

# **Appendix 22A      Cultural Resources**

## **Appendix 22A      Cultural Resources**

This appendix presents the Project's comprehensive environmental and cultural setting as presented in the report prepared by White et al. (2009). The report includes the environmental context that identifies the study area's flora, fauna, and geology relevant to cultural studies; the ethnographic context that describes the historical record pertaining to Native American ethnography in the study area, such as records of villages, homes, and ceremonies; the archaeological context that identifies and describes the archaeological models that characterize the study area's early Native American history, including chronology from the terminal Pleistocene era to European contact, and regional cultures that are expressed through archaeological data; and the historical context that describes the post-Contact era and includes 19th- and 20th-century historical themes that characterize the study area's post-Contact history, including colonial settlement, ranching and agriculture, county and city histories including the town of Sites, and regional transportation development.

# ARCHAEOLOGICAL OVERVIEW, INVENTORY REPORT, AND RESEARCH DESIGN, PROPOSED SITES RESERVOIR APE, COLUSA AND GLENN COUNTIES, CALIFORNIA

*Prepared by:*

Gregory G. White, Ph.D.  
Jarith Kraft, M.A.  
Kathleen Hillman, B.A.  
Archaeological Research Program  
California State University, Chico

*with contributions by:*

Lisa D. Westwood, M.A.  
Alex DeGeorgey, M.A.  
Erik Henderson, B.A.  
Kristina Crawford, B.A.  
Melinda Pacheco, B.A.  
Archaeological Research Program  
California State University, Chico

*Prepared for:*

Department of Water Resources  
Northern District  
2440 Main Street  
Red Bluff, CA 96080

California State University, Chico  
Archaeological Research Program  
*Reports No. 55*

August 2009



ARCHAEOLOGICAL OVERVIEW, INVENTORY REPORT, AND  
RESEARCH DESIGN, PROPOSED SITES RESERVOIR APE,  
COLUSA AND GLENN COUNTIES, CALIFORNIA

*Prepared by:*

Gregory G. White, Ph.D.  
Jarith Kraft, M.A.  
Kathleen Hillman, B.A.  
Archaeological Research Program  
California State University, Chico

*with contributions by:*

Lisa D. Westwood, M.A.  
Alex DeGeorgey, M.A.  
Erik Henderson, B.A.  
Kristina Crawford, B.A.  
Erin Dwyer, M.A.  
Melinda Pacheco, B.A.  
Archaeological Research Program  
California State University, Chico

*Prepared for:*

California Department of Water Resources  
Northern District  
2440 Main Street  
Red Bluff, CA 96080

California State University, Chico  
Archaeological Research Program  
*Reports No. 55*

August 2009

## ENVIRONMENTAL AND CULTURAL CONTEXT

The proposed Sites Reservoir resides in the foothills at the interface between the broad basin of the Sacramento Valley and the rugged east slope of the North Coast Ranges. This region, contained in western Colusa and Glenn counties has long been known in local lexicon as the “Westside”—west side of the valley and west of the Sacramento River—an appellation which we adopt here to describe the Project Area’s distinct climate, topography, and cultural and natural history. The section provides a summary of the Westside’s natural environment, including flora, fauna, and physical attributes, focusing on conditions that existed before the modern era. The presentation then turns to the Westside’s cultural context, including ethnographic Native American cultures, regional prehistoric patterns and cultures, and the broad outlines of Westside history.

### FLORA

Westside ecological communities are structured by the region’s underlying geomorphic structure, with washboard-like north-south trending ridges that get progressively higher and steeper to the crest zone 20 miles west of Sites (Figure 2). Project Area vegetation types are controlled by interrelationships between elevation, temperature, moisture, and soil, creating environmental gradients and distinctive vegetation communities. Four vegetation communities dominate the Westside: (1) California prairie, (2) blue oak woodland, (3) chamise-dominated chaparral, and (4) riparian woodland. Generally, these four habitats sort themselves on the landscape laterally from the valley floor to the foothills and co-associate with changes in landform and soil type.

#### *California Prairie*

Annual grasslands constitute approximately 85 percent of the proposed Sites Reservoir footprint, occurring primarily below 100 to 300 meters in elevation. These grasslands dominate the valley floor and the broad, flat to gently sloping alluvial fans and Tertiary terraces connecting the foothills and floodplains. Currently, the grasslands are dominated by introduced species, including foxtail (*Hordeum leporinum*), star thistle (*Centaurea solstitialis*), wild oats (*Avena fatua*), annual blue grass (*Poa annua*), tarweed (*Hemizonia congesta*), and clover (*Trifolium* spp.) (Crampton 1974).

Prior to 1850, annual grasslands covered all well drained areas of the Great Central Valley, as well as the larger valleys of the Coast Ranges. After 1850, heavy stock grazing, agricultural development, clearing, and the introduction of many invasive plant species resulted in a rapid loss of native grassland species. Today, less than one percent of the region’s annual grassland areas are considered pristine. Owing to the likely prehistoric persistence of soil and drainage conditions, we can assume that the current distribution of annual grasslands in the Project Area mirrors the prehistoric distribution, although widespread single trees or occasional large, closed stands of valley oak or blue oak were probably cleared by farming and ranching interests in the historic period. In the native grasslands, shallow soils, broad exposure, a deep water table, and the long dry season probably combined in different ways to influence the type, density, and succession of species. Based on historical research and analysis of modern stands (Burcham 1981; Crosby 1986; Heady 1988; Schoenherr 1992), we can assume that the dominant bunch grasses in Antelope Valley probably included needle grass (*Stipa pulchra*) and nodding needlegrass (*Stipa cernva*). Common perennial and annual grasses probably included California oatgrass (*Danthonia californica*), tufted hairgrass (*Dechampsia caespitosa*), three-awn (*Aristida* sp.), hairgrass (*Deschampsia danthonoides*), western and Idaho fescues (*Festuca occidentaus*, *F. idahoensis*, *F. megalura*, and *F. pacifica*), Pacific reedgrass (*Calamagrostis nuthaensis*), rye (*Elymus glaucus* and *E. triteoides*), junegrass (*Koeleria cristata*), melicgrass (*Melica californica* and *M. imperfecta*), and bluegrass (*Poa scabrella*). Common forbs probably included brodiaea (*Brodiaea* sp.), buttercup (*Ranunculus occidentalis* and *R.*

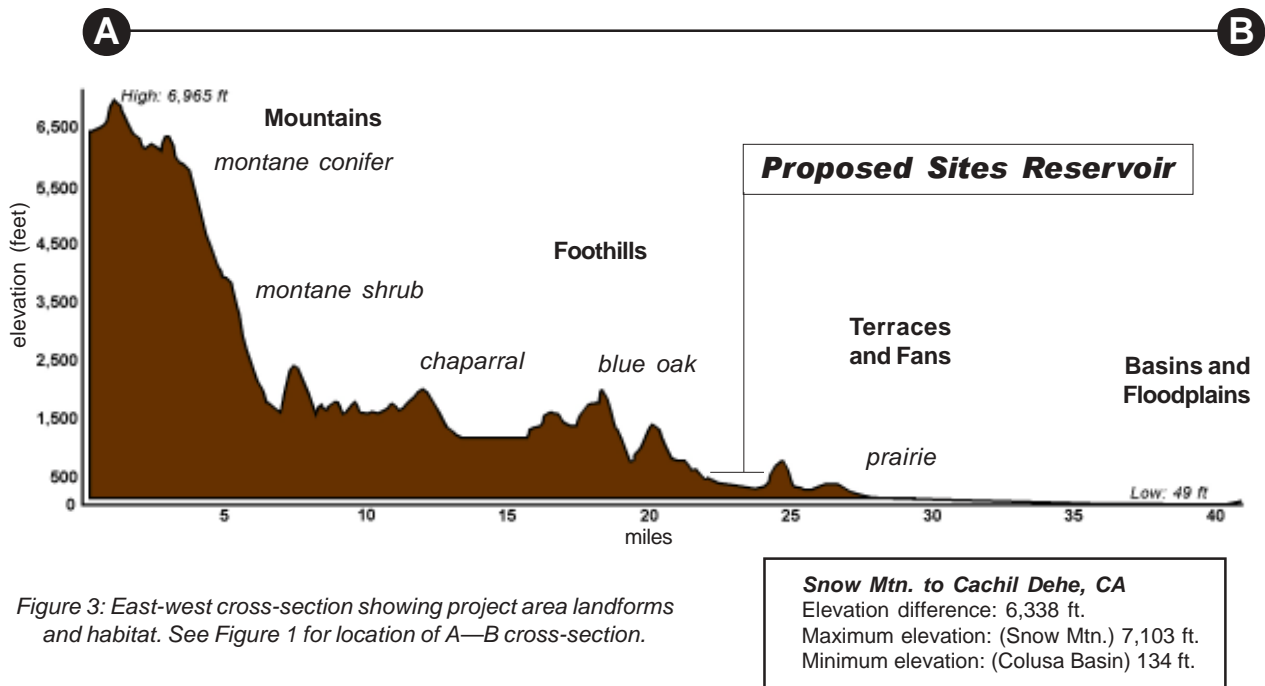


Figure 3: East-west cross-section showing project area landforms and habitat. See Figure 1 for location of A—B cross-section.

*californicus*), blue-eyed grass (*Sisyrinchium bellum*), lupine (*Lupinus variicolor*), clover (*Trifolium* sp.), and vetch (*Vicia* sp.).

#### Blue Oak Woodland

Blue oak woodland represents approximately ten percent of the current Sites Reservoir footprint vegetation, occurring primarily above 321 to 963 feet in elevation. Dense concentrations of trees are now confined to ridges, knolls, and footslopes, but probably once extended into the valley floor, intermixed with valley oak (*Quercus lobata*). The Blue oak woodland vegetation community consists mainly of blue oak (*Quercus douglasii*) and other deciduous oaks, including Oregon oak (*Quercus garryana*), black oak (*Quercus agrifolia*), interior live oak (*Quercus wizlensii*), and the occasional gray pine (*Pinus sabiniana*). Chaparral species are also often present in the understory, including poison oak (*Toxicodendron diversiloba*) and birch-leaf mahogany (*Cercocarpus betuloides*). Patches of California juniper (*Juniperus californica*) are scattered throughout the Blue oak woodland in the Project Area, typically associated with low-lying ridges with shallow mineral soils.

#### Chamise-Dominated Chaparral

Chamise-dominated chaparral represents approximately five percent of the current Sites Reservoir footprint vegetation. Chaparral patches tend to occur between 642 to 1,605 feet in elevation on the western foothills of the Project Area, inter-fingering with blue oak woodland vegetation. Project area chaparral is a dense, interwoven vegetation community dominated by chamise (*Adenostoma fasciculatum*), with an occasional manzanita (*Arctostaphylos* sp.), gray pine, buck brush (*Ceanothus* spp.), California buckwheat (*Erigonum fasciculatum*), and scrub oak (*Quercus dumosa*) (Hanes 1988). Chaparral occurring on the steep east-facing slopes also includes occasional redbud (*Cercis occidentalis*) and California buckeye (*Aesculus californica*).

Due to its density, annual dryness, and natural volatility, chaparral communities are highly susceptible to wildfire and the majority of wildfires that occur in California are within chaparral

vegetation communities. In fact, periodic wildfires help perpetuate many chaparral species (Vogl 1970). Fire is the main initiator of succession, and due to the common occurrence of fires, many chaparral species produce seeds at an early age while others germinate only in the presence of fire. Chamise can sprout new growth from a single root crown. These traits ensure the succession, redevelopment, and perpetuation of the chaparral community.

### Riparian Woodland

Less than one percent of the Sites Reservoir Project Area can be classified as riparian woodland. Riparian woodland is confined to the deeply entrenched drainages of Antelope, Stone Corral, and Funks creeks. Based on examination of relict stands, Thompson and others have defined the basic species composition and ecology of the Riparian Woodland (Barbour and Major 1988; Burcham 1981; Holland and Keil 1990; Ornduff 1974; Thompson 1961, 1980). According to these authors, riparian woodland had significant floral diversity and a complex architecture with woody upper and intermediate overstory species and a dense understory of vines and herbaceous and shrubby plants. The overstory canopy was dominated by the California valley oak, Fremont cottonwood (*Populus fremontii*), and California sycamore (*Platanus racemosa*); all three representing deciduous, flood-tolerant species possessing deep tap roots capable of reaching the permanent water table. A distinct intermediate overstory zone was composed of Oregon ash (*Fraxinus latifolia*), walnut (*Juglans* sp.), cottonwood (*Populus* sp.), big leaf maple (*Acer macrophyllum*), California box elder (*Acer negundo sub californicum*), and willow (*Salix* sp.). In canyon lands around the Project Area, white alder (*Alnus rhombifolia*) and California bay (*Umbellularia californica*) also occur along stream corridors. Typical understory species included elderberry (*Sambucus mexicana*), mugwort (*Artemisia douglasiana*), mulefat (*Baccharis viminea*), wild rose (*Rosa californica*), button-willow (*Cephalanthus occidentalis*), and blackberry (*Rubus* sp.). Common vines and climbers included Dutchman's pipe vine (*Aristolochia californica*), poison oak (*Toxicodendron diversiloba*), wild grape (*Vitis californica*), greenbrier (*Smilax californica*), and wild clematis (*Clematis* sp.). The parasitic big mistletoe (*Phoradendron tomentosum sub. macrophyllum*) is found growing on many overstory species (Katibah 1984; Ornduff 1974; Roberts et al. 1980).

## FAUNA

Animals now common to the Sites Reservoir APE include some native but many introduced species, and among the native species present-day density, distribution, and behaviors are probably much different than those found here in pre-contact times. The investigation of faunal remains recovered by previous archaeological excavations in the region, described below, provides insight into the importance of various animal species to prehistoric diet, and biological studies have provided important baseline information on the behavior and environmental associations that may have prevailed in the past.

### Economically Significant Animals

Based on their prevalence in the prehistoric archaeological record and widespread occurrence in archaeological sites in a variety of ecological zones, black-tailed deer (*Odocoileus hemionus columbianus*) were clearly the region's most important staple animal food. Recent studies of black-tailed deer behavior cite their dependence on cover provided by brush in canyons, wooded slopes, and riparian thickets. During the summer and fall, black-tailed deer primarily consume the leaves, stems, and shoots of woody plants (Taber 1956:164-165). During winter and spring, grasses and forbs compose the bulk of the diet. Mating season can begin in September for black-tailed deer, with a birthing season beginning in April (Snyder 1991). According to Taber,

an area of about 360 acres [1.46 km<sup>2</sup>] would represent the maximum home range size occupied by an individual deer...[further,]...home ranges are not mutually exclusive, so that the same 360 acres might be occupied, in part at least, by as many as 80 or 90 deer [Taber 1956:113].

Exceptions might include yearling dispersal, buck travels during the rutting season, and wandering by old deer; however, an established animal would generally be found within a 500 yard radius of the center of its home range.

Tule elk (*Cervus elaphus nannodes*) are now locally extinct, but in prehistoric times may have served as a significant game animal. Tule elk lived in small, fluid herds whose movements changed “in response to local conditions” (McCullough 1969:47). By September the elk probably accumulated near riparian woodlands within one mile of perennial water sources. The rut probably took place near the end of September, characterized by bull-dominated cow groups of up to 30 to 50 individuals. Larger herds probably coalesced after the rut, feeding primarily on acorn mast until November when they shifted to small, dispersed grazing groups occupying mixed prairie and blue oak woodland (McCullough 1969; Smith 1973; Phillips 1976).

Pronghorn (*Antilocapra americana*) were common in pre-contact the California Prairie. By 1875 pronghorn were rare in central valley grassland areas and farmers actively destroyed animals found in wheat fields (Schoeneer 1992). Subsisting primarily on annual grasses and forbs and relying on open ground and speed for defense from predation, the pronghorn was most likely a permanent resident of the prairie. The rut took place in October, characterized by small, buck-dominated doe groups of five to 15 individuals. Larger herds might gather in the late fall through spring, dispersing into smaller herds in the summer.

The California grizzly (*Ursus horribilus californicus*) has been extinct for more than 100 years, and the last wild animal was killed in Shasta County in 1902. However, historical and ethnographic accounts indicate the prevalence of the animals in the Sacramento Valley and foothill grasslands (Storer and Tevis 1955). For example, in 1841 John Bidwell passed through what would later become Colusa and Glenn counties and saw many grizzlies, including 16 grizzly bears in a single group. Bidwell later recalled:

Grizzly bears were almost an hourly sight, in the vicinity of streams, and it was not uncommon to see thirty to forty a day [Bidwell 1897:75-76].

Similarly, Wilkes reports:

Bears were also in great numbers. It is reported that they will sometimes attack and eat the Indians...They will also ascend the oaks for the acorns, and break off branches so large as almost to ruin the tree. It has been generally supposed that they do not climb; but all the hunters bear testimony that they can do it, although slowly and clumsily...Three or four are usually seen feeding together. The cubs are remarkably small in proportion to the full-grown animal [Wilkes 1958:74-75 (1841)].

Archaeological faunal records suggest the grizzly was not an important prehistoric food source. However, their predilection for human encounters (Storer and Tevis 1955) suggests that defense against grizzly bears may have been an important factor to the Project Area's prehistoric populations.

#### Other Animals

Other animals common to the blue oak woodland and chaparral communities included predators/omnivores such as the black bear (*Euarctua americanus*), cougar (*Felis concolor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and badger (*Taxidae taxus*). Common small game included the black-tailed hare (*Lepus californicus*), Audubon cottontail (*Sylvilagus audubonii*), brush rabbit (*Sylvilagus bachmani*), Beechey ground squirrel (*Spermophilis beecheyi*), gray squirrel (*Sciurus griseus*), kangaroo rat (*Dipodomys heermanni*), and pocket gopher (*Thomomys bottae*). Riparian animals likely present in the lower reaches of Stone Corral and Funks creeks include included beaver (*Caster canadensis*), Pacific pond turtle (*Clemmys marmorata*), molluscs (*Anodonta californiensis* and



*Gonidea angulata*), and predators/omnivores such as raccoon (*Procyon lotor*), ringtail (*Bassariscus astutus*), weasel (*Mustela frenata*), and mink (*M. vison*). The western rattlesnake (*Crotalus viridis*) was common throughout the Project Area (Ingles 1965; Jameson and Peeters 2004; Stebbins 2003).

The economically most important bird was the valley quail (*Lophortyx californicus*). Snares and traps were used to harvest valley quail for food, and their feathers were used in basketry and ceremonial regalia (Leopold 1977). Other economically significant birds common in the Project Area include the northern flicker (*Colaptes auratus*), meadowlark (*Sternella neglecta*), red-tailed hawk (*Buteo jamaicaiensis*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), and turkey vulture (*Cathartes aura*). Wading birds seasonally present in the lower reaches of Stone Corral and Funks creeks include great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), snowy egret (*Egretta thula*), great egret (*Ardea alba*), and American bittern (*Botaurus lentiginosus*).

Moyle's (2002) omnibus study of California's inland fisheries places the Project Area in the Sacramento-San Joaquin Province, Central Valley Subprovince. The Funks, Antelope, and Stone Corral creeks were small but seasonally variable streams with minimal, slow moving summer flow where resident species primarily belonged to the cyprinidae family, including splittail (*Pogonichthys macrolepidotus*), Sacramento blackfish (*Orthodon macrolepidotus*), hardhead (*Mylopharadon conocephalus*), and Sacramento pike-minnow (*Ptychocheilus grandis*). Resident species probably also included the Sacramento perch (*Archoplites interruptus*), western sucker (*Catostomus occidentalis*), California roach (*Hesperoleucus symmetricus*), and three-spine stickleback (*Gasterosteus aculeatus*). These streams may once have supported small anadromous fish runs, probably featuring the cyprinids but perhaps also including salmon (*Oncorhynchus* spp.) and steelhead rainbow trout (*Oncorhynchus mykiss*).

## GEOLOGY

The project area is situated on the boundary between the physiographic provinces of the North Coast Ranges and the Sacramento Valley. Antelope Valley is a fault-bounded alluvial basin carved out of relatively soft serpentinites, and bracketed by a series of pronounced, narrow, north-south trending ridges, with Great Valley sequence sandstone ridges to the east and Franciscan Formation ophiolites to the west (Figure 3), all dating between the Upper Jurassic to Upper Cretaceous (Bailey ed. 1966; Bailey et al. 1964).

### *North Coast Ranges*

The North Coast Ranges land mass originated between 60 and 100 million years ago. At that time, sections of seafloor were folded against the continental plate where they displaced the existing rocks; deformed, sheared, metamorphosed to varying degrees; and ultimately uplifted to expose the erratic melange. Crustal warping and fault transformation provided openings for the ascent of magmas, adding new ridges and mountain chains (McLaughlin 1981). In the vicinity of the project area, the Coast Ranges are composed primarily of unaltered sandstone and shale incised by deep faults. Sedimentary in origin, these rocks consisted primarily of Cretaceous deposits as well as marine sedimentary formations and conglomerates first deposited during the Mississippian and Pennsylvanian periods. Following the Cretaceous, massive uplifting, folding, and erosion took place, ultimately producing the Coast Ranges as they are known today. These geological processes caused extensive erosion of the mountains and foothills and deposition in the valleys.

The older and more uplifted and weathered central and eastern belts of the Franciscan Formation underlie the mountains immediately west of the project area. From the standpoint of prehistoric industries, the signature rock of the central and eastern belts is Franciscan chert, a colorful, fine-grained silicate. Higher density and higher quality cherts occur in the nearby northern North Coast Ranges

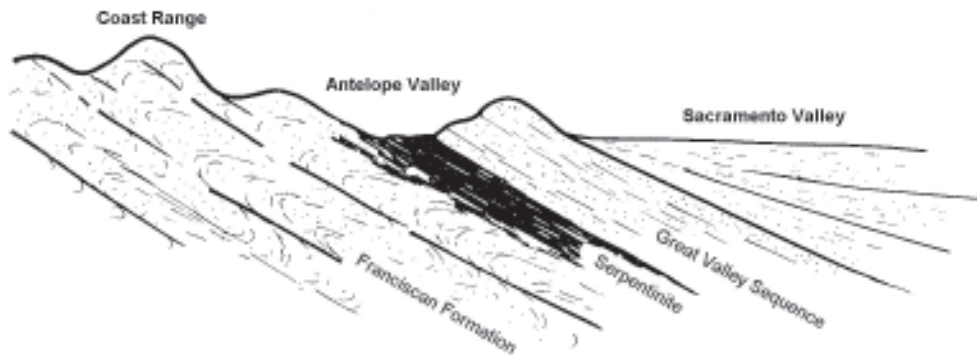


Figure 4: East-west cross section of geologic provinces in the project area (adapted from Alt and Hyndman 1975:15).

where the oldest, eastern belt Franciscan rocks are found. Other usable toolstone found in central and eastern belt rocks include the micaschist, soapstone, slate, and metasandstones preferred for groundstone industries (White ed. 2002: 530–531).

#### *Great Valley Sequence*

Great Valley sequence rocks appear as orderly rows of north-south trending ridges east of the North Coast Ranges and west of the Sacramento Valley, representing continental detritus displaced by the encroachment of Franciscan Formation rocks. Great Valley sequence rocks consist of bedded mudstone, sandstone, shale, and some conglomerates that formed in a littoral environment during the Upper Jurassic through Cretaceous periods (Bailey et al. 1964). These strata are derived from ancestral Sierra and Klamath highlands materials that accumulated on the continental shelf to a thickness of over 40,000 feet (Bailey et al. 1964:123). Except where disrupted by faults, Great Valley sequence materials are situated on top of Coast Range serpentine in the foothills zone: “Franciscan rocks were jammed onto the edge of the continental shelf while the Great Valley group rode undisturbed above them” (Alt and Hyndmen 1975:17).

The Great Valley sequence rocks are folded at the axis of the Fruto syncline and Sites anticline. The Fruto syncline runs roughly north-south through Antelope Valley. The Sites anticline also runs north-south and is located within the low lying foothills that form the eastern boundary of Antelope Valley. The Sites anticline is one of the most conspicuous folds along the western foothills belt of the Sacramento Valley (Jenkins 1948:608). These sedimentary rocks are markedly less deformed and more coherent than sedimentary sections of the Franciscan. In this zone the Great Valley group appears as massive high quality sandstone and interbedded mudstone erupting from the valley floor and ranging from 125 to 225 feet thick. The foothills were uplifted by the Sites anticline and the Coast Range Fault (Unruh et al. 2001:19). This thrust fault caused initial uplift of the Great Valley Group followed by wedging which raised the foothills above the surrounding plain prior to the Quaternary. The Sites anticline and the Fruto syncline together act to accommodate crustal shortening in this zone (Unruh et al. 2001:25–45).

Only poor quality and scattered chipped stone resources are found in the foothill thrust zone. Outcrops and nodules of serviceable, hard and grainy greenstone and blueschist are found in serpentinite outcrops scattered throughout this terrain, and cherts are reported to occur in the earliest unit, generally consistent with the westernmost strip of foothills nearest the mountains (Bailey et al. 1964). However, the occasional tufas and other accretional silicates found in the foothill thrust are generally too brittle to be of service. Dense sandstone suitable for grinding tools is widespread. Shale suitable for ornaments is also found immediately west of Antelope Valley. Serpentine also often signals the source terrains for minerals such as soapstone and micaschist used for ornaments and personal gear, and actinolite, hematite, and magnesite used for pigments, ornaments, and shamanistic pursuits (Heizer and Treganza 1972), but there are no known quarries in the immediate vicinity of the project area.

### *Sacramento Valley Margin*

East of Antelope Valley, the landscape descends into low lying foothills on the western margin of the Sacramento Valley, representing early Tertiary river terraces and Quaternary alluvial fans. The terraces form highly weathered, bench-like deposits stepping down toward the valley, representing older, Tertiary age river terraces deposited parallel to the axis of the valley. These terrace remnants are interspersed with a series of Quaternary stream corridors, including Stone Corral, Willow, Funks, and Antelope Creeks. These have eroded canyons through the Great Valley thrust zone and Tertiary terraces and deposited vast alluvial fans, spreading out from the base of the foothills onto the Sacramento Valley plains. The upper ten feet or so of the alluvial fans consist of recent sediments, below which lie thousands of feet of Tertiary sediments. Fossil remains of Pleistocene-age mammals have been found in portions of these alluvial fans.

## ETHNOGRAPHIC CONTEXT

### Introduction

Site SR-001-A is located within the ethnographic territory of the *Choo-hel'-mem-sel* division of the Hill Patwin (Barrett 1908, Kroeber 1932, Merriam 1967) (Figure 4). The Hill Patwin shared many cultural traits with neighboring River Patwin and Nomlaki groups described below. All three spoke historically related languages belonging to the Wintuan language family of the Penutian linguistic stock, indicating that they shared common ancestors and a pattern of historical interdependence (Kroeber 1925: 351–363). In keeping with their shared history, the Hill Patwin, River Patwin, and Nomlaki all practiced a form of sociopolitical organization which Kroeber (1925) identified as the *tribelet* system. As defined by Kroeber, “tribeleets,” or little tribes, were the basic political and proprietary unit of Central California, composed of a central village and related hamlets and activity areas. The tribelet controlled a local territory recognized by adjoining communities, and exercised protective measures against uninvited trespassers. Tribelet territories were generally “well-defined, comprising in most cases a natural drainage area” (Kroeber 1925:831), and these territories were recognized by adjoining communities. The resources and territories controlled by a tribelet were usually defended against uninvited trespassers but considered to be communal holdings of tribelet members; the tribelet political structure served to coordinate economic activity such as resource scheduling, trade, ceremonies, and feasts. Tribelets were composed of a central village and related hamlets and activity areas. The main village was the population center, the site of the main assembly lodge, the residence of leaders and specialists, and held caches of ceremonial regalia, food, and trade goods.

