central California Taxonomic System.

Pacheco Complex A sites (ca. 2,600 – 1,000 BP) contain flexed burials, large stemmed and side-notched projectile points, a variety of *Olivella* beads, *Macoma* beads, a range of bone ornaments and tools, stone and pebble ornaments and pendants, and ground stone tools (mortar/pestle and millingstone/handstone). Small quantities of marine shell speak to some connection with coastal environments. House floors have been associated with this phase, and are circular features 3 - 4 meters in diameter.

Gonzaga Complex date between ca. 1,000 - 450 B.P. The complex is characterized by a variety of milling tools, including bowl mortars, shaped mortars, slab [hopper] mortars, slab millingstones, and handstones. Projectile points are uncommon, and most often are square tapered-stem points or occasionally serrated. Bone tools, ear ornaments, beads are abundant and elaborately made. House floors increase in size, up to 7 to 10 meters in diameter.

The **Panoche Complex** dates from ca. 450 - 150 B.P. Associated artifacts include a range of mortar and pestle forms, some millingstones and handstones, small side-notched and concave-base triangular arrow points, bone tools, steatite artifacts, and a variety of beads and ornaments. Structures include both smaller dwellings approximately 10 - 15 meters in diameter and larger assembly houses 25 meters across.

At the time of contact, the local Native American population was the Northern Valley Yokut. Their territory extended from north of Stockton southward past the Calaveras River, west to the crest of the Diablo Range, and east to the Sierra Nevada foothills. Within the confines of the Northern Valley Yokut territory, the San Joaquin River and its tributaries collected vast amounts of water, creating tule-choked marshes. Fishing and hunting of waterfowl along these waterways were important subsistence activities, as were harvesting acorns, roots, and seeds. Villages typically were situated along riverbanks or atop of mounds, protecting the inhabitants from flooding.[34]

As with other tribes in California, interaction with Europeans resulted in a decline in Northern Valley Yokut population. Establishment of the missions decimated the native population, and diseases introduced by Europeans killed many people. Later, as the valley became a prime agricultural area, the Yokuts were removed from their territory.[35]

Paleontological Resources

Several fossil-bearing units occur in the area surrounding the San Luis Reservoir, generally of Pleistocene and Miocene age. These units, particularly the Pleistocene alluvial units, such as the Los Banos Alluvium, are known to contain important paleontological resources, including dinosaur, reptile, fish, invertebrate fauna, and plant remains.[36]

Lake Oroville

Archaeological Resources

Archaeological research associated with the construction of the Oroville Facilities commenced in the early 1950s. Most of the early studies focused on Native American cultural resources, as opposed to historic-era remains; however, recent research included historic accumulations as part of the cultural landscape.[37]

The earliest studies were conducted by students from the University of California, initially under the guidance of Treganza, then later Heizer. In the 1960s, Riddell and Olsen conducted large inventories and several excavations along the Feather River, while Ritter and Chartkoff led the most extensive survey of the time. After the installation of the facilities, various studies were conducted in the 1980s and 1990s. Most recently, archaeologists from Sonoma State University and California State University, Sacramento surveyed more than 7,500 acres of the reservoir fluctuation zone, resulting in the discovery of 170 archaeological sites and re-recordation of 43 sites.[38]

A prehistoric chronology for Butte County and the surrounding area is provided in Serverston et al.[39] Prior to 5,000 B.P., evidence of human occupation in the Lake Oroville area is missing, although there are indications that humans inhabited near-by areas. The earliest date secured for Lake Oroville is approximately 3,000 B.P.

The **Mesilla Complex** (ca. 3,000 - 2,000 B.P.) is the oldest complex in the Lake Oroville sequence. A variety of dart-sized projectile points are associated with this complex, including leaf-shaped, stemmed, and side-notched forms manufactured from basalt, chert, and slate. Grinding implements for vegetal and seed processing are also common, as are *Olivella* and *Haliotis* beads, charmstones, and bone tools and ornaments. The archaeological record implies seasonal use of the area by small bands and groups.

During the **Bidwell Complex** (ca. 2,000 - 1,200 B.P.) it appears that people began establishing permanent villages, and possibly cemeteries, in the area. Dart points are similar to those recovered from older contexts. Fishing technologies are developed, and include the use of nets held in place with stones. Milling slabs and wooden mortars imply acorn processing. Other implements include steatite vessels, likely used for cooking.

The bow and arrow are introduced to local Native Americans during the **Sweetwater Complex** (ca. 1,200 - 500 B.P.). This innovation resulted in smaller, lightweight stemmed and corned-notched projectile points. Grinding implements are almost exclusively mortar and pestle. Steatite industries become more elaborate, and include a variety of forms (cups, platters, bowls, and smoking pipes). The use of bone and shell artifacts increases, and the acorn complex is well-developed.

The **Oroville Complex** (ca. 500 – 150 B.P.) is the ethnographic Maidu-Konkow times. Acorn processing is a primary focus. Small arrow-sized projectile points and bedrock mortars are dominant tool forms. Bone industry is highly developed, and includes tubular beads, whistles, gorge hooks, gaming pieces, and awls. Other artifact forms include steatite pipes and clamshell disk beads.

The Konkow Maidu tribe, also referred to as the Northwestern Maidu, is one of three linguistically related groups known as the Maidu. The Konkow Maidu traditional territory abutted that of the Mountain Maidu to the northeast and the Nisenan to the south. They occupied lands near the base of the Sierra Nevada foothills from around Chico Creek in the north, south to the Sutter Buttes along the Feather River, and included a stretch of the Sacramento River around Chico. A particularly large Konkow Maidu population was also located north and east of present-day Oroville along the North, Middle and South Forks of the Feather River.[40] Konkow Maidu settlements typically consisted of several smaller villages supported by a larger village, which served as the ceremonial and political hub for the community. Seasonal subsistence practices of the Konkow largely consisted of hunting deer in the summer (the meat dried for winter) and gathering grass seeds in the spring. Other important resources to the diet included salmon, acorns, and pine nuts. Trade networks extending north-south and east-west contributed extra-local resources to the diet and material cultural.[41]

The arrival of Europeans and Euro-Americans largely destroyed traditional Konkow Maidu practices. The introduction of diseases in the early 1800s decimated the native population. Some Konkow Maidu settled on the Nome Lackee Reservation in Tehama County in 1854, but poor conditions at the reservation caused many to return to the Oroville area. In 1863, 500 of the Konkow Maidu people were forcibly removed from the Oroville area to the Round Valley Reservation in Mendocino County. Forced to march 100 miles, many of the younger and older populations did not survive the trek. In the 1960s, the Oroville Facilities inundated one of the rancherias and many of the places the Konkow Maidu traditionally had fished.[42]

