

**Education, Preservation and Stewardship:
A Cultural Resources Management Plan for the Galbreath
Wildlands Preserve, Mendocino County, California**

by

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ABSTRACT

Purpose of the Study: The purpose of this thesis is to provide: (1) an overview of the history, ethnography and prehistory of the Preserve and its general surroundings; (2) the methods and results of several archaeological investigations taking place within the Preserve and the documentation of the cultural resources discovered during those investigations; (3) the regulatory context for all activities that constitute a *project* under CEQA and PRC, as well as the environmental process required for addressing resources within a *project* area; and (4) recommendations for avoiding or minimizing impacts to those resources.

Methods: A records search was conducted at the Northwest Information Center (NWIC) to identify previous studies and archaeological sites located on the Preserve. The field study consisted of intensive pedestrian surveys of approximately 70 acres including 3.5 miles of access roads. Previously recorded sites were updated and newly recorded sites were recorded using the California Department of Parks and Recreation (DPR) forms. All previously and newly identified sites were given preliminary evaluations for the California Register of Historical Resources.

Findings: The records search resulted in 6 previously identified prehistoric archaeological sites within the Preserve. New surveys and studies conducted on the Preserve identified 6 new historic-era archaeological sites on the Preserve. Of the 12 archaeological sites, 10 appear to be potentially eligible for the California Register of Historical Resources. Site types include: prehistoric seasonal camps and resource procurement areas, historic-era lumber mills, a historic-era work camp, a historic-era dam and a historic-era homestead and apple orchard.

Conclusions: Based upon the research and discoveries, recommendations were made to assist land managers with legal compliance during the environmental review process for all projects subject to CEQA and PRC. Three types of recommendations were made: (1) general recommendations to incorporate research, planning and stewardship into Preserve policy; (2) activity specific recommendations based upon common activities taking place on the Preserve; and (3) site-specific recommendations to avoid, minimize or mitigate impacts to particular cultural resources.

Chair:

Date:

M.A. Program: Cultural Resources Management
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CHAPTER 1: INTRODUCTION

The 3,670-acre (14.9 km²) Galbreath Wildlands Preserve (Preserve) is situated in the North Coast Ranges of southern Mendocino County in northern California. The Preserve is located approximately 1.7 miles (2.7 km) southwest of Yorkville, 9.2 miles (14.8 km) southeast of Boonville and 12.7 miles (20.4 km) northwest of Cloverdale. In 2004, Fred Burkhalter Galbreath (1901-2000) donated the Preserve to Sonoma State University (SSU) with the wish that it be used as a campus-wide resource to promote education, research, planning, preservation and stewardship (GWP 2015).

Fred Galbreath purchased the land in 1944 to use as a working sheep ranch. During his years on the ranch, Galbreath also practiced selective forestry to remove dead and diseased trees, hunted invasive wild boar to reduce overpopulation, and improved water drainages to reduce sedimentation. He was a strong believer in protecting natural resources and making wise land management decisions. Galbreath did not only want students and staff to manage the Preserve, he wanted land management to become part of each student's education. Today, Sonoma State University staff, faculty, and students from various disciplines are working together to continue in his footsteps (Figure 1).

Cultural history of the Preserve ranges from Native American subsistence activities to historic-era logging and sheep-ranching. Prehistoric sites include sparse lithic scatters and seasonal hunting camps. Common prehistoric artifacts observed include chert and obsidian flaked-stone tools, debitage from tool manufacture, and groundstone. Several historic-era lumber mills, sheep barns, dams, and a work camp associated with historic logging have also been identified. Historic-era maps (US-GLO 1884) dating to the late 1800s, indicate several roads and homesteads located within the Preserve.

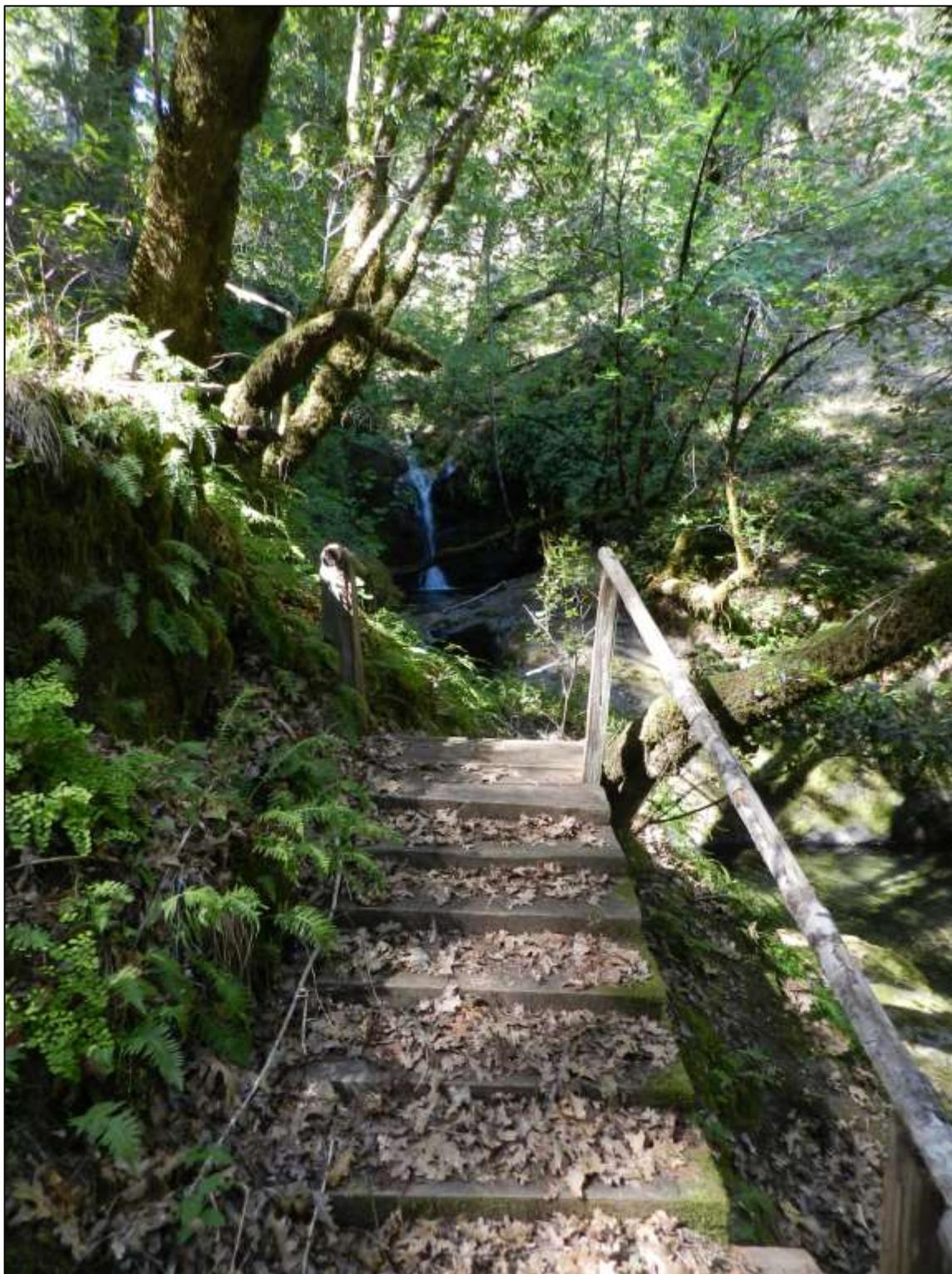


Figure 1: Photograph of the footbridge leading to the waterfall at Livingston Creek.

PURPOSE OF STUDY

In 2011 Preserve managers proposed the construction of a field station in order to broaden education and research opportunities for students and faculty. This thesis developed out of a desire to: (1) fulfill legal obligations that aim to reduce or eliminate significant impacts to historical and archaeological resources under the California Environmental Quality Act (CEQA) during the proposed construction of facilities and (2) to create a Cultural Resources Management Plan (CRMP) that will provide land managers with protocols for protecting cultural resources during future improvements, land use and research studies within the Preserve.

The CRMP element of this thesis aims to protect cultural resources and educate students, faculty, staff, and researchers about the sensitivity of cultural resources. This CRMP is in alignment with the mission of the Preserve while assisting the land managers in meeting regulatory compliance with pertinent State laws. It suggests ways in which we can promote education, research, preservation, and stewardship of cultural resources. It includes procedures to reduce or eliminate significant impacts to cultural resources and protocols for the identification, documentation, and evaluation of future discoveries (King 2008:327-329).

THESIS STRUCTURE

This thesis is divided into eight chapters. Chapter one discusses the purpose and structure of the thesis, and provides an environmental background of the thesis area. The environmental background includes the location and topography of the Preserve, as well as hydrology, soils, geology, climate, flora and fauna found within the Preserve.

Chapter two discusses the prehistoric background of the Preserve, and uses periods derived from David A. Fredrickson's cultural chronology of the North Coast Ranges. These periods include the Paleoindian period, the Archaic period, and the Emergent period. Examples of artifact types common to the North Coast Ranges are provided for each period.

Chapter three discusses the ethnographic background of the Central Pomo Indians who occupied the area prior to European contact. All of the information in this chapter was derived from ethnographic studies conducted by Barrett (1908), Kroeber (1925), Loeb (1926), and Stewart (1943). This chapter provides the linguistic background, the environment and territory, and important villages and campsites of the Central Pomo. It also provides information about the social and political organization of the Central Pomo, Pomo relations and exchange with neighboring tribes, as well as settlement and subsistence patterns.

Chapter four discusses the historic background relevant to the thesis area. This chapter first provides a brief overview of early exploration of California. It then provides a background of Mendocino County, focusing primarily on early logging and sheep ranching in the county. This chapter also provides a brief background of Yorkville, a town located approximately 2 miles (3.2 km) north of the Preserve, and prominent figures during early settlement of the town. The chapter concludes with a history of the Preserve itself, based upon oral history interviews conducted by students from Sonoma State's history department. This section discusses how Fred Galbreath acquired the land and how the land was used.

Chapter five discusses the regulatory context, or laws, which may be applicable to projects taking place within the Preserve. This chapter provides a brief history of the laws pertaining to archaeology and cultural resources management, focusing on the processes required to meet CEQA compliance for environmental review.

Chapter six discusses the methods used for prefield research, archaeological survey and site recordation within the Preserve. This chapter also includes a brief summary of the oral history project conducted by students from Sonoma State's History Department, a project which involved interviews with eight friends and family members of Fred Galbreath. This chapter concludes with a summary of a GIS-based predictive model that was created to predict the location of archaeological sites within the Preserve.

Chapter seven discusses the results of the surveys conducted within the Preserve for this thesis. This chapter provides site descriptions and a map of site locations. It also provides preliminary evaluations of each site based upon the four criteria of the California Register of Historical Resources.

Chapter eight is the Cultural Resources Management Plan. This chapter first discusses the importance of research, planning, and stewardship. It then provides a brief summary of CEQA guidelines and processes relevant to projects taking place within the Preserve. The chapter concludes with general recommendations, activity specific recommendations, and site specific recommendations that will aid management in meeting regulatory compliance under CEQA to avoid and minimize impacts to cultural resources within the Preserve.

ENVIRONMENTAL BACKGROUND

This section provides an overview of the environmental setting of the study area. It discusses the location of the Preserve and the general topography within the Preserve. It also provides general information about the watershed and annual rainfall, the geology and soils, the climate, and the flora and fauna found within the Preserve.

Location and Topography

The 3,670-acre (14.9 km²) Preserve is located within the North Coast Ranges of California in southern Mendocino County. It lies approximately 17 miles (27 km) inland of the Pacific coast, 20 miles (32 km) west of Clear Lake, 90 miles (145 km) northwest of the San Francisco Bay area and 215 miles (345 km) south of the Oregon-California border (Figure 2). The Preserve is within sections 18, 19, 25, 30, 31, and 36 of Township 12 North and Range 12 West; and sections 13 through 15, 22 through 26, and 35 and 36 of Township 12 North and Range 13 West as depicted on USGS 7.5-minute Bigfoot Mountain, Gube Mountain, Ornbaun Valley and Yorkville Quadrangles. The Preserve is approximately 2 miles (2.3 km) southwest of the town of Yorkville, and has elevations ranging from 900 to 2,200 feet (275 to 670 m).

Climate and Hydrology

Mendocino County has a Mediterranean-like climate consisting of cool, rainy winters and warm, dry summers. Current temperatures range from 39 to 92 degrees Fahrenheit (°F) with an average high of 75 °F and an average low of 47 °F. The current average rainfall is 43 in (109 cm) per year typically occurring between late October and early May (USCD 2014).

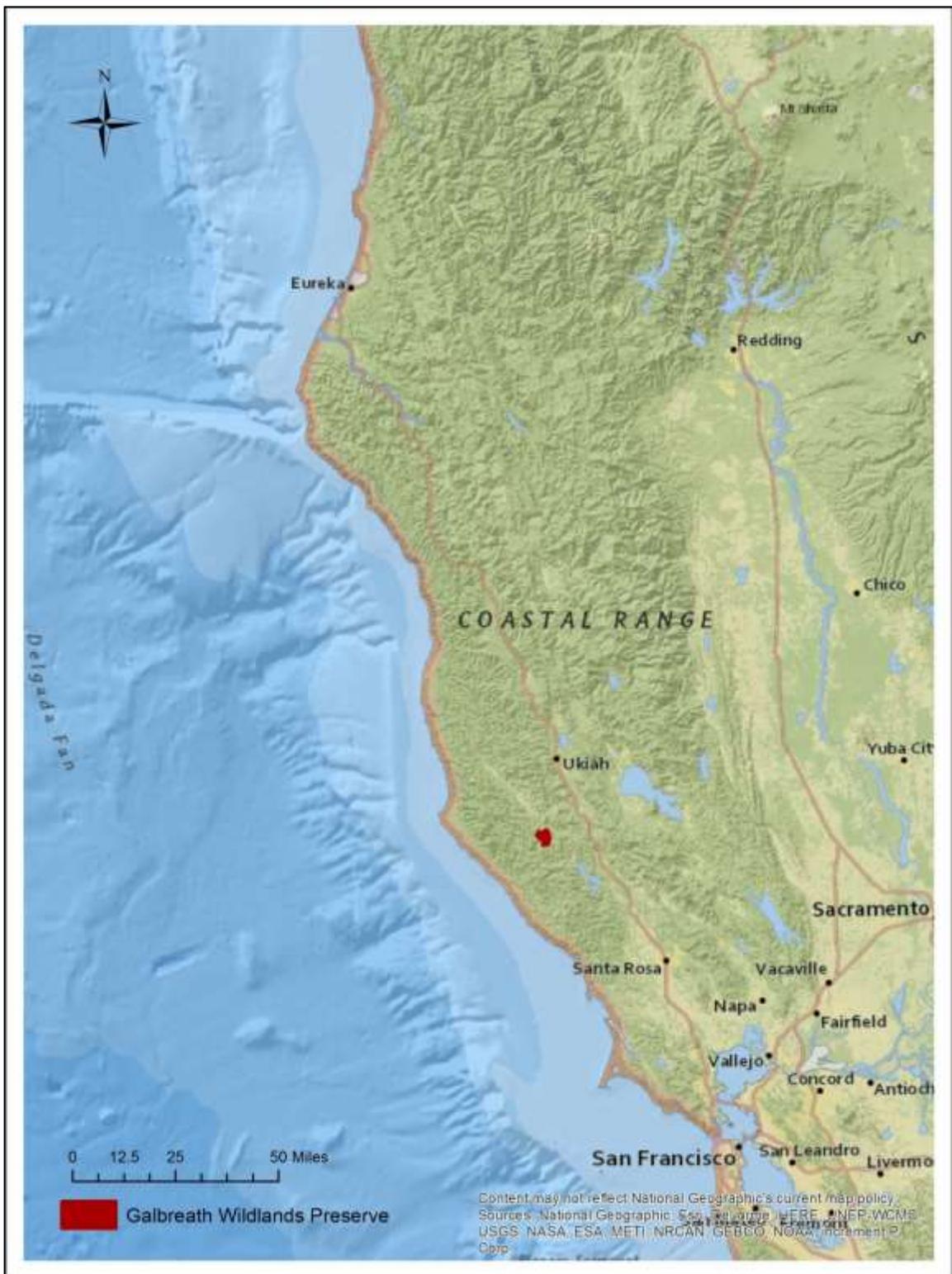


Figure 2: Map of the Galbreath Wildlands Preserve and the North Coast Ranges.

The Preserve lies within the Navarro River Watershed, the largest and most diverse basin in the Mendocino Coast Hydrologic Unit, encompassing a 315 sq. miles (815 sq. km) area. The watershed receives approximately 40 inches (80 cm) of precipitation annually, predominantly through the winter months from mid-December through the end of March. The Navarro watershed flows in a northwest direction through the coastal ranges towards the Pacific Ocean and is divided into five subbasins: Mainstem Navarro River, Northfork Navarro River, Indian Creek, Anderson Creek and Rancheria Creek (WCW 2007:4). The Preserve lies in the upper Rancheria subbasin of the Navarro watershed.

Rancheria Creek can dry up during the summer months; however, tributaries such as Yale Creek stay wet year-round. In addition to Rancheria Creek, there are several natural ponds and springs within the Preserve. Wood Duck Pond, situated on a ridge top at the southern end of the Preserve is fed by a natural spring and contains water year-round (GWP 2015).

Geology and Soils

The North Coast Ranges are composed geologically of the Franciscan formation, a vast, diverse and disorderly assemblage of various rocks that have undergone unsystematic disturbance. Rock types commonly associated with the Franciscan assemblage include sandstone, greenstone, chert and limestone. Although it is difficult to determine the precise age of the Franciscan formation due to scarcity of fossil remains, it is believed that this assemblage dates from the late Jurassic to the Cretaceous age, or 150 to 65 million years old (Page 1966:258-60). The Franciscan formation is associated with upper and middle Rancheria Creek of the Navarro River watershed (WCW 2007:4).

The primary soils within the Preserve consist of the Hopland-Wohly complex and the Hopland-Squawrock association. The Hopland-Wohly complex is described as a very deep, well-drained mix of loam, clay loam, gravelly clay loam and weathered bedrock. The Hopland-Squawrock is described as a well-drained mix of loam, clay loam and weathered bedrock. These series are generally found on hills and mountains and are derived from residuum weathered from sandstone and shale (USDA 2015).

Flora and Fauna

According to recent studies (GWP 2015; WCW 2007), an array of habitat types can be found on the Preserve including: Pacific Douglas fir forests (51 percent), Hardwood forests (42 percent), annual grasslands and forbs (4 percent), redwood Douglas fir forests (1.5 percent), and barren soils (1.4 percent). Douglas fir forests includes an overstory of Douglas fir with an understory of evergreens such as tanoak (*Notholithocarpus densiflorus*) and madrone (*Arbutus menziesii*), with sugar pines (*Pinus lambertiana*) occurring in isolated locations on ridgelines. Hardwood forests are composed of a hardwood evergreen layer, a patchy shrub layer, and a sparse herbaceous cover and typically include tanoak, Pacific madrone, Douglas fir, and California black oak (*Quercus kelloggii*), with the following single species dominants also occurring: California Bay laurel (*Umbellularia californica*), Tanoak, Valley Oak (*Q. lobata*), Canyon Live Oak (*Q. chrysolepis*), Interior Live Oak (*Q. wislizeni* var. *wislizeni*), Oregon White Oak (*Q. garyana*) and Coast Live Oak (*Q. agrifolia*). Annual grasslands are primarily composed of annual European grasses and invasive perennials such as Harding grass (*Phalaris aquatic*). Redwood Douglas fir forests are limited to the northernmost portion of the Preserve with redwoods (*Sequoia sempervirens*) typically occurring in drainages

and on north-facing slopes. Redwoods seem to be confined to the Saffroni Canyon and Lower Yale Creek areas. Riparian vegetation occurs in the northern area of the Preserve along Rancheria Creek and includes white alder (*Alnus rhombifolia*), big leaf maple (*Acer microphyllum*) and red and arroyo willows (*Salix laevigata* and *S. lasiolepis*) (WCW 2007:5-6; GWP 2015).

Preserve management and students are currently compiling species lists for vertebrates, fungi, vascular plants, and special status species. Current data suggests that top predators still exist on the Preserve and include: mountain lion (*Puma concolor*), black bear (*Ursus americanus*), golden eagle (*Aquila chrysaetos*), osprey (*Pandion haliaetus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*) and gray fox (*Urocyon cinereoargenteus*). Rancheria Creek and its tributaries support Northern California and Steelhead (*Oncorhynchus mykiss*). Riparian areas support yellow-legged frogs (*Rana boylei*), western pond turtles (*Emys marmorata*), garter snakes (*Thamnophis atratus*, *T. sirtalis*), red-bellied newts (*Taricha rivularis*), Pacific giant salamanders (*Dicamptodon ensatus*), breeding newts (*Taricha granulosa*), wood ducks (*Aix sponsa*) and mergansers (*Mergus merganser*). Upland habitats, dominated by redwood and Douglas-fir, support red-tailed hawks (*Buteo jamaicensis*) and violet-green swallows (*Tachycineta thalassina*) in the overstory; pileated woodpeckers (*Dryocopus pileatus*), red-breasted sapsuckers (*Sphyrapicus ruber*) and western grey squirrel (*Sciurus griseus*) in the understory; brown creepers (*Certhia americana*) and white-breasted nuthatches (*Sitta carolinensis*) in the shrub layer, and blue grouse (*Dendragapus obscura*) in forest clearings. A variety of oak species occur on the Preserve which attract black-tailed deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), scrub jays (*Aphelocoma coerulescens*), California quail

(*Callipepla californica*), band-tailed pigeons (*Columba fasciata*), acorn woodpeckers (*Melanerpes formicivorus*), feral pigs (*Sus scrofa*) and turkeys (*Meleagris gallopavo*) (GWP 2015) Large species that no longer live on the Preserve, but were likely present during Native American occupation of the land may have included grizzly bears, beaver, and elk (Luke 2015, personal communication).

While the environmental background provides an overview of the current environmental landscape of the Preserve, the following three chapters provide a glimpse into how the cultural landscape of the Preserve may have looked over the past several thousand years. The next chapter discusses the prehistoric background and current knowledge of prehistoric cultures of the North Coast Ranges of Mendocino County. Thousands of years ago, there was no written record so our knowledge of people and their lifeways for periods dating from 13,500 years before present (BP) to 500 years BP, is derived solely through the archaeological record.

CHAPTER 2: PREHISTORIC BACKGROUND

Prehistory refers to the period of history of a location before there was a written record. Prehistoric archaeology provides evidence of the earliest human occupation of an area. Evidence of early human lifeways is predominantly derived through the archaeological record, or more specifically, from artifacts that have been stratigraphically excavated from prehistoric archaeological sites. This chapter provides a general overview of the archaeological evidence discovered in the vicinity of the Preserve. It provides timeframes for the early occupation of Native American groups in the North Coast Ranges and the types of artifacts and assemblages associated with each timeframe. This thesis uses David A. Fredrickson's temporal framework for developing the cultural chronology of Mendocino County. These dates have been further revised based upon more current research in the area (Hildebrandt 2007). This chapter is divided into three main periods: the Paleo-Indian period (13,500-10,500 BP), the Archaic period (10,500-1,500 BP) and the Emergent period (1,500-500 BP), offering brief descriptions of each period and examples of artifact patterns for each period common to the area. With at least six prehistoric archaeological sites located within the Preserve, this chapter offers pertinent information which may aid in determining the period of early Native American occupation within the Preserve.

CULTURAL CHRONOLOGY FOR THE NORTH COAST RANGES

The best temporal framework for understanding the prehistory of Mendocino County is David A. Fredrickson's (1974) *Cultural Chronology of the North Coast Ranges* with subsequent updates (Moratto 1984, Bennyhoff and Fredrickson 1994, Fredrickson 1994, White et al. 2002, Hildebrandt 2007). Fredrickson's work is adapted from earlier

chronologies (Lillard, Heizer, and Fenenga 1939; Beardsley 1948, 1954), predominantly derived from the Central Valley and the Bay Area. While the taxonomic system that Lillard, Heizer and Fenenga (1939) created was fairly sophisticated, the system could not account for assemblages outside of the Sacramento-San Joaquin Delta. Their system was also unable to account for time, space and culture content in a single scheme. Due to the widespread dissatisfaction within the California archaeological community, David A. Fredrickson and James A. Bennyhoff sought to create a new taxonomic system which addressed these shortcomings (Hughes 1994:1). Fredrickson saw no simple unilineal cultural sequence through space and time. He believed that "transitions from one culture type to another should be determined independently for each region" (Fredrickson 1974:42).

The new taxonomic system created by Bennyhoff and Fredrickson (1994) utilizes three categories of classification: *patterns*, *aspects*, and *phases*. *Patterns* are the most basic trait of cultural adaptation. *Patterns* are shared by a number of cultures in a geographic region through both space and time (Fredrickson 1973:118-119; Hildebrandt 2007:86). A pattern can be categorized by the use of similar technological skills and devices, similar economic modes (including trade and wealth practices) and similar burial and ceremonial practices (Bennyhoff and Fredrickson 1994:21). *Patterns*, however, are not uniform throughout a particular geographic region. *Aspects* account for this regional variability, by factoring in availability of environmental resources, regional specializations, the degree of cultural and geographic marginalization, and the influences of neighboring cultures. An *aspect* is comprised of a sequence of *phases*. *Phases* are the smallest cultural unit and are defined by Whilley and Philips (1958:22) as

“archaeological units possessing traits sufficiently characteristic to distinguish (them) from all other units similarly conceived, spatially limited to the order of magnitude of a locality or region and chronologically limited to a relatively brief interval of time” (Bennyhoff and Fredrickson 1994:21).

Fredrickson (1994a) also divided California prehistory into three distinct temporal periods. This separate, yet complementary, system was based upon the “stages” proposed by Willey and Phillips (1958:68-69) and sought to incorporate California prehistory into the larger framework used throughout North America. Fredrickson proposed that this system of dating and identification of temporal periods remain separate, but used complimentary, with his system of dating and defining particular patterns. This alternate system divided California Archaeology into three temporal periods: the Paleo-Indian Period, the Archaic Period, and the Emergent Period, which replaced the Early Lithic Stage, the Archaic Stage, and Formative Stage, set forth by Willey and Phillips (Fredrickson 1994a:39).