In addition to similarities in village size, organization, and structures such as the pithouse and acorn granary (see below), the Hill Patwin and River Patwin also practiced a unique and elaborate form of the *Kuksu* ceremonial cycle. The *Kuksu* society, (also known as the “Big Head” or “Bull Head” dance) was a male secret society focusing on initiation through the ritualistic raising of the dead. Though rituals varied between the groups, they all included an element of death and rebirth or revitalization. Novices were “killed” or speared, and then later, washed and “brought back to life.”

The following describes each of the three tribes and their use of the project area, including settlement patterns, village names and locations, structures, organization, and lifeways.

### Hill Patwin

#### *Geography and Population*

The Hill Patwin claimed the eastern foothill valleys of the North Coast Ranges including Antelope, Indian, Bear, Little Indian, Long, Morgan, and Cache Creek valleys (Figure 4). At its northern extent,

the Hill Patwin boundary ran east-west from a point near the confluence of Big and Little Stony Creeks east to a point about five or six miles west of the town of Princeton (Barrett 1908:289; Merriam 1967:55). The northwestern boundary ran along the divide of the Eel and Sacramento River drainages from approximately Goat Mountain east of Clear Lake, south beyond Cache Creek continuing along the ridge between Morgan and Jerusalem valleys, across Putah Creek south through Butts and Pope creeks, and finally encompassing lower Napa valley (Merriam 1955:46; Barrett 1908:286).

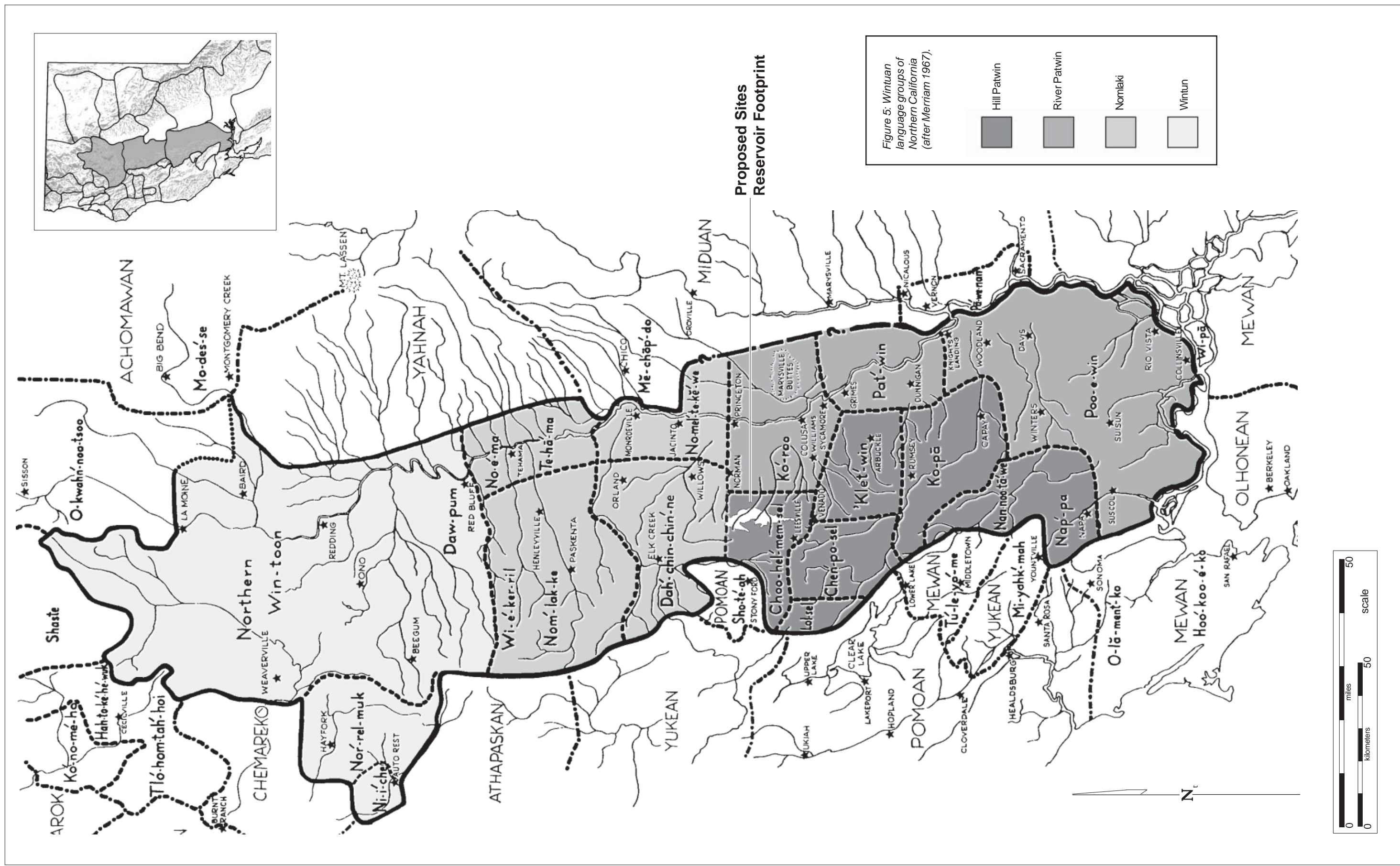
Five Hill Patwin subgroups are delineated in the ethnographic literature (Merriam 1967; Barrett 1908; and Kroeber 1932): (1) *Choo-hel'-mem-sel*, in Antelope Valley and the southern end of Indian Valley from the Wintun and Pomo borders south to Leesville and Venagdo, and east to the town of Sites; (2) the *Kletwin*, from Cortina Ridge east and south to about Rumsey; (3) the *Kopa*, located in the Capay Valley from Rumsey south and including the Knoxville area to the west; (4) the *Chenposel*, in Bear Valley, Little Indian Valley, and including the Long Valley *Lolse*; and (5) the *Napa* to the south in Napa Valley and beyond (Merriam 1967:262–263). The Sites Reservoir Project area is contained almost entirely within *Choo-hel'-mem-sel* lands, while the northern fringe of the project area may have lagged into *Dah'chin'-chin'-ne* Komlaki territory (Figure 5).

Cook (1965) used an area-density method of calculation based on Kroeber's (1925) average of 250 persons per village to estimate the total Hill Patwin population at 4,000 with an average density of 2.5 persons per square mile. According to Cook and Kroeber, Hill Patwin population density was relatively low compared with the neighboring River Patwin. Tribelet populations ranged from less than 100 up to 500 with an estimated average of 250 (Kroeber 1962:30–37). Cook suggested that the eastern Coast Range supported a smaller population because it was more arid and less productive than the neighboring river and mountain provinces (Cook 1964:13–14).

#### *Village and Place Names*

Hill Patwin village and place name information is provided by Barrett (1908), Kroeber (1925, 1932), and Merriam (1967). The Hill Patwin typically designated their tribelets after people rather than land with names ending in *-sel*. These sources were consulted for ethnographic place names in or near the project area. A total of 16 ethnographic place names pertinent to the project area were identified (Figure 5). Ethnographic sources did not provide specific map coordinates, but descriptive information was adequate to plot approximate locations, as follows.

The primary village center of the *Choo-hel'-mem-sel* tribelet was *Po-ne hlab'-be* (aka *Pone* or *Po-na hlab'-be*), at the foot of Grapevine Grade and near the County Well, four or five miles northwest of Sites. The village of *Tsudukut* was located five miles north of *Pone*, or about two and one-half miles west of the town of Sites. Three miles north of *Pone* was the village of *Tup-Labe* (Merriam 1967:189). *Oldow'-wis* was a rancharia about one mile west of Little Indian Creek and about two miles north of *Choo-hel'-mem hlab'-b* (“turned-over;” Merriam 1967:188). *Choo'-dah-koot* was a rancharia located about 1.5 miles west of the town of Sites. In 1924, Indian occupants of *Choo'-dah-koot* included Mr. Jesse Berryessa, McGill, and Andrew (Merriam 1967:187). The site of *Kow'-klab'be* (“elder tree”) is described by Merriam (1967:188) as a small rancharia located on Grapevine Creek just east of *Pone*. *Kaa-en* was a small village located north of Grapevine Creek (Merriam 1967:191). *Kow' hlab'be* (“elderberry village”) and *'Hlah'lah mem* (“rotten water”) were small villages located north of Grapevine Creek (Merriam 1967:191). *Len'-mah tin'-be* was a big rancharia about two miles northwest of the town of Sites near the county road and over the ridge about one mile east of *Tahp'-kal'-li* (Merriam 1967:188). The *Tahp'-kal'-li* (cottonwood) rancharia is described by Merriam (1967:189) as located in the canyon a mile or more northwest of *Choo'-dah-kut* in Antelope valley. *Pot-bah* was a rancharia located north of Grapevine Creek and east of *Toop' 'ahlab'be* (Merriam 1967:192). *Tarr' 'hlabbe* (“willow village”) was a village located north of Grapevine Creek (Merriam 1967:192). However, one or both of these Merriam villages may be the same as Barrett's (1908:297) *To'pLabe*, which he indicated was about five miles north-northwest of Sites. In fact, one consultant told Merriam that *Top' 'klab'-be* was not a rancharia, but





actually a hill on which people took refuge ages ago during a great flood (Merriam 1967:182). *Tahp'-kal'-li* ("cottonwood village") is the *Choo-hel'-mem-sel'* name for their rancheria in a canyon at least one mile northwest of *Choo'-dah-kut* in Sites Valley (Merriam 1967:180).

### *Villages, Structures, and Facilities*

Mirroring the size of their villages, Patwin architecture was distinctive in the diversity of structures, size of major buildings, and complexity of construction. Historical and scholarly sources combined suggest that at least four types of structures were constructed by the Hill Patwin, which include the dancehouse, mens sweat lodge, family dwellings, and ramadas or huts, and the acorn granary (Kroeber 1932:293; Rawls 1984:189).

Dancehouses were the largest structures made by the Patwin, larger than those built by other Wintun groups, and some of the largest structures in precontact California. Design and construction were intimately connected with the ceremonies the buildings housed. These structures, built in central villages only, were placed on the northern or southern edge of the village, separate from dwellings. Construction began with excavation of a broad, oval-shaped pit measuring approximately 12.1 meters wide, 15.2 meters long, with squared to slightly sloping walls and a flat floor dug to 1.5 meters deep. Excavation was done with digging sticks and the dirt carried and piled outside using worn food baskets. Work inside the pit began by mounting the main center post of oak and 11 additional posts, two aligned with opposing doorways, two on both sides perpendicular to the doorway, and five on the perimeter. Concurrent with the posts, work began on the interior retaining walls, constructed of thatch secured by rods mounted in the earth. The entire pit was ringed by a berm composed of excavated spoils. Stringers ran from the 11 main posts to this berm. Long, flexible rods were woven into the ceiling stringers. Tule thatch was layered on top of the pole frame, fastened with grape vines. This inner framework was then completely covered in a foot-thick layer of packed, clayey earth. The construction incorporated a smoke hole and sloping entry ramps, including a long, lightly sloped ramp for general entry and a steep, open ramp at the rear for the dancer's entry.

Dancehouse fixtures—including a large foot drum and a main hearth—were aligned with the main posts and entry ways. The foot drum was made of a peeled and hollowed sycamore log measuring six to seven feet long, fixed in a pit with planks and stakes. Construction of the community dancehouse required a substantial coordinated effort, and every available person was drawn into the task. A feast was often held to celebrate completion of the new ceremonial structure (McKern 1923).

The sudatory, or men's sweathouse, was located east or west of the dancehouse with the door facing the dancehouse. The sudatory was built much like the dancehouse and at the same scale, but with a single doorway. The menstrual hut was long and narrow, and served as a place of solitude, confinement, or rest for menstruating women and women undergoing childbirth (McKern 1923). By design, the menstrual hut was on the northern or southern outskirts of the village, opposite the dancehouse (McKern 1923:160).

Dwellings were oval to circular in plan view and constructed like the dancehouse but at a smaller scale. Paternal relatives were enlisted to assist in the construction. Dwellings were built starting with the excavation of a flat-bottomed, steep-walled pit dug out to 1.2 to 1.8 meters deep and 5 to 10 meters in diameter. Thatch retaining walls were secured with stakes, and six support posts were mounted in a circular arrangement, leaving an open central floor area. Six thick stringers reached between the posts, and a series of long rafters rested on the stringers and the perimeter berm to form the roof. The roof was finished with a thick layer of woven rods and thatching, and a packed earth layer around 0.3 meter thick. The single doorway faced either east or west. Several families occupied a single dwelling house. A fireplace and wooden mortar and stone pestle were fixed near the open center of the house, and were shared by the families. However, each family had ownership over a specific section of the house and had its own cooking area. Family property featured raised beds for each adult made from a rectangular pole framework lined with tule mats. The end of the bed was fixed to the thatched retaining wall and the

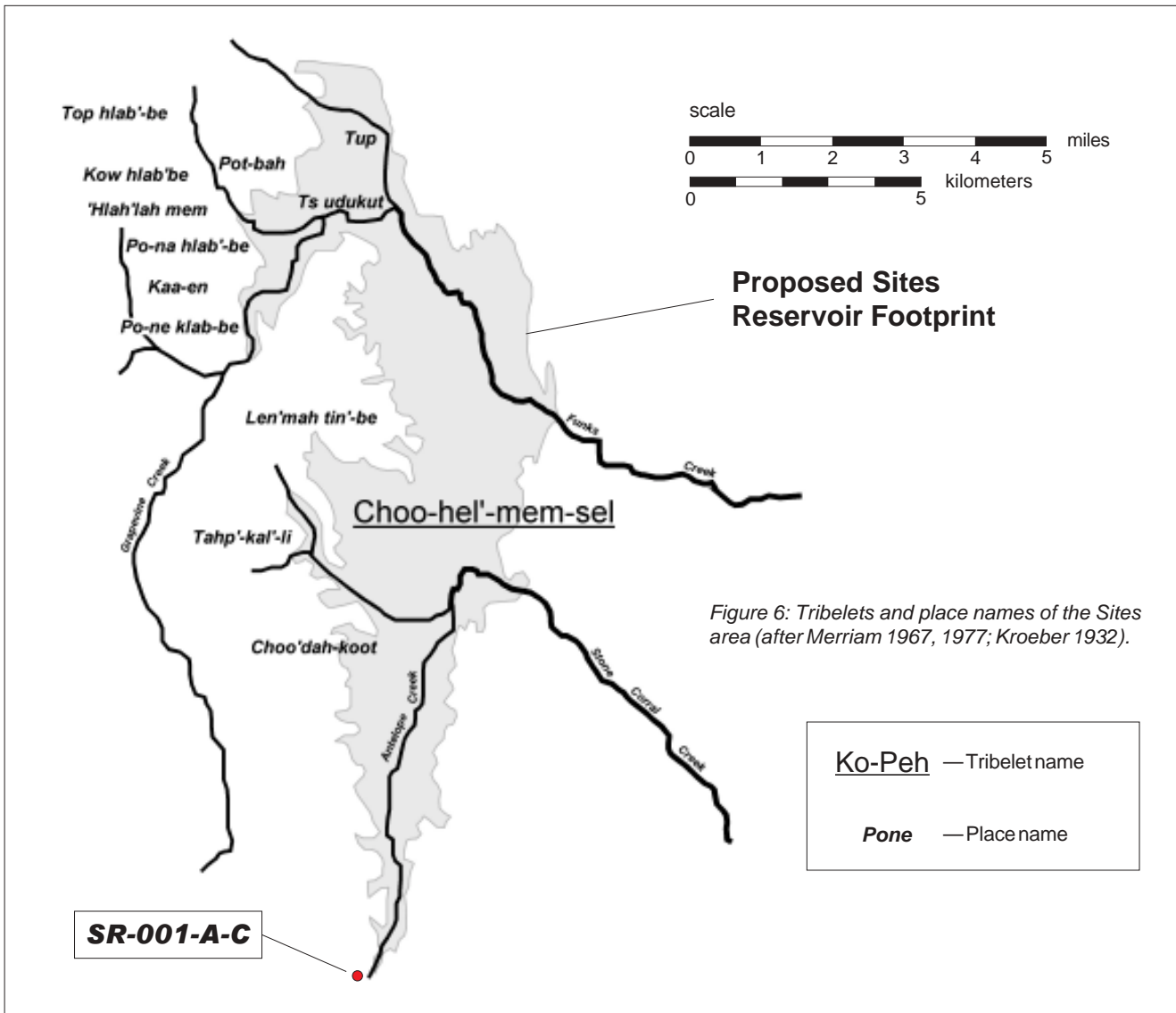


Figure 6: Tribelets and place names of the Sites area (after Merriam 1967, 1977; Kroeber 1932).

beds were arranged like spokes on a wheel. Personal gear, such as baskets, tools, and weapons, were suspended from the ceiling against the retaining wall and from house posts. Tule sitting mats were arranged around open space. Household goods and bulky gear, including cooking equipment, nets, burden baskets, and seed beaters, were placed on a pole frame rack outside the house (McKern 1923:165–167).

One of the most distinctive elements of Patwin architecture was the acorn granary. Constructed using a pole and thatch design similar to the retaining walls described above, examples that appear in historical illustrations stand more than six feet high and five feet in diameter are built as a tall cylinder with an external frame of vertical and horizontal retaining rods and a barrel formed by woven thatch. These large storage structures were constructed to cache a large supply of unhulled acorns through the winter.

*Social Structure*

The position of chief was inherited patrilineally, although approval by the group was also required (McKern 1922:242–243; Goldschmidt 1951:325). The duties of the chief required him to direct daily



activities, announce duties (such as where and what to gather), sanction ceremonies, and arbitrate disputes. He was generally the richest man in the village, and was responsible for providing food for ceremonies as well as distributing food throughout the course of the year (Goldschmidt 1951: 323–324, 365; Kroeber 1932: 291).

Within the tribelet structure the basic sociopolitical group was the patrilineal family called the *sere*. The oldest male of a patrilineal family was the leader and held considerable authority over his agnatic kin—brothers, sons, brother's sons and uncles, and unmarried women related through these males. Married women belonged to their father's *sere* but lived with their husbands.

### *Ceremony*

The Hill Patwin ceremonial system was identical to the River Patwin described below, including an intricate series of ceremonies held in the dancehouse. These ceremonies were both powerful and dangerous, involving spirit impersonations and imitation by ritual death and rebirth.

### *Conflict*

Intergroup relationships ranged from friendly to hostile and there are several recorded intervillage feuds for the Hill Patwin (Kroeber 1932:301–302). The most common offense leading to hostilities was poaching or death attributed to poisoning by witchcraft. The resulting conflict typically took one of three forms: (1) an attack on the poisoner, poacher, or group of trespassers; (2) a surprise attack on the entire village with the intent to destroy the village, its stores, and kill all inhabitants; (3) or formal pitched battle (Kroeber 1932: 297–298).

In formal battle, one group of armed men with spears and bows formed a line facing an opposing line of men from the enemy village. Each side shot arrows and hurled spears, simply call *doko* (“obsidian”) at the other until the chiefs called a halt to the battle by walking between the two lines and indicating the dispute was over. Chiefs did not fight and were not attacked, and during skirmishes stood behind or at the side of the line. The chief was not a war leader nor was there a warrior class, but a formal battle might end in a peaceful exchange of gifts brought about by the chief (Kroeber 1932: 298; Goldschmidt 1951:342–343).

Warfare was more organized among the Hill Patwin than the neighboring river tribes (P. Johnson 1978:353). In battle, the Hill Patwin sometimes wore elk hide armor or armor constructed of vertical wood rods held together with cord called *terpa'nansok*. The war leader was called *yeto*. This was not an official, but a brave man, who was a capable shot and could dodge well. War was *ti'tla-piri* or *ti'tLapita* and enemies were called *yutsen*. War customs between River and Hill Patwin were similar with the exception that Hill Patwin wore body armor, took whole scalps from victims, and held a victory dance. The war celebration, *sihitono* (“glad dance”) among the Hill Patwin was performed outdoors by men and women. Scalps were hung on a tall pole and shot at. A fire was built and the pole and scalp were allowed to fall in. Food was brought by relatives of persons killed in battle and arranged around the fire for consumption (Kroeber 1932:299).

Kroeber (1932) recorded Hill Patwin war stories involving the Pone tribe from Antelope Valley.

About fifteen men from Pone went down to the plains (river territory) to hunt elk. Their wildcat skin quivers were loaded with arrows and they carried net sacks on their backs hung from straps over the forehead. They ran down some elk, but the mosquitoes troubled them, until they set the grass on fire. The river Indians, seeing the smoke, came to drive them away. Sometimes in these fights no one was killed; but this time the river people won, ran the Pone people home, and killed all but two who hid in a rock hole. There were 25 or 30 of the river people, but the two Pone men had 60 arrows each and killed many. The others camped about all night and got reinforcements from the river. They tried to roll rocks into the cave and throw fire into it. Finally, one of the two brothers was shot

under the arm. During the morning the other one was killed. The dead of the river people lay about in heaps. The survivors crushed the two brothers with rocks and rolled them into the fire. Sometimes in such an attack they would shoot at each other through the smoke of the burning plains [Kroeber 1932:301–302].

Another time when the Pone had been hunting in the plains and has set a fire to the grass to protect themselves from the mosquitoes, the river people from about *Waitere* saw the smoke, gathered their men, and came up to the hills. The Pone people had returned and had gone to the house of an under-chief to smoke and drink; he had mountain lion and bear skins to sit on. There they sat up until about midnight, then they lay down to sleep. With the first daylight the attack came. The river people threw bundles of chamise brush (*toro*) in the door and smoke hole, and into the other houses also. The inmates began to dig out from underneath each house. Some succeeded in crawling out with their bows without being seen, by help of the smoke. When they got further away from the blaze, the river people saw them and began to shoot and call out: “Where is your brave man? Bring him out, don’t hide him! We came to fight!” By now it was daylight. None of the Pone people were killed but the river people lost three. They carried them half way home and left them [Kroeber 1932:302].

Conflict also occurred within the tribelet typically as the result of a murder, competition over women, or a gambling dispute. Vengeance would be taken by the victim’s family, often in the form of murder of the offending person or family. The chief arranged a meeting and the disputants sometimes could reach a peaceful settlement through payment for proper burial with bear hide or the exchange of wealth items (Goldschmidt 1951:341–345).

## ARCHAEOLOGICAL CONTEXT

### General Trends in Northern California Prehistory

The Sites Reservoir project area is like many parts of the state where archaeologists are still in the process of building a basic archaeological record. Much of the record is unknown, especially the earliest evidence dating more than 3,000 years old. The following begins with the broad outlines of Northern California culture history then focuses on what is known about the prehistoric cultures of adjoining regions.

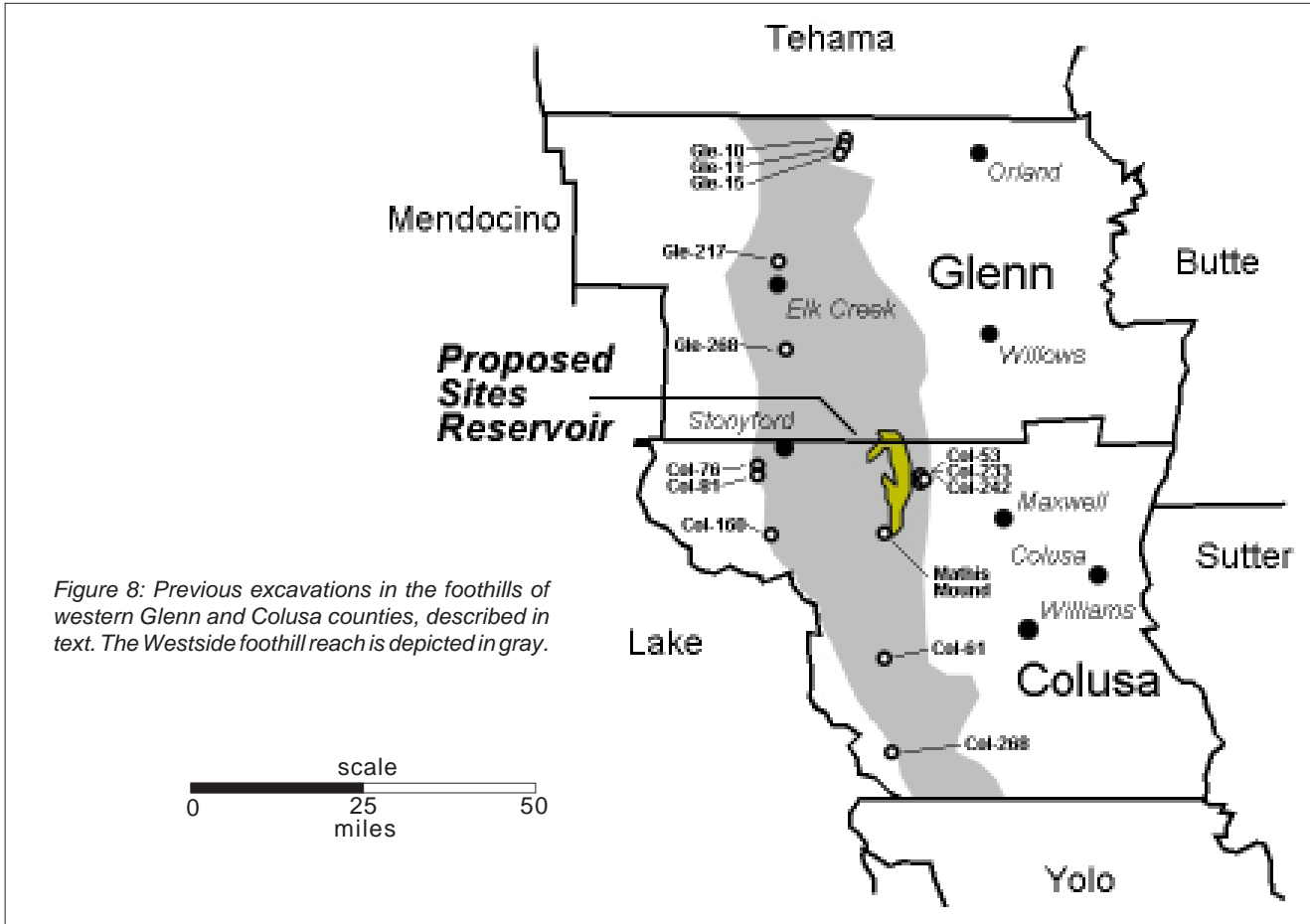
The broad outlines of California prehistory are best captured by D. A. Fredrickson’s (Fredrickson 1994a, 1994b, 1994c) integrative scheme which proposes three basic prehistoric period divisions: the *Paleoindian*, *Archaic*, and *Emergent*, with the Archaic being further subdivided into the Lower, Middle, and Upper periods, and the Emergent into Lower and Upper divisions (Figure 6). Each period is characterized by a generally prevailing economic, cultural, and environmental condition. However, each region is expected to have a different pattern of prehistoric culture and culture change.