Paleontological Resources

Portions of the Lake Oroville vicinity contain the Jurassic Monte de Oro formation (known to contain paleontological resources[43]), the Chico formation, the Miocene Lovejoy basalt formation, the Tuscan formation, and a metamorphosed assemblage of Paleozoic and Mesozoic metasedimentary rocks.[44] The Monte de Oro formation, which occurs in only a few small locations in the Sierra Nevada foothills, all in the vicinity of Lake Oroville and portions of the Feather River, contains a variety of marine shells, and an abundance plant remains.[45,46] Miocene plant and vertebrate fossils (about 11 mya) have been discovered along the foothills, particularly in the central Sierra Nevada, as part of the Lovejoy formation. Such fossils typically are observed in bluffs along rivers and streams and may be present in the project areas.[47] The Chico formation also contains a high concentration of fossils, including California's first pterosaur, and the State's first Mesozoic bird, an *Ichthyornis*, a *Hesperornis*, and a neognath.[48]

7.13.2.2 Changes in Physical Setting between 1996 and 2003

The nature and types of cultural resources present generally do not change and, therefore, the environmental setting described under 1995 conditions would be the same under 2003 conditions. The cultural resource setting for Plumas County is provided below.

Plumas County

Archaeological Resources

A moderate amount of archaeological research has been conducted in Plumas County, primarily in Lassen National Forest. Work conducted at Bucks Lake and Big Meadows suggests minimal use of the area prior to ca. 4500 B.P.[49,50] Later, human use of the region increased. Sites identified in the area include villages, base camps, temporary camps, bedrock milling stations, and toolstone quarries.[51]

Northern Sierra Nevada cultural chronology includes the last 10,000 millennia, however the two earliest phases (**Walker Lake Phase** [ca. pre-10,000 B.P.] and **Tahoe Reach Phase** (ca. 10,000 – 8,000/7,500 B.P.]) is represented by only a few isolated projectile points, which suggests that during these phases groups were highly mobile. The next phase (**Spooner Phase** ca. 8,000/7,500 – 5,000 B.P.) is also poorly represented in the archaeological record for the area.

Better documentation exists for the **Early Martis Phase** (ca. 5,000 – 3,000 B.P). A high frequency of ground stone tools, presence of pit houses and storage pits, suggests extended stays in the area, with on-site activities focused on seed processing and resource storage. Projectile points forms include Martis contracting-stem, split-stem, and Steamboat forms. The **Late Martis Phase** (ca. 3,000 – 1,300 B.P.) is similar to Early Martis Phase; however, projectile point forms for the Late Martis Phase include Martis corner-notched, Elko Corner-notched, and Elko-eared forms.

The advent of bow and arrow technology occurs during the **Early Kings Beach Phase** (ca. 1,300 – 700 B.P.). Assemblages from this phase consist of Rosegate and Gunther series projectile points, small flaked stone tools, and bedrock mortars, the latter related to acron processing. The **Late Kings Beach Phase** (750 – 150 B.P.) is similar to the Early Kings Beach Phase, but Desert-series projectile points replace earlier forms.

The Northeastern Maidu tribe, also called the Mountain Maidu, is one of three groups ascribed to the Maiduan family of languages. The Northeastern Maidu typically occupied mountain meadows generally 4,000 ft amsl or higher, encompassing Lassen Peak on the northwest, south to Pilot Peak and the Sierra Buttes, and east to Snowstorm Mountain and Honey Lake. To the west, Northeastern Maidu territory abutted that of the Konkow Maidu. Permanent villages were established throughout the area, including Mountain Meadows, Big Meadows/Lake Almanor, Butte, American, Indian, Genesee, and Red Clover valleys. The Northeastern Maidu knowledge of local flora and fauna was extensive; subsistence practices included gathering of seeds and nuts, and hunting, with most resources having multiple uses.[52]

Unlike their neighbors, the Konkow Maidu, the Northeastern Maidu were much more dependent upon hunting. The arrival of Euro-Americans in Northeastern Maidu territory upset the Native Americans' subsistence practices. Some Native Americans resorted to killing settlers' livestock as a means to survive, which often led to retaliation by the settlers. Conflicts with settlers often resulted in the death of Native Americans, which, in addition to the spread of diseases, rapidly diminished the Northeastern Maidu population.[53]

Paleontological Resources

Portions of Plumas County contain the Monte de Oro and Chico formations. The Monte de Oro formation contains a variety of shells of marine animals, mostly broken, and abundant remains of a large variety of land plants and occurs in only a few small locations in the Sierra Nevada foothills.[54,55] By the beginning of the Tertiary Period, the landscape of the Sierra Nevada changed from the deep oceans to shallow, lagoon-lined sea along the foothills. Miocene plant and vertebrate fossils (about 11 mya) have been discovered along these foothills. Such fossils typically are observed in bluffs along rivers and streams and may be present in the project areas.[56] The Chico formation contains a high concentration of fossils, including California's first pterosaur, and the State's first Mesozoic bird remains, an *Ichthyornis*, a *Hesperornis*, and a neognath.[57]

7.13.2.3 Regulatory Setting between 1996 and 2003

The treatment of cultural resources is governed by federal, State, and local laws and guidelines. There are specific criteria for determining whether prehistoric and historic resources or objects, and traditional cultural sites are significant and/or protected by law. Federal and State significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. Some resources that do not meet federal significance criteria may be considered significant by State criteria. The laws and regulations seek to lessen impacts on significant prehistoric or historic resources. The federal, State, and local laws and guidelines for protecting historic resources are summarized below.

Federal

Federal laws for cultural resources are governed primarily by Section 106 of the National Historic Preservation Act of 1966 (amended 1999). The Code of Federal Regulations Title 36 includes specific information on the protection of historic resources. A historic property is defined to mean any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to

and located within such properties, as well as localities that are of traditional religious and/or cultural importance to a Native American tribe or Native Hawaiian organization.

State

Historical Resources

CEQA requires public agencies to consider the effects of proposed projects on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 of the PRC also requires agencies to determine whether a proposed project would have a significant effect on "unique archaeological resources." Section 15064.5 of the State CEQA Guidelines (California Code of Regulations [CCR] Title 14, Chapter 3) provides additional guidance on how agencies are to determine the significance of impacts on historical and archaeological resources. Pending future evaluation of cultural resources against the criteria noted below, resources will be managed as though eligible.