This thesis uses Fredrickson’s (1974, 1994) periods as the primary basis for classification of California Archaeology. Within each of these periods are embedded patterns which are unique to the North Coast Ranges. More recently derived radiocarbon dates will be used to further refine these dates (Hildebrandt 2007).

PALEO-INDIAN PERIOD (13,500-10,500 BP)

The first evidence of human occupation occurred in California in what is known as the Paleo-Indian Period. This period coincides with the geologic Pleistocene-Holocene transition, a time of major climatic shifts and rising sea levels. Due to the highly variable nature of the environment at this time, it was believed that that people lived a highly

nomadic lifestyle. To date, there has been no discovered evidence of milling technology during this period. It has been hypothesized that exchange was likely conducted on a one-to-one basis as social units were probably not highly dependent upon exchange (Fredrickson 1974:49).

Post Pattern

Evidence of Paleo-Indian occupation in the North Coast Ranges is minimal, with only a two accounts of Paleo-Indian artifacts identified in Mendocino County. This period is much better represented in the Clear Lake region, located approximately 20 miles northeast of the Preserve. The pattern associated with Clear Lake is referred to as the Post pattern, named after Chester Post who excavated the Borax Lake Site (CA-LAK-36) in 1938. The Post pattern is marked by fluted points, chipped-stone crescents, and the absence of milling equipment (Hildebrandt 2007:83). Very little is known about this pattern due to poor stratigraphic context. Fluted points have been found along the Mendocino coast and Crescents in Bodega Head and Santa Rosa. There have been no associated assemblages or reliable radiocarbon dates for this pattern (Hildebrandt 2007:86-87)

ARCHAIC PERIOD (10,500-1,500 BP)

The Archaic Period in California coincides with the geologic Holocene, a time of stabilizing climate. During this timeframe, people continued to live a nomadic lifestyle, traveling in highly mobile groups. However, it is believed that they began using long-term base camps to procure resources as the climate began to stabilize. At this time there was significant population growth, increased sociopolitical complexity, the advance of exchange networks, and the introduction of new artifact types (Fredrickson 1974, 1994).

This period is marked by the introduction of concave base projectile points and milling equipment, with a new emphasis on the processing of plant based-foods, particularly acorns (Fredrickson 1994:46). The Archaic Period is divided into three subperiods: the Lower Archaic (10,500 BP- 7,000 BP), the Middle Archaic (7,000 BP – 2,500 BP) and the Upper Archaic (2,500 BP – 1,500 BP).

Lower Archaic Period (10,500-7,000 BP)

During the Lower Archaic Period, ancient lake beds began to dry up and climates began to shift towards warmer and dryer weather (Fredrickson 1994:46). Climatic shifts are evidenced in the pollen record with a general increase in oak species and a decline in redwoods and cedars (West et al. 2007:20-21). The Lower Archaic is marked by the introduction of milling stones and a diet of plant-based foods, with very little evidence of hunting. It is believed that people during this time lived a semi-sedentary lifestyle with little emphasis on wealth (Fredrickson 1994:100).

Borax Lake Pattern

Evidence of Lower Archaic occupation in the North Coast Ranges is also limited, and best represented in Humboldt and Clear Lake counties. The pattern associated with the Early Archaic Period in the North Coast Ranges is called the Borax Lake Pattern. In the north (Humboldt and Trinity counties) this pattern is represented by large wide-stem points with indented bases, serrated bifaces, ovoid flake tools, hand stones, milling slabs and edge-flaked spalls. In the southern portion of the North Coast Ranges (Northern Mendocino, Clear Lake and Sonoma counties) this assemblage only includes flaked stone tools including: large wide-stem points with square bases and some fluting, ovoid flake tools and thin bladelet flakes. Obsidian hydration samples suggest that the southern

assemblages are older than those identified in the north, dating from 10,500 to 8,000 BP (Hildebrandt 2007:87-90).

Early Berkeley Pattern: Mostin Phase

Another pattern identified in the Clear Lake area during the Upper Archaic Period is the Mostin Phase of the Berkeley Pattern. The Mostin Phase (8,500-6,300 BP) is marked by Houx contracting stemmed and square stemmed points, formalized burial patterns, and the use of pestles. The presence of pestles and acorn macrofossils represents some of the earliest evidence of acorn use in California. The Houx Aspect provides the first evidence of more stable long-term settlements at Clear Lake (Hildebrandt 2007:90).

Middle Archaic Period (7,000-2,500 BP)

During the Middle Archaic Period, climates begin to resemble present-day temperatures. Pollen records indicate the development of modern forests, with an increase in pine and Douglas fir and a continued increase in Oaks moving into higher elevations (West et al. 2007:21). This period is marked by the introduction of the mortar and pestle which infers a high dependence on acorn processing. People are fully sedentary and hunting has taken on a more significant role. There is still little evidence of exchange relations between neighboring groups (Fredrickson 1994:100).

Mendocino Pattern

Evidence of Middle Archaic occupation in the North Coast Ranges is represented by the Mendocino Pattern. However, very little is known about the earliest part of this period (7,000 to 5,000 BP) due to the unstable nature of geomorphic processes during this timeframe. Common artifacts associated with the Mendocino Pattern include: side-notched, corner-notched, and concave-base dart points; handstones and millingslabs;

various types of flake tools, cobble tools and occasionally cobble mortars and pestles. Excavations of temporary hunting camps and short term forager residential bases along the Mendocino and Sonoma coast offer an approximate date range of 5,000 to 1,500 BP. The Skagg Phase of the Mendocino Pattern has been documented in the southern interior of the North Coast Ranges at Warm Springs along the tributaries of the Russian River, as well as, the Santa Rosa Plain and in and around the Clear Lake Basin. This phase emphasizes a high degree of residential mobility (Hildebrandt 2007:91-92).

Upper Archaic Period (2,500-1,500 BP)

During the Upper Archaic Period there is increased political complexity, the development of status based upon wealth and more complex exchange systems. This period is marked by the introduction of Olivella shell beads as an indication of both exchange and wealth. Numerous villages begin to spring up at the end of this period. During this period the Mendocino Pattern continues in the north and Berkeley Pattern begins to expand into the southern region of the North Coast Ranges (Fredrickson 1994:100, Hildebrandt 2007:92).

Berkeley Pattern

The Berkeley Pattern was first seen in the North Coast Ranges at Clear Lake between 8,500-6,300 BP (Mostin Phase) but then disappears from the archaeological record until approximately 3,200 to 1,200 BP. This later period of the Berkeley Pattern is represented in three phases: the Creager Phase (3,200 to 2,600 BP), the Huox Phase (2,600 to 1,900 BP) and the Redbud Phase (1,900 to 1,200 BP). This elaborate assemblage includes: leaf-shaped (Excelcior) and stemmed projectile points, highly developed bone tools, fishing related implements, baked clay objects, and increased amounts of mortars

and pestles. Midden deposits and well-defined house floors suggest a more sedentary lifestyle. A wide distribution and Borax Lake obsidian and shell beads indicate exchange relations between various Pomo groups. Around 2,500 BP the Berkeley Pattern begins to appear in the Santa Rosa Plain and the Warm Springs areas (Hildebrandt 2007:92-93).

EMERGENT PERIOD (1,500 to 500 BP)

The Emergent Period is David A Fredrickson's non-agricultural equivalent to the Formative Period used in other regions of the United States. Archaeological sites dating to this period are common in the North Coast Ranges. It is during this period that we begin to see evidence of California Indians modifying their environments to increase the natural productivity of environmental resources (Fredrickson 1994:48). We also see the development of centralized villages with peripheral hamlets; more complex political organization with elected political leaders; more complex social and religious organization; growth in exchange networks evidenced in the widespread distribution of specialized goods; and growth in local specializations (Fredrickson 1994:49). This period is marked by the introduction of clam disc bead money, the bow and arrow, corner-notched projectile points, and mortars and pestles. Archaeological sites include: larger occupation sites including midden soils and dietary bone, resource processing sites represented by acorn processing equipment and evidence of tool manufacture, and rock art sites (Fredrickson 1994:100).

Augustine Pattern

The Augustine Pattern appears to have originated in the Sacramento-San Joaquin Delta region, appearing in Sonoma and Mendocino counties beginning around 1,500 BP. There also seems to be a great degree of variability of this pattern in the archaeological

record, associated with both short-term camps as well as more centralized villages along the coast. In the interior, at Warm Springs, the Augustine Pattern is represented at small short-term camps located along major drainages which were likely associated with more centralized villages. The assemblages at these sites included mortars, pestles, handstones and milling slabs suggesting more intensive use of local resources. No evidence of the Augustine Pattern has appeared in Clear Lake to date (Hildebrandt 2007:94-95).

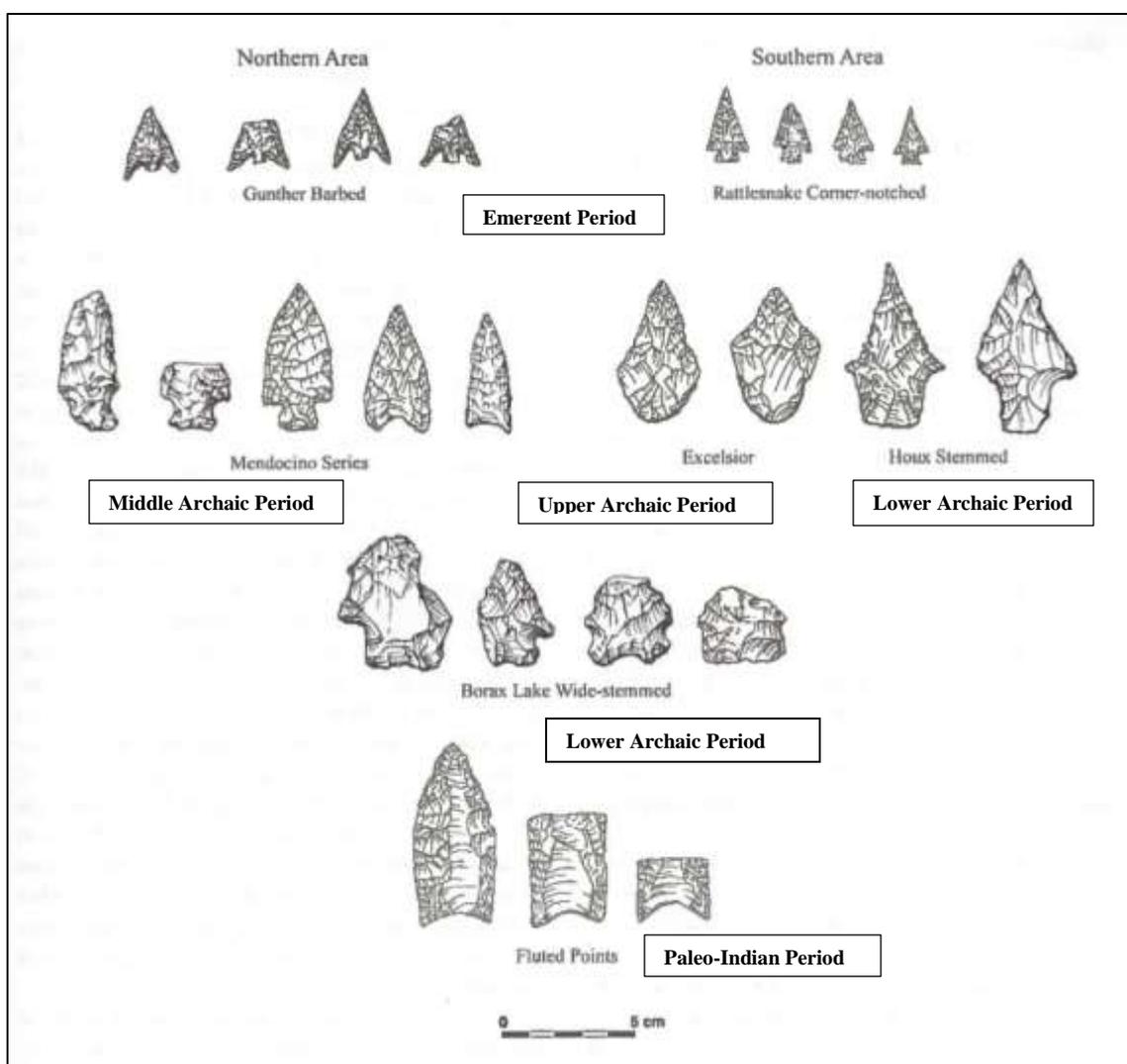


Figure 3: Projectile point typologies common to the North Coast Ranges (Adapted from Hildebrandt 2007:89).

This chapter has provided an overview of the archaeological evidence identified in the vicinity of the Preserve. This information, combined with more recent ethnographic studies of the Central Pomo, provides better understanding of the culture and lifestyles of the first people to occupy the land that is now the Preserve. The next chapter provides an ethnographic background which is predominantly derived from ethnographic interviews with the Central Pomo people. These ethnographic interviews were conducted by cultural anthropologists in the early twentieth century.

CHAPTER 3: ETHNOGRAPHIC BACKGROUND

This chapter provides a background of the Central Pomo people who occupied the area of the Preserve prior to European contact (see chapter 4 of this thesis). This information was predominantly derived through ethnographic interviews conducted by Samuel A. Barrett (1908) and other scholars who traveled from village to village to interview various Pomo informants. Barrett's goal was to understand the factors which helped shape Pomo culture. He also provides important information regarding the locations of many ancient and modern villages and campsites. His work was later expanded upon by Kroeber (1925) and Stewart (1943) who sought to better delineate linguistic boundaries. More recent scholars have used all of these early studies to further understand the lifeways and culture of the Central Pomo people, studying social and political organization, exchange networks and relationships with neighboring groups, as well as settlement and subsistence patterns. Through ethnographic studies and the archaeological record we know quite a bit about how the Central Pomo lived. We know what kinds of homes they lived in and how they processed their food. We know how they dressed and how they managed their resources. This chapter provides an overview based upon the interviews and studies conducted between 1908 and 2009.

POMO LINGUISTIC GROUPS

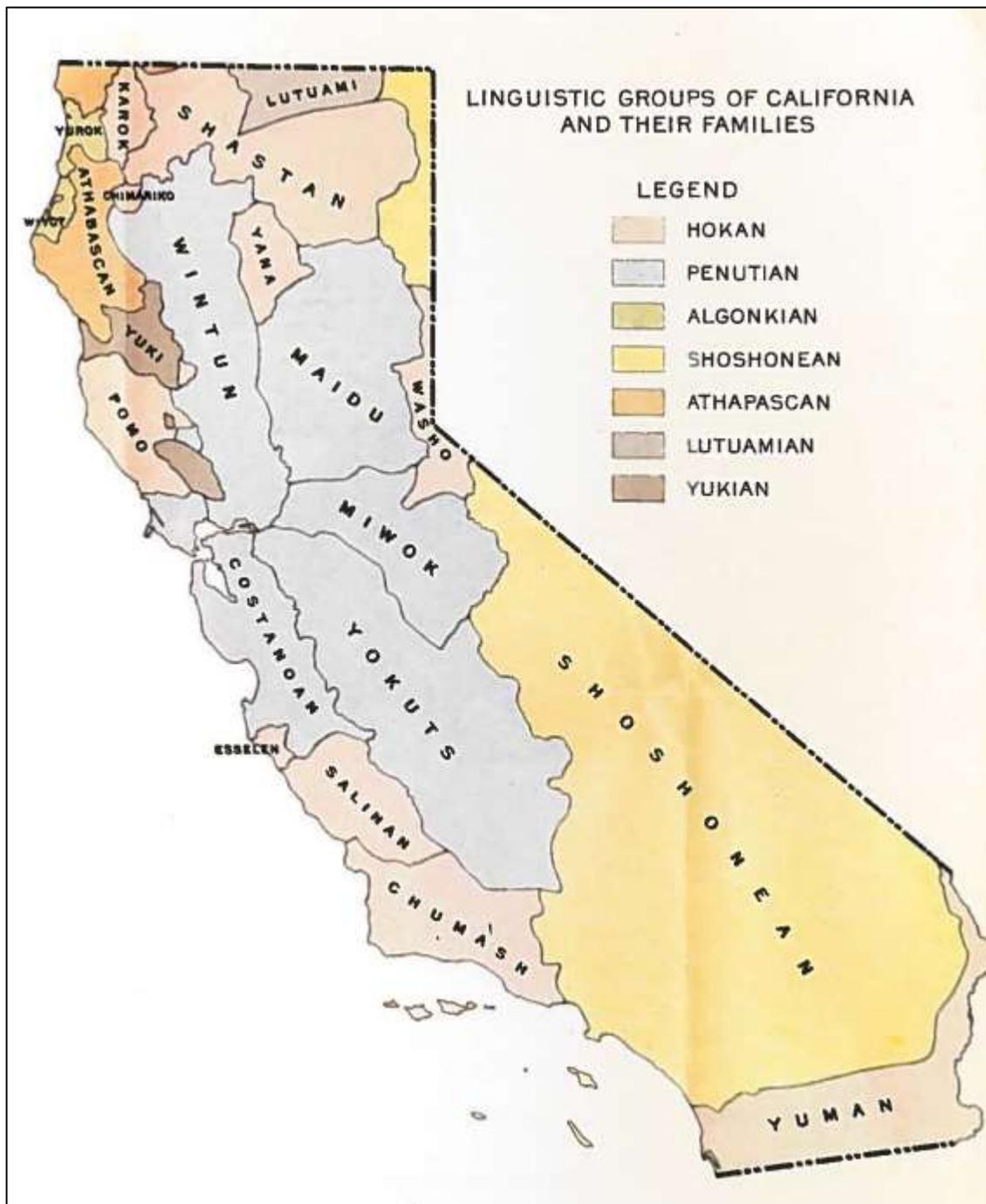
California Indians accounted for approximately 20 percent of the languages spoken in North America at the time of European contact. Prior to contact, there were at least 90 distinct languages in California (Morrato 1984:530). These distinct languages are divided into six primary families: Hokan, Yukian, Penutian, Algic, Athapaskan, and Uto-Aztecan. The Pomoan languages belong to the scattered and widespread Hokan stock

(McLendon and Oswalt 1978:275, Kroeber 1925:222); however, this has been a matter of debate among linguists (Figure 4).

With the possible exception of Yukian, the Hokan stock seems to be the oldest known languages of California. The isolated pockets of Hokan languages around the margins of California indicate great time depth of roughly 8,000 years old and “suggest that they are the eroded remnants of formerly widespread language groups” (Morrato 1984:536; Golla 2007:78).

The Pomoan languages of the Hokan stock can be further broken down into seven distinct language groups or dialects, each delineated by their geographic boundaries (McLendon and Oswalt 1978: 274). Barrett (1908) named these groups according to each group’s position relative to one another: Northern, Eastern, Southeastern, Northeastern, Central, Southern, and Southwestern Pomo (Kashaya) (Figure 5). Ethnographic literature indicates that at the time of European contact, the Preserve was within the territory of the Central Pomo people.

The most widely accepted interpretation was that the Pomo homeland originated in Clear Lake and then subsequently dispersed to the northeast and then to the west and finally to the Russian River Valley around A.D. 500. This area includes Northern, Central, Southern, and Southwestern Pomo (Golla 2007:78-79). According to Oswalt, Central, Southern and the Kashaya Pomo were the most closely related of the seven language groups (McLendon and Oswalt 1978:274).



Feature 4: Linguistic groups of California (Kroeber 1925: back cover).



Figure 5: Pomo geographic boundaries (Mclenden and Oswalt 1978:276).

Each of these language groups, or dialects, can be further broken down into smaller groups (i.e., villages, village communities or tribelets) with each community speaking a slightly distinct subdialect, each possessing a main settlement or central village (Gifford and Kroeber 1937:117). The size and population of these villages varied greatly.

CENTRAL POMO ENVIRONMENT AND TERRITORY

Central Pomo speakers occupied land from the southern Mendocino coast at the mouth of the Gualala River, extending north just above the Navarro River and east to the crest of the Russian River divide, approximately 40 miles (64.4 km) inland (McLendon and Oswalt 1978:281). This area has three natural divisions; the coastal region, the redwood belt of the north Coast Ranges and the valleys to the east. The coast range mountains created topographic divisions each having their own unique climate, flora and fauna. According to Barrett (1908), these environmental differences greatly influenced cultural differences amongst the Central Pomo, even more so than linguistic differences. Barrett used these topographic divisions as a basis for classification (Barrett 1908:23).

The coastal region consists of the pacific coast and the narrow shelf immediately adjacent to the ocean. This narrow shelf has a maximum width of 5 miles (8 km). The elevation ranges from sea level to a few hundred feet along the cliffs. The redwood belt

CENTRAL POMO VILLAGES AND CAMP SITES

The seminal work of S.A. Barrett (1908), *The Ethno-Geography of the Pomo and Neighboring Indians*, sought to: (1) establish territorial boundaries of the Pomo linguistic stock; (2) determine the number of dialects of this stock and their relationships to one another; (3) locate ancient and modern villages and camp sites; and (4) understand

environmental and topographic factors that helped shape Pomo culture (Barrett 1908:7). This was all done by traveling from village to village and interviewing various informants, with the assistance of other scholars. Barrett's work was later expanded upon by Stewart (1943), whose goal was to determine more precise subdivisions indicated by Kroeber's (1925) map showing that each unit, often consisting of several villages, existed within the Pomo dialectic groups. Stewart (1943) divided the Central Pomo speakers into six distinct dialects: *Yō'kaia*, *Ciégo*, *Cokōa*, *Yō'bakeya*, *Danō'keya*, and the *Bō'keya* (Figure 6).

Yō'kaia

The *Yō'kaia* of Ukiah Valley were the largest group of the six dialects. The *Yō'kaia*, or 'south valley people', were the northernmost Central Pomo group along the Russian River. The *Yō'kaia* territory encompassed approximately 100 sq. miles (259 sq. km) with populations estimated at 500 to 1,000 people. In the winter months, the population was concentrated around several main villages: *Cō'kadjal*, *Canéneu*, and *Catayo*. The village of *Cō'kadjal* was considered the oldest known village and permanent settlement within the *Yō'kaia* territory (Stewart 1943:43). Today, most of the *Yō'kaia* people live in the town of Ukiah or on the Ukiah Rancheria, 5 miles (8 km) south of Ukiah (McLendon and Oswalt 1978:282).

Ciégo

The *Ciégo* of Largo only occupied 3 miles (4.8 km) of the Russian River. They served as a small buffer group separating the *Yō'kaia* and the *Cokōa* (Hopland) groups who were enemies. According to one of Stewart's (1943:45) informants, the *Ciégo* had

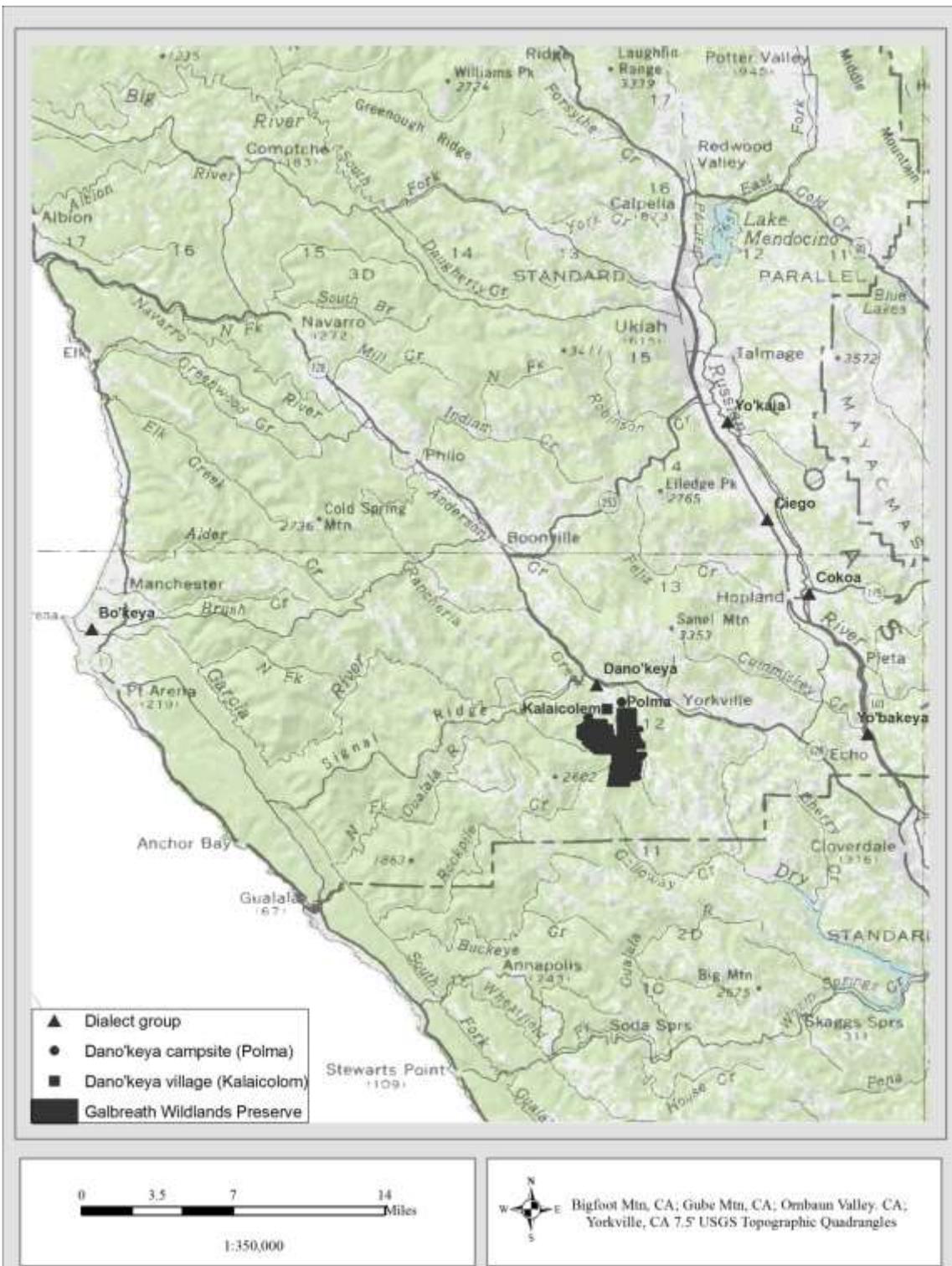


Figure 6: Map of Central Pomo dialect groups*.