#### *Paleoindian Period: Terminal Pleistocene Cultures*

Recent sampling at Borax Lake near Clear Lake provides tentative obsidian hydration dating evidence indicating that occasional obsidian quarrying activity as early as 16,000 years ago (White ed. 2002:448–449). However, the find remains unconfirmed and no other archaeological traces this age have been identified in the northstate. Our most reliable evidence indicates that the northstate was first colonized at the end of the Pleistocene. Sparse evidence and parsimonious toolkits indicate that these earliest peoples were culturally conservative, low-density hunters and foragers who moved between widespread resource patches and practiced technological traditions that were similar from region to region. Contemporaneity with Pleistocene megafauna is suspected but not demonstrated. The most ancient confirmed cultural traces are associated with the Western Clovis Tradition and Borax Lake Pattern. The Western Clovis Tradition (Willig and Aikens 1988) dating between approximately 10,500 to 13,500 years before present (BP). Western Clovis is represented by one site and a few scattered artifacts in Northern California, marked by use of the distinctive Clovis fluted point. Diet and settlement form remains a matter of speculation (Fredrickson 1984:497; Fredrickson and White 1988).

| Climate Regime |       | Period      | Division   | CAL BP <sup>1</sup> | Characteristics   |
|----------------|-------|-------------|------------|---------------------|---|
| Pleistocene    | Late  | Paleoindian | Pre-Clovis | ?                   | Hypothesized coastal colonization route; hints of occupation in alluvial basins.  |
|                |       |             | Clovis     | 13500               | Spread of human populations in California; probable but not demonstrated hunting emphasis; milling technology and vegetal food likely, but currently no evidence; exchange probably ad hoc; basic social unit probably the extended family; varied resources acquired by changing habitat.  |
|                | Early | Archaic     | Lower      | 7500                | Ancient lakes dry up as a result of climatic changes; milling technology common and widespread; plant food emphasis, little hunting; most artifacts manufactured of local materials; exchange similar to previous period; little emphasis on wealth; social unit remains the extended family.   |
|                |       |             | Middle     | 2500                | Unstable climate, landscape, and resources; hunting dominant, but economy generally more diversified; sedentism begins to develop, accompanied by population growth and expansion; technological and environmental factors provide dominant themes; changes in exchange or in social relations appear to have little impact.  |
|                |       | Emergent    | Upper      | 1500                | Growth of sociopolitical complexity; development of status distinctions based on wealth; shell beads gain importance, possibly indicators of both exchange and status. Emergence of group-oriented religious organizations; possible origins of Kuksu religious system at end of period; greater complexity of exchange systems; evidence of regular, sustained exchanges between groups; territorial boundaries not fully established. |
|                |       |             | Lower      | 200                 | Bow and arrow replaces dart and atlatl; south coast maritime adaptation flourishes; territorial boundaries well established; distinctions in social status linked to wealth increasingly common; regularized exchange between groups includes more, and more varied, materials.   |
| Holocene       | Late  | Emergent    | Upper      | 100                 | Clam disk bead economy appears; more goods moving farther; growth of local specializations involving production and exchange; interpenetration of south and central exchange systems.   |

Figure 7: California period characteristics (modified from Fredrickson 1994c:Figure 9.1).  
<sup>1</sup> - Radiocarbon years before present, calibrations based on Stuiver and Reimer (1993).



#### *Lower Archaic Period: Early Holocene Cultures*

The *Borax Lake Pattern* is the Northern California manifestation of the Western Stemmed Tradition (Willig and Aikens 1988), dating between approximately 7,000 to 10,500 BP. The marker types are wide-stemmed projectile points and manos and metates. Deep, flutelike basal thinning, large bladelet flakes and well worked unifacial tools are carry-overs from Paleoindian technology. A few sites have produced plant and animal remains indicating the Borax Lake Pattern diet featured large nuts and small and large game (White ed. 2002). No artifacts or sites this age have been identified in the Sacramento Valley proper, however, Borax Lake Pattern sites have been documented in the western foothills of Colusa, Glenn, and Tehama counties (see below).

#### *Middle Archaic Period: Mid Holocene Cultures*

The Middle Archaic corresponds to the Middle Holocene climatic period. Mid-Holocene instability is widely documented in North America and clearly established for Northern California (Adam and West 1983; Benson et al. 2002). Two consequences have been recognized in the regional archaeological record. First, climatic instability adversely affected the development of upland and lowland soils, diminishing the capacity of the landscape to store archaeological deposits. Consequently, Middle Archaic archaeology is uncommon and the available record problematic. Second, the density and distribution of economically significant resources also appears to have been impacted by climatic and landscape instability, leading to cultural responses such as local depopulation, interregional population movements, and dietary change.

A number of trends in prehistoric culture change first emerged during the Middle Holocene, including the development of settlement associated with ridgetops (Hildebrandt and Hayes 1993), river/marshes

(Heizer 1949), and lake sides (Sampson 1985; White ed. 2002), and dietary specializations on the acorn, deer, and freshwater and anadromous fisheries. The archetypal Middle Archaic culture is the *Windmill Pattern*, limited to the Sacramento-San Joaquin Delta and Mt. Diablo regions. Windmill material culture featured artifacts made of varied stone materials such as quartz crystals, red ochre, chert, slate, obsidian, asbestos, biotite, and worked clay. Worked shell included small beads and red and black abalone ornaments and square beads. Twined basketry is known from impressions left in baked clay. Other baked clay objects include cooking balls, perforated disks, and grooved net sinkers (Heizer 1949:25; Beardsley 1954:69; Moratto 1984:201). Based on the rarity of ground stone tools, abundant projectile points, and dietary bones from elk, pronghorn, deer, rabbit, coyote, beaver, lynx, bear, and waterfowl, it is assumed that hunting was the focus of Windmill Pattern subsistence (Heizer 1949:20,27; Moratto 1984:201). The Mesilla Complex, Mendocino Pattern, and Berkeley Pattern were also distinct regional cultural traditions that first emerged in Northern California during the Middle Archaic.

#### *Upper Archaic Period: Late Holocene Cultures*

Regional climate stabilized at around 3,000 BP, and by 2,500 BP the widespread, generalized technological traditions of the Middle Archaic were replaced by distinct regional specializations. Archaeologists have also found evidence of an increase over time in the scope and distance of intergroup trade patterns, a widespread change from less to more complex social forms, and from low to high population density. The archetypal Upper Archaic culture is the *Berkeley Pattern*, the basic Archaic adaptation of the rich alluvial basins of Central California. There was also considerable cultural diversity within the Berkeley Pattern, and local cultures have been identified in the central Sacramento Valley, central North Coast Ranges, Napa Valley, Solano County, and Sacramento Delta regions (Bennyhoff 1994; Rosenthal 1996; White 2003a; White ed. 2002). Certain traits are common to all Berkeley Pattern variants, including a highly developed bone tool industry, atlatl engaging hooks and dart sized, non-stemmed points (Fredrickson 1974:125a, 126; Lillard et al. 1939:77; Beardsley 1954:74). Berkeley Pattern sites contain many features, especially fire-cracked rock heaps, shallow hearths, rock-lined ovens, house floors, cairns, and graves. Complete house floors suggest that large, pole framed houses between 4–6 m in diameter were built, and clay daub with tule or bulrush impressions indicate that the houses were thatched and sod-packed. Berkeley Pattern economy varied regionally, generally focused on seasonally structured resources that could be harvested and processed in bulk, such as acorns, salmon, shellfish, and deer. The high frequency of mortars and pestles relative to chipped stone implies a heavy reliance on acorn processing (Fredrickson 1974:125a; Moratto 1984:209).

Continuing a pattern of increasing cultural diversity, in Central California Berkeley Pattern sites occur contemporaneous with Windmill Pattern sites (Fredrickson 1974). In the North Coast Ranges, Berkeley Pattern sites occur contemporaneous with Mendocino Pattern sites (White ed. 2002), with the Berkeley Pattern endemic to alluvial basins and the Mendocino Pattern common to adjoining foothill and mountain terrains, suggesting different ecological niches.

#### *Emergent Period: Late Holocene Cultures*

The relatively stable climatic regimes established at the outset of the Late Holocene continue through the modern period, although a “climatic anomaly” dating around 900 BP may have caused widespread disruption (comparable to the Mid-Holocene) (Jones et al. 1999). In Northern California, after 1,100 BP many Archaic technologies and cultural traditions disappeared, in each region replaced by the onset of cultural patterns and behaviors similar to those existing locally at the time of culture contact.

The archetypal Emergent Period culture is the *Augustine Pattern*, a widespread tradition marked by the coalescence of long-distance, integrative trade spheres and the introduction of the bow and arrow which replaced the atlatl as the favored hunting implement. The Augustine Pattern has been divided into two phases common to most or all localities. *Phase 1* markers include *Olivella* whole and lipped beads. “Banjo” type abalone ornaments first appear with Phase 1 of the Augustine Pattern, as well as elaborately

incised bird bone whistles and tubes, and “flanged” soapstone pipes. *Phase 2* artifacts include small corner-notched and triangular points, clam disc beads and bead drills, magnesite cylinders, bedrock mortars, and housepit sites often attributable to known ethnographic villages (Beardsley 1954:77–79; Fredrickson 1984; Moratto 1984:213).

Other new traits which distinguished the Augustine Pattern include tightly flexed burials, and cremation, a form of burial apparently reserved for high status individuals during Phase 1 but widespread during Phase 2 (Fredrickson 1974:127; Moratto 1984:211). Grave offerings such as shell beads and ornaments regularly occurred with utilitarian items including mortars and pestles often “killed” before burial. In the Sacramento Valley area, fishing equipment is more common, elaborate, and diverse than in earlier phases and includes several types of harpoons, bone fish hooks, and gorge hooks (Beardsley 1954:78; Moratto 1984:211, Elsasser 1978:44). Basketry has been identified from charred remains found in graves and a form of pottery is also known from sites in the Central Valley (Moratto 1984:213; Beardsley 1954:77). Baked clay balls, probably used for cooking, are a common constituent in Central Valley sites where stone is absent (Moratto 1984:213; Beardsley 1954:77). The Augustine Pattern economy was regionally variable, although fishing and acorn gathering appear to have increased in importance over time. Shaped mortars and pestles predominate with charred acorns frequently found in middens. Culture contact between Native Californians and immigrant populations from throughout the world occurred at various times in Northern California, generally between 1750 to 1820 in the Central Valley to as late as 1850 in the gold-poor North Coast.

### Regional Cultures

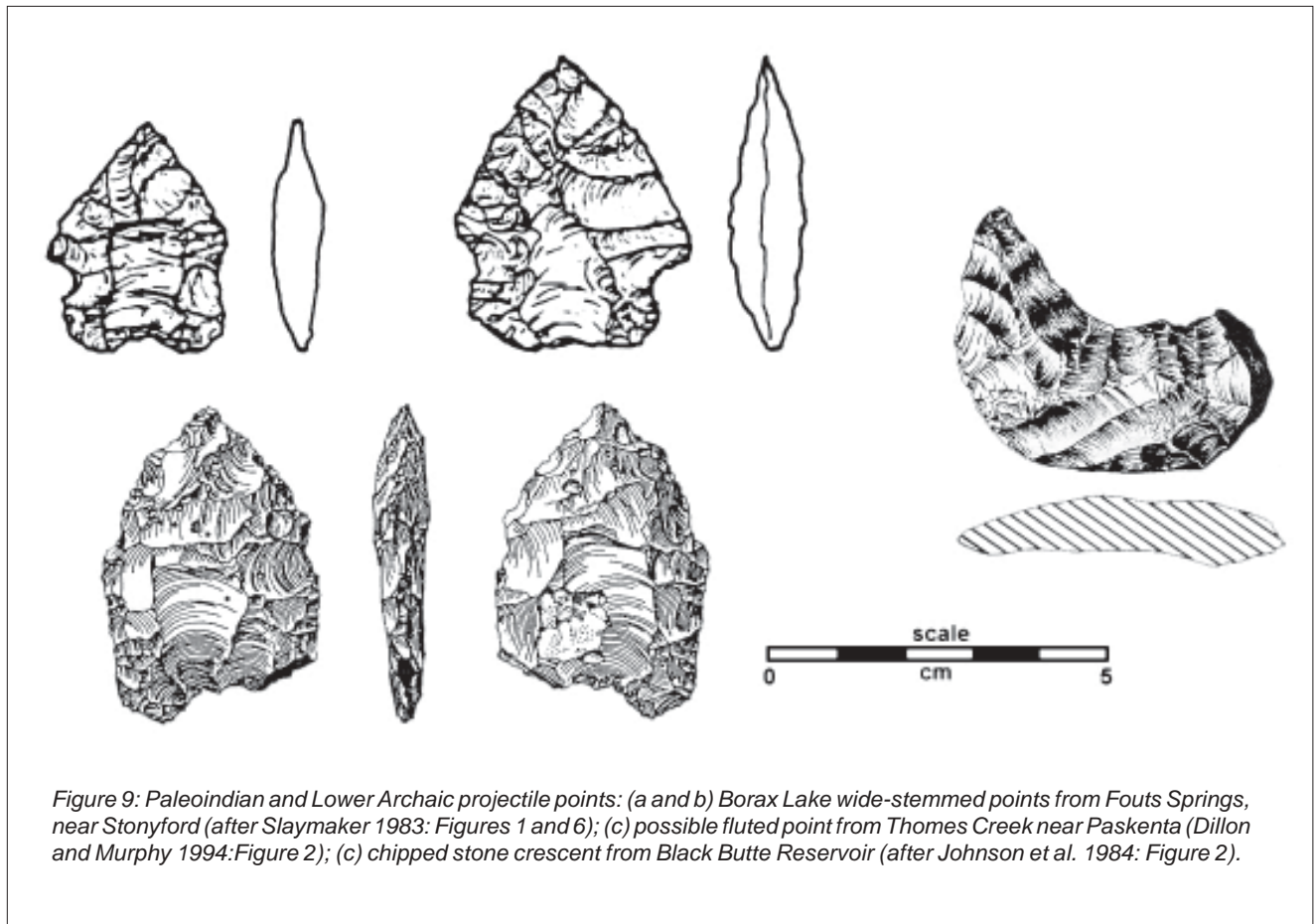
The project area is located in the foothills of western Colusa and Glenn counties, at the interface between two distinctive archaeological regions: the North Coast Ranges and the Sacramento Valley. North Coast Ranges prehistory is synthesized by Fredrickson and White (Fredrickson 1973,1974, 1984; Fredrickson and White 1988; White and Fredrickson 1992; White ed. 2002) and Sacramento Valley prehistory is synthesized and codified by White (White 2003a, 2003b, 2003c; White et al. 2008). The following summarizes findings of previous major archaeological investigations in the foothills of western Colusa and Glenn counties, with findings organized by antiquity and cultural pattern. Site locations are depicted in Figure 7.

#### *Western Clovis Tradition*

No sites or components associated with the Western Clovis Tradition have been found in the foothills, however, two isolated artifacts potentially indicative of the Western Clovis Tradition have been identified. Johnson (Johnson et al. 1984:65) reports the discovery of a chert flaked stone crescent from Gle-306, located in the vicinity of Black Butte Reservoir west of Orland, in Glenn County (Figure 8 d), and Dillon and Murphy (1994) report a possible fluted point from the Thomes Creek area near Paskenta, in southwest Tehama County (Figure 8 c).

#### *Borax Lake Pattern*

Two excavated sites have yielded evidence of Borax Lake Pattern occupation in the foothills, Col-76 and Col-160. In 1982, a crew from California Archaeological Consultants conducted test excavations at the Fouts Springs Recreation Area in the Stonyford District of the Mendocino National Forest (Slaymaker 1983). Two sites were studied, Col-76, Col-81, both near the confluence of Mill Creek and the South Fork Stony Creek, about seven miles west of Stonyford. Col-76 was located on an elevated bench above the creeks, contained in a weathered, gravelly clay. Artifacts included Borax Lake wide-stemmed points (Figure 8 a–b), manos and metates, and cores and core tools, predominantly Borax Lake Pattern in attribution. Obsidian sourcing studies for 50 Col-76 specimens found a preponderance of Borax Lake obsidian with some Napa Valley, Mt. Konocti, and Medicine Lake source group obsidian (Bouey *in* Slaymaker 1983. Obsidian hydration rim values on 50 specimens ranged between 3.4–13.5 microns, with



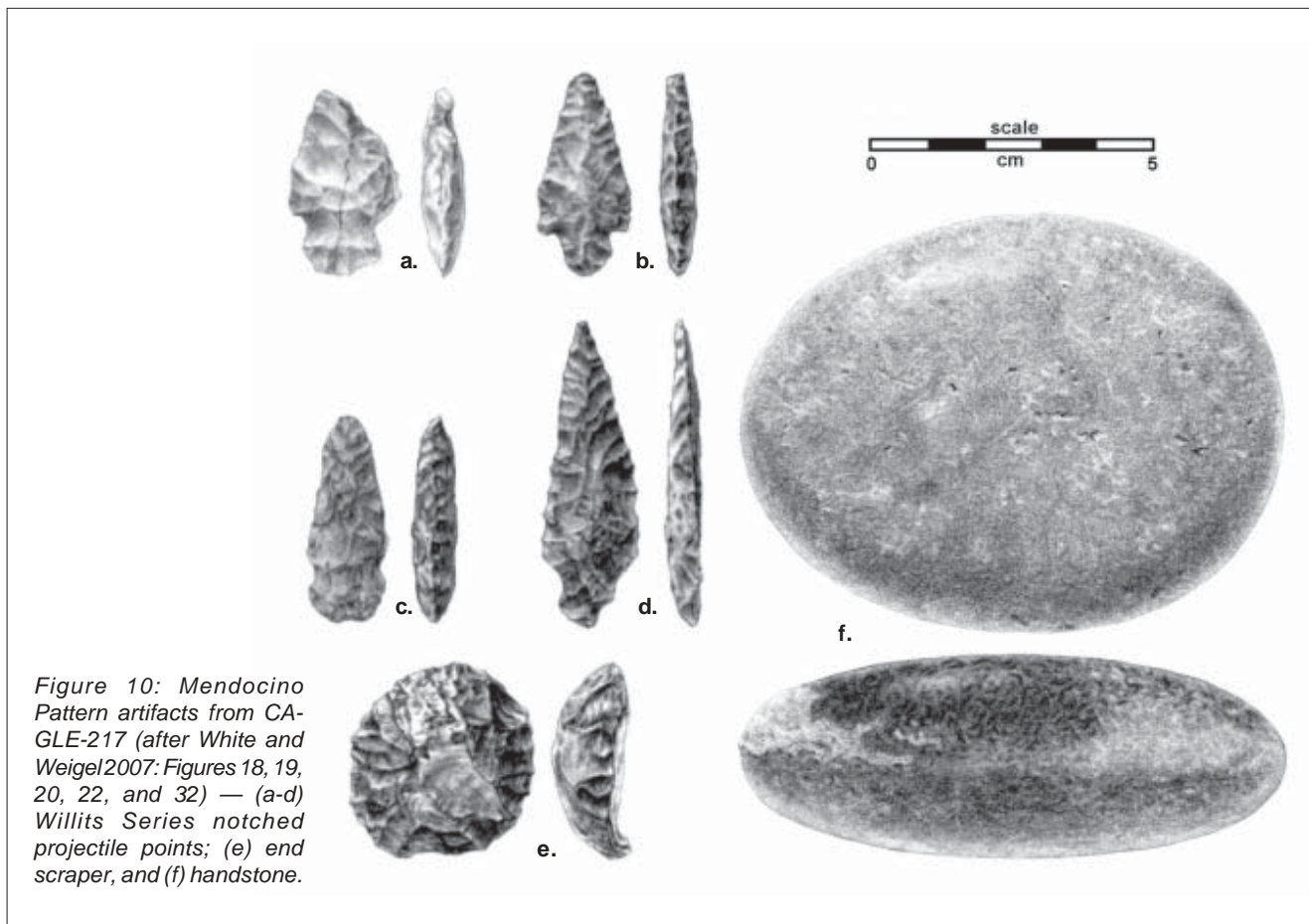
a mean average of 6.4 microns and a mode at 7.0 microns (Jackson *in* Slaymaker 1983), indicating an age of between 4,500–8,000 BP for the assemblage, consistent with the Borax Lake Pattern assignment.

In 1990, Origer and Waechter, Consulting Archaeologists, conducted test excavations at Col-160, on Little Stony Creek, in the Mendocino National Forest (Origer and Waechter 1990). The site consisted of a light midden and artifact scatter occupying a gently sloping bench or terrace on the north side of the creek. Excavation in the midden area produced evidence of two components. The lower component, below 60 cm depth, yielded a Borax Lake wide-stemmed point, flake tools, a core tool, hammerstones, manos, and metate fragments. Ignoring the thinnest rim of double rim results (presumed here to represent the results of mid-Holocene weathering, cf. Waechter and Origer 1993), 24 hydration rim values on Borax Lake obsidian flakes and bifaces from the 60–160 cm levels had a mean average rim value of 7.21 microns, indicating an age of around 4,500–8,000 BP, consistent with a Borax Lake Pattern assignment.

#### *Mendocino Pattern*

Sampling to date indicates that Mendocino Pattern sites are widespread in the western foothills of the Sacramento Valley, often exhibiting many characteristics common to mid-Holocene “Millingstone Culture” sites in the South Coast Ranges, including large inventories of coarse core tools, manos, and deep-basin millings. Six excavated sites have yielded evidence of Mendocino Pattern occupation in the foothills, Col-81, Gle-217, and Gle-268.

In 1992, the California Department of Transportation (Caltrans) conducted a data recovery excavation at Gle-217, located at the junction of Hwy 162 and County Road 403 just north of Elk Creek, in Glenn

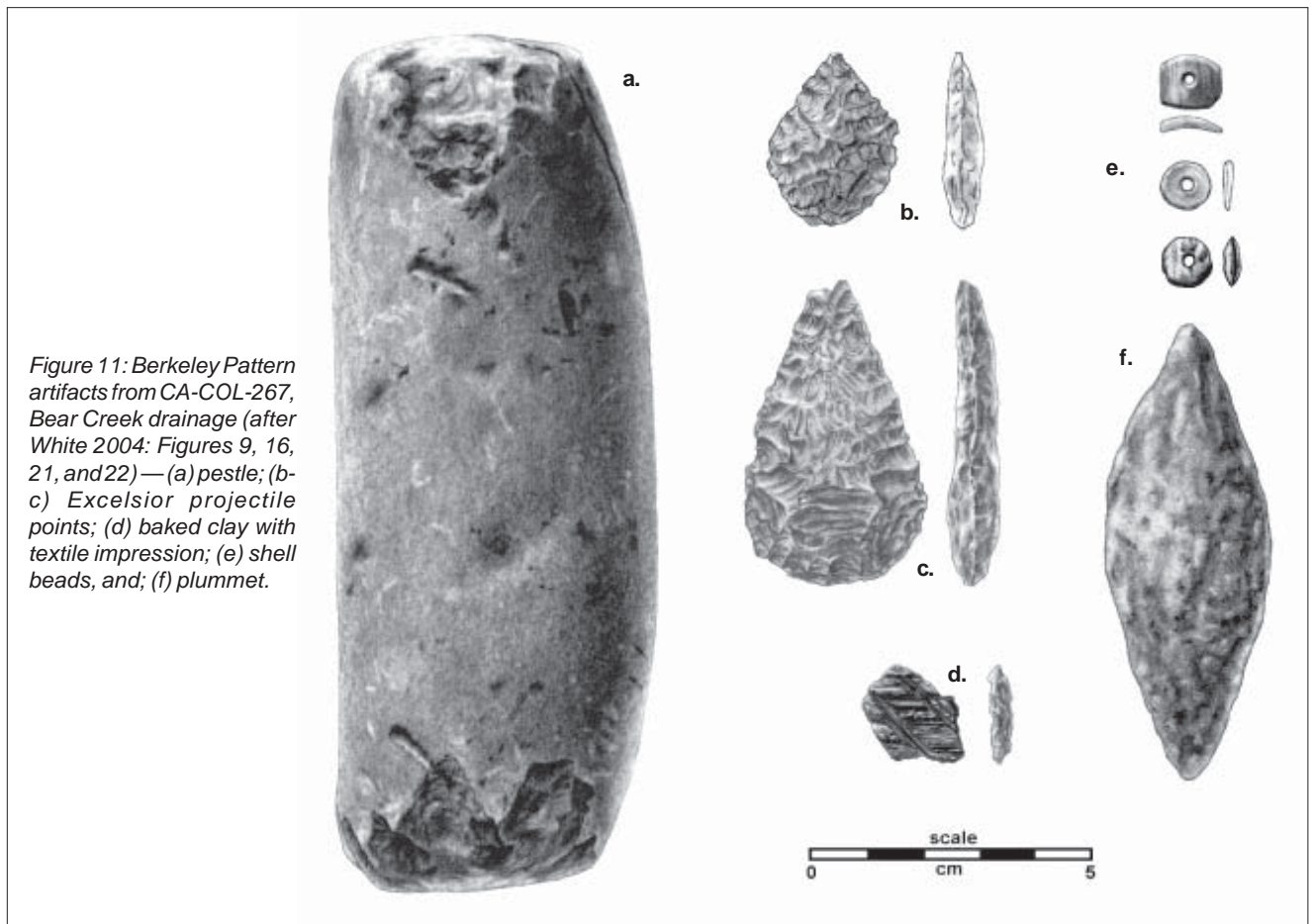


County. The excavation found stratigraphic and dating evidence for two separate periods of occupation. The primary occupation at Gle-217—Component B—was attributed to the Mendocino Pattern and radiocarbon and obsidian hydration evidence fixed the age of the occupation at 735 – 2892 calBC (2685 – 4842 calBP). Associated artifacts (Figure 9) included blueschist and greenstone cores/core-tools, chert flake tools, projectile points and bifaces, small chert cores, and handstones and millingstones. Three burials were found associated with Component B, and the Mendocino occupation was marked by a well-defined rock layer interpreted a product of mid-Holocene deflation and soil loss (White et al. 2008).

The Fouts Springs Col-81 excavation, mentioned above, found a dark, clayey midden attributable to the Mendocino Pattern containing Mendocino concave-based, lozenge-shaped, Mendocino corner-notched, and Willits side-notched points, as well as cores and core tools and a mix of manos and metates and the mortar and pestle. Obsidian sourcing determinations for 62 Col-81 specimens found a mix of Borax Lake, Napa Valley, and Mt. Konocti obsidian (Bouey *in* Slaymaker 1983). Obsidian hydration rim values on 50 specimens ranged between 3.3–9.3 microns, with a mean average of 5.2 microns and a tight cluster between 4.2–5.5 microns (Jackson *in* Slaymaker 1983), indicating an age of between 2,000–3,500 BP for the assemblage, consistent with the Mendocino Pattern assignment. This age estimate was further supported by a radiocarbon date of 3,360±140 BP obtained for an aggregate of charcoal from Unit 8, levels 80–120 cm (Slaymaker 1983).

In 1981, California Archaeological Consultants, Inc., conducted data recovery excavations at Gle-268, the ethnographic Hill Nomlaki village of *Kulachini* located along County Road 403 halfway between Elk Creek and Stonyford in western Glenn County (Offermann and Orlins 1982). The excavation produced a corner-notched point, a concave-based point, handstones and millingstones, and shaped scrapers.





Obsidian hydration results for Borax Lake obsidian averaged 3.9 microns, indicating a date of around 1,500 BP.

### *Berkeley Pattern*

To date, only two Berkeley Pattern components have been identified and excavated in the foothills of the western Sacramento Valley.

In 1992, Pacific Legacy, Inc., conducted data recovery excavations at Col-61, on Salt Creek in the northern terminus of Antelope Valley, west of Williams (Jackson and Shapiro 2001). Col-61 consisted of a dark midden mound occupying a high bench overlooking the creek. Excavation was designed to completely remove the archaeological deposit, an estimated 24 m x 16 m area. The site had evidence for horizontal and vertical stratigraphy, and two distinct components can be identified. The predominant occupation appears to have been associated with the Augustine Pattern, Phase 1a. However, an Upper Berkeley component is marked by Excelsior series and Houx stemmed series points, *Olivella* F series saddle beads, slate tabular pendants, a soapstone bead, and a soapstone ear spool. One burial is attributable to this phase, having associated two *Olivella* G series saucer and ring beads (Bennyhoff 1993 in Jackson and Shapiro 2001).