Section 15064.5 of the State CEQA Guidelines defines a "historical resource" as a resource that meets at least one of the following three criteria:

- A resource listed in or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (CRHR), as defined in PRC Section 5024.1 and CCR Section 4850 et seq.;
- A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resources survey meeting the requirements of PRC Section 5024.1(g) – unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

PRC Section 21084.1 and Section 15064.5 (a)(4) also acknowledge that even if a resource does not meet the above criteria, this fact shall not preclude a lead agency from determining that the resources may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

The CRHR was created in 1992 and is intended as an authoritative listing of the State's significant historical and archaeological resources (PRC Section 5024.1 and CCR Section 4852). The criteria for listing in the CRHR (codified in PRC Section 5024.1 and clarified in CCR Section 4852) are intended to serve as the definitive criteria for assessing the significance of historical resources for purposes of CEQA.

By definition, the CRHR includes the following resources:

- Listed in the NRHP;
- Formally determined eligible for listing in the NRHP;
- California Historical Landmarks beginning with #770; and
- California Points of Historical Interest beginning with those designated in January 1998.

The second category of "historical resources" under PRC Section 21084.1 includes those "deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1." Subdivision (g) of the statute provides that a resource identified as significant in a historical survey may be listed in the CRHR if the survey meets all of the following criteria:

- The survey has been or will be included in the State Historic Resources inventory;
- The survey and the survey documentation were prepared in accordance with procedures and requirements of the State Office of historic Preservation;
- The resource is evaluated and determined to have a significance rating of Category 1 to 5 on the DPR Historic Resources Inventory Form; and
- If the survey is 5 years or older at the time of its nomination for inclusion in the CRHR, the survey is updated to identify historical resources which have become eligible or ineligible due to changed circumstances, or further documentation is provided on those resources which have been demolished or altered in a manner that substantially diminished the significance of the resource.

A resource is presumed to constitute an "historical resource" if it is included in a "local register of historical resources" meeting the above criteria, unless "the preponderance of evidence demonstrates that it is not historically or culturally significant' (CCR Section 15064.5[a][2]).

In addition to assessing whether historical resources potentially affected by a proposed project are listed in the CRHR or have been identified in a survey process meeting the requirements of PRC Section 5024.1(g), lead agencies have a responsibility to evaluate resources against the CRHR criteria for eligibility before making a finding as to a proposed project's impacts on historical resources (PRC Section 21084.1; CCR Section 15064.5[a][3]). A resource shall be considered historically significant if it is significant at the local, state, or national level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be determined eligible for listing in the CRHR, it must be historically significant and retain enough of its historic character or appearance to be recognizable as a historic resource and to convey the reasons of its significance. "Integrity" is defined as the retention of the resource's physical identify that existed during its period of significance. Integrity is determined by considering the location, design, setting, materials, workmanship, feeling, and association of the resource.

Archaeological Resources

CEQA and the State CEQA Guidelines also require lead agencies to consider whether projects will affect archaeological resources (PRC Section 21083.2 and CCR Section 15064.5[c]). If an archaeological site is a historic resource meeting one of the above criteria, agencies shall follow the provisions of PRC Section 21084.1. If, however, an archaeological site does not meet these

criteria, but does meet the definition of an "unique archaeological resource" as defined in PRC Section 21083.2(g), the resource must be considered under CEQA in compliance with PRC Section 21080.1. An unique archaeological resource is defined in PRC Section 21083.1(g) as "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person."

Native American Burials

California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code Section 7050.5, California PRC Sections 5097.94 *et seq*.). Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered. These requirements have been incorporated into Section 15064.5(e) of the CEQA Guidelines.

Local

General Plans

General Plans of the various counties and cities of the State of California contain goals and policies aimed at protecting cultural resources in the region.

Kern County

The Kern County General Plan includes extensive reviews of archaeological research, history and ethnography in the county, and Native American concerns are noted (especially in regard to cemeteries). The appropriateness of using Native American monitors is indicated. The Plan notes that impacts may occur when development takes place without consideration of important resources, and it notes the prudence of using inventories and avoiding impacts to sites by various means.

Merced County

Merced County has a significant amount of historical and archaeological resources. The overall goal of the County is to recognize and manage those significant resources. Policy directions consist of recommending careful management of projects that affect resources, and limited and controlled public access to sites.

Riverside County

Riverside County has a significant amount of historical, archaeological, and paleontological resources. The sensitivity of these resources has been mapped county-wide. The General

Plan Policies are intended to ensure the preservation of cultural, historical, archaeological, paleontological, geological, and educational resources in the County.

Los Angeles County

Los Angeles County has a significant amount of historical and archaeological resources. The County is preparing to update their General Plan. The current General Plan contains goals and policies to "promote the preservation and enhancement of landmarks, sites, and areas of cultural, historical, archaeological and urban design significance."

Butte County

The Butte County General Plan has been incrementally updated with revision dates for the various sections ranging from 1971 to 2004. None of the 12 sections of the General Plan contain any goals or policies relating to cultural or paleontological resources. The County is currently planning a General Plan Update.

7.13.2.4 Changes in Regulatory Setting between 1996 and 2003

Federal

Revisions to 36 CFR 800 were made in January 2001 call for a significant increase in Native American consultation in the Section 106 process. Native American Tribes must now be consulted at all phases of work, including eligibility of prehistoric sites, which was not previously required.

State

<u>California Senate Bill 297</u>

This bill addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. It has been incorporated into Section 15064.5(e) of the State CEQA Guidelines.

There has been no significant change in regulations governing cultural resources. The regulatory setting described under 1995 conditions for southern San Joaquin Valley portion of Kern County (including the Kern Fan), Castaic Lake, Lake Perris and San Luis Reservoir is the same under 2003 conditions. The regulatory setting for Plumas County is provided below.

Local

<u>Plumas County General Plan</u>

Goals for the preservation of historical resources are established in the Plumas County General Plan. Protection and preservation of historical and prehistoric sites, structures, and objects for their scientific, educational and cultural values is required. Private owners are encouraged to preserve and rehabilitate historical buildings and to continue their use as an integral part of the community.

7.13.3 IMPACTS AND MITIGATION MEASURES

7.13-1 Reallocation of water supplies during droughts and/or permanent transfers of water could potentially affect agricultural practices, which could damage or destroy cultural and paleontological resources in the southern San Joaquin Valley portion of Kern County and Kings County.