*Depicted at primary village location: *Yō'kaia (Cō'kadjal)*, *Ciego*, *Cokōa (Canal)*, *Yō'bakeya (Koloko)*, *Danō'keya (Late)*, and *Bō'keya (Pda'haū)*. Additional *Danō'keya* village and camp sites located near the Preserve are also depicted.

an assembly house but no chief and were composed of soldiers who broke away from the Hopland group.

Cokōa

The *Cokōa* of Hopland occupied 8 miles (12.9 km) along the Russian River, 2 miles north and 6 miles south of Hopland. While the valley was less extensive than that of the *Yō'kaia*, the population was said to be approximately 1,500 people at one time. The area contained no redwoods and the flora was similar to the Ukiah valley. Both politically and geographically, the *Cokōa* resembled the *Yō'kaia*. *Canal*, the central village of the *Cokōa*, was located approximately 1 mile (1.6 km) to the east of Hopland (Stewart 1943:45-46).

Yō'bakeya

Like the *Ciégo*, the *Yō'bakeya* of Echo served as a buffer group between the warring groups of *Cokōa* and the *Ma'kamōtce'mēi* of Cloverdale. They occupied the Russian River south of Hopland for 5 miles (8 km). The *Ciégo* were a small group of independent warriors who centered around one permanent village, *Koloko* (Stewart 1943:46-47).

Danō'keya

The *Danō'keya* of Yorkville, occupied approximately 60 sq. miles (155 sq. km) in the mountain valleys between the *Cokōa* of Hopland and the *Bō'keya* of Point Arena. However, the headwaters of the Russian and Garcia Rivers were of particular importance to them. The *Danō'keya* depended on food from friendly neighbors. Barrett notes several old village and camp sites along Rancheria Creek south and west of Yorkville (Stewart 1943:47). These villages were located just north of the current Preserve boundary. *Late*

was considered the principal village in this area. This village was located on the west bank of Rancheria Creek approximately 1 mile (1.6 km) west of Yorkville and approximately 1½ miles (2.4 km) north of the northwestern boarder of the Preserve. The people of *Late* were referred to as *Danō'keya*, or upstreamers, by other groups of Pomo (McLendon and Oswalt 1978:281). The village of *Kalaicolem* was located approximately 1¼ miles (2 km) south-southwest of Yorkville and approximately ½ mile (0.4 km) north of the northern boundary of the GWP. *Polma*, a seasonal camp, was located near the west bank of Rancheria Creek about 1 mile (1.6 km) southwest of Yorkville and approximately 3/10 mile (0.5 km) north of the northern boundary of the Preserve (Barrett 1908:178-182).

Bō'keya

The *Bō'keya* lived along the Pacific coast; however, some villages were located up to 20 miles (32 km) inland at the southern boundary of the territory. The *Bō'keya* had three key villages. *Ka'ūca* and *Pda'haū* were located along the coast and *La'tcūpda* was several miles inland. Eventually the three villages merged, with *Pda'haū* functioning as the principal village (Stewart 1943:47-49).

SOCIAL AND POLITICAL ORGANIZATION

According to Kroeber (1925), Pomo groups were culturally but not politically allied. Kin groups were the most significant social unit. Extended kin groups were composed of about five or six people, living in a multifamily dwelling for most of the year and in separate temporary dwellings when members of the village dispersed for seasonal fishing, hunting and gathering. Professional roles such as chieftainships,

shamans, doctors, bead-making, hunting, and craft specialties were usually acquired through an apprenticeship with a fellow kinsman (Bean and Theodoratus 1978:293-294).

Political organization varied from group to group. Some villages had one or two chiefs, while others had twenty or more chiefs. Chiefs had limited authority and were considered more of a captain or advisor than a governor or 'dispenser of justice'. There were two classes of chiefs, a head chief and an ordinary chief. An ordinary chief inherited his status. This position was not passed from father to son, but from a man to his sister's son. If the ordinary chief had no sister then his chieftomship would go to his own son. There was typically an ordinary chief for each distinct group or household. These ordinary chiefs formed a council, each representing the needs of those directly related to him. The council itself looked after the general welfare of the community. The head chief was elected by the people, typically chosen by a group of ordinary chiefs. The head chief had slightly more authority but decisions still required unanimous agreement among the ordinary chiefs. The primary duties of a head chief were to give advice, to arrange and preside over ceremonies, and to welcome and entertain visiting Indians (Barrett 1908:15).

The *Yō'kaia* had a head chief and three sub-chiefs, with the right to the chieftomship passed from a man to his sister's son. The *Cokōa* had a much more complex political organization, perhaps the most complex of the Pomo groups. Before European contact, it was said that they had 20 chiefs arranged in four divisions; two main chiefs, one war captain, seven speaking assembly-house chiefs, and one or more assembly-house chief for each ceremonial lodge. They also had several women chiefs. The villages of the *Danokeya* each had a separate chief and a separate assembly house. The political structure of the *Bokeya* is unclear. They likely resembled the *Mato* of

Sherwood, who consisted of three or four autonomous groups who merged to form one group. Loeb (1926) considered the coastal groups to be one unit who functioned out of the village of *Pdahau* and consisted of three head chiefs and two boy chiefs (Stewart 1943:43-46).

NEIGHBORS, TRADE AND EXCHANGE

The Central Pomo had a fairly loose relationship with their neighbors, often venturing into the territories belonging to other Pomo groups to hunt and gather throughout their seasonal rounds. Short-term stays at outlying camps and hamlets within the tribelet territory were made to access local resources. The Clear Lake area was also regularly visited for its distinctive fisheries, as well as the unusual mineral resources available there (magnesite, steatite, and two sources of obsidian), while trips were made to the coast to collect clams and other sea food. Relations with these other groups were maintained through social and economic exchange (Stewart 1943:43-46).

With permission the *Yō'kaia* were allowed to collect tan-oak acorns from the territory occupied by Boonville and Hopland Indians and were allowed to obtain sea food from the coast at Greenwood Creek (near Point Arena) approximately 45 miles (72.4 km) away. Salt was obtained from the coast at Stoneyford. They also traveled to Bodega Bay for clam shells, which were used to make bead money. Lake County groups from Clear Lake traded baked, uncut magnesite. Milkweed was obtained from Round Valley. Greenish white chert was available near old village sites to make drills and stone tools (Stewart 1943:43-46).

The *Cokōa* were known to be dangerously brave warriors by their neighbors, likely killing anyone caught trespassing. Fishing rights were usually the cause of war

between the Hopland and Cloverdale Indians. They were on friendly terms with the *Danō'keya* of Yorkville, sharing hunting and gathering privileges. The *Danō'keya* supplied tan-oak acorns and allowed passage to the coast via an old wagon road from Yorkville to Anchor Bay. All other neighbors were enemies of the *Cokōa* (Stewart 1943:43-46).

The *Danō'keya* and *Cokōa* had recognized boundaries but the *Danō'keya* were granted fishing privileges near the Russian River in Hopland in exchange for *Cokōa* gathering privileges. The *Danō'keya* depended on access to food resources on neighbor's territory. They also had ocean access privileges with the coastal Indians. However, during historic times it was noted by Loeb (1926) that the *Danō'keya* had troubles with the coastal groups. They were enemies with the *Makamotcemi* of Cloverdale but were friendly with the *Pdateya* of Boonville (Stewart 1943:43-46).

SETTLEMENT, SUBSISTANCE AND MATERIAL CULTURE

Dwellings, Sweathouses and Ceremonial Buildings

Main villages were typically occupied throughout the winter, with smaller satellite villages occupied in the summer months, primarily for the acquisition of resources. In the coastal region, as well as the redwood belt, winter dwellings were constructed of redwood bark, leaning on a center pole forming a conical structure up to 15 feet (5 m) in diameter. These structures were not very large but were warm and serviceable (Barrett 1908:23-24). In the valley region, winter homes were constructed of a framework of poles and covered with thatched bundles of long grass and could be rectangular, circular or L-shaped, with a smoke hole in the top center of the structure and door at one end and in some cases a door at each end (Kroeber 1925:241). In the summer

months, inhabitants of the valley region camped along streams and in shady places, dwelling in temporary brush shelters. These types of dwellings, or “living houses” were typically occupied by women and children, often housing several families. Their primary purpose was to house property and for cooking and eating (Kroeber 1925: 241). Houses were surrounded by a brush fence with an enclosed area used for the drying of acorns (Bean and Theodoratus 1978:292)

Houses in the *Yō'kaia* territory were made of thatched grasses and were burned each spring to exterminate vermin. This group was the only Central Pomo group that burned their houses annually. After homes were burned they moved to temporary camps around the valley. The *Cokōa* also lived in thatched grass houses; however, they did not burn their dwellings seasonally like the *Yō'kaia*. They lived in them until they deteriorated. The dwellings of the *Danō'keya* were constructed of both grass and redwood. Houses were burned when an occupant died or when they were no longer serviceable (Stewart 1943:43-47).

Sweathouses, or fire lodges, were also present in most Pomo villages. Sweathouses measured about 15 to 20 feet (5 to 6 m) in diameter, and were typically semi-subterranean and earth-covered (Loeb 1926:159). Men and boys spent a great amount of time in sweathouses sweating daily and typically sleeping in them as well (Kroeber 1925: 241), while women were only permitted in them for short periods of time during the day or occasionally in the evenings to participate in games (Loeb 1926:160). In addition to sweathouses, most primary villages had an earth-covered dance or assembly house, where important meetings or ceremonies were held. These polygon-shaped buildings measured 40 to 60 feet (12 to 18 m) in diameter and were constructed of

dried grass and mud with a smoke hole directly over the fire and multiple exits (Kroeber 1925:242).

Food and Subsistence

California Indians had a complex relationship with their environment. Their survival was dependent upon successful adaptation to environmental conditions and the availability of natural resources which provided food, medicine, shelter, clothing, tools and weapons (Anderson 2005, Lightfoot and Parrish 2009, Loeb 1926).

Subsistence varied from region to region. The ocean provided sufficient food for the populations living in the coastal region, including fish, shellfish, snails, seaweed, sea lions and salt. The redwood forests provided deer, elk, and small mammals for food, as well as redwood bark for building and clothing material. In the valley region, acorns were the staple food, with an abundance of Oak species throughout the valley. Fishing was common along rivers and tributaries; however, they were also dependent on small game such as deer, elk, squirrel, gopher, and various species of birds. Willow bark was used for clothing and homes were typically constructed of grasses (Bean and Theodoratus 1978:289-290).

The most important food to the Pomo people, particularly those in the valley region, was the acorn. It was eaten as a cake or mush. After gathering it was shelled, pounded into meal, sifted, and leached in a sand bed with hot water. On occasion, buckeye was prepared and eaten in a similar fashion as acorn but due to its toxicity it required thorough leeching. Pomo women also gathered a variety of grasses, plants, grains, seeds, nuts and berries. Beverages were made from elderberries and manzanita berries. Young clover shoots, wild mushrooms, radishes and onions were all eaten raw.

Wild potatoes were also gathered and baked overnight before eating. Anise root was eaten raw or boiled. Pepper seeds were gathered from the California bay laurel tree, then ground and formed into small balls which were used for seasoning food. Salt was primarily used for preserving food rather than seasoning. It was gathered from the rocks near the ocean and at Snow Mountain, a salt deposit in Northeastern Pomo territory. There was considerable warfare over this source of salt (Loeb 1926:173-74).

Fish was also very important to the Pomo people. The coast Pomo caught sea trout, bullheads and codfish with fishing poles, and used drop nets to catch smelt. Fishing poles were made of willow branches with lines made of milkweed and hooks made from bone or wood. Other seafood gathered from the ocean included: abalone, sea urchin eggs, sea anemone, muscles, and barnacles. Nets were used to catch crabs and lobster. They also hunted seal and sea lions with clubs of green oak. However, whales and shark were considered sacred and never eaten. The most abundant fish in the Russian River include salmon, sucker and trout. Salmon were caught with dip nets as they spawned upriver towards the coast in the fall. River trout were caught with baskets near river dams in the summer months. Small bullheads were also caught by the river Pomo with a special harpoon. They did this by standing on a jammed log and thrusting a stick into the water. Fish was cured with salt and dried on racks in the sun. Dried fish could last up to four to five months (Loeb 1926: 168-169).

Religious observations connected with fishing included: making a wish when the first fish of the year was caught, giving thanks when each fish was caught, hitting the fish on the head four times to kill it, and the purification of fishing implements. Purification was done by filling their fishing baskets with special herbs and water and boiling them

with hot rocks. The nets were then dipped in the purified water four times. Poles were also rinsed with the special water (Loeb 1926:168-69).

An array of mammals were hunted for food, hides and medicine. Mammals hunted include: deer, elk, bears, mountain lions, wild cats, raccoons, otters, beavers, mink, skunk, rabbits, squirrels, wood rats, field mice and gophers. They never ate coyotes, foxes or wolves. Deer hunting was a profession that required special training. Occasionally a single hunter would watch deer trails from a brush house in the evenings. Usually hunting was conducted in groups where several men would surround and chase the deer and another group of men wearing deer heads would hide in the brush. These men sang deer songs and ate pepper tree (bay laurel) leaves. When the deer arrived they shot them with a bow and arrow. Sometimes untrained shooters would hunt deer. This was done using deer fence and snares. Men armed with sticks, bows and arrows would drive the deer along the fence and into the snares (Loeb 1926:170).

Bears were mostly caught for their hides which were used for arrow quivers and ceremonial robes. They were killed with spears at close range or with a bow and arrow. Wild cats and skunks were killed with a bow and arrow. Skunk meat was considered good eating and the oil was used in medicine. Ground squirrels were shot with a bow and arrow or clubbed by a fast runner. Rabbits, raccoons, and wood rats were all trapped. Religious practices associated with hunting include rubbing themselves with angelica and leaves from the bay laurel tree before the hunt, they prayed to animal spirits, and they burned angelica, pepperwood tree leaves, and pine berry seeds over a fire and smoked their bows and arrows, quivers, and deer head disguises (Loeb 1926:171).

Birds and insets were also hunted. Birds were killed for food and decoration. Quail were killed with a special quail trap or blunt arrows. Woodpeckers were considered the oldest bird in the world and were never eaten but their feathers were used in headdresses, baskets and belts. Buzzards, eagles, road runners, cranes, robins, sparrows, blue jays, meadowlarks, pigeons, larks, ducks and grouse were also caught by the Pomo. Insects collected and eaten include: grasshoppers, worms, and caterpillars (Loeb 1926:163-67).

Resource Management

Recent research on Northern and Costal California Indians indicates that they intentionally manipulated their environment by employing an array of management strategies from horticultural techniques to controlled burning in order to encourage the propagation and diversity of important natural resources (Anderson 2005). This environmental manipulation took many forms. Native burning, fire management, and other pyrodiversity practices were often implemented by various California Indians for communal animal drives and to clear brush to maintain and enhance plant diversity (Lewis 1973, Bean and Lawton 1973, Anderson 2005, Lightfoot and Parrish 2009). Other methods of intentional cultivation included pruning, coppicing, harvesting, clearing debris, weeding of certain plants, and the sowing of seeds (Ortiz 1991, Anderson 2005, Lightfoot and Parrish 2009).

Ethnographic data supports the extensive use of controlled burning by many Native Californian Indians. Fire was used for crop management in order to clear areas for sowing seeds and harvesting, to improve the growth and yield of wild crops, and to clear brush to facilitate the gathering of seeds and acorns. Deliberate burning practices

increased abundance of tubers, greens, fruits, seeds, and mushrooms and enhanced food for wildlife. Fern patches were burned to enhance the growth of new fronds which were eaten and rhizomes which were used for basket-making (Anderson 2005:136). They burned areas with soaproot, an important plant used for food, shampoo, fish poisoning, adhesive, and brushes (Anderson 2005:167). Fires were induced to promote the growth of straight young shoots for arrow-making. Manzanita brush was also burned. Their berries were used for food, their leaves for medicine, and branches for clubs (Anderson 2005:172, 279).

Fire was used to collect insects for food and to control pests such as bugs, rodents and invasive plants that could damage food and basket materials. California Indians used fire in hunting and animal drives, to fell trees for fuel and materials, and to protect the forests much like modern prescribed burning. They used fire to clear areas for easy traveling, for better visibility when hunting, and to avoid snakes (Lightfoot and Parrish 2009:23-27). According to several informants, the valleys and hills of Mendocino Valley were filled with large oaks and cleared of brush and Redwood forests were open and clear. The Pomo burned grasses and brush around the oaks. The trees themselves were scorched but not killed. Burning helped to stimulate the growth of grasses. Annual burnings reduced fuel loads and kept things in balance (Anderson 2005:282). The Dry Creek people and Cloverdale people burned every two years under the oaks. Areas were also burned to clear living areas (Anderson 2005:177). Grassy meadows were burned after the summer grain harvest to encourage growth of wild oats and tarweed (Anderson 2005:263).

In addition to fire management strategies an array of horticultural techniques have been employed such as tending, weeding, pruning, coppicing, harvesting, clearing debris and the sowing of seeds. Weavers tended sedge beds by removing sticks, roots, and debris. Tending promoted the growth of long and straight rhizomes for use in basketry. Untended beds resulted in short and gnarled sedge that was difficult and unusable. Informant Elsie Allen pruned white bark California lilac to prevent roots from growing too thick into masses of tangles, too difficult to dig. (Anderson 2005:197). The Pomo practiced weeding to eliminate unwanted plants and reduce competition for sun, moisture and nutrients (Anderson 2005:144). They cultivated rhizomes of bulrush, also called black root by Pomo weavers, for baskets. The Pomo also cultivated a variety of other plants including wild potatoes, soaproot and mariposa lilies (Anderson 2005:143). Pomo women harvested hazel switches used for fish traps and baskets, during the dormant period. Cutting and pruning at this time was least detrimental to the survival of the plant. Milkweed was also harvested after the plant dried for the year. The dried material was used to make string (Anderson 2005:130). Arrow making plants, such as spicebrush and snowberry, were pruned and burned every year or two before harvest to induce sucker growth (Anderson 2005:235).

Basketry and Clothing

In her study on California basket weavers and the environment, Ortiz (1991) provides a number of examples of horticultural techniques utilized by various groups of California Indians. Ortiz states that “judicious harvesting is critical to managing the resources gathered by weavers” (Ortiz 1991:199). They were careful to take only what was needed and did not overharvest. They also knew how to harvest without harming the

plant or tree. Pruning was beneficial to increase plant productivity, stimulate growth and control insect infestation. Basket plants, such as willow and redbud, were often pruned or coppiced (cut back to the base) during their dormant seasons. This also enabled new growth to become long, straight and flexible material for basket-making. Weavers also improved growing conditions by weeding, clearing debris and cultivating the same roots in the same place year after year (Ortiz 1991:199-203).

Common materials used for basketry include willow, pine root, sedge root, and redbud, however, sedge was the most widely used material for basketry. It resembles tufts of grass and grows along rivers creeks, marshes, and wet meadows. Of 131 species, only those with creeping rhizomes were used in basketry. Rhizomes are runners that travel underground to create new spurs plants. The material is strong, soft, fluid and flexible and rarely breaks. Pomo worked and managed sedge beds along creeks and rivers and tributaries of the Russian River and Navarro. Digging in the spring, fall and summer with a digging stick. Sedge is still harvested today for basket-making. The best time of the year to gather is late summer until the first rains of fall (Anderson 2005:195,196,313).

Pomo women are known for their skills with basketry. They practice two methods, coiling and twining. They are the only group in northern California to employ the coiling method. Coiling is used for baskets made for gift or show, ornate aps, and anything intended to be a vessel. The Pomo are recognized for their coiled and feathered gift baskets. Black quail plumes or scarlet from a woodpeckers scalp were commonly used but never used together. Beads were also woven into baskets. Twining is typically restricted to utilitarian purposes such as burden baskets, seed beaters, parching trays, cradles, traps, fish weirs and boiling receptacles. Carrying trays are twined in a simple

diagonal fashion. The Pomo are the only California group who employ a special method of lattice twining. They also employ the wicker method. Seed beaters can be either twine or wicker (Loeb 1926:191; Kroeber 1925:244).

Pomo dress was typically modest. Men were often naked or wore an animal skin around their hips. Women wore a double skirt, typically made of shredded inner redwood bark (coast), willow bark (Russian river) and Tule rush (clear lake), but occasionally of deer skin. Footwear was either soft-sole moccasins or sandals and leggings. Men wore ear tubes made of long incised bird bones or wooden rods with beads and feathers. Sometimes the nose was pierced with a pin or shaft of abalone (Kroeber 1925:240). Cloaks made from the wings and tail feathers of condors were worn only for sacred dances (Anderson 2005:45).

This chapter provided an ethnographic background for the thesis area, based upon ethnographic interviews with local Central Pomo people in the early part of the 20th century. It gave us glimpse into Pomo culture and what life may have been like prior to European contact. Chapter four picks up where this chapter leaves off, beginning with the European discovery of California. It provides a brief history of Mendocino County over the past 200 years as well as the more recent history of the Preserve.

CHAPTER 4: HISTORIC BACKGROUND

This chapter discusses the historic background of northern California, with an emphasis on southern Mendocino County. It first provides a brief overview of the early European exploration of California followed by brief summaries of the Spanish period, the Mexican period, the Russian period and the American period and each period's influence on northern California. The historic background then narrows its focus to Mendocino County, with particular attention to early logging and sheep ranching in the county. It also provides a brief background of Yorkville. Prior to owning the Preserve, Fred Galbreath owned 11,000 acres east of highway 128, including what was once the town of Yorkville. The chapter concludes with a history of the Preserve itself, based upon oral history interviews conducted by students from Sonoma State University's History Department. This final section discusses how Galbreath acquired the land and how the land was used.

EARLY EXPOLORATION OF CALIFORNIA

After a number of failed attempts by Spanish explorer Hernon Cortes to settle Baja California in the 1530's, it was Juan Rodriguez Cabrillo who eventually found Alta California on his mission to find the Northwest Passage that purportedly connected the Atlantic and Pacific oceans. Although Cabrillo never did discover the Northwest Passage, he was the first European explorer to land in the San Diego Bay of California in 1542. Cabrillo and his crew continued northward ultimately reaching the San Francisco Bay by mid-November despite harsh weather conditions. Cabrillo died three months later but shortly before his death he encouraged his crew to continue the expedition northward.

Weakened from exposure and scurvy, they ended their journey at the Oregon-California border before returning home in April of 1543 (Engstrand 1998: 80-86).

Almost 25 years later, English privateer, Sir Francis Drake sought shelter in the San Francisco Bay area in June of 1579 after a series of raids along the Chilean and Peruvian coasts. Presumably, Drake took possession of this new land for England, naming it New Albion (New England) after its striking resemblance to the English Channel coast. Considerable mystery and debate continue to revolve around Drake's precise landing, with accounts ranging from Tomales and Bodega Bay to as far north as Trinidad Head and as far south as the Channel Islands. However, anthropologist Robert Heizer identified the Coast Miwok as the inhabitants who had frequent and friendly contact with the explorer (Engstrand 1998: 87-88).

Spanish Colonial Period (1769-1821)

For two centuries various attempts were made by New Spain to occupy California. It was not until 1769 when the first Spanish Mission was built in Alta California in the San Diego Bay. These missions were established by colonial officials and representatives of the Catholic church, mainly Franciscans and Jesuits, to indoctrinate and acculturate California natives into colonial religion and society based upon the model used in central Mexico. Converts were forcibly relocated to provide labor and pay taxes. Indian workers provided labor in mines, for commercial agriculture and for large building projects (Jackson and Castillo 1995:3).

Twenty-one missions were established along the coast of Alta California between 1769 and 1823. The northern-most missions were Mission San Rafael located in present-day San Rafael located approximately 15 miles (24 km) north of San Francisco and

Mission San Francisco Solano located in the present-day town of Sonoma approximately 40 miles (64 km) north of San Francisco. Mission San Rafael, the 20th mission established by the Spanish colonials, was founded by Fray Vincente Francisco de Serria in 1817. The Mission was established as a hospital to care for sick Native Americans and was named after Archangel Raphael, the patron saint for health and wellness. At its peak, the population was at 1,051 in 1826. In 1832 the mission had 2,120 cattle, 3,000 sheep, and 370 horses. Although this mission had relatively small herds by mission standards, they did have a high agricultural output of 97,000 bushels of grain and produce. The mission was badly damaged during an Indian raid led by Chief Marin in 1829 (CMRC 2015a). Mission San Francisco Solano, the 21st mission, was founded by Padre Jose Altamira as a Spanish outpost against the Russians. At its peak, the population was at 996 in 1832. Herds consisted of 3,500 cattle and 900 horses, but agriculture was never fully developed. In 1832, this mission only produced 14,000 bushels of grain and produce. In 1846, the Bear Flag Revolt was staged directly across from this mission. Both missions forcibly recruited Coast Miwok and Pomo Indians (CMRC 2015b).

Russian Period (1812-1841)

In 1812, the Russian-American Company established the outpost of Fort Ross just north of Bodega Bay, located on the coast approximately 60 miles (97 km) north of San Francisco. The Russians peacefully negotiated land with the Kashaya Pomo at the Indian village site of *Mettini*. The relations between the Russians and the Pomo were amicable; the Russians provided paid employment to the Kashaya in return for help with agriculture, small scale lumbering, tanning, milling of grains and ship building. Many of these resources assisted struggling Alaskan fur-trading colonies farther north. The outpost

declined considerably after a smallpox epidemic in 1837 wiped out thousands of Native Americans in Sonoma County (Kroeber 1925:234, Lightfoot 2005:5, Sandos 1998:213).

Mexican Period (1822-1846)

The mission system rapidly declined after Mexico gained independence in 1822. The missions lost countless Native Americans to disease. The missions were no longer receiving money from Spain and Mexico put an end to Spain's restrictive international trade policies which ultimately led to the end of the Spanish Colonial Period in Alta California. At the same time Mexico was gaining political and economic power and amassing enormous land holdings. Beginning in 1824 with the passing of the Colonization Act and continuing in 1833 with the Secularization Act, Mexican land grants, or ranchos, are established throughout California. Before Mexican Independence, the Spanish awarded less than 30 land grants to retired soldiers. After 1833, over 700 land grants were awarded. Mexican ranchos continued to exploit Indian labor, similar to the mission systems (Hackel 1998:129-137).