In 2001, the Archaeological Research Program, California State University, Chico, conducted salvage excavations at Col-267, the Thompson Canyon site, located in a small valley in the Bear Creek drainage, on the Bureau of Land Management (BLM) Paine Ranch acquisition, southwestern Colusa County. The site had been severely impacted by erosion, and in response to requests from BLM and Patwin

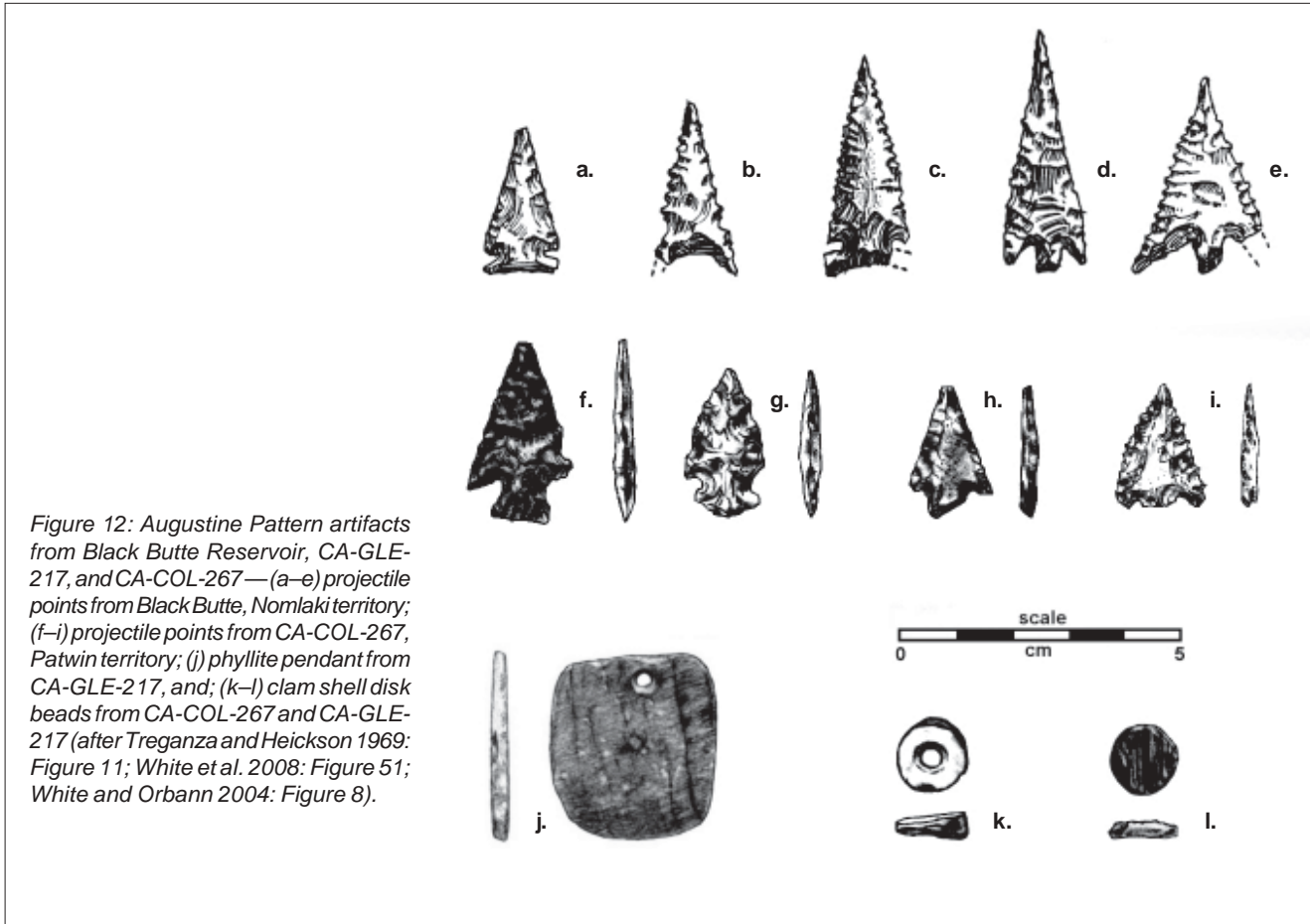


Figure 12: Augustine Pattern artifacts from Black Butte Reservoir, CA-GLE-217, and CA-COL-267—(a–e) projectile points from Black Butte, Nomlaki territory; (f–i) projectile points from CA-COL-267, Patwin territory; (j) phyllite pendant from CA-GLE-217, and; (k–l) clam shell disk beads from CA-COL-267 and CA-GLE-217 (after Treganza and Heicksen 1969: Figure 11; White et al. 2008: Figure 51; White and Orbann 2004: Figure 8).

descendants the CSU, Chico Archaeological Research Program conducted a minor salvage excavation at the site on weekends in October, 2001. The site consisted of a large midden mound surrounded by smaller midden and non-midden loci on perimeter benches. The excavation found stratigraphic and dating evidence for two separate periods of occupation. The primary occupation at Col-267 —Component B — was attributable to the late Berkeley Pattern and dated around 1,200 to 1,800 BP. Associated artifacts (Figure 10) included diamond-shaped and stemmed projectile points, *Olivella* saucer and saddle beads, and bone awls (White and Orbann 2004).

### Augustine Pattern

Seven excavated sites have yielded evidence of Augustine Pattern occupation in the foothills, Col-61, Col-160, Gle-10, Gle-11, Gle-15, Gle-217, and Gle-268.

The most profound Augustine Pattern assemblages yet documented for the westside were recovered by Treganza during his excavations at Gle-10, Gle-11, and Gle-15 in advance of construction of Black Butte Reservoir in western Glenn County (Treganza and Heicksen 1969; Wolfenden 1969). The assemblages establish clear distinctions in the archaeology of the ethnographic Nomlaki, but as yet are poorly reported and require further description and analysis.

The Gle-217 excavation mentioned above also produced Component A, associated with shallow soils above the rock layer, marking an ephemeral use of the site dating 306 calAD – 770 calAD (1180–1644 calBP) (White et al. 2008). Associated artifacts (Figure 11) included arrowpoints, pebble hammerstones, shaped pestles, phyllite pendant fragments, worked bone and antler, and a single burial.

The Col-61 dig mentioned above also produced a rich Augustine Pattern, Phase 1a assemblage (Jackson and Shapiro 2001). Marker artifacts include large, triangular-stemmed Gunther barbed and Rattlesnake corner-notched points and *Olivella* sequin beads. Three burials are attributable to this phase, all three having associated *Olivella* sequin beads (Bennyhoff in Jackson and Shapiro 2001).

The Col-160 excavation described above also produced evidence of an upper component associated with midden soils above 45 cm depth (Origer and Waechter 1990). This component produced faunal remains, Rattlesnake corner-notched points, and pestle fragments. Ten hydration rim values on Borax Lake obsidian flakes from the 0-30 cm levels with a mean average rim value of 4.28 microns indicate an age of between 1,000–1,500 BP, consistent with an Augustine Pattern attribution.

The Gle-268 excavation mentioned above also sampled a midden locality with housepit indentations (Offermann and Orlins 1982). This deposit produced a limited Augustine Pattern assemblage marked by a small Gunther barbed point, bone tool fragments, two *Olivella* sequin beads, three *Olivella* spire-lobed beads, and five clamshell disk beads.

## HISTORICAL CONTEXT

This section provides a summary history of the west side of the Sacramento Valley from the early 19th century through the early 20th century. Northern California history is comparatively brief but evolved rapidly, with initial non-Indian exploration in 1808 and the filing of land grants and initial settlement well underway by the time of the Gold Rush just 40 years later. The west side of the Sacramento Valley was on the perimeter of the areas directly impacted by the Gold Rush, and the region was settled and developed primarily due to its water supply, arable lands, and suitability to transportation needs. Thus, the following focuses on dimensions unique to regional history, including contact with Spanish military expeditions, Mexican military expeditions, and Oregon territory fur trapping expeditions, through initial settlement on Mexican land grants, development of large ranches, homesteading, and the development of regional transportation systems including trails, roads and drayage, river boats, and railroads.

### Non-Indian Contact

The history of culture contact in the northern Sacramento Valley began with the Spanish explorer Captain Gabriel Moraga in 1808 and ended suddenly with the devastating smallpox epidemic in 1833. In this 25 year span, the river tribes and their neighbors met non-Indians for the first time. No formal non-Indian outposts were established or long term footholds secured on Indian lands before 1833, and there is no clear evidence of pandemics or significant social or economic upheaval. Aboriginal lifeways were on full display to the visitors, and the visitor's journals and recollections are an interesting source of information about tribal existence. However, these sources can also be read for information about the nature of initial contact between these asymmetric societies, a growing aggregate of events that culminated in a sudden termination of aboriginal lifeways in the western Sacramento Valley.

The project area formed the northern frontier of Spanish territory until the War of Mexican Independence concluded in 1846. Accordingly, the region's earliest known non-Indian visitors consisted of Spanish military expeditions on patrol.

#### *Moraga, 1808*

The expedition of Ensign Gabriel Moraga, September 25 through October 23, 1808, began at the Mission de San Jose with the objective of identifying resources and locations that might support an expansion of the Spanish mission system. Eleven privates and a corporal accompanied Moraga and at least one Indian guide/translator. They explored the San Joaquin, Consumes, Mokelumne, and American

rivers as they progressed north. On October 9, Moraga camped on the lower Feather River, which he named the Sacramento, and later crossed the river somewhere near Nicolas (Chapman 1921:423-425). According to Cutter's translation of Moraga's *Journal Diario de la Tercera Expedicion*, Moraga passed "a mountain range in the middle of the valley" (the Sutter Buttes), then proceeded north on the east side of the Sacramento River, which he named the Jesus Maria (Cutter 1957). Moraga continued up the Sacramento River to a point about 18 miles north of the town of Colusa. He then turned east to the foothills and returned south to Mission San Jose.

#### *Arguello and Ordaz, 1821*

Among the most fascinating documents available on the early history of the region are the journals of Arguello and Ordaz. Between October 17 and November 17, 1821, Captain Luis Antonio Arguello, Commandant of the Presidio de San Francisco, conducted a military expedition into northern California. Ordered north by the Spanish Governor to verify rumors of white settlement in the valley, Arguello's troop included 70 men, their mounts, packhorses, and a horse-drawn cannon. The expedition was transported by launch to the Suisun area. From there, they followed a course up the valley, visiting Patwin villages along the western side of the Sacramento River and tracking the rumors north, then west, to the foothills. Satisfied that the reports actually referred to known Russian settlements on the Pacific coast, the troop turned south again to mission San Rafael, ultimately returning by launch to the Presidio. Expedition diaries were kept by Arguello and his chaplain, the Reverend Father Fray Blas de Ordaz, and these diaries (Arguello 1821 in Fischer 1992; Ordaz 1821 in Heizer and Hester 1970) contain important details about the Patwin and their village and place names. These diaries are especially significant because they predate the pandemics of malaria (1830-33) and smallpox (1837), which later decimated the river tribes (see Cook 1965). As Arguello passed into River Patwin territory in late October 1821, his troop encountered villages with no prior direct experience with non-Indians. Arguello was a military man with orders to secure territory and he approached each new village with this intent, which was made evident to the Patwin by his actions and interpreters. Of interest was the tendency for village leaders to seek peace, and also how this was often achieved with food or gifts. For example, on October 25, 1821, as Arguello's troop approached the village of *Yo'doi*, the villagers formed-up along a perimeter stockade. Arguello's troop also formed up, and marched to a high bank alongside, where according to Ordaz:

There immediately visited us a chief with his gang who brought a present (a custom no doubt among them); the present consisted of guero of coras, several different secles, and some mecates [Ordaz 1821 in Heizer and Hester 1970:100].

Not all of Arguello's interactions with local tribes were this social. Joined by two *Yo'doi* guides, after a full day's march the next day Arguello's troop approached another large Patwin settlement, *Sah'-kah* near Grimes. Arriving at the village, they heard:

Formidable voices and mingled cries of several threats and other indications of war breaking out..(and).. the Commander saw the necessity of having troops fall back, drew his troops into a line of battle, ordered the cannon brought up to frighten them and at the same time charged them [Ordaz 1821 in Heizer and Hester 1970:100].

Arguello met the resistance by firing a canon shot aimed low:

The objective was to intimidate them and make them moderate their pride. For this reason I fired at them, (which was) required by such a group that surrounded us and by their discharging arrows into the troop [Arguello 1821 in Fischer 1992:24].

At least five *Sah'kah* were killed in the skirmish and the remainder fled to the woods across the river. Arguello's troop camped nearby that night, and hostilities continued with loud shouts and arrows fired into the camp. However, the next morning, a number of *Sah'kah* responded to the novelty of a people

unknown to them and visited the camp. On October 27, Arguello spent the morning conferring with two men of *Sah'kah* (Ordaz 1821 in Heizer and Hester 1970:101).

Arguello's party had traveled an additional nineteen miles by October 28, ending the day at another village he identified as *Chac* near the latter day Stegeman Station (also known as Heizer and Hester's 1970 *Chah'de-he*). Arguello indicated that the inhabitants of various villages approached the visitors in different ways, and "showed themselves of sufficient peace and quiet and received the troops with much pleasure and celebration" (Arguello 1821 in Fischer 1992: 27). Ordaz offers interesting details:

We were received with great contentment by the inhabitants, who set out with several banners to meet us. All of the children up to age 14 years were arranged in the vicinity of the houses, forming an oval in each one of them [Ordaz 1821 in Heizer and Hester 1970:101].

This welcoming pose indicates that *Chah'de'-he* was a tribelet center, housing important political leaders whose training and inclination was to convert potential conflict into political or economic gain by means of diplomacy.

Arguello traveled approximately 18 miles on October 29, passing through five large villages he identified as *Tocolic*, *Utulsabc*, (probably near Codora), *Dacdac* (probably near Glenn), *Pachit* (probably near Jacinto), and *Sunuc*, the latter likely the village identified by Kroeber (1932) as *Su'nusi*, at Ordbend.

On October 30, Arguello halted his march up the river and turned west, then south. Though considerable doubt exists about Arguello's northernmost termination, some researchers argue that he may have reached as far north as Red Bluff. However, interpretation by others of the Arguello and Ordaz diaries does not support this assertion. Assuming that the party traveled at a steady rate and again made approximately 18 miles of progress on the day of the 30, then the October 30 camp was probably four to seven miles north of Hamilton City, near Sanden Island.

Satisfied that the reports of white settlement actually referred to Indian stories about visitors at known Russian settlements on the Pacific Coast, Arguello's troop struck out to the west and probably followed Stony Creek to the foothills and south through the coast range on their return trip to the Presidio.

### Trappers and Epidemic

A number of overland fur trapping and trading expeditions visited the Central Valley in the late 1820s. In 1827, trapper Jedediah Smith of the Rocky Mountain Fur Company twice led parties of trappers through California, on both occasions detained by Mexican authorities. On the second trip, following detention at Mission San Jose, Smith's party was compelled to leave, and ordered by Governor L.A. Arguello to follow a route northward through the Sacramento Valley. In early 1828, the party traveled along the Sacramento River to the Feather River, and then up the Feather River to the forks and back overland to the Sacramento (Sullivan 1934; Weber 1990). In the summer of 1828, an American trapping party led by Ewing Young conducted a poorly recorded, covert expedition into the Sacramento Valley. Beginning in 1829, the Hudson's Bay Company sent a number of trapping expeditions into the northstate. In 1829, Alexander McLeod trapped the Sacramento River south to Stockton, returning north in 1830 (Nunis 1968). In 1830, Peter Skene Ogden trapped down the north coast to San Francisco Bay, then trapped the Sacramento River north to the Pit River. In 1832 through 1833, John Work led an expedition that trapped along the Sacramento southward, then wintered over on the Sutter Buttes (Maloney ed. 1945). For a time, Work's party trapped alongside parties led by Ewing Young, who was again in California, and Michel Laframboise, who had come down from Oregon. All three parties encountered depleted game.

The nexus of these three parties also had more disastrous consequences. In his fascinating book, *The Epidemic of 1830-1833 in California and Oregon*, S.F. Cook tracks the spread of malaria from the trapping centers of the northwest to central California with the Hudson's Bay companies, resulting in the death in one year of at least 20,000 Indians in the Central Valley (Cook 1955). The fur trapper's journals comment on the great number of Indians encountered in the Sacramento Valley through the winter of 1832. However, in the spring and summer of 1833, traditional Native American lifeways came to a sudden and somber end when malaria, introduced by the trappers, swept through and decimated the Nomlaki, Konkow, and Patwin tribes.

Already frustrated with low take resulting from overharvest, the fur trapping parties also suffered the epidemic. Work reported that as many as 72 of his 100 member brigade contracted the fever (Maloney ed. 1945)—and eventually abandoned their efforts in the valley, giving way to a slow trickle of immigrants. The first wave of American colonists found a land still reeling from the devastating epidemics of the 1830s, reporting a few occupied villages, but none approaching the population sizes observed by Arguello. Visiting a location at or near the former village site of *Yo'doi* (Knights Landing) on August 25, 1841, Wilkes's party encountered a disturbing tableau:

the ground was strewed with the skulls and bones of an Indian tribe, all of whom are said to have died, within a few years, of the tertian fever, and to have nearly become extinct in consequence [Wilkes 1958:73 (1841)].

While exploring the northern slopes of the Sutter Buttes, Derby also saw signs of death and deprivation among non-Indian colonists. On October 20, 1849, Derby found:

many human bones, and the embers of a large fire, in which were the remains of a carpet bag or valise and some plates and cups. We observed, also, a newly made grave in the valley, with a cross placed at its head, on which had been made an inscription, but it was now illegible [Derby 1849 in Farquhar 1932:114].

The surviving river tribes suffered further deprivations in the 1840s, at the hands of some American colonists who raided their increasingly scarce and temporary camps, murdering and taking slaves. For example, Wilkes provides the following account of a raid on a camp near present-day Colusa:

Near this had been an Indian village, which was destroyed by Captain Suter (*sic*) and his trappers, because its inhabitants had stolen cattle, etc. The affair resulted in one of the Indians being killed, twenty-seven made captive, and the removal of the remainder beyond the limits of his territory [Wilkes 1958:73 (1841)].

One of Wilkes's journal entries is particularly interesting for the indication it gives of a shift in the regard the surviving River Patwin held for non-Indian visitors. On August 29, 1841, the Wilkes party stopped at a village at or near *Sah'-kah*, visited by Arguello just ten years prior:

This rancheria is said to contain between two and three hundred warriors, who are a fair specimen of the tribes of the country, and are the most troublesome to the trappers, with whom they generally have a fight once a year. On one occasion, the Hudson Bay Company left their cattle in their charge, and when the delivery was demanded they refused to give them up; war was accordingly made on them, and after they had lost forty of their warriors, they consented to return the cattle and make peace...On the morning when the party were breaking up camp to embark, an Indian boldly seized the bowie-knife-pistol of Dr. Pickering, and made at once for the woods. He had chosen his time well, for no arms were at hand. Several of the men pursued him, but by his alertness he eluded all pursuit; and having gained the bushes, escaped with his prize [Wilkes 1958:76-77 (1841)].

The party would again pass the village on their return and, doing so on September 1, they attempted to coax the villagers near the boats:

It was with some difficulty that the Indians were persuaded to approach; but a fine-looking savage, more bold than the rest, at last ventured to do so, and gave the information that the Indian who had committed the theft, resided at the village up stream.

The weapon therefore not being forthcoming, Lieutenant-Commandant Ringgold determined to seize this man as a hostage for the return of the article. He was accordingly secured, his arms pinioned behind him, and led down to the boat, when two men were ordered to tie his legs; while they were in the act of doing this, he extricated himself, and jumped overboard. The guns were at once leveled, and half a dozen triggers ready to be pulled; but Lieutenant-Commandant Ringgold very properly stopped them from firing, and endeavors were made to recapture him, but without effect. These efforts having failed, they took to their boats, and pulled down the stream. The Indians who were on the banks, to the number of two hundred and fifty, made no demonstrations of hostility [Wilkes 1958:80 (1841)].

It is clear from this and many comparable examples that the river tribes were much reduced by epidemic and other injuries, and now found themselves increasingly hemmed in by colonists. As Wilkes noted, by the mid-1840s traditional game foods were also much depleted due “to large numbers killed by the Hudson’s Bay Company who annually frequent these grounds” (Wilkes 1958:134 [1841]). With few options and on the fringes of an economy to which they had little or no access, many Indians worked on the early ranchos, were often assigned the surnames of a white rancher, and established small settlements (rancherías) on the ranch grounds. Within a few years, American colonization and governance led to confinement of the scattered survivors to rancherías and formal reservations.

## Early Settlement

### *Mexican Land Grants*

Much of the northern Sacramento Valley, including Colusa County, remained little known to non-Indians until the 1840s when the area was scouted, mapped, and land grants were issued in a quick succession of events.

John Bidwell arrived in California in 1841, and was soon employed by John Sutter to oversee commercial activity in several of his business concerns. Bidwell first visited the Sacramento Valley in 1843, when he joined Peter Lassen in pursuit of horse thieves. Impressed with the economic potential of the region Bidwell applied for and was awarded several of his own land grants, one of which—Rancho de Arroyo Chico—he eventually settled and developed (Bidwell 1877 in Rogers 1891; Gillis and Magliari 2003).

Like Bidwell, Peter Lassen perceived opportunity in economic development in the northstate, and in 1843, he petitioned the Mexican government for the “Rancho des Bosquejos” land grant on the eastern side of the Sacramento River between Toomes and Pine creeks, north of Chico. After wintering on the Sutter Buttes, Lassen built a cabin on this grant in 1844. Becoming a naturalized Mexican citizen in 1844 (necessary to secure his land holdings), he expanded his ranch to include a house, blacksmith shop, corral, a small wheat field, 180 head of cattle, and 100 mules (Peniou n.d.:3). In 1845, William Moon obtained a Mexican land grant on the western side of the river opposite Lassen’s Rancho Bosquejo.

Lieutenant John C. Fremont visited Rancho Bosquejo in spring 1846, on his way north to the newly ceded Oregon Territory. In 1847, in honor of Fremont’s father-in-law, Missouri Senator Thomas H. Benton, Lassen laid out a new town site on Rancho Bosquejo, “Benton City.” The town site, located on the southern side of Deer Creek one mile upstream from its confluence with the Sacramento River (about one mile north of Vina), ultimately consisted of series of adobe buildings including a blacksmith shop, grist mill, a store, and several homes. In 1847, Lassen accompanied Fremont to Missouri in the hope of attracting immigrants, and in the summer of 1848 returned with the first group of overland settlers to reach northern California (Schoonover 1994:14).

Other settlements followed quickly. A man named Bryant established a residence at the mouth of Stony Creek near present day Hamilton City sometime prior to 1847 (Rogers 1891:53; Bidwell 1877 in Green 1880). In 1847, T.O. Larkin hired John S. Williams and wife to occupy the Larkins Children Land Grant. That same year, Williams drove cattle into the area and built an adobe ranchhouse and

headquarters on the western side of the Sacramento River in the vicinity of the abandoned Patwin village of *Chah' de'-he*, near present-day Princeton (Bidwell 1877 in Rogers 1891; White 2003a). Williams's cattle increased so rapidly that in a few years they spread across the plains between Stony and Cache Creeks (Rogers 1891:79). Soon, thousands of head of stock covered the plains previously occupied solely by herds of elk and antelope. Although the ranch flourished, in 1848, Williams abandoned the ranch to pursue gold along the rivers and streams of the Sierra Nevada, and Charles B. Sterling was hired to assume caretaking duties at the rancho.

William B. Ide, notable for his role as a leader in the Bear Flag revolt and fighting with J. Fremont in the war with Mexico, was also among the first to establish a settlement in the region. He built a ranch complex in 1847 on a land grant on the east side of the Sacramento River about 12 miles north of the Williams residence, near present-day Ord Bend.

Also in 1847, Dr. Robert B. Semple made a trip up the valley on horseback to visit the Red Bluff area. He was deeply impressed by the fertile valley lands and lush vegetation in the vicinity of the *Colus* village. When Dr. Semple completed his tour he returned by raft along the Sacramento River. Semple observed that navigation along the river above *Colus* village was precarious but downstream from this point it was deep, broad, and navigable year round. With this fact in mind, Dr. Semple formulated a plan to develop a shipping terminus at *Colus* (McComish and Lambert 1918). He inquired about the ownership of land of the *Colus* Indians, and learned that it was part of Bidwell's *Colus* Land Grant.

R. B. Semple encouraged his brother, Charles D. Semple, to purchase the land from Bidwell in 1849 in order to establish a new city. C.D. Semple visited what he thought was the preferred town site and established some markers. He completed the purchase in 1850 and soon after both Semple brothers, accompanied by their nephew (an 18 year-old named Will S. Green) and a carpenter named Hicks, piloted a steamer upriver to the proposed town site. However, once arrived, R. B. Semple realized that their landing site was actually a temporary Indian camp seven miles north of the preferred location. Shortly thereafter, the company steamed back downriver and moved to the preferred location. Later C. D. Semple, W. S. Green, and Hicks laid out several streets and built the first house on Lot 2, in Block 6, on Levee Street between 5th and 6th Streets. It measured 20 x 30 feet, was 1.5 stories high, and was operated as a store and bar by the firm of Semple & Green. The papers for the 8,876.02 acre "*Colus*" land patent were filed with the new State of California on July 23, 1869.

### *Development of Cattle Ranching*

Use of Westside range land for livestock grazing formed a major phase of the State's economy prior to the discovery of gold (Burcham 1981:51). Early Westside settlers were impressed with the region's valleys with verdant fields of head-high clover, abundant water, and highly productive range. These areas of northern California were some of the first exploited for rangeland purposes.

The spectacular cattle boom which marked the decade 1850 to 1860 had its beginnings in the Gold Rush, which initiated enormous demand for meat and other animal products. It was during this time that the livestock industry in California experienced phenomenal growth to meet the demand for meat in the mining districts and metropolitan centers. Demand for meat could not be satisfied by local production alone. Ranchers in the southern part of the state sent their cattle to markets in the northern mining districts. Large herds were driven into northern California from as far away as Texas, the Southwest, and the Midwest.

The Gold Rush created an enormous and ever expanding demand for beef, raised the price of cattle to levels never before dreamed of in California, destroyed simple scale values to which the ranchers had long been accustomed, and transformed the herds of black, slim-bodied cattle into far richer bonanzas than the gold fields of the Sierra Nevada yielded to a vast majority of Argonauts [Cleland 1941].



The extensive grasslands of the western Sacramento Valley foothills and their proximity to essential summer range in the North Coast Ranges immediately attracted the burgeoning cattle industry. From 1850 to 1900 beef cattle ranching became the most significant economic use of the foothill and mountain lands (Burcham 1981:128).

The earliest cattle ranchers in the Sacramento Valley had open range with no fences. The development of grain farming in the valley lands after the mid-1860s significantly reduced the area available for sheep and cattle rangeland. Use of the valley for wheat, barley, and hops cultivation intensified the pressure to relocate flocks and herds to higher pastures. Eventually, ranchers were forced to reposition to foothill regions as arable valley lands were converted to farming (Jelinek 1982).

### *The Sheep and Wool Industry*

As the Gold Rush waned, the livestock market also began to decline. This situation was compounded by several years of drought in the 1860s that also had a deleterious effect on the livestock industry. As the market for beef cattle diminished, many ranchers shifted interest toward sheep in the belief that this class of livestock was better suited to the semi-arid climatic. The wool and sheep industry witnessed great strides in the late 1860s. By 1870, Red Bluff became a leading export center for wool and sheep. Wool was shipped to Sacramento via riverboat and even to industrial sites on the East Coast. California was the leading supplier of sheep in the nation, and Red Bluff was the starting point of northern trail drives (Grimes 1983:31).