1996 — 2003

The Southern Valley Yokuts Native American Groups occupied the southern portion of San Joaquin Valley portion of Kern and Kings counties; therefore, archaeological sites could be present. As described in the setting discussion, prehistoric sites have been recorded in the Kern Fan Element. In addition, paleontological deposits have also been identified in the southern portion of the county. Some of these deposits are exposed, while others are buried. Ground disturbance associated with agricultural activity has the potential to damage or destroy prehistoric archaeological artifacts and paleontological materials at or under the soil surface.

Agricultural activities include plowing (which disturbs the soil profile to a deeper level), discing (which disturbs the soil profile to a shallower level) and other ground-disturbing activities. The maintenance of annual crops usually involves plowing that disturbs a deeper level of the soil profile. The maintenance of permanent crops or fallow land usually involves discing for weed control that disturbs a shallower level of the soil profile. Because the reliability and availability of agricultural water supplies can affect the amount and types of crops that farmer's plant, the extent and frequency of land disturbance is also expected to vary in response to water availability. As discussed in Section 7.6, Agricultural Resources, there is no strong evidence to support a conclusion that land was taken out of irrigated production as a result of the proposed project.

Ground disturbance associated with agricultural activity could expose artifacts resulting in damage and/or destruction of potentially significant cultural and paleontological resources. However, agricultural activity existed prior to implementation of the proposed project and the land had been disturbed for a variety of agricultural uses depending on the availability of water, among other factors. Therefore, any resources present on the site would most likely have already been disturbed or destroyed. Therefore, the impact of the proposed project would be ***less than significant***.

<u>Mitigation Measures</u>

None required.

Future Impacts

As discussed in Section 7.6, Agricultural Resources, the proposed project would have little or no impact on the acreage of irrigated land in the southern San Joaquin Valley in the future. If any land was to be taken out of irrigated production it would remain in agricultural use as dry farmed or fallow land. In addition, the trend of replacing annual crops with permanent crops is expected to continue. Impacts on cultural and paleontological resources would be similar to those described above for the period 1995 through 2003 (see Impact 7.13-1, 1996 — 2003 discussion).

Ground disturbance associated with agricultural activity could expose artifacts resulting in damage and/or destruction of potentially significant cultural and paleontological resources. Prior to implementation of the proposed project the land was disturbed for a variety of agricultural uses depending on the availability of water, among other factors. Any resources present on the site would most likely have been disturbed or destroyed when agricultural practices began in the area. Therefore, the impact of the proposed project would be ***less than significant***.

Mitigation Measures

None required.

7.13-2 Groundwater banks developed or expanded in response to opportunities to store groundwater outside service areas under Article 56 could potentially damage or destroy cultural and paleontological resources in the southern San Joaquin Valley portion of Kern County (excluding the Kern Fan Element).

1996 — 2003

The Monterey Amendment provides prior Department approval for SWP contractors to store water outside their service areas for later use within their service areas. To take advantage of this, several urban contractors entered into agreements with water agencies in the southern San Joaquin Valley to temporarily store SWP water in groundwater banks. Between 1995 and 2003, Semitropic WSD, and Arvin-Edison WSD developed or expanded water banks.

The water banking program developed by Semitropic WSD involved the construction of a pipeline connecting the District's service area to the California Aqueduct. Arvin-Edison's water banking program involved the construction of 520 acres of percolation ponds at two sites referred to as the North Canal Spreading Works and the South Canal Spreading Works. Vacant land or cropland was converted to percolation ponds by the construction of one or two-foot high perimeter levees.[58] Grading was required to construct the percolation ponds. The Semitropic WSD facility was built prior to the Monterey Amendment.

In 2002 the Kern Delta WD prepared an EIR for their Water Banking and In-Lieu Water Supply Project. This project involved the construction of new facilities including groundwater recharge basins, pipelines/canals and associated facilities to deliver supplies from the California Aqueduct to Kern Delta and the Arvin-Edison Canal, a pipeline to convey surface supplies to farmers in the eastern side of Kern Delta as part of an in-lieu banking program, and an extraction well field to recover stored groundwater and covey supplies back to the California Aqueduct. These new facilities were integrated into the existing water supply management system.

Prehistoric sites were identified in both the Semitropic and Arvin-Edison project areas. Two prehistoric sites and nine isolated artifacts were identified along the Semitropic project proposed pipeline alignments.[59] Known cultural resource sites are also located in the Arvin-Edison service area; however, these sites were identified as outside of the project impact area.[60] Archaeological and paleontological deposits have also been identified in the southern portion of the county. Some of these deposits are exposed while others are buried. Ground disturbance involved with the installation of these facilities could have resulted in the damage and/or destruction of cultural resources.

CEQA documents for both the Semitropic and Arvin-Edison included mitigation measures designed to protect identified and previously unidentified archaeological and paleontological resources during construction. The Arvin-Edison Management Project Negative Declaration included mitigation that if previously unidentified paleontolgical resources were discovered during construction activities that work would cease and a qualified paleontologist would examine the discovery and make recommendations for appropriate data recovery.[61] Construction of the Semitropic project had the potential to adversely affect cultural and paleontological resources, but mitigation measures were implemented to reduce impacts to a less-than-significant level. No significant resources were found during either project. Therefore, the proposed project is considered to have had a ***less-than-significant impact***.

Mitigation Measures

None required.

Future Impacts

The Kern Delta WD identified the potential for cultural resources to be adversely affected as a result of implementation of the Kern Delta WD Water Banking and In-Lieu Water Supply Project in the future.[62] The Final EIR (State Clearinghouse #20001011103) evaluated the potential for such resources to be damaged and/or destroyed. Mitigation measures included development and implementation of a Cultural Resources Treatment Plan to ensure that if previously unidentified archaeological resources were discovered during construction activities, that work would cease and a qualified archaeologist would examine the discovery and make recommendations for appropriate data recovery. With implementation of the mitigation measures, the impact would be reduced to a level of less than significant with the exception of discovering Native American human remains. The EIR concluded that any disturbance of Native American human remains would result in a potentially significant and unavoidable impact.

As noted above in the 1996 — 2003 discussion, the Monterey Amendment facilitates SWP contractors to store water outside their service areas for later use within their service areas. Between 1996 and 2003, several contractors began storing water in groundwater banks in the southern San Joaquin Valley. It is expected that in the future, contractors would increase their use of groundwater banks. If future increased groundwater banking involved active recharge, then new percolation ponds would be built. It is expected that an additional 500 acres of ponds would be developed as part of other groundwater storage facilities in Kern County. Grading would be required to construct the percolation ponds that could expose identified and/or previously unidentified cultural and paleontological resources to damage and/or destruction. As described under the Impact 7.13-2, 1996 — 2003 discussion, such resources have been identified in the project area. Therefore, the construction of additional percolation ponds could result in a *potentially significant impact*.