Encroachment of Central Pomo territory in interior Mendocino began in the 1840's with two Mexican Land grants, Rancho Sanel and Rancho Yokaya. Rancho Sanel, located along the Russian River in present day Hopland, was granted to Fernando Feliz in 1844. It was named after the Pomo village of Sanel, meaning sweathouse. Rancho Yokaya, located along the Russian River in present day Ukiah was granted to Cayetano Juarez in 1845. It was named for the Pomo word for south valley (Kasch 1947:209).

American Period (1846-present)

The Mexican-American War of 1846 led to the demise of Mexican rule in Alta California. In 1848 California became a United States territory, ultimately achieving

statehood in 1850. Congress passed the Land Act of 1851, which required all Spanish and Mexican land grantees to provide proof of ownership. Those who were unable to provide appropriate documentation lost their land (Gates 1971:398).

Around this time, the discovery of gold in the Sierra Nevada Range led to a mass influx of Americans and foreigners into California. Although Mendocino was not a destination for gold seekers, the gold rush era was not without its consequences to the local Indians. Many new settlers, Americans and immigrants, used local Natives as ranch hands and laborers during the gold rush era.

With shiploads of Chileans, Hawaiians, New Englanders and Australians headed to San Francisco in search of gold, mining camps began to spring up all around the Sierra Nevada Foothills creating a high demand for food. Ranchos soon became depleted of cattle, resulting in huge cattle drives from Missouri, Texas and Southern California to feed the hungry miners. The high demand for food caused cattle and produce prices to sky-rocket, making cattle ranching and agriculture a more stable livelihood than digging gold (Street 2004:115). Many new settlers chose to take up farming and ranching rather than compete in the gold industry. However, the need for labor became the new demand and many Indians became the primary workforce for many new farmers in California (Street 2004:117).

Many Native Americans from the Sacramento Valley and the North Coast Ranges were kidnapped and auctioned off to farmers. Prices varied based upon age, sex, and the physical condition of the slave (Street 2004:126). Children were used as stock herders, wood choppers and kindling gatherers on small ranches and farms. Young girls assisted with household chores such as cooking, carrying water, and washing dishes and clothes.

In 1853, a Mendocino farmer stated that there were “lots of little Diggers” working for all of the farms in the area (Street 2004:127). In Clear Lake and Round Valley it was estimated that approximately 3,000 to 4,000 children were stolen between 1852 and 1867 after Indian populations were decimated during the Bloody Island Massacre at Clearlake. Farmers rationalized that the kidnapped Indian children were better off with white farmers than with “primitive” native groups (Street 2004:127).

Between 1853 and 1855, Congress authorized land to be set aside for Indian reservations. The intent of these reservations was to provide homes and jobs. Many Indians were forcibly moved from their homelands into reservations (Heizer 1978: 704). The Mendocino Reservation near Fort Bragg and the Nome Cult Indian Farm (Round Valley Reservation) were both established in 1856. The Nome Cult Indian Farm became an official reservation in 1858 (Miller 1978: 249). In addition to various Pomo groups, several other Indian groups were brought to the reservation, a few of which were enemies. In 1867, the Mendocino reservation was abandoned and many Indians found themselves homeless and landless. At this time many Pomo established settlements, or Rancherias, on white-owned land and became cheap laborers for ranchers (Bean and Theodoratus 1978: 299).

MENDOCINO COUNTY

This section provides a brief history of Mendocino County, emphasizing early homesteading, sheep ranching and logging in the southern part of the county. In addition to consulting two detailed historical accounts of Mendocino County (Carpenter and Millberry 1914; Mendocino 1880), an in-depth historical and demographic study of the Kelly Road corridor (Praetzellis 1982) in northern Sonoma County also provides

substantial information about the history of the area between 1865 and the 1970's.

Although Kelly Road is located in northern Sonoma County, the road is located less than five miles south of the Preserve.

Mendocino County was one of the first 27 counties established after California became a state in 1950. Due to its small population, the county was initially part of Sonoma County for judicial reasons until 1859 when Mendocino established its own government. The county's name was derived from Cape Mendocino, named by Cabrillo after Antonio de Mendoza, the first viceroy of New Spain, who commissioned the voyage and subsequent discovery of the Mendocino port (Carpenter and Millberry 1914:19).

In the early 1850's settlers began claiming land along the Russian River and its tributaries. People began settling before the land was officially open for sale. Some settlers squatted on desirable portions of Mexican land grants in hopes that they might acquire the claim if the land grants were not confirmed (Praetzellis 1982:32).

Beginning in 1865, Southern Mendocino and Northern Sonoma counties began to see increased settlement. With the first Government Land Office (GLO) surveys, land became available for patent. Once the land was surveyed, settlers began to homestead the most desirable portions of their original claim and gradually converted other areas of possession to legal claims. Under the Preemption Act of 1841, a family could legally claim up to 160 acres (6.5 m²) of land. Unsurveyed land could not be purchased. Prospective land owners were required to pay for the survey of public land if they were interested in buying it. Some settlers were able to acquire larger land holdings; however, these were not always acquired legitimately (Praetzellis 1982:15, 37).

Between 1865 and 1875, many ranchers immigrated to the Mendocino and Sonoma counties from the Old Frontier states of Ohio, Kentucky, Missouri and Tennessee. Family groups, often two and three generations, moved west together sometimes sporadically over many years. Extended family groups provided large work forces to help out on farms and ranches. This was also advantageous in establishing and maintaining large tracts of land. Intermarriage between ranching families was also beneficial in allowing for increased land holdings, not to mention that women from ranching families had a good understanding of the responsibilities required to run a ranch. Though, not all homesteaders were successful, particularly if they did not have enough capital to invest in land or livestock. Ranchers were more affluent than farmers, many of whom were involved in local politics, participating in and influencing decisions pertinent to ranching (Praetzellis 1982:39-40, 50-61).

Between 1876 and 1890 populations in northern Sonoma County began to rise and families began to enlarge their land holdings. Family finances were strained at this time with the need to purchase more land and more livestock while also creating a home suitable for a large family. With increased populations, timber was also beginning to be exploited. At this time, redwood was only used for local construction. Large-scale redwood logging operations were not viable due to the inability to transport logs long distances. However, the harvesting of tan oak was a lucrative source of supplemental income for many ranchers and farmers. Tan oak was an important resource for the leather processing industry. Tan oak harvesting only required peeling the bark from the tree and drying it. It was easily shipped by wagon and was quite valuable. In 1877, a chord of bark went for \$15 to \$17 in San Francisco (Praetzellis 1982:62-91).

Between 1891 and 1900, rural populations in northern Sonoma County declined and foreclosures increased. The economic depression caused many family enterprises to fail. However, the timber industry was on the rise. With the construction of the Southern Pacific Railroad there was a high demand for redwood for the production of railroad ties (Praetzellis 1982:92-112).

Between 1901 and 1934 many early settlers left and corporations were beginning to purchase large tracts of land. However, many new homesteads also begin to appear on the books in northern Sonoma and southern Mendocino counties after 1910. Government policies pertaining to patents changed allowing for the consolidation of smaller parcels into larger ones. The Enlarged Homestead Act of 1912 allowed individual homesteaders to double their acreage. Thus many local homesteaders purchased 160 acre (6.5 m²) parcels adjacent to their current land. The Three-Year Homestead Act reduced the amount of time required to legally acquire land for homesteading. The Stock-Raising Act of 1916 allowed homesteaders to own 640 acres (2.6 km²) on lands suitable for stock-raising (Praetzellis 1982:113-130).

By 1914, business was booming and resources were plentiful in Anderson Valley, with an estimated 20 billion board feet of Redwood lumber, 2 billion board feet of pine and fir, millions of chords of oak and Madrone for firewood and thousands of acres of land suitable for fruit and grape growing. Heavy rainfall, ranging from 20 to 60 inches (50 to 150 cm) per year, and averaging 35 inches (90 cm), provided plenty of water for ranching and agriculture at that time. In 1910, there were 12,000 acres of wheat, 9,000 acres (36.4 km²) of oats, 7,500 acres (30,4 km²) of barley, 30,000 acres (121.4 km²) of hay, 2,352 acres (9.5 km²) of hops, 4,000 acres (16.2 km²) of alfalfa, 15,682 head of

cattle, 5,760 hogs, 252 mule, 90,785 head of sheep, 4,389 horses, 4,279 goats, 35,000 poultry, 98,000 apple trees, 56,000 peach trees, 50,000 pear trees, 26,000 prune trees, and 1,400 walnut trees in Anderson Valley (Carpenter and Millberry 1914:1, 23-24). There were many lumber mills operating in Mendocino producing over 160 million board feet of lumber and it was estimated that this degree of production could be maintained for another 30 to 50 years. Mendocino County also boasted 18 shipping ports and a railroad that ran the full length of the county (Carpenter and Millberry 1914:24).

Ranchers continued to expand their land holdings as rangeland deteriorated from overgrazing. Sheep ranching continued to be the primary source of income in Mendocino County. The original rancher pioneers were replaced by their highly educated and wealthy sons. Land management shifted from partnerships and extended family run businesses to corporate ownership. However, corporations were often composed of family members. By 1934, most small farmers and ranchers had left the area (Praetzellis 1982:126-127).

Sheep production declined in the 1940's but rose again in the 1950's and continued to be lucrative in Mendocino until the 1970's. Following World War II there was a timber boom. In 1946, the State Division of Forestry encouraged the harvesting and sale of timber by creating a roster to bring the buyer and seller together. Land consolidation continued until the 1950's. In 1966 parcel sizes decreased and subdivisions increased (Praetzellis 1982:131).

Yorkville

The Preserve lies adjacent to the Anderson Valley of Southern Mendocino approximately 1 mile (1.6 km) south of the town of Yorkville and 20 miles (32 km)

northeast from the city of Cloverdale in Sonoma County. The Anderson Valley encompasses the entire Navarro watershed and a small portion of the headwaters of Dry Creek (Carpenter and Millberry 1914:37). Prior to owning the land that is now the Preserve, Fred Galbreath owned 11,000 acres east of highway 128 including the land that was the old town of Yorkville. It is also worth noting that the Hiatts, who were once employed by Galbreath, have a long family history in Yorkville, dating back to 1867, shortly after the town was established.

The original town of Yorkville, located along Rancheria Creek in the southern part of Anderson Valley, was established in 1865. The town was named after Richard H. York an early settler in Mendocino. It was a stage stop along a stagecoach road, consisting of several houses, a hotel, a post office, and several outbuildings (Figures 7 and 8). The post office was maintained by the Hiatt family who owned the ranch (Carpenter and Millberry 1914:39). After the flood of 1937, the town was relocated approximately 3 miles (5 km) to the southeast.

Richard H. York was born in Tennessee in 1830 where he lived on a farm for 18 years before moving to Missouri in 1848. In 1852 he crossed the plains with ox-teams, arriving in Sonora California where he engaged in mining for one year. Shortly thereafter he moved to San Joaquin County where he practiced farming for nine more years before finally moving to Yorkville. In 1863, he married Mary Stublefield, a Missouri native. They had four children, one son and three daughters, between 1863 and 1872. In 1865, he bought a 700 acre (2.8 km²) ranch located in Yorkville on the Cloverdale and Mendocino City Road where he engaged in farming, stock-raising and wool-growing (Mendocino 1880: 516).

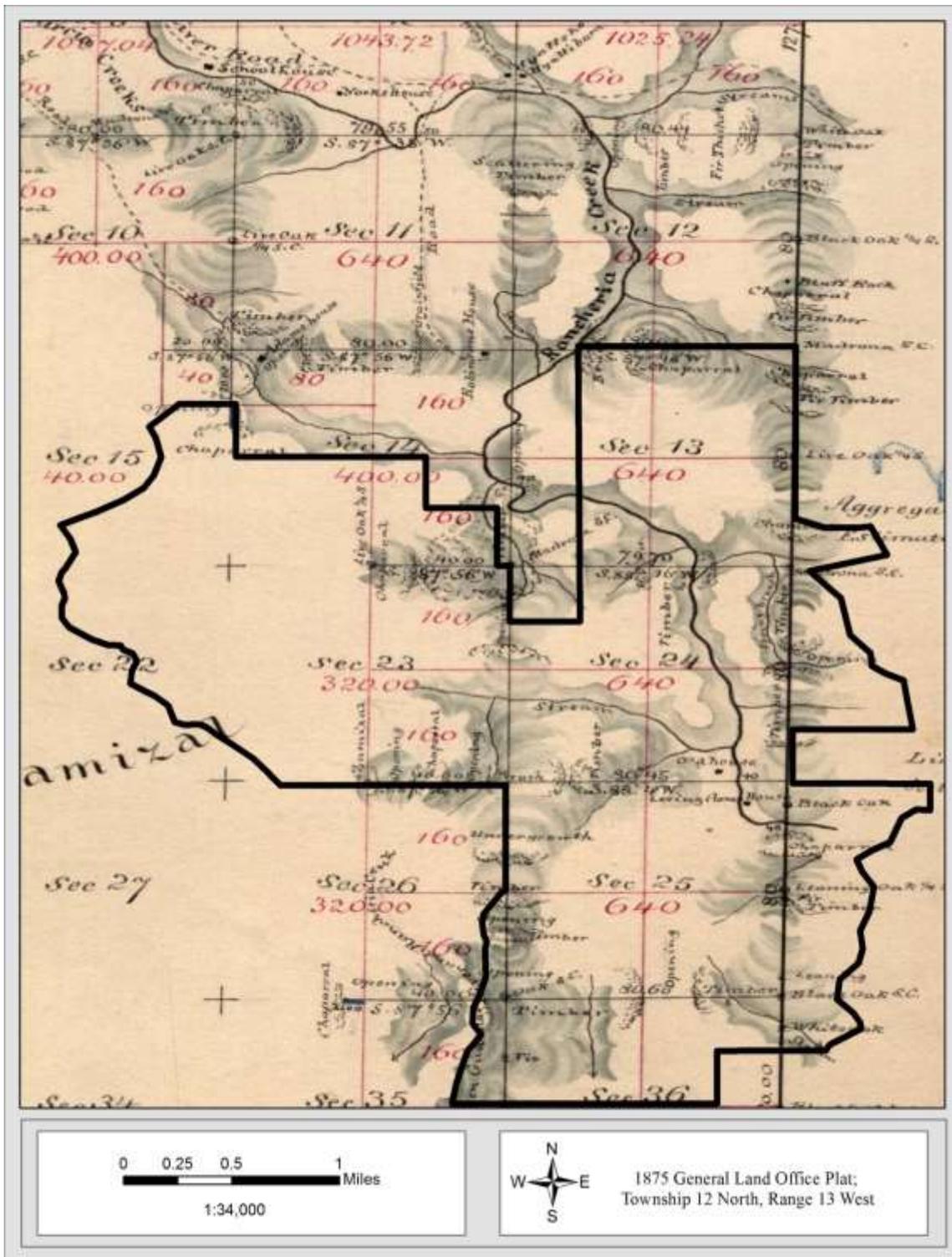


Figure 7: 1975 General Land Office plat map.

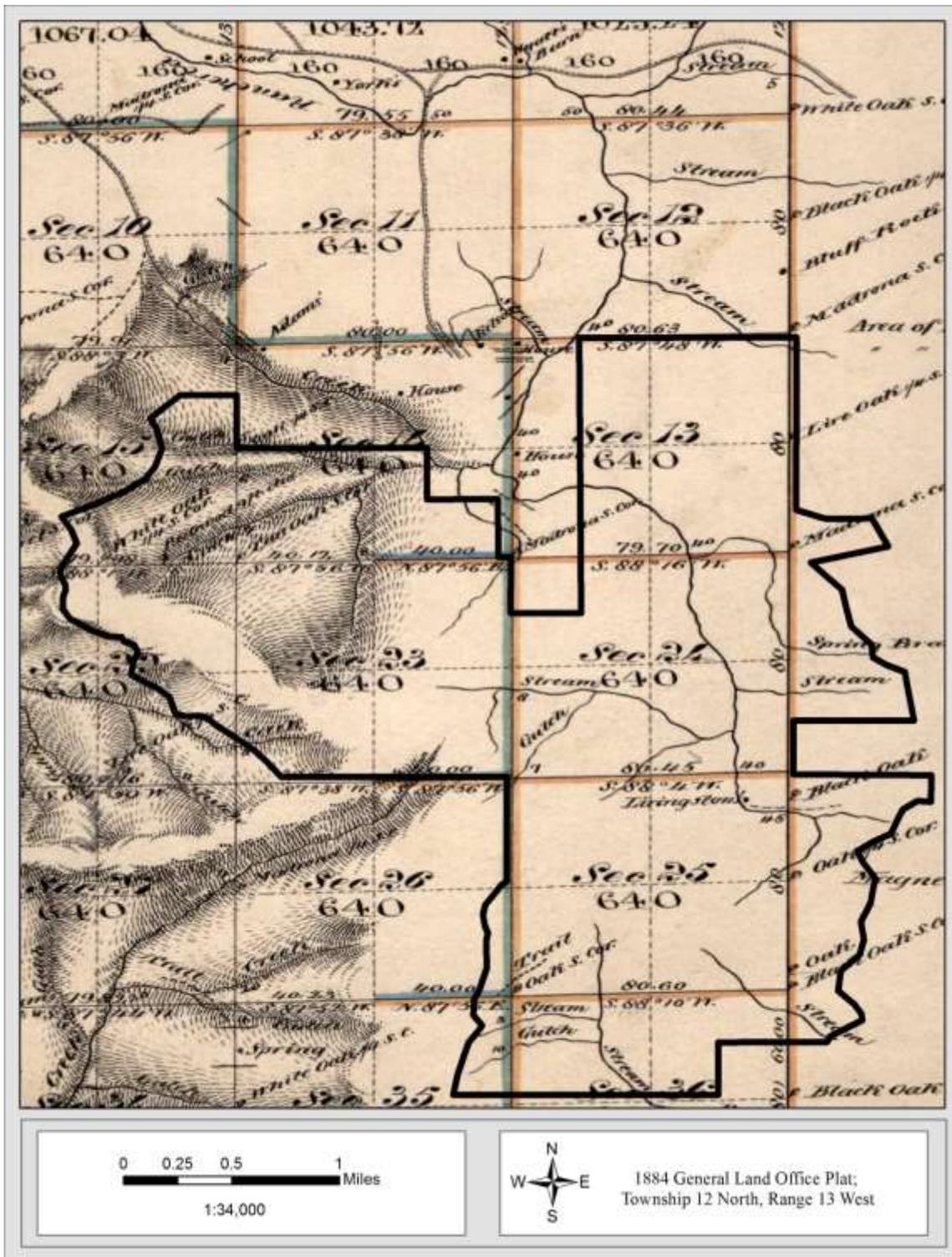


Figure 8: 1884 General Land Office plat map.

Elijah Monroe Hiatt was born in Lincoln County, Kentucky in 1831. He moved to Missouri in 1842 and resided on his father's farm until he was 15. Hiatt attended school until he was 21 years old and then became a teacher. In 1854, he crossed the plains with ox-teams and arrived in El Dorado County, California where he participated in mining for three years. In 1857, Hiatt got into sales at Shingle Springs, which he continued for another three years before moving to Yolo County where he loaned money. In 1861 he married Elizabeth Ledford a Missouri native. They had eight children, four sons and four daughters, between 1863 and 1880. In 1867, Hiatt purchased a 1,560 acre (6.3 km²) ranch in Yorkville where he practiced sheep-ranching, farming and continued to loan money (Mendocino 1880: 510-511).

John Francis Marion Hiatt was born in Kentucky in 1836 and moved to a farm in Missouri with his family when he was very young. In 1857 he immigrated to Yolo County, California. After six years, he returned home via Panama but returned to California the following year arriving in Sutter County in 1864 where he practiced farming. That same year he married Susan Calhoun, from Missouri. In 1871, he moved to Mendocino County and engaged in the stock business. His home was 2½ miles (4 km) from Hopland (Mendocino 1880:612).

Ranching in Northern California

Ranching began in California in 1769 during the Franciscan Mission-era with the introduction of cattle and horses. Livestock were extremely important to each mission, providing necessary meat for the subsistence of the community. In addition to providing food for the missions, livestock also provided raw materials such as hides and tallow which were essential to the local economy. As the missions grew, boundaries extended,

nearly coinciding with the next, although much of the intervening land was not in use. Ultimately, missions held claim to most of the land along the coast all the way up to Sonoma, owning approximately 1/6th of the state's land. At the height of the Spanish Colonial Period, the missions controlled approximately 400,000 head of cattle and 300,000 head of sheep (Burcham 1956:81-82).

In 1774, Governor Fages submitted the first petition to the Spanish government for private land use to be used for ranching in California. At least 30 concessions were made for ranching land during the Spanish period. The Mexican government handed out land grants much more freely. Beginning around 1836 until the end of the Mexican Period, practically anyone could acquire one square league of land if he was willing to build a home and run 100 head of cattle on the land. By 1846, more than 500 ranchos had been established under Mexican land grants, mainly on former mission lands (Burcham1956:82).

During the 1850's, the California Gold Rush created an immediate demand for meat in mining camps and metropolitan areas such as San Francisco, Sacramento and Stockton which intensified the cattle industry throughout California. Ranchers sent enormous cattle drives to Northern California to meet this demand. Despite the severe droughts in the 1850's sheep increased more than 1.1 million over the next 10 years and cattle populations increased from ¼ million head to 1 million in 1860 and 3 million by 1862. However, ranchers lost many cattle in the flood of 1862. The following two years brought the worst drought in history, permanently depleting cattle production and forcing ranchers to plant alfalfa and other forage crops to supplement the natural vegetation (Burcham 1956:82).

At this time, many ranchers began to shift from cattle ranching to sheep ranching. Sheep were more resilient and required less water and were therefore better suited for California's semi-arid climate. Prior to 1870, cattle-ranching was the most important activity in the area. By 1870, cattle populations decreased to less than ½ million head and sheep populations rose to over 2.7 million head. As permanent settlements began to increase, the pastoral industry shifted to grassland and woodland ranges in the foothills and in the mountains that were previously never considered tillable lands (Burcham 1956:82).

Logging in Northern California

Lumber Mills and Milling Technology

During the late nineteenth to early twentieth centuries, lumber operations in Northern California varied from crude pit-saw mills to large-scale commercial plants. Pit sawing was done in small quantities by mountaineers in remote forests. Somewhat larger operations such as water-powered mills and portable steam mills required the use of several saws and several men. Large-scale commercial operations, cutting over one million board feet of lumber per day, required a wide range of equipment and buildings and the manpower of hundreds of men (Bryant 1922:3).

Pit sawing, also known as whip-sawing, was a method of hand-sawing logs into boards. This method involved roughly squaring the timber with a broadaxe and then placing the squared log over a pit or on trestles and sawing the log to the desired thickness. This typically required the efforts of two men. The tiller man, or top sawyer, worked on top of the log pulling the saw upward. The pitman, or pit sawyer, worked in

the pit pulling the saw downward. With this method two men were able to cut 100 to 200 board feet per day (Bryant 1922:3).

Water-powered mills required a sufficient head of water to power the mill and were often combined with grist mills. For this reason they were typically located farther from the timber than other types of mills. Local farmers often brought in their own logs to be custom cut. Water-powered mills employed single blade vertical saws commonly referred to as “Mulays.” The muley operated much like the whip saw, with an up and down motion, but were powered by water rather than man. These saws were held taut by an overhead spring pole and moved up and down by a wooden beam attached to a crank on the waterwheel. These mills were later modified to use two or more saws in a sash frame. Water-powered mills only cut a few hundred thousand board feet of lumber annually. These mills were not as profitable as other mill types (Carranco and Labbe 1975:12; Bryant 1922:3, 6). All of the early mills were muley mills. The first sawmill to use circular saws was erected in Woodside in 1854. After the introduction of circular saws, muleys slowly began to disappear, much like muleys replacing pits saws earlier on (Carranco and Labbe 1975:18).

Small, portable, steam-powered sawmills were common in more isolated forested regions. These mills were located closer to timber sources to reduce expenses. Steam-powered mills typically required four to five men and four to eight horses for hauling. These mills had a daily output of 3,000 to 10,000 board feet per day and were surprisingly cheaper to run than a large-scale operation so lumber was often offered at a lower price from portable mills. These mills were moved from one “set-up” location to another on wheels. It typically took four days to move a set-up a few miles to a new

location and required one day to dismantle the mill, one day to move it, and two days to set it up again for operation. Less common was the semi-portable mill. The primary difference between portable and semi-portable mills was the use of additional equipment and a rough structure was built to house the equipment at semi-permanent mills. In addition to the head saw used at both mill types, semi-permanent mills often employed a single-saw edger and a one-saw or two-saw trimmer. Light band saws were sometimes substituted for circular head saws when cutting more valuable wood (Bryant 1922:4-6).

Portable and semi-portable mills occasionally required settlement camps near the mill. These camps often provided primitive buildings for the workers that might consist of a bunkhouse for the men, a cook house, and sometimes a commissary to provide supplies. On occasion families would live in the camps. A family home might consist of a simple two-roomed building. These work camps might contain four to six houses and a stable for the animals (Bryant 1922:8).

Large commercial sawmills were suitable in areas with large quantities of timber. The rule of thumb was that the mill had to last for at least ten years to warrant its construction. These mills may have used any combination of circular head saws, band head saws, either with or without a sash gang saw. Commercial plants were typically comprised of the main sawmill and power plant, a fuel house, a refuse burner, a planing mill and power plant, a machine shop, a loading platform, a pump house, an office, several drying kilns, and various storage sheds to house the drying and finished logs and other equipment (Bryant 1922:5,11).

Commercial mills were often built away from existing settlements in order to be closer to large amounts of timber. Large villages, or company towns, were often

constructed a few miles away from the plant to house hundreds to thousands of workers and their families. Homes in these company towns varied from small and crude in character to nicely painted homes with lawns, electricity and running water. Some communities even provided school houses, churches and club houses (Bryant 1922:8-9).

A Brief History of Northern California Mills

The first redwood trees were noted in 1769 in the diary of Father Crespie when the Spaniards sent the Portola Expedition from San Diego to Monterey Bay. The Spaniards called these strange new trees *palo colorado* or red wood. Over the next two decades, the Spaniards pushed settlements farther north towards the San Francisco Bay area. Redwood was likely first used for the construction of Mission Santa Clara, Mission Dolores and the Presideo in the bay area. Although the missions were constructed of adobe they still required lumber for timbers and beams. Timbers were hewn or split and Native American were likely used as laborers (Carranco and Labbe 1975:7).