By 1860, there were more than a million sheep in the state, and by 1880, over four million (Burcham 1981:155). At the insistence of sheep raisers, who had demonstrated to the Legislature that between 1858 and 1862 a loss of \$828,094 had been sustained from predatory dogs, the state's first anti-dog law was enacted in 1866 (California State Agricultural Society 1866).

The sheep industry in Colusa County recorded rapid growth during the period 1860 to 1870 (Figure 17). Census reports for 1860 recorded the presence of 8,247 head sheep and by 1870 there were 175,963 registered head in Colusa County (Burcham 1981: Appendix II), and cattle declined relative to sheep. Sheep were raised primarily for wool and in the year 1890 over 400,000 pounds of wool were produced in the newly formed Colusa County (Rogers 1891:319).

However, even as the sheep industry boomed, the region's beef cattle population remained relatively stable (Figure 16). Ranchers were hit by a series of serious droughts, the rapid disposal of public domain lands to settlers, and restrictions on the use of public lands for grazing. These factors all contributed to the cattle industry's latent growth.

Formation of the Mendocino National Forest forever changed grazing in the mountains and western foothills of the North Coast Ranges. The Mendocino National Forest was first established in 1907 as the Stony Creek Forest Preserve; the name change occurred in 1932 (Docken et al. 1982:164). Prior to 1907, sheep and cattle grazing was the principle historic land-use activity conducted in the region. Mountain meadows and surrounding lands were an important summer range for the foothill ranchers as more lowland acreage was being consumed by farming. Ranchers practiced annual burning of the rangeland to foster new growth, maintain the range, and limit brush. However, the control of wildfires became a primary concern of the Forest Service, and ranchers were no longer permitted to burn rangelands. Forest Service suppression of burning and control of wild fires lead to a decrease in the productivity of range lands and an increase in catastrophic wildfires.

The Depression was a time of national economic hardship and the period beginning 1890 through 1920 was a time of declining flocks on Colusa County range lands. The next major period of growth in the Colusa County sheep industry occurred in 1930 when the number climaxed at 182,221 head (Burcham 1981: Appendix II). The rise in number of sheep may be related to passage of the Stock-

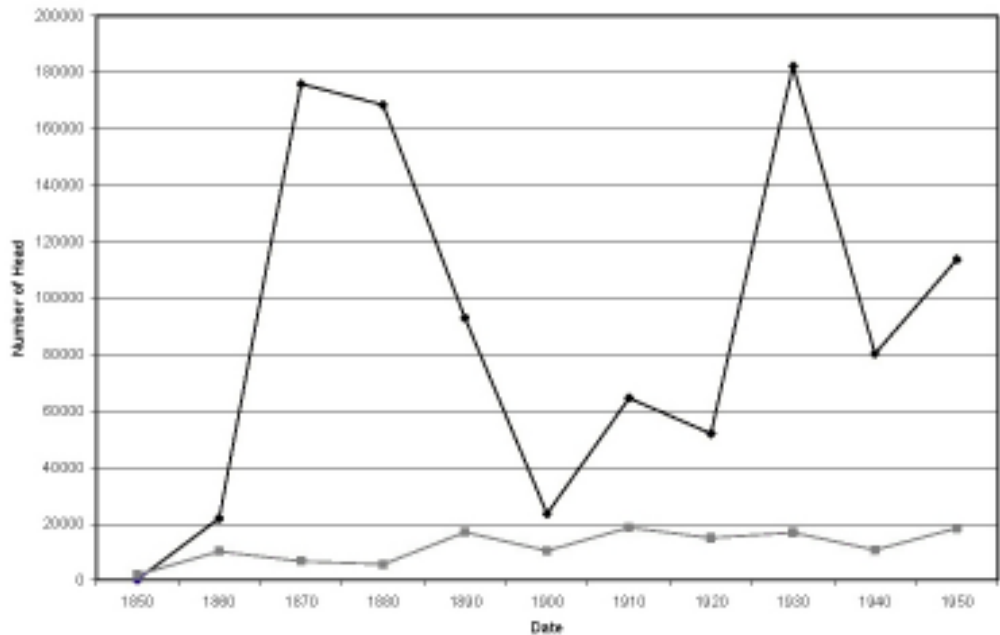


Figure 13: Cattle and sheep populations in Colusa County 1850-1950 (adapted from Burcham 1981: Appendix II).

Raising Homestead Act of 1916 which increased the acreage limitation for homesteading to 640 acres when public lands were suitable only for grazing livestock. By the end of the 1920s, more than 62,531 stock-raising homesteads entries had provided over 23,440,896 acres in the United States to stock raisers (Gates 1968:520).

### *Overstocking the Range Land*

The livestock industry in California was first based on the value of each animal for hides, tallow, or meat, rather than by the pound. This situation placed a premium upon the number rather than quality of head (Burcham 1981:51). In this situation the ranchers emphasized production of the greatest number of animals possible and tended to place as many head of stock on the range as it could support. This resulted in heavy grazing pressure on range lands and a lack of flexibility or ability to cope with unfavorable conditions. Dispersed perennial water sources and periodic drought in the foothills were perhaps the most important variables affecting livestock grazing. In California, drought was responsible for acceleration of range land deterioration. The first widespread overstocking occurred during the early 1850s and herds and flocks were depleted drastically by the droughts of the 1860s. Livestock managers were cognizant of the consequences of over-grazing (Burcham 1981:184-86). For example, in his 1866 annual address to the California State Agricultural Society John Bidwell commented on the subject:

It cannot have escaped the observation of those engaged in rearing livestock in California that the indigenous grasses, once so abundant as to pasture thousands, of animals where only hundreds are now able to subsist, are fast disappearing from the plains. This is attributable to excessive grazing, especially by sheep and horses... Weeds spring up and encumber the grounds, and stock disappears [Bidwell 1866 in Burcham 1981].

The observations and concerns regarding overgrazing had little apparent effect on ranching practice. Overstocking persisted as a common problem within the State as well as locally (Burcham 1981:188). Today, soils in many areas of the State are heavily depleted and intrusive species of weeds and non-native plants have become well established on the range.

### *Homesteading Legislation*

The settlement and economic development of the western foothill zone of the North Coast Ranges was greatly enhanced by the passage of four legislative acts that provided for the acquisition of public

lands for the purpose of settlement and development. These included the 1820 “*Act Making Provision for the Sale of Public Land*,” the Homestead Act of 1862, which allowed citizens to file free land patents (identified as Homesteads); Soldiers’ and Sailors’ Additional Homestead Act of 1872, which allowed veterans to file free land patents, and; Stock-Raising Homestead Act of 1916 which allowed ranchers to file for additional grazing lands associated with earlier land claims (identified as Stock-Raising Homestead). Settlers rushed to claim this free land.

The 1820 “*Act Making Provision for the Sale of Public Land*” declared that public lands might be sold by Presidential Proclamation at a fixed price of \$1.25 per acre, and that, after July 1, 1820:

all public lands of the United States, the sale of which is, or may be authorized by law, shall, when offered at public sale, to the highest bidder, be offered in half quarter-sections; and when offered at private sale, may be purchased, at the option of the purchaser, either in entire Sections, half Sections, quarter Sections, or half quarter Sections [3 Stat. 566].

Land patents acquired via this act were called “sale-cash entries,” and account for the legal titles acquired by many of the earliest large ranches established in the west side foothills under U. S. Government authority.

The Homestead Act of 1862 was signed into law by President Abraham Lincoln after the secession of the southern states. As a result of this Act, approximately 270 million acres, or ten percent of the area of the United States, was turned over to private citizens. The Act

...offered 160 acres of land free to any head of family or person over 21 years of age who was a citizen of the United States or who had filed a declaration of intent to become a citizen. A quarter section of land were distributed free, provided the property was lived on and worked for five years. Originally, the Homestead Act applied to surveyed land, but in 1880 was extended to include unsurveyed land. Homesteading was greatly facilitated by the railroads who brought land seekers by the trainloads into the heart of the Western frontier [National Park Service [NPS] 2004a].

The Soldier’s and Sailor’s Additional Homestead Act of 1872 gave veterans the privilege of having their service counted as residence under the revised Homestead Act of 1862, which did not consider Civil War veterans eligible for homesteads. This Act applied to all private soldiers, sailors, marines, and officers who had completed ninety days or more of service during the Rebellion, who were honorably discharged, and remained loyal to the government. Those who qualified were “entitled to enter upon and receive patents for a quantity of public lands (not mineral) not exceeding one hundred and sixty acres or one quarter-section” (US Congress 1872). The veteran had to reside upon, improve, and cultivate his land for a period of at least one year after he commenced his improvements before a patent would be issued. Lands acquired under this act were identified as “Military Scrip.”

In 1916, Congress enacted the Stock-Raising Homestead Act to allow even larger homesteads to support ranchers. The Stock-Raising Homestead Act increased the acreage limitation for homesteading when public lands were suitable only for grazing livestock. Cultivation was not required, but some range improvements were necessary. The Stock Raising Homestead Act permitted filing on an additional 640 acres of the public domain. The argument driving this law was that most of the prime agricultural lands had already been taken, and, to survive and prosper, stock raisers needed a larger land base. The law permitted filing on land “chiefly valuable for grazing and raising forage crops” and not susceptible to irrigation from any known source. Within its first decade of operation in the American West, the law attracted 114,896 claimants who filed on 45.6 million acres (Gates 1968: 516-520).

As evidence accumulated regarding the merits and flaws associated with the Stock-Raising Homestead Act, a shift toward the leasing of rangeland began in the 1920s, culminating in the passage of the Taylor Grazing Act of 1934. Homesteads were still, however, granted under the 1916 act, albeit on an ever-diminishing basis through 1942 (Gates 1968:520).

## Development of Colusi County

Lands in the Colusa area were initially considered fit only for raising and grazing stock. In 1852 there was an unsuccessful attempt to grow wheat about 0.5 mile west of Colusa, near Klew's Slaughter House. Farming was primarily restricted to lands along the river, although a few inland farmers were successful as well (e.g., Gibson, Williams, Elrey, Weyand, Miller, Stoval, and Johns farms). However, wheat production soon exploded in the valley. The best soil, called black "dobe," was preferred for wheat crops, whereas the sandy soil mixed with gravel was better for barley.

Colusa soon became a waystation along the routes of wagon and mule trains that serviced Shasta and the northern mines, and many entrepreneurs recognized and acted on the potential of the Sacramento River for transportation of goods, people, and livestock from Sacramento northward. During the 1850s, the town of Colusa began to grow rapidly.

According to Green (1880), Rogers (1891), and McComish and Lambert (1918), Colusi County was created by the first Legislature in 1850, but was attached to Butte County for judicial purposes. As originally defined, the county encompassed an area now incorporating Colusa, Glenn and Tehama counties (Figure 17). Originally, the town was called "Colusa" and the county "Colusi;" however, these spellings became a source of disagreement between lawmakers and local residents. Legislator General M.G. Vallejo argued that "i" was the correct termination in recognition of its derivation from the Colus (i.e., *Coru*) Indians. However, others argued that "a" was more appropriate, and because the Colusa town residents thought that the town and county should be spelled alike, the "a" termination was officially adopted in 1854.

The people of Monroeville petitioned Butte County Judge Moses Bean to secede from Butte and organize a new county. An election was held at Monroe's Ranch on Friday, January 10, 1851 to elect officers for the positions of county judge, clerk, sheriff, assessor, recorder, treasurer, surveyor, coroner, and county attorney. Failure of some elected officials to qualify prompted a second election held on February 25, 1851. A third election was held on May 3, 1851, to fill the position of county judge after the first judge died. John T. Hughes was elected County Judge, held one court, and then left the county. A fourth election was called on September 3 to elect William B. Ide as judge. Ide, known as the first and only president of the California Republic, died of smallpox on December 20, 1852, and was replaced by governor-appointed John F. Wills. After Wills died, his assistant and all of the county's money disappeared. A posse pursued and captured him, and imprisoned him in the jail that Ide had built in Monroeville. The elated posse retired to the local saloon, but neglected to search their prisoner and confiscate the keys to the jail and safe. He escaped with the loot, and was never seen again.

Although Colusa was designated as county seat in 1851, courts and judicial proceedings were still held in the rival town of Monroeville. Monroe's Ranch, the site of the original election, continued to serve as unofficial county seat until the election of 1853. At that time, Colusa was voted into the position of official county seat, with a total count of 310 votes. Other contenders for county seat included Monroeville (52), Moon's Ranch (7), Twenty-one Mile House (1), and Swift's Corral (3). Among the first county officers were County Clerk E.D. Wheatley (1851), District Attorney A.J. Weaver (1852), Sheriff J.F. Wills (1851), Assessor W. G. Chard (1851), Treasurer G.W. L'Amoroux (1853), County Surveyor J.C. Huls (1851), School Superintendant R. Paine (1855), and Coroner and Public Administrator U.P. Monroe (1851).

The settlement of Colusa grew rapidly between 1850-1853, adding mercantile houses, a hotel, restaurants, and a blacksmith shop. On June 6, 1854, the firm of Stewart & Morrison was contracted to build the county courthouse and jail for \$3,000.00. On September 5, 1855, the new town of Colusa was consumed by a fire originating in a stable at the northwest corner of 6th and Main Streets, then sent racing by a strong north wind. The only structures left after the fire were a few in the business district, the Colusa House, the National Hotel, and several one-story houses between the Colusa House and the

river. Subsequently, the town was rebuilt around the original city center. At the heart of the rebuilt town, the current courthouse was erected in 1861, designed by Marysville architect Vincent Brown and built by Sacramento builder James Plummer, at a total cost of \$21,000. The original building, measuring 3,136 square feet, was constructed of stuccoed brick. The bell and tower were added in 1886. The Colusa County Courthouse has been in continuous service since March 1, 1861. The town of Colusa was incorporated in 1868 after the upper class citizens of Colusa were distressed over the poor condition of city streets.

By 1876, the town boasted, among other things, 13 attorneys, two banks, three barbers, two bakeries, five blacksmiths, 11 cobblers, one brewery, six carpenters, nine clothing merchants, one carriage painter, two civil engineers, five confectioners, one dentist, two pharmacists, three hotels, five music teachers, two newspapers, two oyster saloons, one restaurant, 13 saloons, four tobacco and cigar shops, two telegraph stores, three wagon makers, three wheat dealers, and two wool dealers. In 1876, the town's population reached an estimated 2,000 to 2,500 residents, including 430 school children and six teachers. Colusa was also the home of the county courthouse and a county hospital.

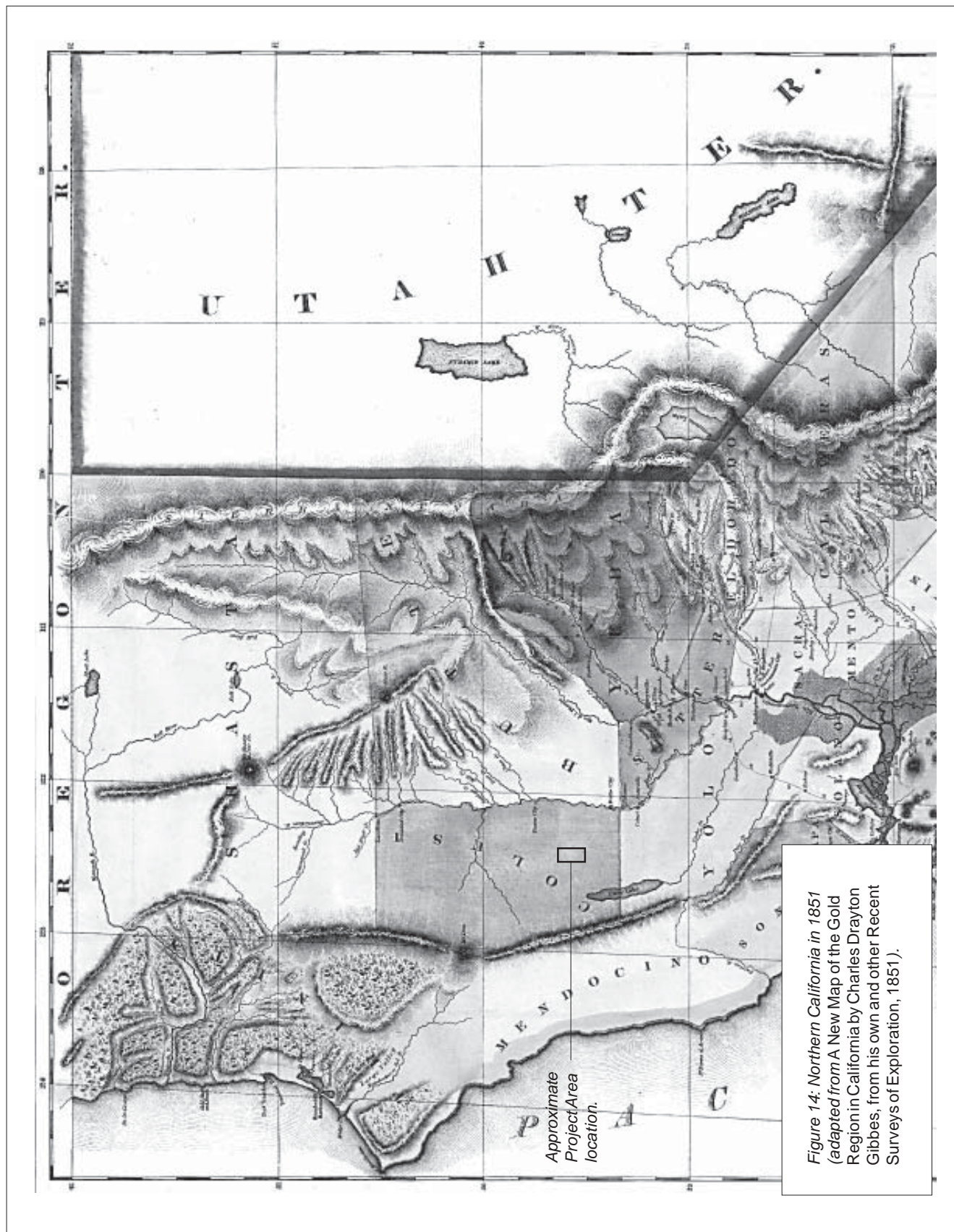
Politics in Colusa were largely dominated by the Whig party, and later the Democratic party. Many Colusa residents were sympathetic to the Confederacy during the Civil War. Although Colusa County as a whole was opposed to the war, many local men volunteered for the Union. Eighteen men from Red Bluff, which was then a part of Colusa County, and one from Princeton, gladly volunteered. War troops often passed through Colusa en route to the nearest military headquarters at Camp Bidwell. Many Colusans were opposed to Lincoln's policies, and some saluted his assassination with wild festivities. Dudley Shepardson, one such celebrant, was arrested and sentenced to Alcatraz for two months.

#### Development of Regional Transportation

A number of American settlers were already moving to colonize northern California by 1846, after the successful Bear Flag Revolt and acquisition of the Oregon Territory. Some of them had Mexican land grants and others were squatters who settled on unoccupied lands, mainly along the Sacramento River (Bauer 1993a:21). However, with word of fabulous country and sizeable gold deposits discovered in what would become Shasta, Siskiyou, and Trinity Counties, the move west became a continuous flood of people (Wilsey 1988:4). This rush to search for gold in California prompted a sudden and acute need for transportation of people, food, and supplies. The Sacramento River soon filled a key role. There were four major transportation modes used in the early days to move people and freight northward: foot, supply wagon, stage coach, and steamboat (Grimes 1983:45).

#### *Ferries*

The early Sacramento River ferries were instrumental in determining the locations of the road systems and major towns in the region (Hardwick and Holtgrieve 1996:121). A law was passed by the California legislature in March of 1850 regulating the licensing of these ferries (Dyke 1932:85). According to the July 13, 1913 issue of the *Los Molinos River Rambler*, the first ferry used for crossing the Sacramento River in Tehama County was located at Tehama (Wagon Wheels 1991:84). It was established in 1849 and operated for 38 years until 1887. A Captain Lee operated this and other ferries across the river. Another ferry was operated in the Tehama area by William Moon at his Sacramento River rancho (Dietz 1986:38; Hardwick and Holtgrieve 1996:121). His ferry was large enough to transport a team and wagon or a combination of foot and horseback travelers, connecting a trail on the western side of the river to an Indian trail leading north on the eastern side of the river to Peter Lassen's adobe. By 1851 a stage line passed along the road right in front of the Moon House, a large frame house that had been constructed by Moon as a "travelers rest." Robert Moore also had a ferry at Hamilton (Mansfield 1918:110). The 1854 Eddy Map (Preston 1983:20-21) shows the ferry at Tehama and Moon's Ranch to the south.



The towns of Colusa, Butte City, Monroeville, Princeton, and Red Bluff all owe their initial success, at least in part, to ferry service (Hardwick and Holtgrieve 1996:121,128-129). Colusa was established in 1848 and named Salmon Bend by teamsters hauling supplies to the northern mines at Old Shasta. It had a busy ferry service across the Sacramento River. Butte City, founded in 1850, had a ferry established in 1875 by the Marysville-Shasta Stage Line. Monroeville, established in 1850, had a functioning ferry across Stony Creek as early as 1853. In addition, it was a resting place for oxen and mule teams on the westside's Shasta road. Princeton was located on the Shasta Road and was also a ferry site and steamboat landing. In 1850, James Watts operated the Hamilton Ferry between Hamilton and Ophir. Job Dye was a partner of J. Granville Doll in the operation of a ferry across the Sacramento River at Red Bluff (Bauer 1992:10). Dye and Doll renewed their ferry license in 1863 (Bauer 1993b:14).

*Foot, Horseback, Wagon,  
and Coach Travel*

The early ferries could not accommodate the great freight wagons that would eventually come into the region, and improved road systems were of growing importance. Before 1849, overland travel in Northern California was very difficult. There were no wagon roads, so most excursions were undertaken on foot, saddle horse, or by pack animals (Dyke 1932:59). Foot trails were narrow and difficult to distinguish from game trails, except they usually went directly from settlement to settlement and often included switchbacks. Mule trails were wider and often had improved trail beds, sometimes including stacked rock retaining walls. These unplanned trail systems formed a network of links between destinations.

By 1848, four main overland trails were bringing people from the east into California: the Applegate, Lassen, Donner, and Carson Trails (Bauer 1993b:6). Three of these trails terminated near the Sacramento River; the Lassen Trail actually terminated in the study area at Lassen's Rancho Bosquejo on Deer Creek. While Lassen made an effort to blaze a route that would lead immigrants to his "Benton City" townsite, generally the overland trails were established just by the passage of people and animals who were following the wheel tracks of the wagons ahead of them (Bauer 1993b:5). No grading or drainage features were constructed, and the primitive roads became quagmires in winter weather. New routes were continually reformed around obstructions and soft spots, so most trails branched and rejoined. Many parallel trails, cutoffs, and unnamed roads also developed alongside the major routes. They all reflected the need for commerce and communication, both within the region and to the outside world (Stevens 1981:15).

The early roads followed both sides of the Valley between Colusa and Red Bluff, forming links connecting large and small communities to ferries, bridges, and riverboat landings along the Sacramento River. In 1849, commodities and equipment came by boat to the river ports of Stockton, Sacramento, and Marysville, and then were transported north by pack train. A number of roads radiated out from Marysville to other settlements in the Valley including two roads that ran north along the Sacramento River, one on the east and one on the west. The Tehama Road progressed north out of Marysville on the east side of the Sacramento River (Hardwick and Holtgrieve 1996:120). It ran from Marysville through Chico to a ferry at Tehama where it continued on to Red Bluff. Freight on pack mules and ox carts also traveled to the northern mines on the Shasta Road, a crude trail along or near the western bank of the Sacramento River (Johnson 2001:15). This trail started at Washington, passed through Knight's Landing, Grimes, Colusa, Princeton, Tehama, Red Bluff, Latona (Redding), and Shasta City.

Marysville became a major pack train staging area and passenger destination in the early 1850s (Dyke 1932:60). People and supplies needed to be moved northward, and mule trains and freight wagon companies were quickly organized. Widely spaced, crude inns or hospices were also established along the way on both sides of the Sacramento River, offering meals and drink for the drivers and packers, a place to sleep, and fodder for their animals (Johnson 2001:15). For example, in the early 1850s an establishment

known as Sixteen Mile House was located along the Shasta Road at the site of present-day Princeton (Durham 1998:541).

In addition to the packers and traders of 1853, there existed seven express companies supplying mule, oxen, and horse teams, and 20 individual mule train owners providing service to the mines from Marysville, with over 4,000 mules between them. The mule trains could travel about 25 miles in one day. A complete freighting outfit cost between \$4,000 and \$5,000 (Dyke 1932:61-66). Ultimately, the pack trains were superseded by wagons and prairie schooners, which entered the state as new roads were constructed over the mountains.

It is believed that James Birch established the first stage line in California, running between Sacramento and Mormon Island (Dyke 1932:32-34). Soon, four- and six-horse teams were traveling throughout the upper Sacramento Valley region. Two types of vehicles were used to transport passengers: the springless passenger wagon and the commodious Concord Coach (Dyke 1932:32, 53). The American Coach from Concord, New Hampshire first appeared on June 24, 1850. The coach could seat nine passengers inside and 12 more outside, with cargo holds front and rear.

The first stage to Shasta City started in Colusa in the spring of 1851 (Dyke 1932:35-36,38). The stage was operated by Baxter and Monroe, and traveled through Monroeville, Red Bluff, and Clear Creek, with the first coach being driven by Marshall McCummins. In January of 1851, at least five of the six stage lines in the northern part of the state were merged into a firm called the California Stage Company (Dyke 1932:39-41). Stock was assessed at \$1,000,000. The combined assets of the firm included 1,100 horses, 80 Concord Coaches, and 125 wagons. Their Shasta Line ran two stages daily and covered 180 miles. The passenger fee from Marysville to Tehama, a distance of 75 miles, was \$13.00, and from Marysville to Red Bluff, a distance of 89 miles, \$15.00. The stage company's mail contracts made it profitable to run two stagecoach lines on the eastern and western routes in 1851 (Hardwick and Holtgrieve 1996:120). A second stage line was established by Hall and Crandall in 1852. This stage line crossed the Sacramento River at Tehama and followed the Tehama Road to Marysville. The Hall and Crandall firm was awarded the contract to carry the U.S. Mail from Sacramento to Shasta City in June 1852. It was reported that in 1853, Hall and Crandall had 150 horses and 12 coaches valued at \$50,000.

One of the main stage roads in the northern part of the state was the road from Sacramento and Marysville northward to Shasta City, crossing the Sacramento River at Hamilton City (Mansfield 1918:109-110). Along this road there were 13 road houses and hotels between Sacramento and Hamilton City. One stage traveled daily in each direction while two daily stages traveled on days when the stage made connections with the steamers sailing upriver from San Francisco.

The April 28, 1857 issue of the *Northern Democrat* (1857a:3), published in Oroville, stated that Captain Tomlinson's train of seven wagons had arrived in that city the day before from Red Bluff on route to Arizona. Several Oroville citizens joined the expedition and "they anticipated a speedy arrival at their destination." The May 23, 1857 issue of the *Northern Democrat* (1857b:2) noted that the California Stage Company coaches left Oroville for Tehama, Red Bluff, and Shasta City at 5:30 P.M.

The demand for better roads increased as more and more people began to travel in California. In 1864, the citizens of Red Bluff organized a company to construct an improved road, the Tehama County Wagon Road (Bauer 1993b:17), constructed according to engineering principles – with culverts, grades, cuts and fills, and bridges. From the beginning it was designed as a permanent route for continuous two-way traffic. The road began at the eastern end of Doll and Dye's ferry opposite Red Bluff, following the eastern side of the Sacramento River and eventually joining the Chico and Marysville Roads. The people of Red Bluff, however, haggled over approach roads, ferry rights, suits for real or fancied damages, and other issues, so this road was not the total success envisioned by its promoters.