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts to cultural and paleontological resources in the southern San Joaquin Valley portion of Kern County and Kings County. However, because the Department does not have jurisdiction over local land use decisions in Kern County, impacts would be ***potentially significant and unavoidable***.

7.13-2 a) *An analysis to identify the potential presence of archaeological resources on the project site shall be conducted. The analysis shall include, at a minimum, a records check and literature survey from the appropriate California Historic Resources Information System (CHRIS) center and a Phase I Cultural Resources Investigation by an archaeologist listed on the Register of Professional Archaeologists (RPA). If resources are known to exist on a project site, the analysis shall include an assessment of the resource and shall include measures for the in-situ protection, or the recovery, preservation, study, and curation of the resource, as appropriate. The analysis and the measures developed shall be consistent with the practices and intent described in Section 21083.2 et seq. of the Public Resources Code, as well as Sections 15064.5 et seq. and 15126.4(b) of the California Code of Regulations, and shall be consistent with current professional archaeological standards.*

The archaeologist shall prepare a report of the results of any study prepared, following accepted professional practice. Copies of the report shall be submitted to the Lead Agency and to the appropriate CHRIS information center.

The Lead Agency shall also consult, as appropriate, with the Native American Heritage Commission and appropriate Native American tribal representatives to address Native American cultural values with respect to archaeological contexts.

Implementation of Mitigation Measure 7.13-2(a) would reduce potentially significant impacts on archaeological resources to a less-than-significant level by requiring identification of known or suspected archaeological resources and requiring the analysis, protection, or scientific recovery and evaluation of any archaeological resources that could be encountered, which would ensure that important scientific information that could be provided by these resources regarding history or prehistory is not lost.

7.13-2 b) *An analysis to identify the potential presence of paleontological resources on the project site shall be conducted. If resources are known to exist on a project site, the analysis shall include an assessment of the resource and shall include measures for the in-situ protection or recovery, preservation, study, and curation of the resource, as appropriate. The analysis and measures developed shall be consistent with the practices and intent described in the Conformable Impact Mitigation Guidelines developed by the Society of Vertebrate Paleontology (News Bulletin No. 163, 1995) and shall be consistent with current professional paleontological standards.*

Implementation of Mitigation Measure 7.13-2(b) would reduce potentially significant impacts on paleontological resources to a less-than-significant level by requiring identification of known or suspected resources and requiring the analysis, protection, or scientific recovery and evaluation of any paleontological resources that could be encountered, which would ensure that important scientific information that could be provided by these resources regarding the past is not lost.

7.13-2 c) *In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately, the area of the find shall be protected, and the Lead Agency immediately shall notify the County Coroner of the find and comply with the provisions of PRC Section 5097 with respect to Native American involvement, burial treatment, and re-burial, if necessary.*

Implementation of Mitigation Measure 7.13-2(c) would reduce this potentially significant impact to a less-than-significant level by ensuring appropriate examination, treatment, and protection of human remains, consistent with the applicable provisions of State law.

7.13-3 Transfer of land in the Kern Fan Element to the Kern County WA could potentially result in damage and/or destruction of cultural and paleontological resources in the Kern Fan Element as a result of development of groundwater banks.

1996 — 2003

In 1995, the Kern Water Bank Authority (KWBA) constructed approximately 3,034 acres of shallow recharge ponds in the Kern Fan Element. From 1998 through 2003, KWBA constructed an additional 4,080 acres of recharge ponds, for a total of 7,114 acres in 2003, in the Kern Fan Element. The KWBA also constructed the Kern Water Bank (KWB) Canal, and a six-mile long earthen canal extending from the Kern River to the California Aqueduct.[63]

As previously noted in the Impact 7.13-1, prehistoric sites have been recorded in the Kern Fan Element, and paleontological deposits have been identified in the southern portion of the county. Some of these deposits are exposed while others are underground. Ground disturbance associated with the construction of groundwater storage facilities could expose paleontological resources. Prior to construction, archaeological investigations were completed in the Kern Fan Element and for the KWB Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP). Some of these investigations recorded significant archaeological sites at or near the Kern Fan Element project area.[64] Mitigation measures were also adopted to ensure that if previously unidentified archaeological resources were discovered during construction activities, that work would cease and a qualified archaeologist would examine the discovery and make recommendations for appropriate data recovery. Therefore, the proposed project is considered to have had a ***less-than-significant impact***.

<u>Mitigation Measures</u>

None required.

Future Impacts

As noted in the discussion above for 1996 – 2003, above, through 2003 the KWBA built approximately 7,114 acres of groundwater storage facilities (4,699 acres in the Recharge Sector and 2,415 within the Farming Sector). Under the proposed project, it is expected that the KWBA would construct an additional 1,200 acres of percolation ponds.

The HCP for the Kern Fan Element allows developed uses on about 4,000 acres of the Kern Fan Element.[65] Developed uses include farming, permanent facilities for the KWB and commerce. Approximately, 490 acres is designated for possible commercial use. Between 1996 and 2003, no development occurred on the 490-acre parcel. The Settlement Agreement prohibits development of this parcel, so under the proposed project the parcel would remain undeveloped.

As a consequence of the proposed project, approximately 1,200 acres of land would be converted to percolation ponds. Construction of percolation ponds and associated levees could

expose cultural and paleontological resources to damage and/or destruction. As in the discussion for 1996 – 2003, such resources have been identified in the project area. Therefore, the conversion of an additional approximately 1,200 acres of land to percolation ponds could result in a *potentially significant impact*.

Mitigation Measures

Impacts to cultural and paleontologic resources at the Kern Fan Element would be reduced to ***less-than-significant*** through the following mitigation measures currently implemented by the KWBA. These measures were outlined in the Initial Study and Addendum to the Monterey Amendment EIR of the KWBA, KWB HCP/NCCP. Under the Settlement Agreement, the parties recognize that the Addendum has been completed and agree not to challenge the mitigation measures (Settlement Agreement, III.F). The following mitigation measures have and will continue to be implemented as provided in the Addendum:

7.13-3 a) *Prior to any ground-disturbing work on the KWB, anthropologists or other qualified individuals shall engage in pedestrian surveys of the areas to be impacted, with the survey reconnaissance to be at 5- to 15-meter transects.*

b) *Any cultural resources found during the survey process will be recorded, mapped, evaluated, and mitigated prior to the ground-disturbing activity, pursuant to Section 106 of the National Historic Preservation Act.*

c) *The eight recorded archeological sites on the KWB will be evaluated and mitigated pursuant to Section 106*.

d) *If any human remains are found at any time on the KWB, work will be halted in the area of the discovery, and the Kern County coroner will be notified.*

7.13-4 Water supply management practices that provide greater flexibility in the location, frequency, and the amount of water stored and/or borrowed at Castaic Lake and Lake Perris could potentially expose cultural and paleontological resources to damage and/or destruction.