In 1812, the Russians used redwood growing near the Fort Ross colony. Unlike the Spanish, the Russians were accustomed to building with lumber. Lumber was either split or sawn and shingles were split for roofing material. The Russians used pit-saws which were quite common around the world at this time. The lumber provided for the needs of the colony but was also shipped to outposts further north (Carranco and Labbe 1975:7).

By 1830, the demand for lumber increased, making logging an attractive livelihood for deserters of American and British ships. These men lived a simple life in the woods and began sawing lumber for income. It was a profitable occupation, requiring relatively little labor. One thousand shingles could earn \$7, and 1,000 board feet was

worth \$50 and two men could easily whipsaw 100 board feet per day (Carranco and Labbe 1975:7-8).

The first water-powered mill to operate in California was at the Mission San Gabriel in Los Angeles in 1823. However, in the north the demand for lumber was still small and needs could be met by whip sawyers and Indian labor. The first water-powered mill in northern California was located approximately 1,000 feet (305 m) from the confluence of Mark West Creek and the Russian River in Sonoma County. This saw and gristmill began operating in 1834 and was run by B. R. Cooper. In 1941 the mill washed away and was not rebuilt (Carranco and Labbe 1975:8, 11).

By the 1840's there was a rapid growing demand for lumber in the north. However, pit-saw mills still dominated with the occasional water-powered mills springing up here and there. In 1843, Stephen Smith built the first steam-powered saw and grist mill at Bodega in Sonoma County. Steam-powered mills revolutionized the redwood lumber industry. Smith's mill was in operation for 10 years before it burnt in a fire. The mill was never rebuilt (Carranco and Labbe 1975:12).

In 1848, the discovery of gold drastically changed the lumber industry. During the gold rush, sawyers abandoned their sawpits in search of gold. At the same time, lumber prices rose as did the demand for lumber. Almost overnight, lumber became an attractive profession for men with capital, spawning the growth of commercial mills which could provide supply and demand for the expanding market. These mills were predominantly water-powered, though steam-powered mills were increasing. Commercial mills began in the bay area but quickly moved up the coast (Carranco and Labbe 1975:13-14).

In 1852, lumbermen working along the Mendocino coast discovered timber stands of redwoods inland at Big River, returning shortly thereafter with machinery to construct a mill on the south bluff of Big River. This mill used the river to float large redwood logs downstream to the mill. Unfortunately, the mill was too small to accommodate the large redwood logs, so a larger mill was built approximately ½ mile (0.8 km) north of present-day Mendocino. The first mill had a sash gang consisting of 28 saws. The second mill had two circular saws, a muley, and a sash and could cut 40,000 board feet of lumber per day. This mill later became the Mendocino Lumber Company which was in operation for many more years. One year after the first mill was built in Mendocino, Dallas, Davidson, and McPherson built a small steam-powered mill at Albion, foreshadowing the Albion Lumber Company which became one of the biggest operations in the area (Carranco and Labbe 1975:16,18).

Cuffey's Cove Mill and the Greenwood Mill, located about 10 miles south of the Albion Lumber Company, are also worth noting. The rise and prosperity of the Cuffey Cove Mill can be attributed to James Kenny who was the first to recognize the feasibility of shipping the vast amounts of timber located on the adjacent ridges and the value of owning titles to the coastal shores. Between 1865 and 1877 he began purchasing titles from various landowners until he owned most of land adjacent to Cuffey Cove. Kenny installed several chutes to load cargo onto the shipping vessels. Originally Kenny's mill only shipped split wood but later added bark wood and milled lumber. (Carpenter and Millberry 1914:104-105).

In 1887, L. E. White bought 21 acres near Greenwood bluff, just 2 miles south of Cuffey Cove. White, a prominent businessman and mill owner in the area, was

dissatisfied with the shipping facilities at the cove and bought out Kenny for \$75,000 the same year. He immediately employed surveyors, engineers, sea captains, and wreckers. Shortly thereafter, White purchased huge tracts of land and built a mill dam and a railroad that ran the length of Greenwood Creek and over the divide to Alder Creek. The Greenwood Mill was fully operational by 1890. The mill averaged 60,000 board feet per day but has been known to cut up to 110,000 board feet per day. Nearly 13,000 acres of timber were cut along Greenwood Creek. By 1914, the Greenwood mill was a company town employing over 500 men. The mill town boasted six hotels, six bars, two general stores, two confection stores, a blacksmith shop, a butcher shop, a jewelry store, a livery stable, and a photograph gallery. Three steamers ran continuously from the port to the city, shipping both passengers and freight (Carpenter and Millberry 1914:105-106).

The First Mills in Anderson Valley

Between 1864 and 1904 six lumber mills were built in Anderson Valley. In 1856, John Gschwend built the first sawmill on his homestead along the main fork of the Navarro River. At that time there were no roads leading into the valley. The only access was over the hills and through the mountain by ox-team. Steep mountains required double ox-teams. Gschwend's mill was originally water powered, operating completely by water supplied from the Navarro River. Several years later the mill was converted to a steam powered mill and was supplied with machinery for making dressed lumber. In 1864, a grist mill was added to provide the local community with flour. The mill burnt down in 1875 and was never rebuilt (Carpenter and Millberry 1914:38).

In 1876, The Clow Brothers built a 250-acre (1 km²) mill on the west side of Anderson Valley approximately 4 miles (6.4 km) from Boonville. The mill produced

12,000 board feet of lumber per day. It was in operation for 20 years before it was sold and moved away (Carpenter and Millberry 1914:38). In 1877, Thomas Hiatt built the third mill in Anderson Valley approximately 4 miles (6.4 km) up the valley from Gschwend's mill. The Hiatt mill produced about 8,000 board feet per day. When Hiatt ran out of convenient timber the mill was moved away (Carpenter and Millberry 1914:38). In 1878, a fourth mill was built further down the valley by H.O. Irish. Shortly after it began operating, a fire destroyed the mill.

In 1896, August Wehrspen built a mill in Ornbaun Valley in a detached upland valley near Yorkville. Wehrspen's mill produced 20,000 board feet of lumber per day. Unfortunately, Wehrspen was unable to uphold his contract to produce a specified amount of lumber and lost his mill. The mill was moved to the old Bonnett place west of Boonville and produced 14 million board feet of timber during its lifetime. The mill was still standing in 1914 (Carpenter and Millberry 1914:38-39). In 1904, Bledsoe built a shingle mill on a ridge just east of Anderson Valley in Peachland. His mill ran for about 3 years and produced approximately 20,000 board feet of lumber per day (Carpenter and Millberry 1914:39).

The Northern Pacific Railroad

The Northwestern Pacific Railroad was formed in 1907, with the Southern Division main line running between Tiburon and Willits. During its prime, at least 10 steam powered engines stopped daily in San Rafael, Petaluma, Cloverdale, Hopland, Ukiah and Willits. Passenger and freight traffic increased until the mid 1920's when the popularity of automobiles and freight trucks significantly impacted the railroad industry. Freight traffic continued to decline through the Great Depression but then picked up

again after World War II. After the war, freight trains hauled thousands of car loads of war surplus equipment, some of which was used in the lumber industry. The housing boom after the war also led to a huge demand for lumber from the Redwood Empire. At that time, the Southern Division main line hauled up to four freights daily, each consisting of 100 cars containing lumber, plywood and particleboard from the Northern Division. By 1958, the Southern Division abandoned passenger traffic; however, freight traffic continued until the 1970's when timber supplies began to deplete and freight trucks were on the rise (Codoni and Trimble 2006:27-28).

History of the Galbreath Wildlands Preserve

This section was derived solely from interviews conducted by students from Sonoma State's History Department. Interviews were conducted with the close friends and family of Fred Galbreath. These interviews provide a more recent history of the Preserve since Galbreath bought the property in the 1940's. The complete interview transcripts are available at the Sonoma State University Library. More detailed information about the oral history project is provided in Chapter 6, the methods section of this thesis.

Fred Galbreath

Fred Galbreath (1901-2000) bought his first ranch in Mendocino County on Pearl Harbor Day 1941. He bought his property in rural Mendocino and pursued ranching because he was a country man at heart. Fred's parents raised him to love the great outdoors and to be environmentally conscious. It was his love affair with the animals, the trees and the great outdoors that that brought him to Mendocino.

After high school, Fred worked as an office boy for AF Thane and Company, a business that managed exports for Pacific Lumber who exported all over the Pacific Basin. He later became involved in the marine insurance business in San Francisco, and was asked by Pacific Lumber to handle their ocean cargo exports. It was through his connections in the marine insurance business that he found two partners who were going to help him finance his dream of owning a ranch. On Sunday, December 7, 1941 he went to look at the ranch and to put down a deposit. That was Pearl Harbor Day. The following Monday, his partners backed out of the purchase, saying “no way, we’re at war”. Fortunately he was still able to get financing through the government land bank in San Francisco.

Charlie Hiatt

Charlie Hiatt was Fred’s right hand man on the ranch that is now the Preserve. Hiatt continues to work on the Preserve today for the University. Much of the information in this section was provided through interviews with Hiatt.

Hiatt was born in Healdsburg, California in 194 and currently lives in Boonville. He knew Fred since he was 5 or 6 years old when his father Kay Hiatt worked on Fred’s original ranch. Charlie Hiatt became familiar with the Preserve in 1955 or 1956. He became close with Fred after his father passed away in a logging accident on the Preserve.

Hiatt is also the great-great grandson of Elijah Monroe Hiatt, one of the first settlers in Yorkville. The Hiatts have a long history on the Preserve and the Yorkville area. According to Charlie Hiatt the story goes:

There was a man named York and a man named Hiatt. They were supposedly the first two settlers in town. Both were prominent as far as land holdings go. They decided they would either name the town Hiattville or Yorkville. They flipped a coin and it came out Yorkville (Thompson 2011b:6)

The Yorkville cemetery just across from the Hibbard road entrance has both Yorks and Hiatts buried there. In the 1860s the Hiatts were one of the first sheep ranching families in the area.

Fred's First Ranch

The evolution of Fred Galbreath's land ownership is quite complicated. At one time he had owned approximately 11,000 acres (44.5 km²) on the east side of highway 128, clear to highway 258. He also owned most of the property on both sides of Hibbard Road, up to the gate that is now Nancy Galbreath Johnson's property. Across from Hibbard Road was an old ranch and olive orchard, called the Yorkville Ranch, which was originally the old 1853 Hiatt family homestead. The Yorkville Ranch was Fred's first ranch in Mendocino County. At that time he was just sheep ranching. He had two foremen and two ranch hands who worked for Fred full time. The Andersons, Galbreath's ranch hands, lived in the old Hiatt homestead. All of his staff had houses on the ranch. He sold that portion in 1955 and just kept the preserve area. Kay Hiatt, Charlie's father, also worked at the Yorkville Ranch. He did considerable logging for Fred. In the 1940's and 50's they solely logged Douglas fir. Fred also ran 8,000 to 9,000 head of sheep on this ranch.

Historically, the ranch was a stage stop along a stagecoach road. It was the original location of Yorkville. There was the motel, postmaster's house, post office, another house, a big barn, a shearing shed, chicken coops and a really nice horse barn.

The flood of 1937 took out the post office and filled the house with mud. The post office moved later to its present location and the barn burned down between 1997 and 2002.

Galbreath also owned the house that used to be the old Yorkville Post office plus ten additional acres. He deeded the house to Duane Ornbaun upon his death. Galbreath had another ranch towards Boonville where Helen and Pete Ornbaun lived. It was about 600 acres (2.4 km²) with a small ranch. Galbreath eventually sold it to Pete Ornbaun. Later Ornbaun wanted to retire and borrowed some money against Galbreath to open a motel in Reno. It didn't go well so he moved back to the ranch. Galbreath gave Helen Ornbaun a lifetime estate and never charged her rent to live there. He left the main ranch, 600 acres adjacent to the Preserve, to his daughter Nancy Galbreath Johnson. Besides those properties, the rest is now the Preserve.

The Preserve

In the early 1940's, Galbreath was riding horses with his friend Pete Ornbaun when he saw the ranch, which is now the Preserve and Nancy Galbreath Johnson's property. He told Pete that someday he was going to buy that ranch. That was right before World War II. According to Galbreath, somebody had bought it because back then if you had a son and owned a ranch, you did not have to go to war. After the war, around 1944 or 1945, the original owners of the ranch put it up for sale and Galbreath bought it. He had a hard time coming up with the money so he agreed that the previous owners could hold the timber rights for three years. Galbreath said the men were still cutting timber when he bought it, then winter came, they stopped and the next spring the market fell out so they never came back.

Ranching on the Preserve

Galbreath began his sheep ranching operation on the Yorkville Ranch. He didn't know anything about sheep ranching in the beginning, stating "I bought a book on sheep ranching and held it with my left hand and rode my horse with my right hand, and that's about the way I learned about sheep ranching" (Thompson 2011:2). Galbreath purchased pure-bred Marino sheep from New Zealand during the war. They had to be quarantined in San Francisco. Galbreath's ranch operated with only two ranch hands and two foremen, but during shearing season he brought in five shearers. It took them two weeks to shear 3,000 sheep. The wool they produced was fine quality and was used to make worsted wool coats.

Later, the operation moved to what is now the Preserve and Nancy Johnson Galbreath's property. This ranch had a dry pasture with primarily Harding grass and a little meadow fescue, which was very good forage for the sheep. There was a feeding barn for winter livestock feedings at the back end of the ranch. It was about 1,000 acres (4 km²). Galbreath eventually had to move the sheep out of there because he was unable to keep the predators away. Mountain lions and coyotes took out many sheep.

Charlie Hiatt also ran cattle on the ranch for a little while. According to Hiatt, the ranch had suitable grazing land for cattle, but it was better for sheep. Cattle ranching didn't work well for two reasons. First, the grass was not strong due to the heavy rains and secondly the fences wouldn't keep the cattle in if the pastures were greener on the other side. The cattle also required additional supplementation to their diet of grass which the sheep did not require. Therefore, the sheep were easier to care for and cheaper to maintain.

Timber Harvest on the Preserve

As Galbreath got his start with ranching, it was recommended that he cut all of his fir trees to make room for more grazing land. He stated:

I got government financing, and the one thing they recommended to me when they made the loan on the ranch, was that I cut down all of the fir trees that I could so I would have more grazing land. That was the thinking fifty, sixty, seventy years ago. Get rid of the forest even if the land was poor for grazing, but open it up for grazing. There were several reasons for having the fir cut down. One is, sixty years ago you couldn't use our coastal fir for building because it was so tough when it dried you put a nail in it and the nail would bend and not go through. It wasn't until after the last war that they began to use the fir from Mendocino County for building, using it green, it didn't shrink and it proved to be a good asset as far as building lumber is concerned, when green and not when dry. That revolutionized the Mendocino County fir lumbering operations (Thompson 2011:2).

Galbreath recalls a lumber operation on the property when he bought the ranch. It was run by five brothers, the Cunninghams. According to Galbreath, they were stealing trucks and Caterpillar tractors, bringing them to the ranch, taking off the numbers and reselling them. When he had originally bought the 4,000 acres (16.2 km²), he didn't have the money to buy the trees, so he made a deal with the man who sold him the property. Galbreath owned the land but did not have rights to the timber for the first three years. The man who sold him the property was allowed to take the timber out for the next three years. After that Galbreath would acquire timber rights. He said they were more interested in stealing than in the timber.

There were several other logging operations on the Preserve before Galbreath bought the property. However the history of these operations is vague. Charlie Hiatt, an employee of Fred's, discussed several of them during his interviews. The Hulbert-Muffley lumber mill, located on the south-eastern edge of the property, was in operation from 1947 to 1952. A small logging camp, consisting of several cabins was located at the

confluence of Livingston Creek and Rancheria Creek, near the Rancheria barn. An associated dam and headrig is located in the general proximity of the camp, approximately 300 feet (90 m) to the south. The timeframe of this operation is unknown, but likely during the 1930's and 40's. The remains of a Redwood logging operations lie at the bottom of Saffroni Canyon. These operations were relocated and formally recorded. Several other operations were never found such as a split maker's camp and the old Hiatt livery. More detailed descriptions of the logging sites that were relocated can be found in the results section of this thesis.

Logging Redwoods

Some large redwoods still exist in Saffroni Canyon. According to Charlie Hiatt, Galbreath did a little logging, cutting down dead and dying fir and redwood suckers from second growth redwood. If there was a stump with seven or eight suckers, he would cut down four or five so that in 20 or 30 years he would have two good redwoods rather than a half a dozen bad suckers. Galbreath was not a proponent of logging the redwoods. He was environmentally conscious and only took out what was necessary to keep a healthy forest.

According to Hiatt, early loggers used to cut down redwoods for the heart of the lumber to make fence posts and pickets. Today such wood is used for superior wood paneling. The early loggers cut down redwoods leaving behind logs that were eight to twelve feet (two to four m) in diameter because they were too hard to get out of the canyon. Back then they used steam donkeys to get the wood out, rather than the tractors that are used today. If the loggers didn't use a cushion, the log would likely shatter. Galbreath talked about pulling redwood logs out that were probably 100 years old that

were just left by the loggers. He recalls the wood was still in good condition when he pulled it out.

Before Galbreath owned the property, there used to be a tan oak operation on the Preserve. The bark of the tan oak was used to tan leather. It was said that a team of twenty mule was often seen heading down the hills to Cloverdale. But Galbreath didn't feel that the tan oak had a place on his ranch. The sheep would eat the acorns but didn't like them. He was working on removing the tan oak to allow the redwoods to grow but it was expensive. According to Galbreath, tan oaks and young madrone are nuisances where you have deciduous forest. However, he wanted to see the true oaks (white, black, live) left alone.

On the Preserve, Galbreath mostly logged Douglas fir. Hiatt convinced Galbreath to cut the over-story growth and dead, dying, and diseased trees. At this ranch, Galbreath only had one ranch hand, likely Charlie Hiatt or his father. During the logging season, Galbreath hired a crew. Hiatt says that in the 1960's they used a two man saw, with a man on either side. According to Hiatt, most of the men were Finish. They didn't speak English, but they were great loggers. After World War II, chainsaws came in and revolutionized the business.

Other Activities on the Preserve

Galbreath was very much an environmentalist. He strongly believed in controlling erosion, invasive animal and plant species, and practiced fire suppression. According to Galbreath, erosion was a constant fight for many mountain ranches after heavy rainfall. He was very concerned about erosion control. It was a learn-as-you-go type of situation and Hiatt admits that Galbreath probably caused a little damage with a dam installed on

Rancheria Creek. In the 1990's, Galbreath began to replant willow where he had erosion problems. In one area along the creek where he didn't want to lose irrigated pasture, he brought in a pile driver and drove old steel rails, from the Northwestern Pacific Railroad, into the ground. Then he put wire fencing behind the willows. Galbreath did this for about a ¼ mile (0.4 km), along the treacherous part of the river where there was good bottom soil and an irrigated pasture. That method proved to be very successful for him and saved the pasture. He also put in water bars, culverts and did a lot of mulching. The skid rows created for timber harvesting were all mulched thoroughly.

Galbreath was also a believer in controlled burning. He did a lot of burning of underbrush. It did damage the trees to a certain extent but prevented wildfires. In his talk at Humboldt state, Galbreath noted that these days you can get sued if your fire goes into your neighbors land but back then they would thank you for clearing the land. He also spoke about how the Indians used to burn every summer. They burned to clear the land and to promote fresh growth. After a burn, fresh young green tender sprouts would grow, which attracted the deer. Deer could always be found eating the fresh sprouts where there had been a burn. Galbreath mentions that the Indians were not still burning when he acquired the land.

Galbreath was also an advocate of controlling invasive plant species such as star thistle and keeping the wild pig populations down. In the 1990's, he asked Humboldt State University to do a study and find out if they could control the star thistle without pesticides. According to Galbreath they found that some type of weevil controlled it.

In the 1980's the wild pig populations on the Preserve were out of control. Pigs are great competitors with other wildlife for acorns. Galbreath explained that wild pigs

were once domesticated animals but reverted back to their wild state. In the beginning, he didn't have pigs on his land but they began to take over in the 80's. They were a nuisance. They would eat newborn baby lambs and they would tear up the land with their tusks. The young pigs were also prey for bobcats and mountain lions, which was not good for the ranching business or his grandchildren playing on the property. So Galbreath allowed hunting on the property to keep the pig populations under control.

The previous four chapters provided fairly detailed background about the environment and cultural history of the Preserve. The next chapter will shift to the regulatory context, or more specifically, the environmental laws pertinent to cultural resources that may be applicable for projects taking place on the Preserve.

CHAPTER 5: LEGAL CONTEXT

This chapter provides a brief background about cultural resources management (CRM) as well as important state and federal laws which may be applicable to projects taking place on the Preserve. This chapter first provides definitions and terms of art that hold particular meaning within their legal context. This chapter then provides a brief history of CRM laws, focusing on state and federal laws pertinent to the Preserve. Since the Preserve is a state owned property, this section will primarily focus on CEQA, PRC and the environmental review process for State projects. Although the primary mission of the Preserve is to promote education, research, preservation and stewardship of cultural resources within the Preserve, compliance with legal and regulatory requirements are also of importance here. Despite the good intentions of everyone involved with the Preserve, we can get into hot water when project managers, engineers, university staff, faculty, students, and outside researchers are not fully aware of the laws and regulations relating to cultural resources. Therefore, an important goal of this chapter is to provide information that will assist in educating staff and users of the Preserve of the regulations related to cultural resources.

DEFINITIONS AND TERMS OF ART

The field of cultural resources management (CRM) uses many words and phrases that hold particular meanings within their legal context. Since the law is of particular importance in creating a CRMP, key words and phrases used throughout this text are defined below to prevent confusion. Many of these terms have been defined within various Federal and State laws and regulations and shall be noted where pertinent.

Cultural Resources

Generally speaking, cultural resources can be defined as any building, site, district, structure or object significant in history, architecture, archaeology, culture or science. Many people outside the discipline of CRM assume cultural resources are material, tangible objects; however, according to Thomas King (2008:3), “cultural resources should be understood as those aspects of the environment - both physical and intangible, both natural and built - that have cultural value of some kind to a group of people.”

Unfortunately, defining cultural resources is not so cut-and-dry and there is not one specific law that deals with all types of cultural resources. Rather, there are a variety of laws and regulations that deal with particular kinds of cultural resources. For example, ‘historic properties,’ ‘archaeological sites’ and ‘Native American graves and cultural items’ are each subject to their own special-purpose laws and regulations (King 2008:5). In this thesis, the term cultural resources shall include all resources which ascribe cultural value; regardless of whether they are historical or archaeological, tangible or intangible, significant or non-significant.

Cultural Resource Management

CRM developed out of the need to satisfy regulatory compliance. In fact, most archaeological investigations performed in the United States today are done in response to Federal or State law (Sebastian 2004:4). “The cornerstone of CRM, however, lies in the complex of government laws, policies, and implementing regulations” (Hardesty & Little 2009:8). According to Thomas King (2008:3), “Cultural Resource Management

(CRM) ought to mean managing all of these sociocultural aspects of the environment and all of the contemporary world's impacts on them.”

A cultural resources management plan (CRMP) is typically designed to meet regulatory compliance while assisting with management decisions relating to cultural resources. Ideally, the Preserve's CRMP will promote stewardship and will be in alignment with the mission of the Preserve. It should be a management tool used to: (1) identify and evaluate historical and archaeological resources, (2) reduce or minimize impacts to these resources, (3) educate students, faculty, staff and visitors of the sensitivity of cultural resources, and (4) promote stewardship and preservation of all cultural resources.

Historic Properties versus Historical Resources

When deemed legally significant, cultural resources may be referred to as either *historic properties* or *historical resources* depending on which regulations are applicable. When federal regulations apply, the term *historic property* is used and may include any district, site, building, structure or object that is significant in American history, architecture, engineering, archaeology, or culture. *Historic properties* must be listed on or eligible for inclusion in the National Register of Historic Places and may be significant on a national, state or local level (NPS 1990).

Historical resources, on the other hand, are specific to the California Environmental Quality Act (CEQA). *Historical resources* may include any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant, or significant in other aspects of California life. A *historical resource* must be listed in or eligible for inclusion in the National Register of Historic

Places on the California Register of Historical Resources, designated a historic landmark under local ordinances, or identified as significant in a local survey that meet the Office of Historic Preservation standards (PRC 5024).

Unique Archaeological Resources

A *unique archaeological resource* is another term specific to CEQA that can be defined as an object, artifact or site that meets any of the following criteria:

- (1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- (2) has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- (3) is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC 21083.2).

A BRIEF HISTORY OF CRM LAW

The Antiquities Act of 1906

The Antiquities Act was passed by Congress and signed by President Theodore Roosevelt in 1906. This act was the first federal law passed specifically to protect historic properties by allowing only qualified institutions to conduct archaeological investigations and requiring a permit for all excavations conducted on public lands. The act also gives the President of the United States authority to designate historic landmarks, historic and prehistoric structures, and objects of historic or scientific significance as National Monuments (Hardesty & Little 2009:9, Sebastian 2004:4; 16 USC 431 to 433).

The Historic Sites Act of 1935

In response to the Great Depression, Congress and President Franklin D. Roosevelt passed laws which led to the creation of the New Deal employment programs which were to provide relief, recovery, and reform. Some of the jobs created through the New Deal were the recording of local and state histories, buildings and engineering

features, and archaeological sites. In 1935, the Historic Sites Act was passed, giving authority to the National Park Service to “record, document, acquire, and manage places important in the interpretation and commemoration of the nation’s history” (Sebastian 2004:5).

The Archaeological Resources Protection Act

In 1979, archaeologists worked with Congress to create the Archaeological Resources Protection Act (ARPA) in response to the increased commercial looting in the 1970’s and the difficulty in prosecuting looters under the Antiquities Act of 1906. This act requires a permit for all excavations conducted on Federal or Indian land. This act differs from the Antiquities Act by providing much steeper civil and criminal penalties for any “unauthorized excavations, removal, damage, alteration, or defacement of archaeological resources” (Sebastian 2004:5).