### *River Travel*

Travel on land was slow and uncomfortable in early California; therefore, making use of the rivers was one obvious and sensible way to meet transportation needs (Mansfield 1918:110). River navigation became an important early mode of transportation that helped link California to other parts of the Pacific coast and the nation. Water transportation turned out to be speedy and economic and attracted a number of small, low draft paddlewheel steamers to carry people and freight as far as possible (Johnson 2001:15). Dominance of water transportation in the upper Sacramento Valley ran from 1849 until 1871 with a revival of river traffic in the 1890s (Hardwick and Holtgrieve 1996:121; Stevens 1981:15).

Historically, the Sacramento River above Colusa was shallow, turbid, and very crooked, making it difficult to navigate (Dyke 1932:17, 21-22). Prior to 1849, John Sutter successfully navigated the river in his small boat, the *White Princess*, and Perry McCoon made occasional trips up the Sacramento and Feather rivers to New Mecklenberg (Marysville) in his *Indian Queen* (Dyke 1932:1-4). However, once gold was discovered, every available craft was used to negotiate the river: whale boats, ships, launches, barges using oars and sails, and row boats. Fares ranged from \$50 to \$200, and if the need arose the passengers were required to assist in propelling the vessel.

By 1849, a steady line of schooners ran between San Francisco and Sacramento (Dyke 1932:4-7). *The Pioneer*, captained by Edward Everett, Jr. in 1849, was the first steamer working on inland waters. Other boats working the river in 1849 were the *Sacramento*, the *Mint*, the *McKim*, and the *Senator*. The *Sacramento* carried 100 passengers as well as cargo and freight, while the *McKim* transported 250 passengers. Navigation of the upper portion of the Sacramento River was attempted as early as 1850. Two early attempts were made by the *Jack Hayes*, terminating somewhere above Colusa, and the *California*, which was successful but sank just below Chico Landing in August 1850 (Dyke 1932:21). In 1850, Charles D. Semple, an uncle of irrigation pioneer Will S. Green, took a trip up the Sacramento River aboard the small steamer the *Martha Jane* (La Bourdette 1974:13-15) to deliver building materials to his newly purchased Colus Land Grant (purchased from John Bidwell). Semple had hoped to prove the navigability of the Sacramento River to his planned new townsite at Colusa. However, the endeavor did not pay out and he sold the steamer. That same year, a Captain P. Le Fevre of the steamer *The Butte* began a regular run between Butte City and landings south along the Sacramento River (Dyke 1932:21). The steamboat *Orient* was loaded with cargo in November 1851 and safely arrived at Red Bluff, only to run aground on the return trip (Dyke 1932:25). Successful trips by the *Orient* were again made to Red Bluff in January and June of 1852; however, trouble again overtook the *Orient* when it ran into a snag near Monroeville and sank.

Nevertheless, the *Orient* was refurbished and continued to make regular trips to Red Bluff until 1853. In 1853, the *Orient* was enlarged after which it monopolized the Red Bluff trade. Mansfield (1918:111) and Dyke (1932:25-26) indicate that two other boats making early trips to Red Bluff were the *Daniel Moore* (1852) and the *Express* (1852 or 1853). U.P. Monroe, owner of the *Express*, attempted to clear snags from the Sacramento River between Colusa and Monroeville, in the process spending large sums of money and bankrupting his company. An independent boat, owned by J.A. McClelland, also ran between Sacramento and Red Bluff, but on August 25, 1851, six miles below Knights Landing the boiler exploded, killing or wounding 29 of the 30 persons on board.

Colusa, Monroeville, Tehama, and Red Bluff competed with each other to be the head of navigation (Johnson 2001:15). However, owing to persistent hindrances to navigation and the need to dock, load, and unload at all seasons, Colusa was the final winner of that distinction. For a little over ten years, all types of steamboats and barges regularly docked at Colusa. They would unload their cargos and pick up local products, such as firewood and hay for San Francisco and barley and wheat for overseas shipping. Travelers had comfortable accommodations and could count on regularly scheduled trips. By 1854, so many boats were on the river that competition was extremely keen (Dyke 1932:10). A merger of principal owner-captains and companies at this time established a powerful steamboat trust, the California

Steam Navigation Company. They were organized with capital stock of \$2,500,000. This navigation company was one of the most powerful corporations in its day and it either bought off or forced any opposition out of business. The California Steamboat Navigation Company provided almost daily service along the Sacramento River in 1864-65 (Mansfield 1918:240). The company was sold to the Central Pacific Railroad in 1871 for \$620,000 (Grimes 1983:48). Boats owned by railroads would carry more passengers and goods after 1871 (Hardwick and Holtgrieve 1996:121).

Steamboats began towing barges in the mid 1850s to handle the heavy freight. When they reached Sacramento, the smaller steamships transferred cargo to larger, deep-water draft steamboats capable of towing up to four fully loaded barges (Hardwick and Holtgrieve 1996:122). A barge could carry 100 tons while the steamer carried less than 15 tons. The freight traffic on the Sacramento River was all upstream in the early days and it was not until the 1860s that the downstream traffic also became important (Mansfield 1918:111). The cargos most often carried down the river were agricultural products, hides, and lumber (Hardwick and Holtgrieve 1996:122).

Besides the California Steamboat Navigation Company, a variety of smaller operators competed for business on the river (Hardwick and Holtgrieve 1996:121-122). All of the competitors had access to over two hundred landings as well as the thriving towns of Knights Landing, Verona, Colusa, Butte City, Tehama, and Red Bluff. One of the smaller operators was the Sacramento Wood Company. They began cutting oak along the river near Colusa and transporting it to Sacramento. The company had a steamboat and one barge, and transported other cargo besides wood, especially wheat. Some estimate that half of the state's 1890 wheat crop was transported by water on either the Sacramento or San Joaquin rivers (Magliari 1989:453). In 1913, the Sacramento Wood Company became the Sacramento Transportation Company and was operating seven steamers and 23 barges between Chico Landing and San Francisco Bay (McGowan 1961:305).

Red Bluff was the head of navigation until 1881, when mining debris rendered the water too shallow and hazardous (Dyke 1932:30). The 1890s revival of steamboat traffic on the upper Sacramento River was due to two factors: the introduction of light-draft stern wheel vessels, and the U.S. Army Corps of Engineers efforts to clear obstructions in the river. Once again steamboats resumed weekly service to Red Bluff, and as a result eight grain elevators were constructed on the river banks at Tehama (Hardwick and Holtgrieve 1996:122).

### Railroads

Railroads were first built into Central California in the 1850s and tracks had reached Lincoln by 1861 and Wheatland in 1868 (Chappell 1999:51; Hardwick and Holtgrieve 1996:123). With development of the northstate's railroad system, the need for stage and river transportation gradually diminished (Grimes 1983:48). Tremendous change came to the economy and transportation modes with the coming of the tracks, deliberately developed at a distance from the floodplain in order to avoid flooding and erosion damage. The steamboat landings ceased to function and the river communities diminished. A number of new townsites developed along the rail systems (Figure 18); the residents of several towns actually moved the towns to new locations closer to the rails. Steamboat visits on the river were recorded in 1911, 1918, and 1936, but the river ceased to be an economic hub (Hardwick and Holtgrieve 1996:122).

The East Side Railroad, also known as the California and Oregon Railroad, was a subsidiary of the Central Pacific. The Central Pacific proposed to build a railroad that would dominate the Sacramento Valley and would stretch from Roseville to the Columbia River in Oregon (Hardwick and Holtgrieve 1996:123; Stevens 1981:22). The completed line would start at Roseville, go north through Marysville, Gridley, and Chico, cross the Sacramento River at Tehama, and end at Red Bluff. The tracks were graded beginning at Marysville in May 1870. It only took a little more than two months for the 43-mile line to be built through Live Oak and Gridley to reach Chico on July 2, 1870.

The Northern Railroad was also a subsidiary of the Central Pacific (Johnson 2001:16). In 1876, a railroad line was surveyed on the western side of the Sacramento Valley from Woodland to Red Bluff (McGowan 1961:231). The track would be placed on the unoccupied plains, midway between the Sacramento River and the foothills of the Coast Range Mountains to avoid frequent flooding that occurred in the low lands nearer the River. The settlements of Grimes, Colusa, and Princeton were not pleased with this decision. The Northern Railroad began building its track from Woodland in August of 1875 and reached Williams on July 1, 1876. Construction reached Willows in September 1878, but was delayed for four years. The railroad then reached Orland on July 31, 1882 and connected with the East Side Railway at Gerber on September 27, 1882.

### Road Systems

In the early 1850s, county governments found it impossible to construct and maintain adequate highways to accommodate the increasing travel to Northern California (Dyke 1932:74). Private enterprise stepped in to offer relief. Mining and logging companies did some of the earliest road work and many of the new roads were operated as toll roads (Darlington et al. 1920:13). The California Legislature provided for the construction of public highways as early as 1850 (Dyke 1932:74-75). On April 22, 1855 a law was passed designating all roads except toll roads as public roads (Dyke 1932:79-81). This law empowered the Board of Supervisors to levy a road tax, not more than \$4.00 per annum, on all able-bodied men between the ages of 21 to 50 years, and a property tax not to exceed five cents on each \$100.00 for road purposes. Most of the improved roads and bridges constructed in these times were within the counties to the east of the Sacramento and Feather Rivers (Johnson 2001:17). Colusa was known to have constructed a graded gravel wagon road due west of the railroad (now Lurline Road) after a devastating flood on the westside in 1878. Gradually, the state or county took over all the toll roads and they became a part of the present system of highways.

A movement was started to improve the highway system when the State Legislature passed an act providing for a Bureau of Highways on March 27, 1895 (Darlington et al. 1920:13, 19). The original state highway system was laid out in 1896. The State Bureau recommended a highway system with a westside highway from Sacramento through Woodland to Red Bluff, and an eastside route through Pleasant Grove, Marysville, Oroville, and Chico, to Red Bluff (Hardwick and Holtgrieve 1996:174). These early highways were dry, dusty, and rough in summer, and soggy and slippery in winter. For example, in 1913, Lillian Ramer and her husband Miles started their honeymoon on a motorcycle but only got as far as Maxwell before rain forced them to find less hazardous transportation (Felthouse 1987:17). No hard surfaced roads were constructed within the highway system until 1914 under the new Highway Commission. Highway paving projects were completed in Colusa, Glenn, and Tehama counties between 1915 and 1917. A gasoline tax was instituted by the State in 1921, designed to support highway construction. The state highway system was essentially in place by 1930s.

## REFERENCES CITED

- Adam, D. P., and G. J. West  
1983 Temperature and Precipitation Estimates Through the Last Glacial Cycle from Clear Lake, California, Pollen Data. *Science* 219(4581):168-170.
- Almgren, A.  
1978 Timing of Tertiary Submarine Canyons and Marine Cycles of Deposition in the Southern Sacramento Valley, California. In *Sedimentation in Submarine Canyons, Fans, and Trenches*, edited by D.J. Stanley and G. Kelling, pp. 276-291. Dowden, Hutchinson, and Roth. Stroudsburg, PA.
- Alt D. A. and D. W. Hyndman  
1975 *Roadside Geology of Northern California*. Mountain Press Publishing Co. Missoula, MT.
- Amesbury, R.  
1967 *Nobles Emigrant Trail*. Lassen Litho, Susanville.
- Anonymous  
1987 Sites a Town of Spirit. *Wagon Wheels* 37(2):4-11.
- Antelope Valley Crystal Salt Company  
1892 *Articles of Incorporation*, February 15, 1892.  
1899 *Petition for Dissolution of Antelope Crystal Salt Company, Case 2666*. December 12, 1899.
- Arguello, L.  
1912 The Diary of Captain Luis Antonio Arguello: October 17- November 17, 1821: The Last Spanish Expedition in California. *Series of Keepsakes Issued by the Friends of the Bancroft Library by its Members, No. 40*. Fischer, V. (translator) 1992. University of California, Berkeley.
- Aubury, L.  
1908 *The Quicksilver Resources of California*, 2nd Edition. California State Mining Bureau, San Francisco.
- Bailey, G.  
1902 *California State Mining Bureau Bulletin No. 24*. Sacramento State Printing, San Francisco.
- Bailey, E. H., ed.  
1966 Geology of Northern California. *Bulletin 190, California Division of Mines and Geology*. San Francisco.
- Bailey, E. H., W. P. Irwin, and D. L. Jones  
1964 *Franciscan and Related Rocks, and Their Significance in the Geology of Western California*. Bulletin 183. California Division of Mines and Geology, Sacramento.
- Barbour, M. and J. Major  
1988 *Terrestrial Vegetation in California*. California Native Plant Society, Special Publication Number 9. University of California, Davis.

- Bard, J., C. Busby, and L. Korori  
1983 A Cultural Resources Overview and Inventory of the Proposed Thomes-Newville Reservoir, Glenn and Tehama Counties, California. Report prepared for the State of California, Department of Water Resources. Ms. on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Barrett, S.  
1908 Ethnogeography of the Pomo and their Neighbors. *University of California Publications in American Archaeology and Ethnology* 6(1):1-322.
- Basgall, M.E.  
1982 Archaeology and Linguistics: Pomoan Prehistory as Viewed from Northern Sonoma County, California. *Journal of California and Great Basin Anthropology* 4(1):3-22.  
1987 Resource Intensification Among Hunter-Gatherers: Acorn Economies in Prehistoric California. *Research in Economic Anthropology* 9:21-52.  
1993 Chronological Sequences in the Southern North Coast Ranges, California. In *There Grows a Green Tree: Essays in Honor of David A. Fredrickson*, edited by G. White, P. Mikkelsen, W.R. Hildebrandt, and M.E. Basgall, pp. 167-195. Center for Archaeological Research at Davis, Publication No. 11. Davis, California.
- Basgall, M.E. and P.D. Bouey  
1991 The Prehistory of North-Central Sonoma County: Archaeology of the Warm Springs Dam-Lake Sonoma Locality, vol. I. U.S. Army Corps of Engineers. Sacramento. Manuscript on file, Northwest Information Center of the California Historical Resources Inventory System, Sonoma State University, Rohnert Park, California.
- Bauer, M.  
1970 *History of the Los Molinos Land Company and of Early Los Molinos*. Unpublished M. A. thesis, California State University, Chico.  
1992 *History of the Los Molinos Land Company and of Early Los Molinos*. The Tehama County Museum. Tehama, CA.  
1993a Why Spanish Place Names in Tehama County? *Tehama County Memories: 21*.  
1993b *The Tehama County Wagon Road*. The Tehama County Museum. Tehama, CA.
- Baumhoff, M.  
1980 The Evolution of Pomo Society. In *An Archaeological Study of the Prehistoric Cultural Resources in the Warm Springs Dam and Lake Sonoma Project, Sonoma County, California*, by M.A. Baumhoff and R.I. Orlins, Appendix C. Ms. on file, Northwest Information Center of the Historical Resources Information System, Sonoma State University, Rohnert Park, California.
- Bayham, F.E. and K.L. Johnson  
1990 Archaeological Investigations at CA-GLE-105: A Multicomponent Site Along the Sacramento River, Glenn County, California. Prepared for the US Army Corps of Engineers, Sacramento District. Ms. on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Bean, L. and S. Vane  
1978 Cults and Their Transformation. In *Handbook of North American Indians Vol. 8*. Robert F. Heizer, volume editor. pp: 662-672. Smithsonian Institution, Washington.
- Beardsley, R. K.  
1954 *Temporal and Areal Relationships in Central California Archaeology: Part Two*. Reports of the University of California Archaeological Survey, No. 25. University of California Archaeological Survey, Berkeley.

- Beaton, J.M.  
1991b Extensification and Intensification in Central California Prehistory. *American Antiquity* 65:946-952.
- Becker, Mrs. K.  
1973 A Conversation with Mrs. King Becker. *Wagon Wheels*, Volume XXIII, Number 1, February 1971, pp 24-32.
- Bennyhoff, J. A.  
1950 California Fish Spears and Harpoons. *University of California Anthropological Records* 9(4). University of California, Berkeley.  
1978 In Elasser A.B. (1978) Development of Regional Prehistoric Cultures. In *California*, edited by R.F. Heizer, pp 37-58. Handbook of North American Indians, Vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.  
1993 In *Data Compendium and Summary Report of Burial and Data Salvage Excavations at CA-COL-61, State Route 20, Colusa County, California*. Jackson R. and L. Shapiro. 2001. Ms. on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University. Rohnert Park, California.  
1994 The Napa District and Wappo Prehistory. In *Toward a New Taxonomic Framework for Central California Archaeology* edited by R.E. Hughes, pp. 49-56. Contributions to the University of California Archaeological Research Facility, Berkeley.
- Bennyhoff, J. and A. Elsasser  
1954 Sonoma Mission: An Historical and Archaeological Study of Primary Constructions, 1823-1913. *University of California Archaeological Survey Reports* 27:1-81. Berkeley.
- Bennyhoff, J.A. and D.A. Fredrickson  
1994 A Proposed Integrative Taxonomic System for Central California Archaeology. In *Toward a New Taxonomic Framework for Central California Archaeology* edited by R.E. Hughes, pp. 15-24. Contributions to the University of California Archaeological Research Facility, Berkeley.
- Bennyhoff, J. A., and R. E. Hughes  
1987 *Shell Bead and Ornament Exchange Networks Between California and the Western Great Basin*. Anthropological Papers of the American Museum of Natural History 64(2): 79-175. New York.
- Benson, L., M. Kashgarian, R. Rye, S. Lund, F. Paillete, J. Smoot, C. Kester, S. Mensing, D. Mekoh, S. Lindstrom  
2002 Holocene Multidecadal and Multicentennial Droughts Affecting Northern California and Nevada. *Quaternary Science Reviews* 21 (2002) 659-682.
- Berger, M. L.  
1979 *The Devil Wagon in God's County: The Automobile and Social Change in Rural America, 1893-1929*. Archon Books, Hamden, Connecticut.
- Berkebile, D. H.  
1989 *Horse-Drawn Commercial Vehicles: 255 Illustrations of Nineteenth-Century Stagecoaches, Delivery Wagons, Fire Engines, etc.* Dover Publications, Inc. New York.
- Bettinger, R.L.  
1991 *Hunter-Gatherers: Archaeological and Evolutionary Theory*. Plenum Press. New York.

- Bidwell, J.  
1866 Annual Address. Transactions of the California State Agricultural Society 1864-65: 202-213. In *California Range Land: An Historico-Ecological Study of the Range Resource of California* by L.T. Burcham. 1981. Center for Archaeological Research at Davis, Publication No. 7. Davis.  
1897 *Echoes of the Past*. Chico, California.
- Blackburn, T. C.  
2006 *An Artist's Portfolio: The California Sketches of Henry B. Brown, 1851-1852*. Malki-Ballena Press. Banning
- Bouey, P.  
1983 In The Archaeological Test Excavation of Sites CA-COL-76 and CA-COL-81, Fouts Springs, Mendocino National Forest, California. C. Slaymaker, ed. Report submitted to the Mendocino National Forest, Willows, California. Ms. on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.  
1987 The Intensification of Hunter-Gatherer Economies in the Southern North Coast Ranges of California. *Research in Economic Anthropology* 9:53-104.
- Bradley, W. W.  
1915 *Mines and Mineral Resources of the Counties of Colusa, Glenn, Lake Marin, Napa, Solano, Sonoma, Yolo*. California State Mining Bureau, California State Printing Office, San Francisco.  
1920 *California Mineral Production for 1920*. Mines/Mineral Bulletin No. 118. California State Mining Bureau, California State Printing Office, Sacramento.
- Breschini, G.S  
1983 *Models of Population Movements in Central California Prehistory*. Coyote Press. Salinas, California.
- Broughton, J.M.  
1988 Archaeological Patterns of Prehistoric Fish Exploitation in the Sacramento Valley. Unpublished Master's thesis, Department of Anthropology, California State University, Chico.  
1994 Late Holocene Resource Intensification in the Sacramento Valley, California: The Vertebrate Evidence. *Journal of Archaeological Science* 21:501-515.  
1997 Widening Diet Breadth, Declining Foraging Efficiency, and Prehistoric Harvest Pressure: Ichthyofaunal Evidence from the Emeryville Shellmound, California. *Antiquity* 71:845-862.
- Broughton, J.M. and F.E. Bayham  
2003 Showing Off, Foraging Models, and the Ascendance of Large-Game Hunting in the California Middle Archaic. *American Antiquity* 68(4): 783-789.
- Burcham, L. T.  
1981 *California Range Land*. Center for Archaeological Research at Davis, Publication Number 7. Davis: University of California, Davis.
- Byers, D.A. and J.M. Broughton  
2004 Holocene Environmental Change, Artiodactyl Abundances, and Human Hunting Strategies in the Great Basin. *American Antiquity* 69(2): 235-256.
- Byers, D.A., C.S. Smith, and J.M. Broughton  
2005 Holocene artiodactyl population histories and large game hunting in the Wyoming Basin, USA. *Journal of Archaeological Science* 32:125-142.

## Calfed Bay-Delta Program

- 2002 Programmatic Record of Decision. <http://calwater.ca.gov/content/Documents/ROD8-28-00.pdf>, accessed 06/06/07.

## California, Colusa County Recorder

- n.d. Assignments, Book A, Book C.  
n.d. Birth Index, Colusa County  
n.d. Contracts and Agreements, Book 1  
n.d. Deeds, Book 1, Book 11, Book, 16, Book 21, Book 25, Book 22, Book 39, Book 55, Book 56, Book 57, Book 59, Book 67, Book 91  
n.d. Index to Assignments, Book 1.  
n.d. Indentures of Indian Archives  
n.d. Index of Leases, Vol. 1, Books 1-2.  
n.d. Leases, Book B  
n.d. Patents, Book E, Book F, Book H, Book I, Book J, Book N  
n.d. Miscellaneous Records, Book 1.  
1863 Articles of Incorporation file, 1863-1944, Book I.  
1876 Tax Assessment Roll, Book 1, A-L  
1879 Tax Assessment Roll, Book for 1879-1880  
1884 1884 Great Register, Colusa County  
1886 1886 Great Register, Colusa County.  
1887 Road Register No. 81  
1888 Road Record, Book 1  
1891 Plat Book, 1891-1892.  
1892 1892 Great Register, Colusa County.  
1894 1894 Great Register, Colusa County.  
1896 Death Index, Colusa County, 1896-1935  
1896 1896 Great Register, Colusa County.  
1896 Index to Judgments, 1896-1945, Book 1.  
1898 1898 Great Register, Colusa County.  
1899 Petitions of Dissolution  
1900 1900 Great Register, Colusa County.  
1900 Plat Book.  
1901 1901-02 Great Register, Colusa County.  
1904 1904-05 Great Register, Colusa County.  
1910 1910 Great Register, Colusa County.  
1912 1912 Great Register, Colusa County.  
1914 1914 Great Register, Colusa County.  
1916 1916 Great Register, Colusa County.  
1917 Plat Book.  
1918 Plat Book.  
1918 1918 Great Register, Colusa County.  
1919 Plat Book.

## California Department of Water Resources

- 2000 North-of-the-Delta Offstream Storage Investigation Progress Report, July 2000.  
2002 North-of-the-Delta Offstream Storage Investigation Scoping Report.  
2007 Sites Reservoir Alternative Road Relocations <http://www.storage.water.ca.gov/docs/Road2.doc>, accessed October 29, 2007.

## California State Agricultural Society

- 1866 Sheep Husbandry and Dogs. *Transactions of the California State Agricultural Society* 1865:63-65.



## California State Mining Bureau

- 1890 *Eleventh Report of Mineralogist, First Biennial, 1890/1892*. State Printing Office, Sacramento.
- 1896 *Thirteenth Report of the State Minerologist for the year ending Setpember 15 1896, Third Biennial, 1896*. State Printing Office, Sacramento.
- 1906 *Bulletin No. 38*
- 1915a *Mineral Production for 1914 with Mining Law Appendix*. Bulletin No. 70. State Printing Office, Sacramento.
- 1915b *Fourteenth Report of the State Mineralogist*. Division of Mines and Mining.
- 1921 *California Mineral Production for 1920 with County Maps*. Bulletin No. 90. State Printing Office, Sacramento.
- 1921 *Report XVII of the State Mineralogist*, Division of Mines and Mining.
- 1929 *Report XXV of the State Mineralogist*, Division of Mines and Mining, January 1929, p. 300.

## Callaghan, C.A.

- 1982 *The Homeland of the Proto Miwok*. Ms. on file, Anthropological Studies Center, Sonoma State University. (Cited with the permission of the author.)
- 1997 Evidence for Yok-Utian. *International Journal of American Linguistics* 63(1):18–64.
- 2001 More evidence for Yok-Utian: A reanalysis of the Dixon and Kroeber sets. *International Journal of American Linguistics* 67 (3):313–346.

## Chan, S.

- 1986 *This Bittersweet Soil: The Chinese in California Agriculture, 18160-1910*. University of California Press, Berkeley.

## Chappell, G.

- 1999 The Sacramento Locomotive Works of the Central Pacific and Southern Pacific Rail Roads, 1864-1999. *Cultural Resource Management* 22(10):51-54.

## Charnov, E.L.

- 1976 Optimal Foraging, the Marginal Value Theorum. *Theoretical Population Biology* 9:129-136.

## Charnov, E.L., G.H. Orians, and K. Hyatt

- 1976 Ecological Implications of Resource Depression. *The American Naturalist* 110(972):247-259.

## Chartkoff, J.

- 1969 *Archaeological Resources of the West Sacramento Canal Unit*. Report prepared for the National Park Service, Western Region.

## Chartkoff, J. and J. Childress

- 1966 *An Archaeological Survey of the Proposed Paskenta-Newville Reservoir in Glenn and Tehama Counties, Northern California*. Report prepared for the National Park Service, Western Region. Ms. on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

## Chico Enterprise Record

- 1965 Friday Evening Issue, September 17, 1965.

## Clark, Bonnie J.

- 2005 Lived ethnicity: archaeology and identity in Mexicano America, 1470-1375. *World Archaeology* 37(3):440–452.

## Clark, V.

- 1949 *History of Manufacturers in the United States*. Peter Smith, New York.

Cleland, R.

1941 *The Cattle on a Thousand Lands*. Huntington Library, San Marino.

Cohen, M.N.

1981 *Pacific Coast Foragers: Affluent or Overcrowded?* Seri Ethnological Studies No. 9. Osaka.

Colby, W. H.

1982 *A Century of Transportation in Shasta County, 1821-1920*. Occasional Publication Number Severn. Association for Northern California Records and Research, Chico.

Collins, I. L.

1953 *Horse Power Days: Popular Vehicles of Nineteenth Century America*. Stanford University Press, Stanford, California.