1996 — 2003

Article 54 of the Monterey Amendment allows SWP contractors to borrow water from Castaic Lake and Lake Perris under certain conditions which could affect water surface elevations in these reservoirs.

Borrowing of water from Castaic Lake and Lake Perris between 1996 and 2003 led to reduced cycling and increased water surface elevations after 1995. Although borrowing by contractors reduced water surface elevations in the reservoirs at times, the Department's establishment of limits on drawdown, except during emergencies or borrowing by contractors, and a series of wet years, led to an increase in average water surface elevations. As described in Section 7.1, Surface Water Hydrology, Water Quality, and Water Supply, the average water surface elevations at Castaic Lake and Lake Perris were actually higher between 1996 and 2003 than in the pre-Monterey Amendment period before 1995. The average water surface elevation at Castaic Lake from 1996 to 2003 was about 20 ft higher than between 1974 and 1995. At Lake Perris, the average surface water elevation was about four ft higher during the same time period. The higher water surface elevations in the period 1996 to 2003 resulted in a reduction in

the width of exposed area around the perimeter of the two reservoirs, which reduced the potential for cultural or paleontological resources to be subject to damage.

Archaeological and paleontological resources could have been inundated when the reservoirs were filled. As described in the setting, sensitive archaeological and paleontological resources could exist in the vicinity of Castaic Lake and Lake Perris. Impacts on archaeological and paleontological resources can occur as a result of lower water levels, which can expose resources that are normally submerged to increased risks of wind erosion or inadvertent or deliberate human disturbance. However, as described above, water levels in the reservoirs were actually higher most of the time between 1996 and 2003. Therefore, the potential for exposing any cultural and/or paleontological resources around Castaic Lake and Lake Perris to damage and/or destruction were ***less than significant*** between 1996 and 2003.

Mitigation Measures

None required.

Future Impacts

Article 54 of the Monterey Amendment allows SWP contractors to borrow water from Castaic Lake and Lake Perris under certain conditions which could affect water levels in these reservoirs. Castaic Lake WA, MWDSC and Ventura County WA, would borrow SWP water from Castaic Lake when it is to their advantage to do so. Similarly, MWDSC would borrow water from Lake Perris. Most of the time, future borrowing of water would result in a reduction of water surface elevations at the two reservoirs at certain times, but the time between maximum fluctuations would be no more frequent or greater than prior to the Monterey Amendment. However, the effects of borrowing of water on water surface elevations in the two reservoirs in the future will depend on the extent to which the eligible contractors make use of Article 54 and future hydrologic conditions. It is likely that future borrowing could drawdown Castaic Lake and Lake Perris to half their maximum capacities; a greater extent than occurred historically. This could increase the exposed area around the perimeter of the two reservoirs and increase the potential for known and/or unknown cultural or paleontological resources to be subject to damage more than what would have occurred in the absence of the project.

As identified in the setting, six prehistoric sites are located within Castaic Lake. Of these recorded sites, two are located above the maximum reservoir pool and the other four are located below the minimum pool. Therefore, none of the known recorded sites would be exposed under Article 54 drawdown conditions. At Lake Perris, the one recorded site could be exposed under Article 54 drawdown conditions. Even though no recorded sites could be exposed at Castaic Lake, the potential exists for one known and/or unknown cultural or paleontological resources to be exposed to risk of damage and/or destruction if Article 54 drawdown is implemented. Therefore, impacts to cultural and paleontological resources associated with lower water surface elevations at Castaic Lake and Lake Perris would be *potentially significant.*

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts to cultural and paleontological resources at Castaic Lake and Lake Perris to a ***less-than-significant level***.

7.13-4 *Implement Mitigation Measures 7.13-2(a) through (c).*

7.13-5 Water supply management practices that provide greater flexibility in the location, frequency, and amount of water stored and/or borrowed at Lake Oroville and San Luis Reservoir could potentially expose cultural and paleontological resources to damage and/or destruction.

1996 — 2003

Various provisions of the Monterey Amendment affect water surface elevations in San Luis reservoir. Water surface elevation in Lake Oroville would not be affected by the proposed project.

Most of the time the proposed project would raise water levels in San Luis Reservoir by 10 to 20 ft under 2003 conditions. The fluctuation of water levels in the reservoir is common and generally a result of normal operations of the facilities. The fluctuation can be linked to many factors including increased rain fall for the year, changes in water supply management practices, an increase need for contractors to store water, etc. Higher water surface elevations in the period 1995 to 2003 resulted in a reduction in the width of the band of exposed soil around the perimeter of the reservoirs. The higher water surface elevations are probably attributable to storage of water by contractors, but they may also be attributable to other factors.

Occasionally, the Article 56 Provisions of the Monterey Amendment would result in a reduction in water surface elevation in San Luis Reservoir in the spring of wet years relative to the Baseline scenario. Surface water levels could be reduced by up to 50 ft but the reduction would typically persist for only a few months and would not affect cultural resources.

Archaeological and paleontological resources could have been inundated when the reservoirs were filled. As described in the setting, sensitive archaeological and paleontological resources could exist in the vicinity of Lake Oroville and San Luis Reservoir. Impacts on archaeological and paleontological resources can occur as a result of lower water levels, which can expose resources that are normally submerged to increased risks of wind erosion, or inadvertent or deliberate human disturbance. Between 1995 and 2003 there were instances when reductions in water levels occurred in the San Luis Reservoir; however, cultural resources would not have been affected. The potential for exposing any cultural and/or paleontological resources around Lake Oroville and San Luis Reservoir to damage and/or destruction were ***less than significant*** between 1996 and 2003.

<u>Mitigation Measures</u>

None required.

Future Impacts

Various other provisions of the Monterey Amendment could affect water levels in San Luis Reservoir. Most of the time the proposed project would raise water levels in San Luis Reservoir by 10 to 20 ft under 2003 conditions. Occasionally, the Article 56 provisions of the Monterey Amendment would result in a reduction in water surface elevation in San Luis Reservoir in the spring of wet years relative to the baseline scenario. Surface water levels could be reduced by up to 50 ft but the reduction would typically persist for only a few months and would not be expected to affect erosion rates. Therefore, the potential for exposing any cultural and/or

paleontological resources around Lake Oroville and San Luis Reservoir to damage and/or destruction would be ***less than significant***.