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) was passed in 1990 to allow lineal descendants or culturally affiliated Native American groups repatriation of human remains, funerary objects, sacred objects, and items of cultural patrimony. This act requires federal agencies and federally-funded museums to inventory their collections and report their findings to culturally affiliated groups who may claim such objects if they wish. The act also requires consultation with Native Americans concerning the disposition of human remains, sacred and funerary objects, and items of cultural patrimony found during excavation on federal or tribal land (Sebastian 2004:7).

The National Historic Preservation Act

The National Historic Preservation Act (NHPA) was enacted in 1966, with subsequent amendments, with most recent amendments made in 2006. The NHPA is responsible for establishing several important institutions in the field of CRM: the Advisory Council on Historic Preservation (Council), the State Historic Preservation Officer (SHPO), the National Register of Historic Places (NRHP), and the NHPA Section 106 process (ACHP 2015; 16 USC 470 et seq.).

The Advisory Council on Historic Preservation

The Council consists of 23 statutory designated members who meet four times a year to address policy issues, direct program initiatives, and make recommendations regarding historic preservation. The Council is an independent Federal agency that advises the President and Congress on national historic preservation policy, authorizes grants to states to assist with historic preservation, and participates in the section 106 review process (ACHP 2015; King 2008:19; 16 USC 470(i)-(j)).

The State Historic Preservation Officer (SHPO)

The SHPO was established by the NHPA to provide state liaison officers to administer NPS grants for historic preservation (King 2008:24). There are currently 59 SHPOs, one for each state plus eight additional for Commonwealth and sovereign territories such as Guam and the Virgin Islands. Each SHPO is responsible for a variety of functions such as: conducting statewide inventories of historic properties; nominating properties to the NRHP; maintaining a statewide preservation plan; providing assistance to others; advising local governments, federal and state agencies, and the public;

participating in the NHPA Section 106 process and other reviews; helping local governments with program development; and public education (King 2008:40-41).

The National Register of Historic Places

The National Register of Historic Places (NRHP) is overseen by the National Park Service (NPS) and was established to preserve historic districts, sites, buildings, structures and objects that meet one of four criteria (King 2008). A historic property must meet at least one of the following criteria and retain integrity to be eligible for the NRHP:

- (A) Association with events that contribute to the broad patterns of our history; or
- (B) Association with historically significant people; or
- (C) Embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction; or
- (D) Has yielded, or may yield, information important to history or prehistory.
(36 CFR 60.4)

The Section 106 process

All Federal undertakings that have the potential to affect historic properties must go through the Section 106 process of the NHPA (36 CFR 800.16(y)). An *undertaking* is any project receiving Federal funding, conducted by or for a Federal agency, conducted on Federal land or requiring a Federal permit. The Section 106 process involves the following steps: (1) initiation of the Section 106 process, (2) identification of historic properties, (3) assessment of adverse effects, and (4) resolution of adverse effects.

Initiating the Section 106 Process

To initiate the Section 106 process, the lead Federal agency must first establish if the undertaking has the potential to affect historic properties. The statutory definition for a *historic property* is “any prehistoric or historic district, site, building, structure, or

object included in, or eligible for inclusion in, the National Register of Historic Places” (36 CFR 800.16(l)(1)).

If it is determined that an undertaking may adversely affect a historic property, the lead Federal agency must identify the appropriate SHPO and/or Tribal Historic Preservation Officer (THPO) for consultation regarding adverse effects to historic properties. The lead Federal agency must also identify: Native American groups that attach religious or cultural significance to historic properties, other consulting parties entitled to participate in the Section 106 process, and appropriate points for seeking public input (36 CFR 800.3).

Identification of Historic Properties

The lead Federal agency must first determine the scope of work and then proceed to identify whether potential historic properties fall within the area of potential effects (APE). After reviewing relevant background information and consulting with the SHPO/THPO, potential historic properties falling within the APE must be evaluated for NRHP eligibility. The SHPO makes the final determination of NRHP eligibility for the resource (36 CFR 800.5).

Assessment of Adverse Effects

The lead Federal agency, in consultation with the SHPO/THPO, assesses the potential for adverse effects on historic properties. If it is determined that there will be no adverse effects, then the agency may proceed with the undertaking. If consulting parties are not in agreement, or if it is determined that the undertaking may adversely affect a historic property, the agency must look for ways to avoid, minimize, or mitigate adverse effects (36 CFR 800.5).

Resolution of Adverse Effects

If there is a finding of Adverse Effects, consultation typically results in a Memorandum of Agreement (MOA), a document which outlines an agreement between consulting parties and the lead Federal Agency about how measures will be taken to avoid, minimize, or mitigate adverse effects. Under particularly difficult circumstances, where consultation is unproductive, the ACHP may step in (36 CFR 800.6).

The National Environmental Policy Act of 1969

The National Environmental Policy Act (NEPA) is the broadest environmental law in our nation. It requires all federal agencies to consider all potential environmental impacts before committing to course of action. The purpose of this law is:

To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality (42 USC 4321).

This law was responsible for formally establishing environmental protection as Federal policy and developing an expansive environmental review process for all Federal undertakings that may affect the environment. NEPA considers cultural resources as part of the environment and requires the preservation and maintenance of important cultural, historic and natural aspects of our national heritage, whenever possible (Caltrans 2015b: 1:7).

The California Environmental Policy Act of 1970

The California Environmental Quality Act (CEQA) was modeled after NEPA and requires all state and local agencies to analyze the environmental effects of their actions and then base their decisions on those analyses. CEQA declares:

that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof (PRC 21002).

Any project conducted by a California public agency is subject to CEQA regulations. A *project* is defined as “an activity which may cause either a direct physical change to the environment, or a reasonable foreseeable indirect physical change in the environment” (PRC 21065). The goals of CEQA are to: (1) identify environmental impacts of proposed projects, (2) determine if the impacts will be significant, and (3) identify alternatives and mitigation measures that will reduce or eliminate significant impacts to the environment. CEQA regulations recognize archaeological and historical resources as part of the environment (PRC 21002(b), 21083.2, 21084.1).

CEQA Lead Agency and Delegation of Authority

The Trustees of the California State University (CSU) serve as the CEQA lead agency for all CSU campus projects. Appendix G of the SAUM (n.d.) and the CSU CEQA Handbook (n.d.) provide regulations and procedures adopted by the Trustees to be used for the evaluation of all CSU campus projects and for the preparation of environmental documents. These regulations are consistent with CEQA and comply with guidelines adopted by the State Office of Planning and Research (OPR), part of the governor’s office that undertakes statewide planning and manages the environmental review process under CEQA.

The Trustees delegate authority as CEQA lead to the Environmental Review Hearing Officer for reviewing and making recommendations on all Negative Declarations (ND) and Environmental Impact Reports (EIR). The Trustees also delegate authority to the Assistant Vice Chancellor – Capital Planning Design and Construction (AVC-CPDC) for certain smaller projects and for the review of all NDs and EIRs. Other responsibilities delegated to the AVC-CPDC include ensuring that: appropriate initial studies (IS) are completed, all Categorical Exemptions (CE) and capital projects comply with CEQA regulations, appropriate public agencies are consulted, and public hearings are conducted (SAUM n.d.:5-6).

The AVC-CPDC delegates authority to each University's Campus Facility and Planning Office for the initial review of projects and for determinations of exemptions. Each University's Campus Facility and Planning Office is responsible for ensuring that: appropriate ISs are prepared, all CEs and capital projects comply with CEQA regulations, appropriate public agencies are consulted, public hearings are conducted, and NDs and EIRs are prepared in accordance with CSU CEQA procedures (SAUM n.d.:6-7).

Identification of Environmental Impacts

The first step of the CEQA process is to determine if an action is considered a project under CEQA guidelines. Certain projects may qualify as categorical or statutory exemptions. Statutory exemptions are classes of projects that are not subject to CEQA even if the project may result in significant adverse impacts on the environment. Statutory exemptions may include certain emergency projects, minstrel projects and feasibility and planning studies. Categorical exemptions are classes of projects that have

been determined by the OPR to have no significant effect on the environment. A list of categorical and statutory exemptions can be found in the SAUM (n.d.: Appendix B).

Cultural resources are only one of the many environmental aspects considered when analyzing environmental impacts. The level of environmental document prepared for each project depends on both the level of complexity of the project and the potential for significant impacts to environmental resources (Caltrans 2015a:2:63-64). Below is a listing of environmental document types required under CEQA regulations and the necessity for cultural resource analysis.

Level of Environmental Document	Description	Cultural Resources Analysis Required
Statutory Exemption	Projects excluded from CEQA review.	No*
Categorical Exemption (CE)	Classes of projects considered to have no potential to impact the environment.	No
Negative Declaration (ND)	After study is completed, it is determined that project has no potential to impact the environment.	Yes
Mitigated Negative Declaration (Mitigated ND)	After study is completed, it is determined that project has potential to impact the environment; however, the project is revised to avoid or mitigate significant impacts to the environment.	Yes
Environmental Impact Report (EIR)	After study is completed, it is determined that project has potential to impact the environment. This document provides the public with information regarding potential impacts to the environment, ways to minimize significant effects and alternatives to the project.	Yes

Table 1: Environmental documents required for CEQA process (Adapted from Caltrans 2015a:63-64).

* No studies required unless the resources are State owned.

Determination of Significant Environmental Impact

If a project is not exempt, the lead agency must complete an Initial Study (IS) to identify and evaluate historical resources within the area of direct and indirect impacts. After identifying those resources, it is then necessary to determine if the project will cause a “substantial adverse change” to a historical resource (PRC 5020.1q).

Initial Study

An initial study typically includes first determining the areas of direct and indirect impact to determine areas to focus study on. CEQA regulations encourage early identification of historical resources and require early involvement at the project design stage to allow for plenty of time for project re-design, selection of alternatives, and appropriate mitigation measures, if necessary. For example, archaeological excavations may require an extensive amount of time and planning. Next preliminary research is conducted, typically searching information centers for site records and previous studies, archival data, geographic information systems, historical resources, NRHP, CRHR, etc. Finally a survey is conducted when: (1) any building or structure is present in the project area, regardless of age, integrity, or value, unless previously unevaluated; (2) the area is previously unsurveyed; and/or (3) the previous survey was completed many years ago and information needs to be updated (Caltrans 2015a).

Evaluation of Historical Resources

After the cultural resources study is completed, all potential historical resources falling within the project's area of direct or indirect impact should be evaluated for significance. A resource must be significant at the local, state, or national level under one or more of the following four criteria to qualify as an historical resource:

- (1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
- (2) It is associated with the lives of persons important to local, California, or national history;
- (3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- (4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (PRC 5024.1).

Determination of Impacts to Historical Resources

According to PRC 5020.1q, a “substantial adverse change” to a historical resource is defined as: (1) demolition, (2) destruction, (3) relocation or (4) alteration such that the significance of the resource would be impaired. If evaluation of historical resources within the project’s ADI found the resources to be eligible for the NRHP, the CRHR, or of local significance, then according to CEQA there would be an adverse effect. However, with appropriate mitigation measures, those effects to historical resources could be substantially reduced (Caltrans 2015a: 68).

Identification of Alternatives or Mitigation Measures

The CEQA requires the lead agency to identify and impose feasible project alternatives or mitigation measures to avoid or minimize potential impacts to historical resources. Avoidance or preservation is usually the preferred course of action. The lead agency may also be required to adopt a mitigation monitoring and reporting program to ensure that a treatment plan is followed, historical resources and unique archaeological resources are avoided during construction, or construction is halted when historical resources are discovered (PRC 21081.6, PRC 21083.2).

Public Resources Codes, Sections 5024 and 5024.5

PRC 5024 requires State agencies to prepare inventories of any state-owned historical resources under its jurisdiction and to notify the SHPO regarding projects that have the potential to affect historical resources listed in or eligible for inclusion in the CRHR. PRC 5024.5 requires State agencies to notify SHPO before altering, transferring, relocating or demolishing any State-owned historical buildings or structures listed in or eligible for inclusion in the NRHP (Caltrans 2015a:1:9).

Assembly Bill 52

Assembly Bill 52 (AB-52) was passed in September 2014 and requires the lead agency on state projects to consult with Native American groups and adds a new category of cultural resources to be considered during the environmental review process. The bill requires the lead agency to notify both federally and non-federally recognized Indians affiliated with the geographic area of the project, allowing Native American groups 30 days to request consultation. Consultation may include discussions regarding the type of environmental document necessary, the significance of the resources, the potential impacts of the project, and alternatives or mitigation measures recommended by the Native American groups (Chou 2014).

AB-52 also recognizes a new category of tribal cultural resources to be considered during the CEQA review process. Tribal cultural resources are defined as: “sites, features, places, cultural landscapes, sacred places and objects with cultural value to California Native American groups.” When projects have the potential to cause “substantial adverse change” to significant tribal cultural resources, the environmental document must discuss impacts and feasible alternatives or mitigation measures to avoid or lessen impacts (Chou 2014).

AB-52 also identifies the following mitigation measures to be considered when no agreements can be made between the Native American groups and the lead agency: (1) preservation in place, (2) protecting the cultural character and integrity of the resource, (3) protecting the traditional use of the resource, (4) protecting the confidentiality of the resource, or (5) permanent conservation easements with culturally appropriate management criteria (Chou 2014).

This chapter provided the background on CRM laws and the regulations which may apply to projects taking place on the Preserve, focusing on CEQA regulations as the Preserve will likely only be subject to state laws unless the project will be federally funded. The next chapter discusses the study methods used during prefield research, archaeological survey and the recordation of historic and prehistoric sites within the Preserve. It also discusses two additional methods of research conducted for the Preserve, the oral history project conducted by Sonoma State University's History Department and a GIS-based archaeological predictive model created by the author of this thesis.

CHAPTER 6: STUDY MEHODS

This chapter discusses the study methods used during prefield research, archaeological survey and the recordation of historic and prehistoric sites within the Preserve. After Sonoma State University acquired the Preserve from Fred Galbreath, several studies were conducted on the Preserve as partial fulfillment for this thesis and as part of the early planning process for a field station and observatory to be constructed on the Preserve. This section describes the preliminary research and field methods used for this work. Additional studies described in this chapter include an oral history project conducted by SSU's History Department and an archaeological predictive model for the Preserve.

A preliminary records search was conducted on 10 June 2010. A second records search was conducted 8 April 2011 prior to two subsequent field investigations conducted on 18 April 2011 and 21 through 23 June 2011. The first field investigation was an exercise completed as part of a small projects internship. The second investigation was conducted to determine potential resources that might be impacted by the construction of a field station and observatory within the Preserve. Additional field investigations were conducted on 29 October 2011 and between 20 and 22 April 2012, in order to locate and formally record several historic-era archaeological sites on the Preserve. The methods of these studies are described below.

The oral history project has provided detailed information about the history of the Preserve since Galbreath's ownership of the property in the 1940's. Information from these interviews has been incorporated into chapter 4, the historic background of this thesis, providing important information about the history of the Preserve since Fred

Galbreath bought the property. The oral histories were also helpful in locating several historic-era sites within the Preserve. Interviews with Charlie Hiatt, an employee of Galbreath and long term resident of the area, provided fairly detailed information about the location and function of the sites. Little was known about these sites prior to the oral history interviews.

In the spring semester of 2012, I created an archaeological predictive model in partial fulfillment of Geography 487: Advanced GIS. The objective of this project was to develop, test, and use a Geographic Information Systems (GIS) based predictive model for prehistoric archaeological site locations within the Preserve. While the results of this work did not meet my expectations, the model still proved to be a potentially useful resource for locating archaeologically sensitive areas within the Preserve. This chapter provides a summary of this study.

RECORDS AND LITERATURE SEARCH

Records searches for the Preserve were conducted on 21 June 2010 and 8 April 2011 at the Northwest Information Center (NWIC) of the California Historical Resources Information System in Rohnert Park. The NWIC, an affiliate of the State of California Office of Preservation, is the official state repository of archaeological and historical records and reports for a 16-county area that includes Mendocino County. Additional research was conducted using the files and literature of the Anthropological Studies Center (ASC) at SSU. The record search included a review of all sites and study reports on file within a 1 mile (1.6 km) radius of the Preserve. The records search and literature review for this study were done (1) to determine whether known cultural resources had been recorded within or adjacent to the Preserve; (2) to assess the likelihood of

unrecorded cultural resources based on archaeological, ethnographic and historical documents and literature and on environmental setting of nearby sites; and (3) to develop a context for the preliminary evaluation of identified resources.

Records on file at the NWIC indicated that there were 16 previous studies conducted and seven archaeological sites were recorded within and adjacent to the Preserve. A complete listing of the studies conducted on the Preserve and the sites identified during those studies are shown on Table 2.

Also included in the review were the *California Inventory of Historical Resources* (California Department of Parks and Recreation 1976) and the California Office of Historic Preservation's *Five Views: An Ethnic Historic Site Survey for California* (CA-OHP 1988), *California Historical Landmarks* (CA-OHP 1990), *California Points of Historical Interest* (CA-OHP 1992), and the *Historic Properties Directory Listing* (CA-OHP 2010). The *Historic Properties Directory* includes the National Register of Historic Places and the California Register of Historical Resources, and the most recent listings (through 5 October 2010) of the California Historical Landmarks and California Points of Historical Interest. The review found no cultural resources within the Preserve listed in these inventories.

Historic maps and ethnographic literature were also consulted during this review. The 1884 General Land Office map (US-GLO 1884) depicts two homesteads (the Ledford house and the Livingston house), two historic roads and two trails, indicating a potential for historic-era resources within the Preserve. Ethnographic literature including Barrett (1908), Kroeber (1925), McLendon and Oswalt (1978) and Stewart (1943) was

also consulted. These sources suggest that prehistoric archaeological habitation sites tend to be located in flat areas adjacent to water sources.

THP Number (Project Name)	Study	Date	Cultural Resources	Project Location
1-91-444/MEN (Frog Pond)	S-13374	12/10/91	CA-MEN-2544 CA-MEN-2545 CA-MEN-2546	Oornbaun Valley; T12N, R13W, Sec 25, 26, 35, 36
1-93-319 (Don't Yale)	S-15283 S-15401	05/26/93	CA-MEN-2732	373 acres: Ornbaun Valley; T12N, R13W; Sec 13, 14, 15, 23, 24
1-95-084/MEN (Fio Rito)	S-28495	02/16/95	Negative	265 acres: McGuire Ridge, Zeni Ridge, Gube Mtn; T12N, R14W, Sec 24, 25; T12N, R13W, Sec 19, 30
N/A (Galbreath/Hiatt)	S-16887	02/25/95	Negative	102 acres: Hopland, Ornbaun Valley; T12N, R13W; Sec 13, 14, 24
1-95-261/MEN (Galbreath 2)	S-28735	06/08/95	Negative	291 acres: Yorkville, Big Foot Mtn, Ornbaun Valley; T12N, R12W: Sec 19; T12N, R13W: Sec 12, 13, 14, 24
1-96-284/MEN (Galbreath 4)	S-33762	06/12/96	CA-MEN-2544 CA-MEN-2545 CA-MEN-2546	171 acres: Gube Mtn; T12N, R13W, Sec 25, 26, 35, 36
1-99-160/MEN (Galbreath Sec 14)	S-33338	02/16/99	Negative	28 acres: Ornbaun Valley; T12N, R13W; Sec 11, 14
1-99-235/MEN (Galbreath Sec 13/24)	S-30985	03/04/99	Negative	40 acres: Ornbaun Valley; T12N, R13W, Sec 13, 14, 24
1-99-245/MEN (Galbreath Sec 30 SW)	S-30993	05/10/99	Negative	30 acres: Big Foot Mtn; T12N, R12W; Sec 30, 31
1-00-010/MEN (Galbreath Yale Creek 14/25)	S-25853	02/04/00	Negative	65 acres: Ornbaun Valley, Gube Mtn; T12N, R13W; Sec 14, 25
1-00-057/MEN (Galbreath Barn)	S-26449	02/17/00	Negative	90 acres: Ornbaun Valley; T12N, R13W; Sec 12, 13, 14
1-00-073/MEN (Bell Boy)	S-26468	02/20/00	Negative	72 acres: Gube Mtn, Ornbaun Valley; T12N, R13W, Sec 23, 24, 25
1-00-079/MEN (Galbreath Adams Creek)	S-24713	02/24/00	Negative	45 acres: Ornbaun Valley; T12N, R13W; Sec 14,15
01-01NTMP-056/MEN (Bickell Ranch NTM)	S-27312	11/09/01	P-23-003781	696 acres: Gube Mtn, Bigfoot Mtn; T12N, R13W, Sec 16; T12N, R12W, Sec 31; T11N, R13W, Sec 1; T11N, R12W, Sec 6, 7
N/A (ASC Survey)	N/A	04/02/03	CA-MEN-3256/H	Big Foot Mtn; T12N, R13W, Sec 25
N/A (ASC Survey)	S-16887	10/03/05	P-23-002519/ CA-MEN-3275/H	Gube Mtn; T12N, R13W, Sec 24

Table 2: Previous studies completed at the Preserve.

ORGANIZATIONAL CONTACT

The State of California Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American cultural resources within the Preserve. A search of the Sacred Lands file indicated the presence of two Native American cultural resources (*Kabetsaka wani* and *Meeu*) within sections 18 and 31, respectively. Additionally, a list was provided by the NAHC of Native American individuals and organizations who may have knowledge of potential cultural resources within the Preserve. The following Native American groups were contacted and informed of the studies on the Preserve: the Hopland Band of Pomo Indians, the Cloverdale Rancheria of Pomo Indians, and the Kashaya Pomo. Each organization was sent a formal letter which included the study area description and location map. Each group was asked about known cultural resources within the Preserve, and requested their input and advice. Informal contact and follow-up calls were made but to date no responses have been received.

NEW STUDIES

On 18 April 2011, a cultural resources survey of approximately 7 acres (2,8328 m²) of the Preserve was conducted by the Anthropological Studies Center (ASC) as part of the ASC's Small Projects Management Internship program. The survey area was located in the southwest corner of the Preserve, within sections 25, 26, 35 and 36 of Township 12 north, Range 13 west, as depicted on the USGS 7.5-minute Ornbaun quadrangle (Figure 9). This 7 acre (2,8328 m²) area was chosen at the request of Claudia Luke, the Director of SSU Preserves, prior to planning the construction of a proposed field station.

The fieldwork consisted of an intensive pedestrian survey conducted in 15 to 50 feet (5 to 15 m) linear transects through moderate to densely forested areas. Rakes and hoes were used to scrape thick layers of duff under the tree canopy to reveal the ground surface. Surface visibility varied from little or none in densely forested areas, wetlands and areas with dense grasses, to complete surface visibility in and around roads and areas of bare soil. Soil disturbances created by wild boar and other animals offered some ground visibility and were checked for cultural materials. During this study, one prehistoric site (CA-MEN-2544) was relocated and site records were updated, and two prehistoric isolates (one obsidian flake and one obsidian biface) were identified and their UTM coordinates recorded.

Between 21 and 23 June 2011, a cultural resources survey of approximately 65 acres (2.6 m²) of the Preserve was conducted by ASC personnel. The survey area was located within Sections 25, 26, 35 and 36 of Township 12 North, Range 13 West, as depicted on the USGS 7.5-minute Gube Mountain quadrangle and Section 31 of Township 12 North, Range 12 West as depicted on the USGS 7.5- minute Bigfoot Mountain quadrangle (Figure 9). This study area, including approximately 3.5 miles (5.6 km) of access roads, was chosen as an advance planning tool in connection with the proposed construction of a field station and observatory at the Preserve. The purposes of the study were (1) to refine the boundary of archaeological site CA-MEN-2544, (2) to update existing site record forms for CA-MEN-2545 and CA-MEN-2546, and (3) to identify any additional prehistoric or historic-era archaeological resources within the study area.

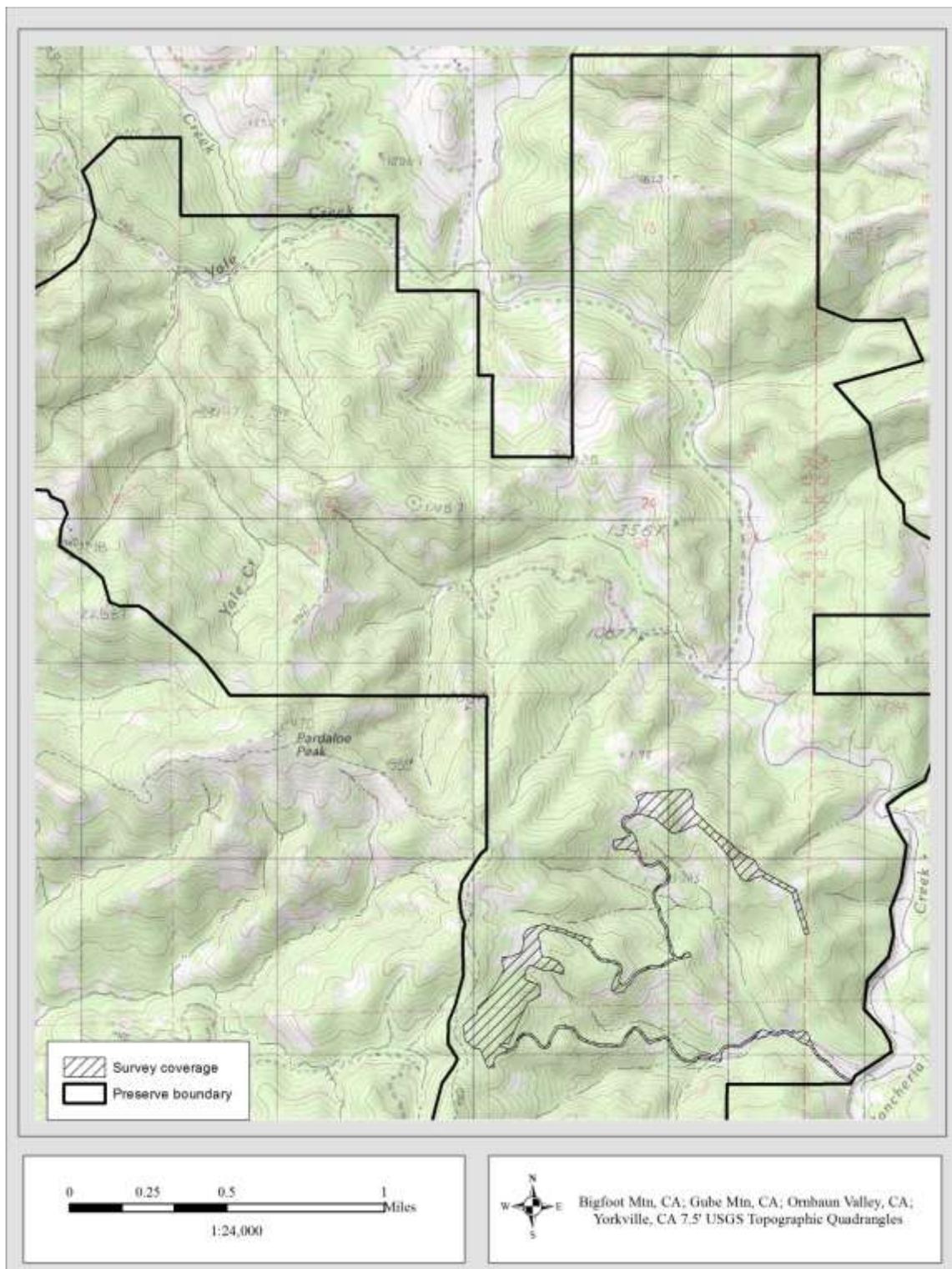


Figure 9: Areas formally surveyed during 2011 and 2012 fieldwork.