Colusa County Genealogical Society

1997 *Cemetery Inscriptions of Colusa County, Volume 1*. Composed by Colusa County Genealogical Society, Williams

Colusa Sun

1885 June 20, 1885, 3:1  
1885 October 10, 1885, 3:2  
1886 October 31, 1885, 3:2  
1886 February 6, 1886, 3:2  
1886 May 1, 1886, 3:2  
1886 June 12, 1886, 3:2  
1886 July 31, 1886, 3:1  
1886 November 20, 1886, 3:1  
1887 January 1, 1887, 3:1  
1887 February 12 1887, 1:3  
1887 April 30, 1887, 3:1  
1888 March 10, 1888, 3:1  
1888 June 16 1888, 3:1  
1888 June 23, 1888, 3:1  
1889 August 31, 1889, 5:1  
1890 January 25 1890, 3:1.  
1890 February 22 1890, 3:2.  
1890 March 1, 1890, 3:2.  
1890 July 12, 1890, 2:2.  
1890 August 23, 1890, 3:1  
1890 August 30, 1890, 5:2  
1891 July 4, 1891, 6:1  
1891 July 18, 1891: 7:3.  
1892 January 2, 1892, 3:1  
1892 January 9, 1892 1:5  
1892 January 30, 1892, 5:3  
1892 February 20, 1892.  
1892 April 30, 1892, 2:2.  
1892 July 30, 1892, 6:4.  
1892 June 18, 1892, 1:3  
1892 October 1, 1892: 2:3.  
1893 January 1, 1893, Holiday Edition of the County Directory.  
1893 February 15, 1893, 3:1-5  
1893 May 15, 1893, 3:1

- 1900 January 15, 1900, 3:2
- 1900 January 31, 1900, 4:1
- 1900 September 29, 1900, 3:2
- 1906 April 4, 1906
- 1906 April 27, 1906, 3:3
- 1906 May 22, 1906, 1:3
- 1915 March 27, 1915, 1:4
- 1906 June 1, 1906, 1:4
- 1906 June 11, 1906, 1:1
- 1915 May 4, 1915, 1:2
- 1915 May 5, 1915, 1:2
- 1920 April 28, 1920, 1:2

Colusa County Teachers Association

- n.d. *Colusa County California, Its Schools, Its Soil, Its Products, Its Climate, etc.* Colusa County Teachers Association. Colusa.

Cook, S.F.

- 1955 The Epidemic of 1830-1833 in California and Oregon. *University of California Publications in American Archaeology and Ethnology* 43(3):303-326. Berkeley.
- 1964 The Aboriginal Population of Upper California. *Proceedings of the 35th International Conference of Americanists*. Mexico. pp:397-403.
- 1965 The Quantitative Approach to the Relations between Population and Settlement Size. *University of California Publications in American Archaeology and Ethnology* 40(7):281-312. Berkeley.

Crampton, B.

- 1974 *Grasses in California*. California Natural History Guide 33. University of California Press, Berkeley.

Crosby, A.

- 1986 *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge University Press.

Daily Colusa Sun

- 1900 January 15, 1900, 3:2.

Darlington, N., C. Whitmore and G. Mansfield

- 1920 *Report of a Study of the California Highway System*. United States Bureau of Roads, Washington D.C.

Davis, J.

- 1963 Trade Routes and Economic Exchange Among the Indians of California. *University of California Archaeological Survey Reports* No. 54. Berkeley.

Davoli, E. (Louisiana Department of Transportation and Development)

- 1998 Patent Medicines: Ethnic or Socio-Economic Indicators? *Paper Presented at the South Central Historical Archeology Conference, New Orleans*. <http://www.uark.edu/campus-resources/archinfo/SHACdavoli.pdf>. Accessed 12/23/2004.

Deal, K.

- 1987 The Archaeology of the Cana Highway Site, CA-BUT-288, Butte County, California. Unpublished Master's thesis, Department of Anthropology, California State University, Chico.

- Derby, G.  
1849 Topographical Reports of Lieutenant George H. Derby. Francis F. Farquhar, ed. *California Historical Society Publications* 6. San Francisco.
- Dickel, D. N.  
1985 Growth stress and Central California pre-historic subsistence shifts. *American Journal of Physical Anthropology* 63:152.
- Dickel, D.N., P.D. Schulz, and H.M. McHenry  
1984 Central California: Prehistoric Subsistence Changes and Health. In *Paleopathology at the Origins of Agriculture*, Mark N. Cohen and George J. Armelagos, eds. Academic Press, Inc. Orlando. Pp. 439-461.
- Dietz, M.  
1986 This old house. *Tehama County Memories*, pp 38-42.
- Dillon, B. D. and D. W. Murphy  
1994 *A Fluted Point from Thomes Creek, Tehama County, California*. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Dillehay, T.D.  
2000 *The Settlement of the Americas*. Basic Books. New York.
- Dixon, E.J.  
2000 *Bones, Boats, and Bison: Archaeology and the First Colonization of Western North America*. University of New Mexico Press. Albuquerque.
- Dixon, R. B.  
1905 The Northern Maidu. *American Museum of Natural History, Bulletins* 17(3):119-346. New York.
- Dixon, R. B. and A. L. Kroeber  
1913a New linguistic families in California. *American Anthropologist* 15:647-655.  
1913b Relationship of the Indian languages of California. *Science* 37:225.
- Docken, R., A. Hurtado, M. Lortie, C. Litzinger, P. Howard, and D. Felton  
1982 A Cultural Resource Overview for the Mendocino National Forest and East Lake Planning Unit, BLM, California. Vol. II: History. Submitted to the USFS, Mendocino National Forest, Willows and Bureau of Land Management, East lake Planning Unit. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Durham, D.  
1998 *California's Geographical Names*. World Dancer Press, Clovis.  
2000 *Place Names of California's Southern Sacramento Valley: Includes Colusa, Sacramento, Sutter, Yuba, and Yolo Counties*. Quill Driver Books. Clovis.
- Dyke, D.  
1932 Transportation in Sacramento Valley 1849-1860. Unpublished Master's Thesis, Department of History, California State University, Chico.

## Edwards, R.

- 1969 *A Report on Salvage Excavation of Thomes Creek, Tehama County, California*. Report prepared for the National Park Service, Western Region. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

## Eidsness, J.

- 1986 *Archaeological Data Recovery at Ca-Men-320/643 for the Proposed Black Butte Bridge, Mendocino National Forest*. Ms. on file, Northwest Information Center of the California Historical Resources Inventory System, Sonoma State University, Rohnert Park, California.

## Elliott, D.

- 1988 *Archaeological Survey for the Proposed Bridge Replacement at Stone Corral Creek, Colusa County, California*. Prepared for the County of Colusa, Department of Public Works. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

## Elmendorf, W.W.

- 1968 Lexical and Cultural Change in Yukian. *Anthropological Linguistics* 10(1):1-41.  
1980 *Models of Linguistic Prehistory in California*. Paper presented at the Annual Meeting of the American Anthropological Association, Washington, D.C.  
1981 *Proto-Yukian Homeland*. Paper presented at the Annual Hokan-Penutian Conference, Sonoma State University, Rohnert Park, California.

## Elsasser, A.

- 1978 Development of Regional Prehistoric Cultures. In *California*, edited by R.F. Heizer, pp 37-58. Handbook of North American Indians, Vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

## Eschleman, J. A. and D. G. Smith

- 2008 Prehistoric Mitochondrial DNA and Population Movements. In *Californian Prehistory: Culture, Colonization, and Complexity*, T. L. Jones and K. Klarr, eds. Altamira Press. pp. 291-315.

## Eschleman, J. A., R. S. Malhi, J. R. Johnson, F. A. Kaestle, J. Lorenz, and D. G. Smith

- 2004 Mitochondrial DNA and Prehistoric Settlements: Native Migrations on the Western Edge of North America. *Human Biology* 76(1):55-75

## Fagan, J.L.

- 1988 Clovis and Western Pluvial Lakes Tradition Lithic Technologies at the Dietz Site in South-Central Oregon. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, J.A. Willig, C.M. Aikins, and J.L. Fagan, eds., Nevada State Museum Anthropological Papers 21. pp. 389-416.

## Farber, A.

- 1991 *Archaeological Survey of the Thompson Quarry Project Area Colusa County, California*. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

## Farquhar, F.

- 1932 The Topographical Reports of Lieutenant George H. Derby. With Introduction and Notes by Francis P. Farquhar. *California Historical Society Quarterly* 11(2):99-123.

- Farris, G. J.  
1998 Review of Contested Eden: California Before the Gold Rush, R. A Gutierrez and R. J. Orsi, eds. *Journal of California and Great Basin Anthropology*.  
1999 Jesse Berressa and McGill Chanioka. Report on file, Archaeological Research Program, California State University, Chico.
- Federal Communications Commission (FCC)  
2007 Nationwide Programmatic Agreement for Review of Effects on Historic Properties. <http://wireless.fcc.gov/siting/npa/intro.html>, accessed October 29, 2007.
- Felthouse, P.  
1987 Sites—A Town of Spirit. *Wagon Wheels*, Vol. 37, Number 2. Colusi County Historical Society, Colusa, California.  
1989 Motorcycles. In *Tehama County Memories*, pp. 16-19. Tehama County Genealogical and Historical Society, Red Bluff.
- Fenenga, F.  
1938 Sandhill Site, Nov. 22 to 27, 1938, S.J.C.F.P. Unpublished field notes. Copy in possession of the author.
- Ferraro, P. and B. Ferraro  
1964 *The Past in Glass*. Western Printing and Publishing Company, Lovelock, Nevada.
- Fiedel, S.J.  
1999 Older than We Thought: Implications of Corrected Dates for Paleoindians. *American Antiquity* 64(1):95-116  
2000 The Peopling of the New World: Present Evidence, New Theories, and Future Directions. *Journal of Archaeological Research* (8)1:39-103
- Fischer, V. (translator)  
1992 *The Diary of Captain Luis Antonio Arguello: October 17- November 17, 1821: The Last Spanish Expedition in California*. Series of Keepsakes Issued by the Friends of the Bancroft Library by its Members, No. 40. University of California, Berkeley.
- Fitzgerald, R.T. and W.R. Hildebrandt  
2002 Will the True Age of the Borax Lake Pattern Please Stand Up?: The Archaeology of CA-HUM-573, and Early Holocene Site on the South End of Pilot Ridge, Humboldt County, California. *Proceedings of the Society for California Archaeology*, 15:1-7.
- FitzGibbon, C.  
1998 The Management of Subsistence Harvesting: Behavioral Ecology of Hunters and Their Mammalian Prey. In *Behavioral Ecology and Conservation Biology*, T. Caro, ed. Oxford University Press, New York. pp:449-473.
- Flood, Mrs. Leo  
1973 Horse Powered Merry-Go-Round. *Wagon Wheels, Journal of the Colusi County Historical Society* Volume XXIII(1):43. Colusa.
- Fontana, B. and J. Greenleaf  
1962 Johnny Ward's Ranch: A Study in Historical Archaeology. *The Kiva* 28(1-2):October-December 1962.

## Foster, G.M.

- 1944 A Summary of Yuki Culture. *University of California Anthropological Records* 5(3):155-244. Berkeley.

## Fredrickson, D.A.

- 1974 Social Change in Prehistory: A Central California Example. In *Antap: California Indian Political and Economic Organization*, edited by L.J. Bean and T.F. King, pp. 57-73. Anthropological Papers 2. Ballena Press, Ramona.
- 1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41-53.
- 1984 The North Coastal Region. In *California Archaeology* by M. J. Moratto. Academic Press, New York.
- 1994a Spatial and Cultural Units in Central California Archaeology. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson*, edited by R.E. Hughes, pp. 25-48. Contributions to the University of California Archaeological Research Facility 52. Berkeley.
- 1994b Archaeological Taxonomy in Central California Reconsidered. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson*, edited by R.E. Hughes, pp. 91-103. Contributions to the University of California Archaeological Research Facility 52. Berkeley.
- 1994c Central California Archaeology: The Concepts of Pattern and Aspect. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson*, edited by R.E. Hughes, pp. 75-79. Contributions to the University of California Archaeological Research Facility 52. Berkeley.

## Fredrickson, D. A. and G. White

- 1988 The Clear Lake Basin and Early Complexes in California's North Coast Ranges. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, edited by J. A. Willig, C. M. Aikens, and J. L. Fagan. pp. 75-86. Nevada State Museum Anthropological Papers No. 21. Carson City.

## Gates, P.

- 1968 *History of public land law development*. US Government Printing Office, Washington DC.

## Geis, W. H.

- 1923 *Report on the Sites Anticline - Glenn and Colusa Counties, California*. Report on file at the Archaeological Research Program, California State University, Chico.

## Gibbs, C. D.

- 1851 *A New Map of the Gold Region in California by Charles Drayton Gibbes, from his own and other Recent Surveys of Exploration*. J. Drayton Gibbes/Sherman & Smith. Stockton, CA.

## Gifford, E.

- 1926 Clear Lake Pomo Society. *University of California Publications in American Archaeology and Ethnology* 18(2):287-390.
- 1940 California Bone Artifacts. *University of California Anthropological Records* 3(2):153-237, Berkeley.
- 1950 California Shell Artifacts. *University of California Anthropological Records* 9(1):1-132. Berkeley.

## Gilbert, E. W.

- 1966 *The Explorations of Western North America 1800-1850: An Historical Geography*. Cooper Square Publishers, New York.

- Gillis, M. J. and M. F. Magliari  
2003 *John Bidwell and California: The Life and Writings of a Pioneer, 1841-1900*. Western Frontiersmen Series, vol. 30. Spokane: Arthur H. Clark Company, 2003.
- Gladding McBean, LLC  
2005 History of Gladding McBean. Retrieved from <http://gladdingmcbean.pacocoast.com/default.jsp?InstRegionProdLineID=13&IRPLMenuD=203&page=1>. Accessed on April 15, 2005.
- Goldschmidt, W.  
1951 Nomlaki Ethnography. *University of California Publications in American Archaeology and Ethnology* 42(4): 303-443. Berkeley.  
1971 *Nomlaki Ethnography*. New York, Kraus.  
1978 Nomlaki. In California, edited by R.F. Heizer. *Handbook of North American Indians*, Vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- Golla, V.  
1997 The Alsea-Wintuan Connection, *International Journal of American Linguistics* 63:157-170.  
2007 Linguistic Prehistory. In *California Prehistory: Colonization, Culture, and Complexity*, T. L. Jones and K. A. Klar, eds. Altamira Press. New York. pp. 71-82.
- Goodyear, W.  
1890 *Colusa County, California*. Bureau of Mining Report No. 10. State of California.
- Gould, R.A.  
1964 *Exploitative Economics and Culture Change in Central California*. Reports of the University of California Archaeological Survey, No. 62, Berkeley.
- Green, W.  
1876 *The History of Colusa County*. Colusa Sun, Colusa.  
1880 *Historical Reminiscences of Colusa County, California*. Elliott and Moore Publishers, San Francisco, California.  
1950 *The History of Colusa County, California, and General History of the State, Sacramento*. Originally published 1880, reproduced for E. Eubank by the Sacramento Lithograph Co., Sacramento, California.
- Grimes, M.  
1983 *The First Fifty Years, A Pictorial Essay on Tehama County, 1856-1906*. Quality Printing, Red Bluff.
- Haas, M.R.  
1978 Historical Linguistics and the Genetic Relationship of Language. In *Language, Culture, and History*. pp:220-281. Mouton, The Hague.
- Halpern, A.M.  
1964 A Report on a Survey of the Pomo Languages. In *Studies in California Linguistics*, edited by W. Bright, pp. 88-93. University of California Publications in Linguistics 34. Berkeley.
- Hamusek, B. and S. Jung  
1994 *Archaeological Reconnaissance of the Grapevine Creek Bridge replacement #15C0070 and Site-Lodoga Road Realignment Project, Colusa County, California*. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.



- Hanes, T. A.  
1988 California chaparral. In *Terrestrial Vegetation of California*, M.G. Barbour and J. Major, eds. Special publication number 9, California Native Plant Society, Sacramento.
- Harrington, M.R.  
1948 An Ancient Site at Borax Lake, California. Southwest Museum Papers 16, Los Angeles.
- Hardwick, S. and D. Holtgrieve  
1996 *Valley for Dreams*. Rowman & LittleField. New York
- Harwood, D. and E. Helley  
1987 *Late Cenozoic Tectonism of the Sacramento Valley, California*. U.S. Geological Survey Professional Paper 1359. U.S. Government Printing Office, Washington.
- Heady, H.  
1988 Valley Grassland. In *Terrestrial Vegetation of California*. Edited by Michael Barbour and Jack Major. California Native Plant Society, Special Publication Number 9. University of California, Davis. Pp. 491-514.
- Heizer, R. F.  
n.d. Undated field notes from a 1938 excavation at Col-3. On file, Archaeological Research Facility, UC Berkeley.  
1941 Direct Historical Approach in California Archaeology. *American Antiquity* 11(3):187-193.  
1949 The Archaeology of Central California, I: The Early Horizon. *University of California Anthropological Records* 12(1):1-84, Berkeley.
- Heizer, R. F. and T. Hester  
1970 Names and Locations of Some Ethnographic Patwin and Maidu Indian Villages. In *Papers on California Ethnography*, pp. 79-116. Contributions of the University of California Archaeological Research Facility, No. 9. University of California Archaeological Research Facility. Berkeley.
- Heizer, R. F. and A. E. Treganza  
1972 *Mines and Quarries of the Indians of California*. Ballena Press. Ramona, California
- Hildebrandt, W.R. and J.F. Hayes  
1983 Archaeological Investigations on Pilot Ridge, Six Rivers National Forest. Manuscript on file, Northwest Information Center of the California Historical Resources Inventory System, Sonoma State University, Rohnert Park, California.  
1984 Archaeological Investigations on South Fork Mountain, Six Rivers National Forest. Manuscript on file, Northwest Information Center of the California Historical Resources Inventory System, Sonoma State University, Rohnert Park, California.  
1993 Settlement Pattern Change in the Mountains of Northern California: A View from Pilot Ridge. In *There Grows a Green Tree: Essays in Honor of David A. Fredrickson*, edited by G. White, P. Mikkelsen, W.R. Hildebrandt, and M. E. Basgall, pp. 107-119. Center for Archaeological Research at Davis Publications No. 11. University of California, Davis.
- Hildebrandt, W.R., and T.L. Jones  
1992 Evolution of Marine Mammal Hunting: A View From the California and Oregon Coasts. *Journal of Anthropological Archaeology* 11:360-401.
- Hildebrandt, W.R. and K.R. McGuire  
2002 The Ascendance of Hunting During the California Middle Archaic: An Evolutionary Perspective. *American Antiquity* 67(2): 231-256.

- Hislop, Donald L.  
1978 *The Nome-Lackee Indian Reservation, 1854-1870*. Association of Northern California Records and Research, Chico.
- Hobart, B.  
2001 *Captain Granville Perry Swift: California Pioneer and Sonoma Bear*. First Books Library, USA.
- Holland, V. and D. Keil  
1990 *California Vegetation*. California Polytechnic State University, San Luis Obispo.
- Hughes, R.E.  
1992 California Archaeology and Linguistic Prehistory. *Journal of Anthropological Research* 48:317-338.
- Hutchings's Illustrated California Magazine  
1857 April of 1857 issue, pp. 493-96.
- Ingles, L. G.  
1965 *Mammals of the Pacific States*. Stanford University Press, Stanford, CA.
- Ingrim, E.  
1880 Discovery of Copper, Oil, Quicksilver, Etc. In *Historical Reminiscences of Colusa County, California*, by Will S. Green, Elliott and Moore Publishers, San Francisco, California.
- Jablonski, N.G.  
2002 *The first Americans: The Pleistocene Colonization of the New World*. Memoirs of the California Academy of Sciences, Number 27. San Francisco.
- Jackson R. and L. Shapiro  
2001 *Data Compendium and Summary report of Burial and Data Salvage Excavations at CA-COL-61, State Route 20, Colusa County, California*. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.
- Jackson, T.L.  
1974 The Economics of Obsidian in Central California Prehistory: Applications of X-Ray Fluorescence Spectrography in Archaeology. Unpublished Master's thesis, Department of Anthropology, Stanford University.  
1975 Metates in the Sky, Rocks in the Head: Archaeological Investigations on Twin Rocks Ridge, Mendocino National Forest, California. Manuscript on file, Northwest Information Center of the California Historical Resources Inventory System, Sonoma State University, Rohnert Park, California.  
1979 Hupa Mountain Archaeological Project: Report of Salvage Excavations at 4-Hum-245 and 4-Hum-246. Manuscript on file, Northwest Information Center of the California Historical Resources Inventory, Sonoma State University, Rohnert Park, California.  
1983 In The Archaeological Test Excavation of Sites Ca-Col-76 and Ca-Col-81, Fouts Springs, Mendocino National Forest, California. (ed.) Slaymaker, C. Report submitted to the Mendocino National Forest, Willows, California. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Jackson, T. and P. Schultz  
1974 Typology, Trade, and Trace Analysis: A Test of Local Manufacture of Sacramento Valley Obsidian Tools. *Journal of New World Archaeology* 1:1-18.

Jaffke, T.D.

- 1997 *A Spatial and Temporal Analysis of Morphological Variation among Gunther Barbed Projectile Points of the Central North Coast Ranges, Mendocino County, California*. Unpublished Masters thesis, Department of Anthropology, Sonoma State University, Rohnert Park, California.

Jameson, E. W. and H. J. Peeters

- 2004 *Mammals of California*. University of California Press. Berkeley.

Jelinek, L. J.

- 1982 *Harvest Empire: A History of California Agriculture*. Boyd & Frazer, San Francisco.

Jenkins, O. L.

- 1948 *Geologic Formations and Economic Development of the Oil and Gas Fields of California*. California Department of Natural Resources, Division of Mines, Bulletin No. 118, San Francisco.

Johns, T. and M. Duquette

- 1991 Traditional Detoxification of Acorn Bread With Clay. *Ecology of Food and Nutrition* 25:221-228.

Johnson J.J. and S. Dondero

- 1990 Excavations at Archaeological Site CA-TEH-10, Cemetery 1: Black Butte Lake, Glenn and Tehama Counties, California. U.S. Army Corps of Engineers, Sacramento District. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

Johnson, J. J., D. Theodoratus, C. Blount, and S. Dondero

- 1984 *Black Butte Lake Intensive Cultural Resources Survey Glenn and Tehama Counties, California*, Report prepared for the US Army Corps of Engineers, Sacramento District. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

Johnson, J. R. and J. G. Lorenz

- 2006 Genetics, linguistics, and prehistoric migrations: an analysis of California Indian mitochondrial DNA lineages. *Journal of California and Great Basin Anthropology* 26(1):33-64.

Johnson, P.

- 1978 Patwin. In *Vol. 8 Handbook of North American Indians, California*, edited by R.F. Heizer. Pp. 350-360. Smithsonian Institution, Washington.

- n.d. *Summary Report of Archaeological Excavations at Ca-Col-11, Colusa County, California*. Ms. on file Ukiah Field Office, Bureau of Land Management.

Johnson, R. I.

- 1979 Colusa County's Foothills Combed for Precious Metals Since 1850's. *Wagon Wheels*, volume XXIX, Number 2, September 1979. Originally Colusa, CA. Sun Herald, Wed., Nov. 15, 1978. Colusa County Historical Society, Colusa.

- 1980 Copper Strikes Caused Stampede to Indian, Bear Valley in 1863. *Wagon Wheels*, volume XXX, Fall Edition, Number 2, pp. 14-18. 2001 "A Short History of Transportation in Colusa, Glenn and Tehama Counties." *Wagon Wheels*, Vol. 51. Colusa: Colusa County Historical Society.

- n.d. Some Highlights of Colusa County Transportation History. Ms in the possession of the author.

- Johnson, W.  
1981 *The Town of Maxwell: From the Beginning, 1878 to the Present*. DeGaa Press, Willows, California.
- Jones, T.L.  
1991 Marine-Resource Value and the Priority of Coastal Settlement: A California Perspective. *American Antiquity* 56:419-443.
- Jones, T.L., G.M. Brown, L.M. Raab, J.L. McVickar, W.G. Spaulding, D.J. Kennett, A. York, and P.L. Walker  
1999 Environmental Imperatives Reconsidered: Demographic Crises in Western North America during the Medieval Climatic Anomaly. *Current Anthropology* 40(2):137-170.
- Jones, T.L., R.T. Fitzgerald, D.J. Kennett, C.H. Miksicek, J.L. Fagan, and J. Sharp  
2002 The Cross Creek site (CA-SLO-1797) and its implications for New World colonization. *American Antiquity* 67(2): 213-230.
- Kaestle, F. A. and D. G. Smith  
2001 Ancient mitochondrial DNA evidence for prehistoric population movement: the Numic expansion. *American Journal of Physical Anthropology* 115:1-12.
- Katibah, E. F.  
1984 A Brief History of Riparian Forests in the Central Valley of California. In *California Riparian Systems: Ecology, Conservation, and Productive Management*, edited by R.E. Warner and K.M. Hendrix. University of California Press, Berkeley.
- Kean, D. W.  
1996 The Central Valley Counties. In *Wide Places in the California Roads*, Volume 4 of 4. The Concord Press, Sunnyvale, California.
- Kendrick, G.  
1966 *The Antique Bottle Collector*. Western Printing and Publishing Company, Sparks, Nevada.
- King, T.F.  
1970 *The Dead at Tiburon : Mortuary Customs and Social Organization on Northern San Francisco Bay*. Northwestern California Archaeological Society Occasional Paper No. 2.  
1974 Manos on the Mountain: Borax Lake Pattern High Altitude Settlement and Subsistence in the North Coast Ranges of California. Manuscript on file, Northwest Information Center of the California Historical Resources Inventory System, Sonoma State University, Rohnert Park, California.  
1978 Don't That Beat the Band? Nonegalitarian Political Organization in Prehistoric Central California. In *Social Archeology: Beyond Subsistence and Dating*, edited by C. Redman et al., pp. 225-248. Academic Press, New York.
- Knight, J.  
1988 A Personal Memory of the Sites Quarry. *Wagon Wheels*, Vol. 38, Number 1, Colusi County Historical Society, Colusa, California.
- Kraft, J. A.  
1998 *Gold Miners Living on the Fringes: A Historical Ethnographic Study, Butte County, California*. Unpublished M.A. thesis. Department of Anthropology, California State University, Chico.

## Krause, D.

- 1984 The U. W. Brown House, A Historical Biography. *Wagon Wheels*, Vol. XXXIV. Colusa: Colusa County Historical Society.

## Kroeber, A.

- 1925 Handbook of Indians of California. *Bureau of American Ethnology*, Bulletin 78.  
1932 The Patwin and Their Neighbors. *University of California Publications in American Archaeology and Ethnology*, Vol. 29:4. University of California Press, Berkeley.  
1936 Cultural Element Distributions, III: Area and Climax. *University of California Publications in American Archaeology and Ethnology* 37(4):101-116. Berkeley.  
1954 The Nature of Land-Holding Groups in Aboriginal California. *University of California Archaeological Reports* 56:19-58. Berkeley.  
1962 The Nature of Land-Holding Groups in Aboriginal California. Pp. 19-58 in Two papers on the Aboriginal Ethnography of California. D.H. Hymes and Robert F. Heizer, eds. *University of California Archaeological Survey Reports* 56. Berkeley.

## La Bourdette, L.

- 1974 Charles Donald Semple, Co-Founder of Colusa. *Wagon Wheels* 24(1):13-15.

## Lake County Bee

- 1937 April 29, 1937

## Layton, T. N.

- 1990 *Western Pomo Prehistory: Excavations at Albion Head, Nightbird's Retreat, and Three Chop Village, Mendocino County, California*. Institute of Archaeology, University of California, Los Angeles, Monograph 32.

## Lewis, E

- 1880 *Illustrations of Tehama County, California, with Historical Sketch of the County*. San Francisco: Elliot Moore.

## Leopold, A. S.

- 1977 *The California Quail*. University of California Press. Berkeley.

## Lillard, J. B., R. F. Heizer, and F. Fenenga

- 1939 An Introduction to the Archaeology of Central California. *Sacramento Junior College, Department of Anthropology Bulletin* 2. Board of Education of the Sacramento Unified School District, Sacramento.

## Loomis, B. F.

- 1930 Nobles Pass. Published in the *Record Searchlight* and quoted in McNamar 1990:17-20.

## Magliari, M.

- 1989 Populism, Steamboats, and the Octopus: Transportation Rates and Monopoly in California's Wheat Regions, 1890-1896. *Pacific Historical Review* 58:449-469

## Malhi, R. S., and D. G.

- 2002 Brief Communication: Haplogroup X Confirmed in Prehistoric North America. *American Journal of Physical Anthropology* 119:84-86.