Mitigation Measures

None required.

7.13-6 Implementation of the proposed project and its alternatives could result in potential damage and/or destruction of cultural and paleontological resources in Plumas County as a result of watershed improvement projects.

1996 — 2003

Because the Settlement Agreement was not completed in this period, there were no watershed improvement projects as a result of the proposed project and there was ***no impact***.

Future Impacts

The Settlement Agreement provides funds to Plumas County to establish a watershed forum and implement watershed improvement projects. The watershed forum would identify opportunities for watershed improvements and would oversee the implementation of individual projects. Watershed improvement projects take many forms but most involve actions to prevent erosion and restore wildlife habitat along streams and rivers. In general, projects of this type improve stream banks and native vegetation by returning them to a more natural condition.

As described above under Environmental Setting, portions of Plumas County were occupied in prehistoric and historic times by several Native American groups, and many of these areas have not been surveyed for cultural resources. Much of the proposed restoration and stabilization work would occur in or near stream channels, which tended to be common areas for Native American settlement, as well as for gathering riparian plant materials, fishing, or conducting ceremonial activities. Evidence of these activities (i.e., archaeological sites), as well as the historically or culturally significant sites themselves, is likely to be present. Consequently, to the extent that construction activities could result in ground disturbance (grading or excavation for bank stabilization, ground disturbance for soil enrichment or planting), archaeological resources, including human burials, which could be present in these areas, could be damaged or destroyed.

Portions of Plumas County, particularly near Lake Oroville and the Feather River, are underlain by the Monte de Oro rock formation, which contains a variety of fossils that chronicle landscape changes in the Sierra Nevada foothills in the Mesozoic and Paleozoic Periods. Tertiary plant and vertebrate fossils have been observed in bluffs along rivers and streams and may also be present along the Feather River. Proposed restoration and stabilization work would occur in or near stream channels, which are locations in which fossils have been observed. And, as described above, restoration and bank stabilization activities could result in ground disturbance (grading or excavation for bank stabilization, ground disturbance for soil enrichment or planting), and paleontological resources that could be present in areas where restoration work is proposed could be damaged or destroyed.

The number and size of watershed improvement projects that would result from the proposed project are relatively small. The projects would be expected to improve conditions along a few miles of streambank in a county with thousands of miles of stream channels. Nevertheless,

implementation of proposed watershed improvement projects could result in the potential to damage or destroy cultural and paleontological resources, and this is considered a *potentially significant impact*.

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts to cultural and paleontological resources as a result of implementation of watershed management projects in Plumas County. However, the Department has no jurisdiction over Plumas County projects or mitigations and this impact would be ***potentially significant and unavoidable***.

7.13-6 *Implement Mitigation Measures 7.13-2(a) through (c).*

ENDNOTES

1. Riddell, Francis A. and William E. Pritchard, "An Early Man Site in the San Joaquin Valley, California, *American Antiquity* 34(2):1 pages 21-130, 1969.

2. Fredrickson, David A. and Joel Grossman, *Radiocarbon Dating of an Early Site at Buena Vista Lake, California*, Paper presented at the Annual meeting of the Society for American Archaeology, Reno, Nevada, 1966.

3. Hartzell, Leslie, *Hunter-gatherer Adaptive Strategies and Lacustrine Environments in the Buena Vista Lake Basin, Kern County, California*, Unpublished dissertation, University of California, Davis, 1992.

4. Erlandson, Jon M., "The Middle Holocene along the California Coast". In Jeanne E. Arnold, ed., *Archaeology of the California Coast During the Middle Holocene*, pages 1-10. Los Angeles: Regents of the University of California, 1997.

5. Fredrickson, David A. and Joel Grossman, *Radiocarbon Dating of an Early Site at Buena Vista Lake, California,* Paper presented at the Annual meeting of the Society for American Archaeology, Reno, Nevada, 1966.

6. King, Chester, *Evolution of Chumash Society*, New York: Garland Publishing, 1990.

7. Hartzell, Leslie, *Hunter-gatherer Adaptive Strategies and Lacustrine Environments in the Buena Vista Lake Basin, Kern County, California,* Unpublished dissertation, University of California, Davis, 1992.

8. Hartzell, Leslie, *Hunter-gatherer Adaptive Strategies and Lacustrine Environments in the Buena Vista Lake Basin, Kern County, California,* Unpublished dissertation, University of California, Davis, 1992.

9. Moratto, Michael J., *California Archaeology*, Orlando, Florida: Academic Press, 1984.

10. Wallace, William J., "Southern Valley Yokuts." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, pages 448-461, Washington DC: Smithsonian Institution, 1978.

11. Wallace, William J., "Southern Valley Yokuts." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, pages 448-461, Washington DC: Smithsonian Institution, 1978.

12. Hilton, Richard P., 2003. *Dinosaurs and Other Mesozoic Reptiles of California*. Berkeley: University of California Press.

13. Buena Vista Museum of Natural History (BVMNH), 2003, *Sharktooth Hill*. URL: http://sharktoothhill.com/sharktooth/htm. Last accessed 1/28/2004.

14. Woodring, W.P., Ralph Stewart and R.W. Richards, United States Geological Survey, *Professional Paper 195: Geology of the Kettleman Hills Oil Field,* 1940.

15. University of California, Berkeley Museum of Paleontology, UCMP Locality Search, http://bscit.berkeley.edu/ucmp/loc.shtml, Accessed June 15, 2006.

16. Jones, Terry, 1992 "Settlement Trends Along the California Coast." In Terry Jones, ed., *Essays on the Prehistory of Maritime California* pages 1-38. Davis, California, University of California Davis.

17. King, Chester, and Thomas C. Blackburn, 1978, "Tataviam." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California Washington DC: Smithsonian Institution.

17. King, Chester, and Thomas C. Blackburn, 1978, "Tataviam." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California Washington DC: Smithsonian Institution.

19. Los Angeles County, Department of Regional Planning, March 1979, *Final Environmental Impact Report for the Los Angeles County Proposed General Plan*.

20. Riverside County, October 7, 2003, *Riverside County Integrated Plan*.

21. Offerman, Janis, Personal communication, 2007.

22. Offerman, Janis, Personal communication, 2007.

23. Offerman, Janis, Personal communication, 2007.

24. Wallace, W.J., 1955, Prehistoric Cultural Development in the Southern California Deserts. *American Antquity* 28(2): pages 172-180.