ASC personnel revisited the proposed field station location in order to survey an expanded area of the proposed field station location and to refine the boundary of archaeological site CA-MEN-2544. The northern portion of the site was systematically surveyed at approximately 15 to 20 feet (5 to 7 m) intervals. Crew members used shovels and hoes to scrape approximately 20 by 20 inches (50 by 50 cm) of tree duff and debris from the surface of the soil every 15 feet (5 m). Two additional artifacts were identified within this portion of the site.

Approximately 3.5 miles (5.6 km) of access road from the entrance gate to the proposed observatory turnout was surveyed with a 40 feet (12 m) wide corridor, centered on the road centerline. All flat areas immediately adjacent to the access road were also examined for cultural materials. Additionally, three bridges along the access road were assessed for historical significance. The proposed facility footprint for the observatory measures 65 by 85 feet (20 by 25 m). Two possible locations for the observatory were surveyed, each including a 100 feet (30 m) buffer. An old logging road that would be used to access the observatory site was also surveyed. The logging road was surveyed with a 100 feet (30 m) wide corridor, centered on the road centerline.

ADDITIONAL WORK

On 26 September 2011, archaeologist Stacey Zolnoski and historian Matt Thompson visited the field in an attempt to relocate several historic-era sites identified during the oral history project described below. Several sites were relocated on this visit but none were formally recorded at this time.

On 11 October 2011, the ASC Site Survey Internship led by Kate Erickson, recorded the Livingston Creek Mill Work Camp. Although no formal survey was

conducted, crew members spread out to identify site boundaries and determine features within the site. Fence lines, roads, and features were recorded with a Trimble GPS unit. DPR records were completed and extensive photos were taken of this site.

From 20 May to 23 May 2012, archaeologist Stacey Zolnoski recorded eight archaeological sites (GWP-42012-01 through GWP-42012-08). A Trimble GEOxt GPS unit was used to locate sites and record site boundaries, features, and artifacts. Extensive photos were taken and DPR forms were used to record sites. Seven sites and three isolated artifacts were recorded.

ORAL HISTORY PROJECT

In the spring of 2011, six graduate students from the Sonoma State University History Department participated in an oral history project on the history and land use of the Galbreath Wildlands Preserve as partial fulfillment of History 500: The Art and Craft of History under the supervision of Steve Estes, Professor of History. This project involved conducting interviews with four members of Fred Galbreath's family and three of his long-term friends. Each student was responsible for arranging a meeting and conducting an interview with their assigned interviewee. Prior to each interview, each interviewee was asked to sign an informed consent agreement allowing the University Library and the Galbreath Wildlands Preserve to make the materials available to other people with permission.

Each interview was either recorded in audio or video format. Each interviewee was asked a standard set of interview questions provided by Professor Estes. Each interview was then transcribed by the students and submitted as partial fulfillment of the class. Additional follow-up interviews and the transcription of Fred Galbreath's 1995

presentation at Humboldt State University were conducted in the summer of 2011 by graduate student Matt Thompson.

The results of these interviews have been used to reconstruct the more recent history of the Preserve since 1944 when Fred purchased the property. Much of this information has been incorporated into the historic background portion of this thesis in chapter four. Additional information, provided by Charlie Hiatt, was used to relocate several historic sites on the property and has been incorporated into the archaeological site records and site descriptions in the results portion of this thesis. See Table 3 for a listing of Galbreath's friends and family members who participated in the interviews.

Interviewee	Relationship to Fred (Years Acquainted)	Profession and/or Affiliation with Preserve	Interviewer
Fred Galbreath	N/A	Previous owner of Preserve	1995 Presentation at Humboldt State University - transcribed by Matt Thompson (2011)
Charlie Hiatt	Friend and Employee (1955)	Logging/Ranch hand on Preserve	Thomas Eddy (April 2011) Matt Thompson (July 2011)
Bob Johnson	Friend and Son in Law (1953)	Agriculture and ranching/ Visitor to property	Karl Byrn (April 2011) Matt Thompson (August 2011)
Nancy Galbreath Johnson	Daughter	Family outings and camping	Christopher M. O'Sullivan (April 2011)
Duane Ornbaun	Friend	Sheep ranching/ Visitor to property	Garrett Morrow (May 2011) Christopher M. O'Sullivan (April 2011)
Nina Hyatt	Granddaughter	Family outings and camping	Colin Close (April 2011)
John and Brenda Blom	Friends (since the 8 th grade)	Shipping/ Visitor to property	Matt Thompson (August 2011)
Nany Levensaler (Pickles)	Friend	Lived in house on property	Matt Thompson (April 2011)

Table 3: Oral history project interviews.

ARCHAEOLOGICAL PREDICTIVE MODEL

A GIS-based predictive model for prehistoric archaeological site location within the Preserve was created by the author during the 2012 spring semester in partial fulfillment of Geography 487: Advanced GIS.. The objective of this project was to develop, test, and use a Geographic Information Systems (GIS) based predictive model for prehistoric archaeological site locations within the Preserve. A weighted map-layer approach was used to determine the likelihood of site presence within the Preserve. Four independent variables (slope, distance to water, solar radiation, and vegetation) were selected to predict the location of prehistoric seasonal hunting and food-processing sites. At the time of the study, there were only seven known prehistoric archaeological sites within the Preserve. The goal of this research was to determine if it was possible to predict prehistoric site locations with at least 80 percent accuracy using a deductive model derived solely from environmental variables.

A Background on Predictive Modeling

The goal of predictive modeling is to predict the value of a dependent variable in unsampled areas using one or more independent variables that are derived from the quantitative assessment of known site locations in sampled areas (Conolly and Lake 2006:179). According to Kvamme (1990:261), an archaeological predictive model can “be regarded as an assignment procedure, or rule, that correctly indicates an archaeological event outcome at a land parcel location with greater probability than that attributable to chance.” Predictive models are both practical and economical. They can be quite useful for planning and management by highlighting areas of high sensitivity which might be encountered during development or construction. Areas that are likely to

contain sites can be avoided, saving money on mitigation measures that may be required by law.

Archaeologists routinely deal with spatial and temporal data; therefore, the application of a GIS is particularly well-suited for archaeological investigations. A GIS is a set of computer-based applications that allow the acquisition, storage and manipulation of spatial data (Wheatly & Gillings 2002: 1). Several benefits to using GIS applications in archaeology include: (1) cost-effectiveness (2) ease in analyses of large datasets, (3) the acquisition of free, digital-based spatial and environmental data, (4) provide new theoretical approaches to analyzing data, and (5) the ability to produce multi-layered and multi-dimensional maps.

Despite the benefits, the use of predictive modeling in archaeology has received criticism. Predictive models are both methodologically and theoretically controversial (Wheatly & Gillings 2002: 166). Some scholars argue that they do not tell us any more than we already know. Scholars who focus strictly on environmental variables are accused of environmental determinism, an argument which questions the extent that the environment has had in determining past human activities. While environmental variables are thought to influence human choice in the placement of prehistoric sites, it must be recognized that they are not the only variables that influence decision-making. Social variables (i.e., ideologies, cultural values, superstitions) also influence human choice; however these variables are extremely difficult to test.

There is no specific method used in predictive modeling; rather there are a range of approaches to a specific problem. Archaeological predictive modeling predates the widespread use of GIS. In the 1970's and 1980's various US government agencies

became interested in predicting archaeological site locations for large regions (Wheatly and Gillings 2002: 165-166). In 1988, the U.S. Bureau of Land Management published a seminal work (Sebastian and Judge 1988) of archaeological studies that involved predictive modeling conducted on public lands. This volume contains pertinent discussions about various methods, results and problems faced with predictive modeling.

Archaeological predictive models can be either deductive (theory-driven) or inductive (data-driven). However, most archaeologists acknowledge that the two are not entirely independent. Data are typically collected within a theoretical context while theory is often based upon empirical observations (Wheatly and Gillings 2002:166). While deductive modeling is inherently biased by inference, inductive modeling is also flawed in that statistics cannot always account for human choice. Therefore, a combination both deductive and inductive reasoning is necessary.

One approach to archaeological predictive modeling is the weighted-map layer approach (Brandt et. al., 1992; Dalla Bona 2000). Several reasons for choosing this method include: (1) testing a particular theoretical approach or hypothesis, (2) limited data for known archaeological site locations, (3) restricted access to lands for survey and testing, (4) disturbed archaeological sites, subsurface archaeological deposits or other visibility issues, and (5) independent variables are categorical (i.e., soil, geology, vegetation type) in nature.

Predictive Modeling of the Preserve

The predictive model for the Preserve uses a weighted map-layer approach. This method was chosen for several reasons: (1) there is limited data for archaeological site locations; therefore, it is not realistic to create a statistical model; (2) the terrain is

predominantly steep and difficult to survey; (3) the Preserve is heavily forested with several inches of tree duff covering the ground making visibility difficult; and (4) at least one independent variable is categorical. This model is primarily inductive in nature because the ranks and weights of the independent variables are based upon the author's knowledge of the study area. This study was meant as a starting point and as more data becomes available, it may be possible to create a more sophisticated spatial and statistical analysis.

The Variables

The objective of the predictive model is to determine the likelihood that prehistoric sites are present within particular areas of the Preserve based upon specific environmental variables. One dependent variable (archaeological sites) and four independent (environmental) variables were selected for this study. Independent variables include: slope, solar radiation, vegetation, and distance to water. Most prehistoric archaeological sites in the North Coast Ranges of are found in flat areas near water, thus, variables of slope and hydrology will weigh more heavily in the analysis. Other factors may also contribute to site location, though these factors are harder to predict. Vegetation was chosen with the expectation that sites should be located in or near oak woodlands for two reasons: (1) oak trees produce acorns, a staple food source for the Central Pomo, and (2) acorns comprise more than 40 percent of a deer's diet in the fall season in Mendocino County (U.C. Berkeley 2012). Solar radiation measures the amount of sunlight an area receives in a given year. This variable was chosen because longer daylight sunlight would provide optimal visibility and temperature for this densely forested area. Solar radiation is measured in Watts/meter². This function in ArcGIS has the ability to measure solar

radiation for any given year which is useful for this study. Considering that these variables each have different levels of importance to site location and reliability, each variable was weighted accordingly in the model. The most important variables, slope and distance to water, each weighed 40 percent and solar radiation and vegetation each weighed 10 percent. This model results in areas of higher and lower probability of containing archaeological sites.

Results

Five of the seven known archaeological site locations within the Preserve, fell within the very high probability to moderate probability areas. The remaining two sites fell within the very low probability areas. The overall accuracy of site prediction for this study was 71.4 percent. This model was then tested on another dataset for archaeological sites in the vicinity and received similar results with an accuracy of 66.6 percent. While these results do suggest that the model is capable of predicting site locations with greater accuracy than random chance, it did not meet the goal of the study.

In an attempt to understand these results, the descriptive data provided with the archaeological site records were consulted again. Both of the sites that fell within very low probability areas were initially recorded with approximate UTM coordinates. When these site locations were compared with aerial photography, it became apparent that the actual site locations were probably about 500 feet (150 m) southeast from the data provided in the site records. This determination was based upon the location of access roads and clear cut areas visible within the aerial maps, likely the same areas that were studied for the timber harvest plans. Also, one of the aforementioned site records

describes the presence of a spring adjacent to the site. This information was not present in the hydrology layer.

Considering that this model was meant to be the first stage of archaeological predictive modeling for the Preserve, it proved to be quite successful despite that it did not have the desired results. For the purposes of this thesis, the current model can be used to determine general cultural sensitivity within the Preserve. The model may also assist in future planning. Ground disturbing activities taking place in culturally sensitive areas will require more focused attention. The complete study, including detailed methods and results, can be found in Appendix A.

This chapter discussed methods for prefield research, archaeological survey and site recordation. It then discussed two additional methods useful in locating historic and prehistoric sites, oral history and predictive modeling. The next chapter provides the results of the field surveys and includes brief descriptions and preliminary evaluations for each archaeological site formally recorded for this thesis.

CHAPTER 7: STUDY RESULTS

This chapter provides a brief description and preliminary evaluation for each of the twelve sites (Figure 10) recorded within the Preserve. Each site description includes the location of the site, the date it was recorded and the cultural constituents which make up the site. Preliminary evaluations were made based upon Criterion 4 of the CRHR only; however, each site may also be eligible under Criteria 1 through 3 with further research. Data potential, under Criterion 4, has been assessed based upon the presence of historic or prehistoric artifacts that have the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Historic artifacts can provide important information about the date, method, and location of the resource that was manufactured. These markers include, but are not limited to: bottle glass color, seams, manufacturing scars, maker's marks, labels and serial numbers; can size, welds and openings; ceramic design, shape, decals, paints, enamels and maker's marks; and machinery parts with serial numbers. A collection of historic artifacts can provide a relative date for the site as well as important information about the lifestyle, class, diet and activities of the people who occupied the site. Likewise many prehistoric artifacts can be analyzed through an array of quantifiable scientific techniques including obsidian hydration, radiocarbon dating, x-ray florescence testing, sediment floatation, and pollen and faunal studies. These analyses can also provide a relative date for the site and important information regarding the lifestyle, resource procurement, hunting technologies, and diet of those who occupied the site in prehistoric times.

In order to be eligible for the CRHR, a site must meet one of the four criteria for evaluation and maintain integrity (36 CFR 60.4). The integrity of a site should not be confused with the site's condition. Although the condition of the site may impact its integrity, the two are not necessarily synonymous. There are seven aspects, or qualities that, in certain combinations, define integrity. These aspects include integrity of location, design, setting, materials, workmanship, feeling, and association. The *location* is the place where the resource was constructed or the place where the historic or prehistoric event occurred. The *design* is the combination of elements that create the form, plan, space, structure, and style of the resource. The *setting* is the physical environment of the resource. The *materials* are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form the resource. *Workmanship* is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. The *feeling* is the resource's expression of the aesthetic or historic sense of a particular period of time. *Association* is the direct link between an important historic event or person and the resource (NPS 2002:44-45).

Aspects of integrity should be used in conjunction with the particular criteria that is being used to assess the site's significance, as certain aspects are more applicable depending on the criteria applied. Most aspects of integrity are best applied to built-environment resources; however, several aspects can be applied to historic and prehistoric archaeological sites. Typically prehistoric archaeological sites are evaluated under Criterion D and integrity is determined by the site's potential to yield important information or to answer particular research questions. While environmental processes

Confidential Information has been removed from the redacted version of this thesis.

Figure 10: Formally recorded sites in the Preserve.

and disturbances related to human activity can significantly alter a site's condition over time, subsurface deposits are often found intact; thus, a site can still maintain integrity in its potential to provide important data.

Site Descriptions with Preliminary Assessments

CA-MEN-2544 (update)

This prehistoric site was originally recorded by Mark Gary in 1991 as part of the archaeological review for Timber Harvest Plan 1-91-44-MEN. During his survey of the project area, he discovered two additional sites (CA-MEN-2545 and CA-MEN-2546) also in the Preserve. CA-MEN-2544 is located at the southwestern quarter of the Preserve. Gary described the site as a sparse lithic scatter measuring 80 feet (25 m) N/S by 165 feet (50 m) E/W immediately adjacent to a natural pond. The site consists of chert and obsidian artifacts and debitage. One obsidian scraper and three utilized flakes were collected by Gary.

The site was revisited by ASC staff in June 2011 during an intensive foot survey. Site boundaries were expanded to approximately 700 feet (215 m) N/S by 820 feet (250 m) E/W. The new survey identified approximately 60+ obsidian and chert flakes, two lanceolate shaped projectile points, five bifaces, one core, and one milling slab fragment. Due to poor ground visibility in densely vegetated areas, artifacts were primarily observed in the disturbed roadbed.

Preliminary Eligibility Assessment

CA-MEN-2544 is a fairly large lithic scatter containing eight obsidian artifacts and one piece of groundstone. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the prehistory of California. Due to the

site's close proximity to several Central Pomo village sites documented by ethnographer Barrett in 1908, this site may be an outlying seasonal resource procurement camp associated with one of the larger villages of the *Danō'keya*. Very little is currently known about this group. The site contains surface artifacts that can be analyzed through obsidian hydration, radiocarbon dating, x-ray fluorescence testing, and sediment floatation. It is also likely that subsurface deposits are intact in portions of the site. While there has been some disturbance to the site due to logging, animal activity, artifact collecting and its proximity to the road, which may have altered the condition of the site, the site maintains integrity of location, setting, materials and its potential to provide important information about the prehistory of California, specifically the Central Pomo people of Mendocino County.

CA-MEN-2545 (update)

This prehistoric site was originally recorded by Mark Gary in 1991 as part of the archaeological review for Timber Harvest Plan 1-91-44-MEN. During his survey of the project area, he discovered two additional sites (CA-MEN-2544 and CA-MEN-2546). CA-MEN-2545 is located at the southwestern quarter of the Preserve. Gary described the site as a sparse lithic scatter measuring 165 feet (50 m) N/S by 65 feet (20 m) E/W situated in a grassy area adjacent to a man-made pond constructed at a natural spring. The site consists of chert and obsidian artifacts and debitage. Five Konocti obsidian flakes were collected by Gary.

The site was revisited by ASC staff in June 2011 during an intensive survey. Site boundaries were expanded to approximately 820 feet (250 m) N/S by 490 feet (150 m) E/W. The new survey identified approximately 100+ obsidian and chert flakes, two

obsidian projectile points, two bifaces, one core, one flake tool and one handstone. Due to poor ground visibility in densely vegetated areas, artifacts were primarily observed in the disturbed roadbed.

Preliminary Eligibility Assessment

CA-MEN-2545 is a fairly large lithic scatter containing six obsidian artifacts and one handstone. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the prehistory of California. Due to the site's close proximity to several Central Pomo village sites documented by ethnographer Barrett in 1908, this site may be an outlying seasonal resource procurement camp associated with one of the larger villages of the *Danō'keya*. Very little is currently known about this group. The site contains surface artifacts that can be analyzed through obsidian hydration, radiocarbon dating, x-ray fluorescence testing, and sediment floatation. It is also likely that subsurface deposits are intact in portions of the site. While there has been some disturbance to the site due to logging, animal activity, artifact collecting and its proximity to the road, which may have altered the condition of the site, the site maintains integrity of location, setting, materials and its potential to provide important information about the prehistory of California, specifically the Central Pomo people of Mendocino County.

CA-MEN-2546 (update)

This prehistoric site was originally recorded by Mark Gary in 1991 as part of the archaeological review for Timber Harvest Plan 1-91-44-MEN. During his survey of the project area, he discovered two additional sites (CA-MEN-2544 and CA-MEN-2545). CA-MEN-2546 is located at the southwestern quarter of the Preserve. Gary described the site as a sparse lithic scatter measuring 80 feet (25 m) N/S by 165 feet (50 m) E/W

immediately adjacent to a natural pond. The site consists of chert and obsidian debitage, groundstone, the base of a stemmed projectile point, and an obsidian biface fragment. Gary collected both the biface and the projectile point.

The site was revisited by ASC staff in June 2011 during an intensive survey. ASC staff had difficulty relocating the site. The original coordinates and location map did not match. Only one obsidian flake and one obsidian biface were observed in the vicinity of the coordinates provided. It is likely that these artifacts washed down the steep slope from site CA-MEN-2545.

Preliminary Eligibility Assessment

Based upon the current site information, CA-MEN-2546 is an isolated find and is likely out of context. However, it is highly likely that the coordinates provided in the original site record were inaccurate. If CA-MEN-2546 is found, the site record will need to be updated and the site will need to be reassessed. The site cannot be evaluated.

CA-MEN-2732

This prehistoric site was recorded by Joseph Cinek in 1993 as part of the archaeological review for Timber Harvest Plan 1-91-319-MEN. CA-MEN-2732 is located in the northwestern quarter of the Preserve. Cinek described the site as a small prehistoric camp measuring 100 feet (30 m) N/S by 230 feet (70 m) E/W in the vicinity of several springs. The site consists of a small scatter of chert and obsidian debitage, three handstones, one handstone fragment, a large milling slab, a milling slab fragment, a chert scraper, and the mid-section of an obsidian projectile point.

On 22 May 2012, the author attempted to find the site. The area was highly disturbed from timber harvest, skid rows and staging areas. No archaeological materials were found. All artifacts may have been collected prior to timber harvest.

Preliminary Eligibility Assessment

CA-MEN-2732 was originally described as a small prehistoric camp consisting of two obsidian tool and six pieces of groundstone; however no artifacts were found upon revisiting the site. Current information suggests that this site is not eligible under Criterion 4 for its potential to yield important information about the prehistory of California, as there are no remaining surface artifacts. The site has been highly disturbed by logging activities and appears to lack integrity of location, materials and data potential. While most of the site appears to have been significantly disturbed by logging operations and heavy equipment, portions of the site may still contain intact subsurface deposits. Therefore, subsurface testing may be warranted to determine the potential for buried deposits. If buried deposits are found, the site will need to be reassessed.

CA-MEN-3256/H (P-23-004084)

This multicomponent site was recorded by Michael Konzak in 2003. The site is located in the northeastern quarter of the Preserve and was described by Konzak as an artifact concentration containing historic, protohistoric and prehistoric artifacts. The site measures 295 feet (90 m) N/S by 245 feet (75 m) E/W and is situated on a ridge just above Rancheria Creek. The historic component consists of 41 fragments of olive green glass, two fragments of aqua glass, one fragment of solarized glass, one fragment of white improved earthenware (WIE), and remnants of an iron pan. Protohistoric components consist of eight pieces of modified bottle glass. Prehistoric components

consist of two chert cores, one obsidian core, 29 chert and obsidian flakes, one handstone, and one obsidian projectile point. One bone fragment of unknown origin was also found. The site may be one of the settlements identified in Barrett's (1908) ethno-historical study which identified several Central Pomo village and camp sites along Rancheria Creek.

Preliminary Eligibility Assessment

CA-MEN-3256/H is a multicomponent site encompassing prehistoric, protohistoric, and historic-era components. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the history and prehistory of California. The 1880 GLO map places the Livingston homestead in the vicinity of this site. This site is also fairly close to three recently documented historic-era sites, the Livingston Creek Mill site, the Livingston Creek workcamp and CA-MEN-3275/H. The site contains surface artifacts that are datable and may contain buried features such as privies and building foundations. Therefore, this site may provide important information about the lifeways of those living and/or working in the forest of Mendocino in the late nineteenth to mid-twentieth century.

Due to the site's close proximity to several Central Pomo village sites documented by ethnographer Barrett in 1908, this site may be an outlying seasonal resource procurement camp associated with one of the larger villages of the *Danō'keya*. Very little is currently known about this group. The site contains surface artifacts that can be analyzed through obsidian hydration, radiocarbon dating, x-ray fluorescence testing, and sediment floatation. It is also likely that subsurface deposits are intact in portions of the site. While there has been some disturbance to the site due to logging, animal activity,

and artifact collecting, which may have altered the condition of the site, the site maintains integrity of location, setting, materials, feeling and its potential to provide important information about the history and prehistory of California.

CA-MEN-3275/H (P-23-002519)

This multicomponent site was originally recorded by Lee Susan in 1995. CA-MEN-3275/H is located in the northeastern quarter of the Preserve. Susan described the site as a low density lithic scatter consisting of obsidian flakes and one obsidian projectile point.

In 2005, the site was visited by SSU graduate student Ben Elliot who recorded additional prehistoric and historic components. The site measures 65 feet (20 m) N/S by 200 feet (60 m) E/W. Prehistoric components include eight chert flakes, two obsidian flakes, one obsidian biface fragment, and one handstone. Historic-era artifacts include five fragments of white improved earthenware (WIE), olive and clear bottle glass fragments, wire fencing material, and a collapsed building (Feature 1). This feature, which may be associated with sheep ranching, has collapsed into a seasonal tributary to Rancheria Creek. Remnants of the building include various shapes and sizes of wooden boards, wire headed nails, and wire roofing nails. The design and dimensions of the building were not recorded.

Preliminary Eligibility Assessment

CA-MEN-3275/H is a multicomponent site encompassing both prehistoric and historic-era components. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the history and prehistory of California. The 1880 GLO map places the Livingston homestead in the vicinity of this site. This site

is also fairly close to three recently documented historic-era sites, the Livingston Creek Mill site, the Livingston Creek workcamp, and CA-MEN-3256/H. The site contains surface artifacts that are datable and may contain artifact-filled buried features such as privies, as well as building foundations. Therefore, this site may provide important information about the lifeways of those living and/or working in the forest of Mendocino in the late nineteenth to mid-twentieth century.

Due to the site's close proximity to several Central Pomo village sites documented by ethnographer Barrett in 1908, this site may be an outlying seasonal resource procurement camp associated with one of the larger villages of the *Danō'keya*. Very little is currently known about this group. The site contains surface artifacts that can be analyzed through obsidian hydration, radiocarbon dating, x-ray fluorescence testing, and sediment floatation. It is also likely that subsurface deposits are intact in portions of the site. While there has been some disturbance to the site due to logging, animal activity, and artifact collecting, which may have altered the condition of the site, the site maintains integrity of location, setting, materials, feeling and its potential to provide important information about the history and prehistory of California.