## Malhi, R. S., B. M. Kemp, J. A. Eshleman, J. Cybulski, D. G. Smith, S. Cousins, H. Harry

- 2007 Mitochondrial haplogroup M discovered in prehistoric North Americans. *Journal of Archaeological Science* 34(4):642-648.

- Mallea-Olaetxe, Joxe  
2000 *Speaking through the aspens: Basque tree carvings in California and Nevada*. University of Nevada Press. Reno
- Maloney, A. (editor)  
1945 *Fur Brigade to the Bonaventure: John Work's California Expedition, 1832-1833, for the Hudson's Bay Company*. California Historical Society. San Francisco.
- Mansfield, G.  
1918 *History of Butte County*. Historic Record Company. Los Angeles.
- Martin, C.  
2003 The Mystery of Stone Corral. *Wagon Wheels*, 53 (2) Fall 2003 Colusa County Historical Society.
- McComish, C. and R. Lambert.  
1918 *History of Colusa and Glenn Counties California with Biographical Sketches of the Leading Men and Women of the Counties who have been Identified with their Growth and Development from the Early Days to the Present*. Historic Record Company, Los Angeles.
- McCullough, D. R.  
1969 *The Tule Elk: Its History, Behavior, and Ecology*. University of California Publications in Zoology No. 88. Berkeley.
- McGilvray, J.  
1955 *The Shriners Finest Hour*. Board of Governors, Shriners Hospital for Crippled Children, San Francisco.
- McGowan, J.  
1961 *History of the Sacramento Valle*, Vol.s 1-3. Lewis Historical Publishing Company. New York.
- McKern, W.  
1922 Functional Families of the Patwin, In *University of California Publications in American Archaeology and Ethnology*, Vol. 13:7. Berkeley, University of California Press.  
1923 Patwin Houses, In *University of California Publications in American Archaeology and Ethnology*, Vol. 20:10. Berkeley, University of California Press.
- McKinstry, G.  
1872 Documents for the History of California, 1846-49. University of California, Bancroft Library Manuscript, Berkeley.
- McLaughlin, R. J.  
1981 Tectonic Setting of Pre-Tertiary Rocks and its Relation to Geothermal Resources in The Geysers-Clear Lake area, In *Research in The Geysers-Clear Lake Geothermal Area, Northern California*, U.S. Geological Survey Professional Paper, Vol. 1141, pp.3-23, eds. McLaughlin, R.J., Donnelly-Nolan, J.M., U.S. Geol. Survey, Wash. D.C.
- McLendon, S.  
1973 *Proto Pomo*. University of California Publications in Linguistics 71. University of California Press. Berkeley.
- McNamar, M.  
1990 *Way Back When*, revised edition. C. A. T. Publishing Company, Redding.

Meighan, C.

- 1955 *The Archaeology of the North Coast Ranges, California*. University of California Archaeological Survey Reports 30:1-39. Berkeley.

Meighan C.W., and C.V. Haynes

- 1968 New Studies on the Age of the Borax Lake Site. *The Masterkey* 42(1).  
1970 The Borax Lake Site Revisited. *Science* 167:1213-1221.

Meko, D.M.

- 2001 Reconstructed Sacramento River System Runoff from Tree Rings. Report prepared for the California Department of Water Resources, Sacramento.

Merriam, C. Hart

- 1955 *Studies of California Indians*, edited by the staff of the Department of Anthropology, University of California, Berkeley, UC Press, Berkeley.  
1967 Ethnographic notes on California Indian Tribes, 3 parts, edited by R.F. Heizer. *University of California Archaeological Survey Reports* 68.  
1977 Ethnogeographic and Ethnosynonymic data from Central California tribes. *Archaeological Research Facility* 2.

Miller, V.P.

- 1978 Yuki and Coast Yuki. In *California*, edited by R.F. Heizer, pp. 249-255. Handbook of the North American Indians, Volume 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Milliken, Randall T.

- 1991 An Ethnohistory of the Indian people of the San Francisco Bay Area from 1770 to 1810. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.  
1995 *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Susan Cole and Karla Young, eds. Ballena Press Anthropological Papers, 43. Thomas Blaburn, gen. ed. Menlo Park, CA: Ballena Press.  
2002 California Indians of the Mission San Jose Outreach Area. Report prepared for Archaeor Archaeological Consultants, Fremont, California. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park.  
2005 Ethnography and Early History of the Lower Cache Creek Patwin. In *Final Report: Archaeological Evaluation and Mitigative Data Recovery at CA-YOL-69, Madison Aggregate Plant, Yolo County, California*, Randy S. Wiberg, principal investigator. Pp. 1-39. Report prepared by Holman and Associates for Solano Concrete Company, Inc. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park.

Miner F. L.

- 1919 *Commercial Petroleum Company*. Pamphlet published by authority of the board of Directors of the Commercial Petroleum Company. Reno, Nevada.

Mohr, A. and D. Fredrickson

- 1949 Appraisal of the Archaeological Resources of Black Butte Reservoir, Glenn and Tehama Counties, California. Report prepared for the Pacific Coast Division of River Basin Surveys. Lincoln, Nebraska. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.

- Moratto, M. J.  
1984 *California Archaeology*. Academic Press, San Francisco.
- Moyle, P. B.  
2002 *Inland Fishes of California*. Revised and expanded edition. University of California Press, Berkeley.
- National Parks Service  
2004a Homestead National Monument of America: Homestead Act. Electronic document, [http://www.nps.gov/home/homestead\\_act.html](http://www.nps.gov/home/homestead_act.html), accessed May 16, 2005.  
2005 National Register Bulletin 15: How to Apply the NR Criteria for evaluation. Electronic Document, <http://www.cr.nps.gov/nr/publications/bulletins/nrb15/>, accessed May 12, 2005.
- National Space-Based Positioning, Navigation, and Timing Executive Committee  
2007 Information About Selective Availability. <http://pnt.gov/public/sa/>, accessed June 24, 2007.
- Neitz, G., R. Olsen, J. Lillard, and anonymous  
1935 Garner's Ranch and Long Valley, Lake County, California. Field notes of the Sacramento Junior College Archaeological Project, Nov. 21, 1934 to Feb. 23, 1935. Ms. on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.
- Newman, T. Stell  
1970 A Dating Key for Post-Eighteenth Century Bottles. *Historical Archaeology*, Society for Historical Archaeology, Bethlehem.
- Northern Democrat  
1857a For Arizona. *Northern Democrat*, April 28<sup>th</sup> issue, Vol. 2, No. 6, p.3, col. 2, Oroville, California.  
1857b Staging. *Northern Democrat*, May 23<sup>rd</sup> issue, Vol. 1, No. 28. p.2, col. 1, Oroville, California.
- Nunis, D.  
1968 *The Hudson's Bay Company's First Fur Brigade to the Sacramento Valley: Alexander McLeod's 1829 Hunt*. Fair Oaks, CA: Sacrament Book Collector's Club.
- Offermann, J. O. and R. I. Orlins  
1982 *An Archaeological Investigation of Kulachini (Ca-Gle-268), Near Elk Creek, Glenn County, California*. Prepared for the County of Glenn Road Department. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Olmstead, D.L.  
1985 Linguistic Evidence Concerning Pomo Migrations. In *Ethnography and Prehistory of the North Coast Ranges, California*, edited by H. McCarthy, W.R. Hildebrandt, and L.K. Swenson. Center for Archaeological Research at Davis, Publication 8, Davis
- Olmstead, F. and G. Davis  
1961 *Geologic Features and Underground Ground Water Storage Capacity of the Sacramento Valley, California*. Geological Survey Water-Supply Paper 1497. U.S. Government Printing Office, Washington.
- Orbann, C. M.  
2006 Inferring Precontact Demographic Trends from the Historical Record: A Case Study Using Four Patwin Tribelets from Alta California. Unpublished M.A. thesis on file, Department of Anthropology, California State University, Chico.



- Ornbaun, M.  
1995 The Sites Colony That Didn't Materialize. *Wagon Wheels*, Volume 45, Number 2, Fall 1995. Colusi County Historical Society, Colusa.
- Ordaz, Blas  
1821 "Names and Locations of Some Ethnographic Patwin and Maidu Indian Villages." In *Papers on California Ethnography*, pp. 79-116. *Contributions of the University of California Archaeological Research Facility*, No. 9. Heizer and Hester University of California Archaeological Research Facility. Berkeley.
- Origer, T. M.  
1987 *Temporal Control in the Southern North Coast Ranges of California: The Application of Obsidian Hydration Analysis*. Papers in Northern California Anthropology 1. Berkeley.
- Origer, T. M., and S. A. Waechter  
1990 *Test Excavations at Ca-Col-160, Colusa County, California*. Prepared for USDA, US Forest Service, Mendocino National Forest, Willows, California. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Ornduff, R.  
1974 *Introduction to California Plant Life*. Berkeley: University of California Press.
- Osborne, A. J.  
1985 *J. Granville Doll and the Formative Year of Red Bluff*. Associated of Northern California Records and Research, Chico.
- Oswalt, R.  
1964 The Internal Relationships of the Pomo Family of Languages. In *Proceedings of the 35th International Congress of Americanists* Vol. 2, pp. 413-427. Mexico, 1962.
- Peniou, E.  
n.d. Research Notes Regarding the Life and Career of Peter Lassen. MS on File, Northeast California Special Collections, Meriam Library, California State University Chico.
- Phillips, W.  
1976 *The Conservation of the California Tule Elk*. University of Alberta Press, Edmonton.
- Powers, S.  
1975 The Northern California Indians: A Reprinting of 19 Articles on California Indians Originally Published 1872-1877. Contributions to the University of California Archaeological Research Facility, No. 25. *University of California Archaeological Research Facility*, Berkeley.
- Preston R.  
1983 *Early California Atlas, Northern Edition*. Binford & Mort. Protland.
- Preston, W. L.  
1996 Serpent in Eden: Dispersal of Foreign Diseases into Pre-Mission California. *Journal of California and Great Basin Anthropology* 18(1): 2-37.  
2002 Portents of Plague from California's Protohistoric Period. *Ethnohistory* 49 (1):69-121.
- Rawls, J. J.  
1984 *Indians of California: the Changing Image*. University of Oklahoma Press. Norman.

- Roberts, W. G., J. G. Howe, and J. Major  
1980 A Survey of Riparian Forest Flora and Fauna in California. In *Riparian Forests in California: Their Ecology and Conservation*, Anne Sands, ed. Davis: The Regents of the University of California. pp:3-20.
- Rodda, P. and M. Murphy  
1985 *Paleontological Survey: Cottonwood Creek Project*. Report prepared for the Department of the Army, Sacramento District under Contract No. DACWo5-83-R-0074.
- Rogers, J.  
1891 *Colusa County, Its History Traced from a State of Nature Through the Early Period of Settlement and Development to the Present Day with a Description of its Resources, Statistical Tables, etc: Also Biographical Sketches of Pioneers and Prominent Residents*. Orland.
- Rosenthal, J. S.  
1996 *A Cultural Chronology for Solano County, California*. Unpublished Master's thesis, Department of Anthropology, Sonoma State University, Rohnert Park, CA.
- Rosenthal, J. S., G. G. White, and M. Q. Sutton  
2008 The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture, and Complexity*, T. L. Jones and K. A. Klar, eds. Altamira Press. Lanham, MD. pp. 125-146.
- Russo, M., and K. McBride  
1979 *A Phase I Cultural Resource Planning Summary and Preliminary Field Work Proposal for three Reservoir Location in Central California: Los Vaqueros (Contra Costa County), Los Banos Grandes (Merced County), and the Glenn Complex (Newville and Rancheria reservoirs) (Glenn and Tehama Counties)*. Report prepared for the State of California, Department of Water Resources.
- Sacramento Union  
1856 November 17th issue.
- Sampson, C. G.  
1985 Nightfire Island: Later Holocene Lakemarsh Adaptation on the Western Edge of the Great Basin. *University of Oregon Anthropological Papers* 33, Eugene.
- Sawyer, J.O.  
1980 The Non-Genetic Relationship of Wappo and Yuki. In *Papers in Honor of M. Beeler*, edited by K. Klar, M. Langdon, and S. Silver, pp:209-219. Mouton. The Hague.
- Schoenherr, A.  
1992 *A Natural History of California*. University of California Press, Berkeley.
- Schoonover, S.  
1993 Near Disaster on the Lassen Trail. *Dogtown Territorial Quarterly* 17(Spring):14-16
- Schulz, P.D.  
1979 Fish Remains from a Historic Central California Indian Village. *California Department of Fish and Game* 65(4):273-276.  
1981 Osteoarchaeology and Subsistence Change in Prehistoric Central California. Ph.D. dissertation, Department of Anthropology, University of California, Davis.

- Scheuring, A. F.  
1987 From Many Lands. *California Farmer*, November 21, 1987, pp. 16-18, 35-36; December 12, 1987, pp. 34-36, 52; and January 2, 1988, pp. 26-28.
- Schoonover, S.  
1994 Near Disaster on the Lassen Trail. *DogTown Territorial Quarterly* 17:14-16. Bill and Penny Anderson Publishers, Paradise.
- Shepherd, A.  
2005 *Proto-Wintun*. University of California Publications in Linguistics, Vol. 137. University of California Press. Berkeley.
- Shipley, W.  
1978 Native Languages of California. In *California*, edited by R.F. Heizer, pp. 80-90. Handbook of North American Indians, Volume 8, W.C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- Sites, E.  
1975 Interview of Esther Sites by her daughter Velma Butler on March 13, 1975. Report on file at the Archaeological Research Program, California State University, Chico.
- Slaymaker, C.  
1983 *The Archaeological Test Excavation of Sites Ca-Col-76 and Ca-Col-81, Fouts Springs, Mendocino National Forest, California*. Prepared for USDA, US Forest Service, Mendocino National Forest, Willows, California. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- Smith, C. and W. Weymouth  
1952 Archaeology of the Shasta dam Area, California. *University of California Archaeological Survey Reports* 18. Berkeley.
- Smith, D.  
1999 *The Dictionary of Early Shasta County History*, 2nd edition. Privately published by author, Cottonwood.
- Smith, E. S.  
1973 *Effects of Three Possible Reservoir Development Projects on the Cache Creek Tule Elk Herd (Cervus elaphus nannodes)*. California Department of Fish and Game, Environmental Services Branch Administrative Report No. 73-2.
- Snyder, S. A.  
1991 *Odocoileus hemionus*. In: *Fire Effects Information System*, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2005, May 4].
- Soule, W.  
1980 *Cultural Resource Survey Report Application 26085*. report prepared for the State Water Resources Control Board, Division of Water rights. Ms. on file at the NWIC, File No. S-292.
- State of California Office of Historic Preservation  
1995 *Instructions for Recording Historical Resources*. California State Office of Historic Preservation. Sacramento

- 2007 California Landmark 238 – Swift’s Stone Corral. [http://ohp.parks.ca.gov/listed\\_resources/default.asp?num=238](http://ohp.parks.ca.gov/listed_resources/default.asp?num=238), accessed 06/16/07.
- Stebbins, R. C.  
2003 *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company. New York.
- Stevens, K.  
1981 Iron Horse North – Railroads in the Sacramento Valley. *Northern California Review*.
- Storer, T. and L. Tevis  
1955 *The California Grizzly*. University of California Press. Berkeley.
- Sullivan, M.  
1934 *The Travels of Jedediah Smith: A Documentary Outline Including the Journal of the Great American Pathfinder*. Fine Arts Press. Santa Ana, California.
- Sullivan, N.  
1990 *The Human Biology of Cemetery 2, CA-THE-10: Black Butte Lake, Glenn and Tehama Counties, California*. Report prepared for the US Army Corp of Engineers, Sacramento District.
- Swartzlow, R. J.  
1995 *Peter Lassen: His Life and Legacy*. Loomis Museum Association, Lassen Volcanic National Park, Mineral, California.
- Taber, R.D.  
1956 Deer Nutrition and Population Dynamics in the North Coast Range of California. In *Proceedings of the Twenty-First North American Wildlife Conference*, pp. 159-172.
- Tehama County Recorder’s Office  
1865 *Minutes of the County Board of Supervisors*, Book C
- Tenny, J.A.  
1986 Trauma Among Early California Populations. *American Journal of Physical Anthropology* 69:271.
- The Western Railroader  
1974 Colusa and Lake Railroad. February 1974, 37:405.
- Throm, E. L. (editor)  
1952 *Popular Mechanic’s Picture History of American Transportation*. Simon and Schuster, New York.
- Thompson, K.  
1961 Riparian Forests of the Sacramento Valley, California. *Annals of the Association of American Geographers* 51:294-315.  
1980 Riparian Forests of the Sacramento Valley, California. In *Riparian Forests in California: Their Ecology and Conservation* Anne Sands, ed. Davis: The Regents of the University of California. Pp. 35-38.
- Treganza, A. E.  
n.d. Field Notes from a 1946 excavation at Col-1. MS on file Department of Anthropology, California State University, Chico.

- 1952 The Archaeological Resources of Seven Reservoir Areas in Central and Northern California. MS. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park.
- 1954 *Salvage Archaeology in Nimbus and Redbank Reservoir Areas, Central California*. University of California Archaeological Survey Report 26. Berkeley.
- Treganza, A., R. Edwards, and T. King
- 1967 *Archaeological Survey and Excavations Along the Tehama-Colusa Canal, Central California*. Report prepared for the National Park Service, Western Region.
- Treganza, A. and M. Heicksen
- 1969 *Salvage Archaeology of the Black Butte Reservoir Area, Glenn County, California.. Occasional Paper No. 2*, San Francisco State University, San Francisco.
- Treganza, A., C. Smith, and W. Weymouth
- 1950 An Archaeological survey of the Yuki Area. *Anthropological Records* 12(3), University of California, Berkeley.
- Unruh, J. R and C. S. Hitchcock, C. M. Brankman, and R. C. Witter
- 2001 *Draft Seismotectonic Evaluation Phase II: Fault and Seismic Hazards Investigations, North of Delta Offstream Storage DWR-Integrated Storage Investigations*. Report prepared for the DWR by William Lettis & Associates, Walnut Creek, CA.
- U.S. Bureau of Reclamation
- 2007 The Orland Project. <http://www.usbr.gov/dataweb/html/orland.html>, accessed 06/20/07.
- United States
- 1880 *U. S. 1880 Census*, Colusa County, Maxwell Township
- 1900 *U. S. 1900 Census*, Colusa County, Maxwell Township
- 1910 *U. S. 1910 Census*, Colusa County, Maxwell Township
- 1920 *U. S. 1910 Census*, Colusa County, Maxwell Township
- U.S. Department of the Interior
- 1995 *Twentieth-Century Building Materials*. Washington D.C.
- Ver Plank, W.
- 1958 Salt in California, *Division of Mines Bulletin* 175, San Francisco.
- Vogl, R.
- 1970 Fire and plant succession. In *Symposium in the role of fire in the intermountain west* pp. 65-75. Intermountain fire council, Missoula, Montana.
- Waechter, S. A. and T. M. Origer
- 1993 A Discussion of Multiple Hydration Bands and Obsidian Scavenging at CA-COL-160, Mendocino National Forest. In *There Grows a Green Tree: Essays in Honor of David A. Fredrickson*, edited by G. White, P Mikkelsen, W. R. Hildebrandt, and M. E. Basgall, pp 277-284. Center for Archaeological Research at Davis Publications No 11. Davis, California.
- Warner, B. R.
- 1996 *The Men of the California Bear Flag Revolt and Their Heritage*. Arthur H. Clark Publishing Company for the Sonoma Valley Historical Society, Spokane, Washington.

- Watts, W.  
1892 Colusa County: *California Mining Bureau Report*.
- Webb, N.  
1971 *Statement of Some Phonological Correspondences Among Pomo Languages*. International Journal of American Linguistics, Memoir 26.
- Weber, D.  
1990 *The California Versus Jedediah Smith, 1826-1827: A new Cache of Documents*. Spokane: A.H. Clark.
- Weekly Colusa Sun  
1885 January 30, 1885, 3:1  
1891 January 10, 1891, 4:2
- West, J., V. Levulett, and D.L. True  
1975 *Archaeological Investigations in Colusa County, California, Funks Reservoir*. on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.  
1976 *Archaeological Investigations in Colusa County, California Funks Reservoir*. Report prepared for the US Bureau of Reclamation.
- Western Railroader  
1974 February 1974 issue.
- Westwood, L. and White, G.  
2005 *ODOSS I-Sites Reservoir Cultural Resources Investigation of the New Canal Conveyance Alternative, Colusa County, California*. Prepared for California Department of Water Resources. Ms. on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico, Chico, California.
- Whistler, K.W.  
1977 *Wintun Prehistory: An Interpretation Based on Plant and Animal Nomenclature*. Proceedings of the Berkeley Linguistic Society 3: 157-174.  
1980 Proto-Wintun kin classification: A case study in reconstruction of a complex semantic system. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.  
1979 Linguistic Prehistory of the Northwest California Coastal Area. In *The Study of Cultural Resources in Redwood National Park*, edited by P. Bickel. Ms. on file, Redwood National Park, Arcata, California.  
1988 Pomo Prehistory: A Case for Archaeological Linguistics. In *Archaeology and Linguistics*, edited by A.M. Mester and C. McEwan, pp. 64-98. Journal of the Steward Anthropological Society for 1983-1984, vol. 15(1-2). Urbana, Illinois.
- White, G. G.  
1984 *The Archaeology of Lak-510, Near Lower Lake, Lake County, California*. Manuscript on file, California Department of Transportation, Central Publications Unit, Sacramento.  
1991 New Finds on the Mendocino County Coast. Newsletter of the Society for California Archaeology January 1991.  
2003a *Testing and Mitigation at Four Sites Along the Level(3) Long Haul Fiber Optic Alignment, Colusa County, California*. Ms. on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico, Chico, California.

- 2003c *Cultural Resource Overview and Management Plan, Sacramento River Conservation Area, Tehama, Butte, Glenn, and Colusa Counties, California*. Completed for The Nature Conservancy and United States Fish and Wildlife Service. Copies available at the Northeast Information Center of the California Historical Resources Inventory System, California State University, Chico.
- 2003c Population Ecology of the Colusa Reach. Unpublished Ph.D dissertation, Department of Anthropology, University of California, Davis.
- 2005 Archaeological Overview And Assessment And Research Design, Lassen Volcanic National Park. California State University, Chico, Archaeological Research Program. Report prepared for the National Park Service, Lassen Volcanic National Park. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, California State University, Chico.
- 2009 Final Report of Test Excavations at SR-001-A, Locus A, the Mathis Mound, in the Proposed Sites Reservoir Project Area, Western Colusa County, California. Prepared for California Department of Water Resources Northern District. Manuscript on file, Northeast Information Center of the California Historical Resources Inventory System, California State University, Chico.
- White, G., and K. Crawford
- 2003a Preliminary Cultural Resource Review for the Tehama-Colusa Canal. Report submitted to the Department of Water Resources, Northern District, Red Bluff.
- 2003b Preliminary Cultural Resource Review for the Glenn-Colusa Canal. Report submitted to the Department of Water Resources, Northern District, Red Bluff.
- White, G. and D. A. Fredrickson
- 1992 *A Research Design for the Anderson Flat Project, Archaeological Data Recovery Investigations at Sites CA-LAK-72, 509, 510, 536, 538, 542, and 1375, Lake County, California*. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.
- White G., D.A. Fredrickson, L. Hager, J. Meyer, J. Rosenthal, M. Waters, J. West, and E. Wohlgemuth
- 2002 Culture History and Culture Change in Prehistoric Clear Lake Basin: Final Report of the Anderson Flat Project. Center for Archaeological Research at Davis, Publication No. 13. University of California, Davis.
- White, G. and T. F. King
- 2004 *The Archaeological Survey Manual*. Left Coast Press. Walnut Creek, CA.
- White, G. and C. Orbann
- 2004 Fall, 2001 Archaeological Test Excavations at Thompson Canyon Downstream, Ca-Col-267, Western Colusa County, California. Manuscript on file, Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, California.
- White, G., L. E. Weigel, and W. T. Wilson
- 2008 *Final Report of Investigations At Ca-Gle-217, an Archaic Millingstone Site in Western Glenn County, California*. Manuscript on file, Northeast Information Center of the California Historical Resources Information System, California State University, Chico.
- White, L. O.
- 1980 Untitled study of Aguello's 1821 route bearing south through the Sacramento Valley foothills of western Glenn and Colusa counties, California. Unpublished documents, notes, maps, and communications dating 1974–1980 in possession of the author. Chico, CA.

- White, T. B.  
1995 *Glenn County Sketchbook*. Butte County Branch, National League of American Pen Women, Chico.
- Whitehead, J.M.  
1968 *The Physical Anthropology of the Yuki Indians*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.
- Wickstrom, B. P.  
1986 *An Archaeological Investigation of Prehistoric Sites Ca-Son-1250 and Ca-Son-1251, Southern Sonoma County, California*. Unpublished Master's thesis, Department of Anthropology, Sonoma State University, Rohnert Park, California.
- Wilkes, C.  
1841 *Narrative of the United States Exploring Expeditions During the Years 1838, 1838, 1840, 1841, 1842*. 5 Vols. Philadelphia: Lea and Blanchard. Reprinted 1958 *Columbia River to the Sacramento*. [1st California ed.] Bio-books. Oakland, California.  
1958 *Columbia River to the Sacramento*. [1st California ed.] Bio-books. Oakland, California.
- Willey, G.R. and P. Phillips  
1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.
- Willig, J.A.  
1988 Paleo-Archaic Adaptations and Lakeside Settlement Patterns in the Northern Alkali Basin, Oregon. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, J.A. Willig, C.M. Aikens, and J.L. Fagan, eds., pp. 417-482. Nevada State Museum Anthropological Papers Number 21.
- Willig, J.A. and C.M. Aikens  
1988 The Clovis-Archaic Interface in Far Western North America. In *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface*, edited by J.A. Willig, C.M. Aikens, and J.L. Fagan, pp. 1-40. Nevada State Museum Anthropological Papers No. 21. Carson City.
- Wiltsee, E. A.  
1976 *The Pioneer Miner and the Pack Mule Express*. Copyright 1931 by California Historical Society. Quartermain Publications, Inc., Lawrence, Massachusetts.
- Wilsey, J.  
1988 Early Navigation on the Upper Sacramento River. *Wagon Wheels* 38:4-5, 12. Colusi County Historical Society.
- Winterhalder, B., W. Baillargeon, F. Cappelletto, I.R. Daniel, Jr., and C. Prescott  
1988 The Population Ecology of Hunter-Gatherers and Their Prey. *Journal of Anthropological Archaeology* 7:289-328.
- Winther, O. O.  
1964 *The Transportation Frontier; Trans-Mississippi West, 1865-1890*. Holt, Rinehart and Winston, New York.
- Wooflenden, Wallace  
1969 A Study of 4-Glenn-10: The Brownell Indian Cemetery. In, *The Archaeology of the Black Butte Reservoir Region, Glenn and Tehama Counties, California*. Occasional Paper No. 2 San Francisco State University, San Francisco.



1970 *A Study in Historic Sites Archaeology*. Unpublished Masters Thesis, Department of Anthropology, California State University, Chico.

Worster, D.

1991 Beyond the Agrarian Myth. In *Trails: Toward a New Western History*. Patricia Nelson Limerick, Clyde A. Milner II and Charles E. Rankin, eds. University Press of Kansas, Lawrence, Kansas.

Yow, J.

2002 *Are We There Yet?: Building America's Transportation Infrastructure Network*. American Road and Transportation Builders Association. Lionheart Books, Ltd. Atlanta, Georgia.