25. Warren, C.N., 1966, *The San Dieguito Type Site: M. J. Rogers' 1938 Excavations on the San Dieguito River.* San Diego: San iego Museum papers N0. 5.

26. Warren, C.N., 1967, The San Dieguito Complex: A Review and Hypothesis. *American Antiquity* 32(2): pages 168-185.

27. Koerper, H.C., and C. E. Drover, 1983, Chronology Building for Coastal Orange County: The Case from CA-ORA-119-A. *Pacific Coast Archaeological Society Quarterly* 19(2): pages 1-34.

28. Mason, R.D., and M.L. Peterson, 1994, *Newport Coast Archaeological Projects: Newport Coast Settlement Systems, Analysis and Discussion.* The Kieth Companies, Costa Mesa.

29. Bean, Lowell John, 1978, "Cahuilla". In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, pages 289-305. Washington DC: Smithsonian Institution.

30. Bean, Lowell John, 1978, "Cahuilla". In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, pages 289-305. Washington DC: Smithsonian Institution.

31. Riverside County, October 7, 2003, *Riverside County Integrated Plan*, pages 4.7-11 – 4.7-19, Figure 4.7-2.

32. Riverside County, October 7, 2003, *Riverside County Integrated Plan*, pages 4.7-11 – 4.7-19, Figure 4.7-2.

33. Morratto, Michael J., 2004. *California Archaeology*. Reprint Coyote Press. Salinas, California.

34. Wallace, William J. 1978, "Northern Valley Yokuts." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, pages 462-470. Washington DC: Smithsonian Institution.

35. Wallace, William J. 1978, "Northern Valley Yokuts." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, pages 462-470. Washington DC: Smithsonian Institution.

36. Hilton, Richard P., 2003. *Dinosaurs and Other Mesozoic Reptiles of California*. Berkeley: University of California Press.

37. Serverston, Mark D., Margaret J. Markwyn, and Mark Walker, 2005. *Archaeological and Historical Resources Inventory Report, Oroville Facilities Relicensing FERC Project No. 2100*. Report on file with the California Department of Water Resources.

38. Serverston, Mark D., Margaret J. Markwyn, and Mark Walker, 2005. *Archaeological and Historical Resources Inventory Report, Oroville Facilities Relicensing FERC Project No. 2100*. Report on file with the California Department of Water Resources.

39. Serverston, Mark D., Margaret J. Markwyn, and Mark Walker, 2005. *Archaeological and Historical Resources Inventory Report, Oroville Facilities Relicensing FERC Project No. 2100*. Report on file with the California Department of Water Resources.

40. Riddell, Francis A., 1978, "Maidu and Konkow." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, Washington DC: Smithsonian Institution.

41. Riddell, Francis A., 1978, "Maidu and Konkow." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, Washington DC: Smithsonian Institution.

42. Riddell, Francis A., 1978, "Maidu and Konkow." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, Washington DC: Smithsonian Institution.

43. Hanson, C. Bruce. *Paleontologic Resources in the Vicinity of FERC Project. 2100 (Oroville Reservoir and Lower Feather River): Literature-based Inventory and Significance Assessment.* Report on file with the California Department of Water Resources, 2005.

44. Hanson, C. Bruce. *Paleontologic Resources in the Vicinity of FERC Project. 2100 (Oroville Reservoir and Lower Feather River): Literature-based Inventory and*

Significance Assessment. Report on file with the California Department of Water Resources, 2005.

45. Durrell, Cordel, *Geology of Northern California*, 1992.

46. California Department of Conservation, Division of Mines and Geology (CDMG), *Draft Guidelines: Liquefaction Hazard Zones*. Sacramento, California: CDMG, 1992.

47. Hill, Mary, *Geology of the Sierra Nevada*, University of California Press, Berkeley, California, 1975.

48. Hanson, C. Bruce. *Paleontologic Resources in the Vicinity of FERC Project. 2100 (Oroville Reservoir and Lower Feather River): Literature-based Inventory and Significance Assessment.* Report on file with the California Department of Water Resources, 2005.

49. Greenway, G. *An evaluation of Archaeological Sites CA-PLU-253, 603, 604, 605, 606, 607,620, CA-THE-1360 and CA-THE-1433/CA-PLU-619*. Lassen National Forest, 1985.

50. Kowta, M. *The Archaeology and Prehistory of Plumas and Butte Counties, California: An Introduction and Interpretive Model*. California State University, Chico, 1988.

51. Kowta, M. *The Archaeology and Prehistory of Plumas and Butte Counties, California: An Introduction and Interpretive Model*. California State University, Chico, 1988.

52. Riddell, Francis A., "Maidu and Konkow." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, Washington DC: Smithsonian Institution, 1978.

53. Riddell, Francis A., "Maidu and Konkow." In Robert F. Heizer, ed., *Handbook of North American Indians*, Vol. 8, California, Washington DC: Smithsonian Institution, 1978.

54. Durrell, Cordel, *Geology of Northern California*, 1992.

55. California Department of Conservation, Division of Mines and Geology (CDMG), *Draft Guidelines: Liquefaction Hazard Zones*. Sacramento, California, 1992.

56. Hill, Mary, *Geology of the Sierra Nevada*, University of California Press, Berkeley, California, 1975.

57. Hanson, C. Bruce. *Paleontologic Resources in the Vicinity of FERC Project. 2100 (Oroville Reservoir and Lower Feather River): Literature-based Inventory and Significance Assessment.* Report on file with the California Department of Water Resources, 2005.

58. Arvin-Edison Water Storage District, , *Arvin-Edison Water Management Project Negative Declaration* May 1996.

59. Semitropic Water Storage District, *Stored Water Recovery Unit Supplemental Environmental Impact Report*, pages 5-49 and 5-50, 1999.

60. Arvin-Edison Water Storage District, *Arvin-Edison Water Management Project Negative Declaration,* page 3-15, May 1996.

61. Arvin-Edison Water Storage District, *Arvin-Edison Water Management Project Negative Declaration,* page 3-15, May 1996.

62. Kern Delta Water District, *Kern Delta Water District Water Banking and In-Lieu Water Supply Project Final EIR,* pages 5-59 through 5-61, November 2002.

63. Jonathon Parker, Kern Water Bank Authority, personal communication with John Davis, EIP team, October 2003.

64. Kern Water Bank Authority, *Kern Water Bank Habitat Conservation Plan/Natural Community Conservation Plan,* Volume II, Environmental Assessment, pages 52 and 53, October 1997.

65. Kern Water Bank Authority, *Kern Water Bank Habitat Conservation Plan/Natural Community Conservation Plan*, October 1997.