P-23-003781 (Outside Preserve Boundary)

This prehistoric site, also known as Bickell Ranch, was recorded by Lee Susan in 2001. The site lies just outside the Galbreath Wildlands Preserve boundary near the southeast entrance. Susan describes the site as a prehistoric lithic concentration situated on an alluvial flat adjacent to the confluence of two watercourses associated with Rancheria Creek. Components include obsidian and chert flakes, a projectile point fragment and broken groundstone artifact.

In 2002, archaeologist Charles Whatford reexamined the site and found an abundance of fire-affected rock and a dark-brown midden. Whatford suggested that these additional components indicate that the site is a seasonal camp not a sparse lithic scatter as previously described. Whatford identified the site as eligible; however, it is unknown if this site was formally evaluated.

The Livingston Creek Mill Work Camp (ASC-01-11-02)

This site is a historic-era residential work camp associated with logging, located along Rancheria Creek, near the confluence of Livingston Creek and Rancheria Creek in the northeastern quarter of the Preserve. The site consists of historic artifact concentrations, several fruit trees and five historic features. One prehistoric chert projectile point was found in a drainage adjacent to the site. Three other sites containing historic-era artifacts (CA-MEN-3256/H, CA-MEN-3275/H and the Livingston Creek Mill) may be associated with this site.

According to Charlie Hiatt, there was once a row of 12 or 13 mill cabins at this location. Charlie noted that several people who lived in the mill houses now live in Boonville. The Pardinies, Haskins and other families lived and worked at the mill.

Cultural constituents consist of several historic-era artifact deposits associated with milling and more recent ranching activities. The site consists of five main features and scattered artifacts. Feature 1 is a collapsed structure and associated debris. Collapsed debris includes: wooden boards of various size and thickness, steel and u-shaped nails, cans, amber glass bottles, and metal fragments. Feature 2 is a large artifact concentration consisting of: historic-era glass fragments, cans, abalone shell, wood, and metal fragments. Feature 3 is a large, rectangular depression measuring 16 feet (5 m) N/S by 14

feet (4 m) E/W situated in a large flat area. Associated artifacts include glass bottles, ferrous metal fragments, remnants of rubber, and a large oak tree containing a wooden beam and large gauge wire. Feature 4 consists of a depression, several apple trees and a small artifact concentration. Feature 5 is a large flat terrace and artifact concentration along Rancheria Creek. It is unclear whether the terrace was used to house buildings or used as a staging area. Artifacts include: car parts, a car tire, a gas tank, a box spring, glass bottles, coffee cans, and old shoes.

Preliminary Eligibility Assessment

The Livingston Creek Mill work camp consists of several historic-era artifact deposits and five features. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the history of California. The 1880 GLO map places the Livingston homestead in the vicinity of this site. This site is also fairly close to three recently documented historic-era sites, the Livingston Creek Mill site, CA-MEN-3256/H and CA-MEN-3275/H. The site contains surface artifacts that are datable and may contain buried features such as privies and building foundations. Therefore, this site may provide important information about the lifeways of those living and/or working in the forest of Mendocino in the late nineteenth to mid-twentieth century.

This site may be eligible under Criteria 1, association with an event contributing to local or regional history and/or Criterion 2, association with a person important to local or California history; however, more research should be conducted by a qualified historical archaeologist to make this determination.

This site does not appear to be eligible under Criterion 3, as it does not appear to represent the distinctive characteristics of a type, period, region or method of construction

or the work of a master, possessing high artistic values. While the site may hold some integrity with respect to location, setting, materials, and feeling, it lacks integrity of design and workmanship as the structures have all been removed. However, the integrity of this site, under Criterion 3, should be assessed by a qualified architectural historian before a final determination is made.

The Hulbert Muffley Sawmill (GWP-42012-01)

This historic-era site is the remains of the Hulbert Muffley Sawmill which was in operation from 1947 to 1952. This site is situated at the confluence of Rancheria Creek and an unnamed stream channel. The site is located in along Elkhorn Road, immediately adjacent to the southeastern entrance to the Preserve. The site measures approximately 500 feet (150 m) N/S by 375 feet (115 m) E/W and contains eight historic features.

Feature 1 is the concrete foundation of the sawmill. The building measured approximately 54 feet (16 m) N/S by 54 feet (16 m) E/W. Feature 2 is the depression where the refuse burner once sat. Feature 3 consists of metal fragments, metal barrels filled with cement, and various other materials likely associated with the remains of the burner structure. Feature 4 is a rectangular depression where another structure likely sat. Feature 5 is a pile of logs and lumber. Feature 6 is a mound containing various shapes and sizes of wood, metal and wire. Feature 7 is the remains of two automobiles likely dating to the 1930's or 40's. Feature 8 is a small artifact scatter containing household items such as a bed frame and a homemade stove.

According to a newsletter (Baldo and Brown 2004), this mill was in operation from 1947 to 1954. A photograph depicts a green chain running from the refuse burner on the southern end of the site across the creek to the mill on the northern end of the site.

According to Charlie Hiatt, the green chain was used to carry wood scraps and other burnable materials to the refuse burner. They logged Douglas fir and likely sent the rough wood to Cloverdale.

Gerald Muffley, of Canton Ohio, was working on a road project stabilizing Highway 101, when he met his future wife, Joyce Hulbert, whom he married in 1941. Shortly thereafter he shipped off to Guam with the United States Army, returning home after the war. In 1947, Muffley and Joyce's brother, Wayne Hulbert, built a sawmill on the Hulbert Ranch. The ranch was originally a sheep ranch located on Elkhorn Road approximately 6 miles (9.6 km) south of Yorkville. The sawmill was built from war material surplus like many mills in Mendocino at that time, since World War II veterans had priority in obtaining government surplus materials. Hulbert and Muffley employed about one dozen men and were able to mill an average of 10,000 to 18,000 board feet of timber per day. Hulbert supervised logging and trucking operations in the woods. Muffley ran the mill and lumber side of the business. The sawmill cut both redwood and Douglas fir with a double circle saw headrig. The mill was originally powered by Navy surplus twin 6-71 General Motors diesels and later upgraded to D-13000 Caterpillar diesels (Baldo and Brown 2004).

Preliminary Eligibility Assessment

The Hulbert Muffley Mill was in operation from 1947 to 1952 and consists of eight features. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the history of logging in Mendocino County. The site contains surface artifacts that are datable and may contain buried features such as

building foundations. Therefore, this site may provide important information about the lifeways of those working in the forest of Mendocino in the mid-twentieth century.

This site may be eligible under Criteria 1, association with an event contributing to local or regional history and/or Criterion 2, association with a person important to local or California history; however, more research should be conducted by a qualified historical archaeologist to make this determination.

This site does not appear to be eligible under Criterion 3, as it does not appear to represent the distinctive characteristics of a type, period, region or method of construction or the work of a master, possessing high artistic values. While the site may hold some integrity with respect to location, setting, materials, and feeling, it lacks integrity of design and workmanship as the structures have all been removed. However, the integrity of this site, under Criterion 3, should be assessed by a qualified architectural historian before a final determination is made.

The Mill at Livingston Creek (GWP-42012-02)

This historic-era site consists of remains of a lumber operation along Livingston Creek, near the confluence of Rancheria and Livingston Creeks in the northeastern quarter of the Preserve. This site measures 300 feet (90 m) N/S by 350 feet (105 m) E/W and contains four features. Feature 1 is a concrete foundation where the head rig sat. Feature 2 is the remains of an earthen dam used to transport logs to the head rig. Feature 3 is three concrete slabs/piers located in the dry creek bed. Feature 4 is a metal pulley and some scrap metal. Three other sites containing historic-era artifacts (CA-MEN-3256/H, CA-MEN-3275/H and the Work Camp at Livingston Creek) may be associated with this site.

Charlie Hiatt believed that this was the Ames and Hurt Mill, but no record of this mill was identified in historic literature or records. This was one of the larger operations on the property. Charlie Hiatt believed that the last year they were in operation was 1945 or 1946. Timber was taken from this mill to the Yorkville sawmill. It is unknown whether he is talking about the Hulbert Muffley Mill or another mill in Yorkville. Charlie Hiatt explained that the concrete foundation on the eastern side of Livingston Creek was where the head rig sat. The footprint of the dam was also still visible; however, Fred later modified it in order to access the falls further upstream. When the mill was in operation, the dam was used to back up the water to float the logs up to the headrig. The reservoir behind the dam would fill up and then they would use the water to float the logs up and roll them over to the south side of the dam and pull them up onto the head rig. There is an indentation where they brought the logs over the dam. The dam once went all the way across the river and had pipes going across it. It would blow out every winter.

Preliminary Eligibility Assessment

The Mill at Livingston Creek consists of four historic-era features associated with logging in the early to mid-twentieth century. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the history of logging in Mendocino County. The site contains surface artifacts that are datable and may contain buried artifacts and features. Therefore, this site may provide important information about the lifeways of those working in the forest of Mendocino in the early to mid-twentieth century.

This site may be eligible under Criteria 1, association with an event contributing to local or regional history and/or Criterion 2, association with a person important to local

or California history; however, more research should be conducted by a qualified historical archaeologist to make this determination.

This site does not appear to be eligible under Criterion 3, as it does not appear to represent the distinctive characteristics of a type, period, region or method of construction or the work of a master, possessing high artistic values. While the site may hold some integrity with respect to location, and setting, it lacks integrity of feeling, materials, design and workmanship as any associated structures have been removed. However, the integrity of this site, under Criterion 3, should be assessed by a qualified architectural historian before a final determination is made.

The Redwood Logging Site in Saffroni Canyon (GWP-42012-03)

This redwood logging site is located in Saffroni Canyon in the northeastern quarter of the Preserve. The site consists of remnants from a lumber operation possibly dating to the 1920's. Historic materials includes: a large heavy metal railroad track, heavy duty metal cables, piping, metal scraps, redwood logs, and an old growth redwood stump with cable wrapped around it. Downstream there are remnants of an old wooden footbridge with a metal pipe railing.

Charlie Hiatt described a site in Saffroni Canyon with a dynamite tree in a huge clump of redwoods. This may or may not be that site. He called the tree a "goose pin" or a huge redwood as big as a room. This tree was supposedly filled with many boxes of explosives. Charlie Hiatt believed that it dated to the 1920's or 30's. He noted that Austin Hulbert showed Fred Galbreath the deed for the Yorkville Mill. The owners of the Yorkville Mill owned thousands of acres of timberland, some in Saffroni Canyon, before 1920.

Preliminary Eligibility Assessment

This historic-era logging operation is located in Saffroni Canyon and consists of remnants from a lumber operation possibly dating to the 1920's. This resource may be eligible under Criterion 4 for its potential to yield important information about the history of redwood logging in Mendocino County. The site contains surface artifacts that may be datable and may contain buried artifacts and features. Therefore, this site may provide important information about small-scale redwood logging operations in the early-twentieth century.

This site may be eligible under Criteria 1, association with an event contributing to local or regional history and/or Criterion 2, association with a person important to local or California history; however, more research should be conducted by a qualified historical archaeologist to make this determination.

This site does not appear to be eligible under Criterion 3, as it does not appear to represent the distinctive characteristics of a type, period, region or method of construction or the work of a master, possessing high artistic values. While the site may hold some integrity with respect to location, setting, materials, and feeling, it lacks integrity of design and workmanship as there are no associated structures or buildings. However, the integrity of this site, under Criterion 3, should be assessed by a qualified architectural historian before a final determination is made.

Saffroni Canyon Dam (GWP-42012-04)

This large dam is located along an unnamed creek in Saffroni Canyon in the northeaster quarter of the Preserve. The dam is constructed of concrete which contains large pebbles. There is a cut in the concrete that allowed water to flow through it. A small

structure constructed of wooden beams and a corrugated metal roof sits adjacent to the dam. A number of metal pipes and modern PVC run out of the structure. According to Charlie Hiatt, the dam was used for irrigation and supplied water to Fred's house. The modern pipes likely continue to provide water to the Galbreath family ranch on Nancy Galbreath Johnson's property.

Preliminary Eligibility Assessment

This historic-era dam is located in Saffroni Canyon. This site may be eligible under Criterion 3, representing the distinctive characteristics of a type, period, region or method of construction or the work of a master, possessing high artistic values. The site holds integrity of location, setting and feeling. The concrete structure appears to be unmodified but, the wooden structure and modern PVC pipes are likely modern adaptations suggesting that integrity of design, materials and workmanship may lack integrity. However, the overall integrity of this site under Criterion 3, should be assessed by a qualified architectural historian before a final determination is made.

This site may be eligible under Criteria 1, association with an event contributing to local or regional history and/or Criterion 2, association with a person important to local or California history; however, more research should be conducted by a qualified historical archaeologist to make this determination.

This resource does not appear be eligible under Criterion 4 for its potential to yield important information about the history of California as there are no associated artifacts and the potential for subsurface deposits is low. However, this resource should be assessed by a historical archaeologist before a final determination is made.

Apple Orchard Homestead (GWP-42012-05)

This homestead and apple orchard are situated on a hillside located approximately 100 feet (30 m) west of Rancheria Creek in the northwestern quarter of the Preserve. The site measures 250 feet (75 m) N/S by 700 feet (215 m) E/W and contains six features. Feature 1 is a rectangular depression that was likely the location of a building or structure. Several historic artifacts and non-native flowers are associated with this feature. Feature 2 is a pile of lumber with wire nails. Feature 3 is an orchard consisting of 12 apple trees and an olive tree. Features 4 and 5 are both wooden fences. Feature 6 consists of several plumbing pipes protruding from the ground. The pipes likely provided water to the homestead or were used for irrigation.

According to Charlie Hiatt there used to be a house on five acres (20,234 m²) located on a knoll across from Yale Creek, adjacent to Fred Galbreath's property. Galbreath used to tell a story of a man in his 60's who was walking by past his house one day with a bag of apples. Fred asked him where he was going and he said he lived there but Fred thought the man was crazy. Fred asked around and found out the man did in fact live there. Eventually Fred purchased the property. According to Charlie Hiatt, the woman who lived in the house was named Vino Haskener. She was married to Austin Holbert. According to Charlie Hiatt, the house burned down but there are still flowers, an orchard and the remnants of an old grave.

Preliminary Eligibility Assessment

This apple orchard and homestead consists of six historic-era features. This resource appears to be eligible under Criterion 4 for its potential to yield important information about the history of early homesteading in Mendocino County. The site

contains surface artifacts that are datable and may contain buried artifacts and features such as privies and building foundations. Therefore, this site may provide important information about the homesteading during the late nineteenth century in Mendocino County.

This site may be eligible under Criteria 1, association with an event contributing to local or regional history and/or Criterion 2, association with a person important to local or California history; however, more research should be conducted by a qualified historical archaeologist to make this determination.

This site does not appear to be eligible under Criterion 3, as it does not appear to represent the distinctive characteristics of a type, period, region or method of construction or the work of a master, possessing high artistic values. While the site may hold some integrity with respect to location, and setting, it lacks integrity of feeling, materials, design and workmanship as any associated structures have been removed. However, the integrity of this site, under Criterion 3, should be assessed by a qualified architectural historian before a final determination is made.

This chapter provided site descriptions and preliminary evaluations for all sites formally recorded within the Preserve to date. The final chapter of this thesis is the CRMP. The CRMP provides general guidance of the CEQA process and specific recommendations for activities taking place on the Preserve as well as site specific recommendations.

CHAPTER 8: A CULTURAL RESOURCES MANAGEMENT PLAN FOR THE GALBREATH WILDLANDS PRESERVE

This chapter focuses on the management of cultural resources within the Preserve. The primary goals of this CRMP are to provide guidance through proper research, planning, and stewardship and to provide recommendation to avoid, minimize or mitigate potential impacts to cultural resources that may result from an array of activities taking place on the Preserve. The first section provides a framework that can be used for cultural resources management through research, planning and stewardship. The second section provides the regulatory context and procedures required to meet legal compliance. The third section provides general recommendations that may be used to incorporate research, planning, and stewardship into the mission of the Preserve. The fourth section provides activity specific recommendations based on common activities taking place on the Preserve. The final section offers site-specific recommendations to avoid, minimize or mitigate impacts to particular cultural resources.

Research, Planning, and Stewardship

Proper research, planning, and stewardship are essential to both incorporating cultural resources into the mission of the Preserve and meeting regulatory compliance under CEQA and PRC 5024. The National Park Service Cultural Resource Management Guideline (NPS 1998) provides a framework that is compatible with both of these goals. Fred Galbreath donated the Preserve to Sonoma State University with the wish that it be used as a campus-wide resource to promote education, research, planning, preservation and stewardship. Legal compliance under CEQA regulations also require a certain degree of research and planning for projects that may impact cultural resources. The NPS framework suggests that with appropriate research, planning and stewardship we will not

only have done out due diligence to meet regulatory compliance, but will also be in alignment with the mission of the Preserve.

Research

Research involves the identification, documentation and evaluation of cultural resources, which is essential in making informed management decisions (NPS 1998). Without a basic inventory (which includes both the identification and documentation) of cultural resources, we are unable to protect them and without evaluation of the cultural resources we are unable to determine their significance. Not all resources are significant, and therefore, not all cultural resources are subject to protection under CEQA and CSU policy. This is why it is so important to identify, document, and evaluate all of the resources within the Preserve.

General protocols for the identification, documentation, and evaluation follows the State guidelines set forth by the California Office of Historic Preservation (OHP) and the Secretary of Interior Standards (SOIS) and Guidelines. The OHP operates under the direction of the State Historic Preservation Officer (SHPO) and the State Historical Resources Commission. The OHP is responsible for administering state and federally mandated historic preservation programs to further the identification, evaluation and registration and protection of cultural resources. They are also responsible for reviewing nominations for the NRHP and the CRHP. OHP guidance states that all historic contexts and historical resources surveys should follow the SOIS and Guidelines and National Register Bulletin 24: *Guidelines for Local Survey: A Basis for Preservation Planning* (OHP 2015).

Identification

The identification phase typically involves a records search and field survey. A records search is necessary to determine how much is already known about the study area. It provides information about previous surveys and previously identified cultural resources. It also aids in developing a historic context for later evaluation of the resources. The records search typically involves searching various databases, site records, reports, studies, archival data and historic maps. If the resource was recorded more than 10 years ago, it will likely need a field review and updated record which meets current standards of documentation. The updated record should include current site conditions, boundaries, artifact densities, disturbances and other information that may have changed since the original recording.

A field survey is conducted to determine the presence or absence of resources in previously unsurveyed terrain or to relocate sites and update previous information. It may also be necessary to re-survey when environmental conditions have changed visibility or impacted a site, for example, after a fire or during a different season where ground visibility may have improved. There are a variety of survey methods and the method chosen should be based upon the current knowledge of the area, the type of project, and the general sensitivity of the area. All surveys completed for this thesis were intensive pedestrian surveys at 50 feet (15 m) interval transects or less. In highly sensitive areas and areas of poor visibility smaller intervals were chosen and at times tree duff was removed systematically.

Documentation

Documentation completed during a survey typically involves completing a site record form and writing a survey report. OHP standards for site recordation require the Department of Parks and Recreation (DPR) forms be completed with minimal requirements of a Primary Record and Location Map. Important information includes the site location, description, maps, and photographs. Complex sites with multiple features, loci and/ or diagnostic artifacts may warrant more detailed information to determine the sites significance.

A survey report is typically created as part of the Initial Study in the environmental review process. Survey reports generally include: the project description and location; the areas of direct and indirect impact; the environmental setting; prehistoric, ethnographic, and historic contexts; background research and records search information; descriptions of cultural resources identified; and occasionally preliminary evaluations of those resources.

Once completed, all DPR site forms and survey reports should be provided to the local California Historical Resources Information Systems (CHRIS). OHP recommends that all State-owned resources be filed with one of the CHRIS information centers. Providing this information allows for easier planning in future projects in the area and sometimes additional survey is not necessary if cultural resources have already been identified and/or evaluated in the recent past.

Evaluation

Once cultural resources have been identified and documented they may need to be evaluated to determine their significance. If the resource meets one of the four criteria

outlined in PRC 5024.1, then it is considered a historic property under NHPA. If it is a State-owned historical resource, SHPO concurrence on the evaluation is required. If it is determined that the resource is not significant, then it does not need to be considered further in the CEQA process.

Developing a historic context may be useful in determining the significance of a cultural resource. According to the SOIS, a historic context is “an organizational format that groups information about related properties, based upon theme, geographic limits, and chronological period.” A historic context provides a framework for applying the criteria for the evaluation of historical resources by evaluating important patterns, events, people, and cultural values within a particular historic context. Using a historic context promotes the preservation of a wide variety of property types that represent our local, state and national history (SOIS 2015).

Planning

Planning ensures that research efforts are integrated into the management processes for decision making and setting priorities. Planning serves to integrate cultural resource concerns into general Preserve planning and management goals to avoid, minimize and mitigate significant impacts to cultural resources. It may also provide information for interpretation and public understanding. Planning should identify appropriate uses for cultural resources and determine their ultimate treatment whether that be preservation, rehabilitation, restoration or reconstruction of the resource (NPS 1998).

Effective planning may help identify conflicting interests and aids in the resolution of such conflicts early on (NPS 1998). Planning should involve

interdisciplinary efforts with the Preserve director and staff, planners, engineers, local interest groups, Native American groups, cultural resources specialists, biologists, geologists, hydrologists, and other resource specialists as appropriate. Planning goes hand-in-hand with the CEQA environmental review process and when addressed early, it is easier to avoid or reduce significant impacts to cultural resources.

Stewardship

Stewardship can be defined as an “effort to create, nurture, and enable responsibility in landowners and resource users to manage and protect land and its natural and cultural heritage” (Brown and Mitchell 2000:71). It is the result of responsible and ethical planning and management (NPS 1998). Stewardship on the Preserve should involve three key components: preservation, education, and interpretation. When making decisions about the treatment of cultural resources, preservation should always be considered first. However, when impacts to cultural resources are unavoidable, data recovery, rehabilitation, restoration, and reconstruction may be legitimate management decisions.

Education and interpretation are also important factors in promoting preservation. All students, staff and visitors to the Preserve should be educated about the sensitivity of cultural resources. Education promotes preservation and discourages the collection of artifacts. Many people do not consider that cultural resources are non-renewable resources and once removed they can never be replaced. Cultural resources have value to the descendants of those who occupied this land and it is often considered disrespectful to remove them, especially Native American resources. Archaeologists and historians cannot learn about the past when artifacts are removed from their context. If more people

were aware of the long term impacts of collecting artifacts they may be less likely to take them. Education about cultural resources can simply be provided in a brochure or pamphlet or information can be posted on the Preserve website. In fact, the Preserve website currently highlights this topic in the rules and regulations section and also provides a flyer for visitors.

Interpretation may include signs, kiosks, displays, and tours for visitors providing information about archaeological and historical resources on the Preserve. It is important to keep in mind that interpretive programs should not identify resources that people can damage. By providing visitors with the rich cultural and historical background of the Preserve, they are better able to envision the past lifeways and activities on the Preserve and appreciate them, and thus more likely to support stewardship and preservation. Interpretation allows for the visitors to utilize and enjoy the Preserve. Interpretation of cultural resources provides an opportunity for staff, students and visitors to learn about and appreciate the cultural history of the Preserve.

Regulatory Context

Since the Preserve is a State-owned facility and will likely be receiving funding from the State for future projects, activities will be subject primarily to CEQA regulations and PRC. Although this CRMP focuses on CEQA regulations, if federal funding is ever received for projects taking place on the Preserve, the lead agency will need to consult NEPA and NHPA regulations.

Prior to conducting all projects on the Preserve, it is recommended that the following steps, in accordance with the CSU CEQA Handbook, are taken to ensure that all legal obligations under CEQA are met.

Determine Legal Context:	Is the project subject to State laws, Federal laws or both? If there is federal funding involved, then NEPA and NHPA regulations apply.
Determine if Activity is a Project:	A project is defined as an activity which may cause either direct physical change to the environment, or a reasonable foreseeable indirect physical change to the environment (PRC 21065). Significant archaeological and historical resources are considered part of the environment under CEQA.
Identify Environmental Impacts:	Some projects may qualify as statutory or categorical exemptions and don't require cultural resource analysis. Other projects require more a complex environmental review.
Determine if there will be a Substantial Adverse Change to Environmental Resources :	<p>Tribal consultation: Early consultation is now required under AB-52.</p> <p>Complete Initial Study: The cultural component includes: Determine areas of direct and indirect impacts. Conduct preliminary research/ records search. Conduct field survey. Document cultural resources.</p> <p>Evaluate resources: Do the cultural resources meet any of the criteria defined in PRC 5024.1? If the answer is yes, then the resource is a "historical resource" under CEQA.</p> <p>Determine if there will be impacts to historical or unique archaeological resources: Will there be a significant adverse change to a historical resource such that it would alter the significance of the resource?</p>
Identify Alternative Mitigation Measures:	The lead agency is required to look into the feasibility of alternatives that may avoid or reduce significant impacts to historical resources. In some cases, data recovery is the only feasible mitigation measure when avoidance is not possible.

Table 4: CEQA process and cultural resources responsibilities.

MANAGEMENT RECOMMENDATIONS FOR PRESERVE RESOURCES

General Recommendations

1. Develop a Project Review Process:

In order to ensure that activities taking place on the Preserve do not cause damage to cultural resources, it would be prudent to develop an environmental review process. This process should first determine the legal context, whether a project is a federal undertaking subject to NEPA and NHPA or a state-only project subject to CEQA and PRC.

Once the legal context is established, it should be determined if the activity constitutes a “project” subject to CEQA or an “undertaking” subject to NEPA and NHPA. A project is “an activity which may cause either a direct physical change to the environment or a reasonable foreseeable indirect change in the environment” (PRC 21065). Historical and archaeological resources are considered part of the environment. Although quite a few cultural resources on the Preserve have been formally recorded, they have not been formally evaluated. Thus, there is no way to determine if there will be an adverse change to the environment with regards to CEQA. The most efficient and cost effective procedure would be to avoid all cultural resources. If avoidance is unlikely, then the activity should go through a formal process (see Table 4) and a qualified archaeologist or architectural historian who meets the SOIS should be consulted.

The simplest way to avoid cultural resources would require some preliminary research to ensure that the activity will not take place in a culturally sensitive area. For minor activities this could be as simple as consulting the GIS archaeological database for the Preserve, maintained by staff. If the area has been formally surveyed, to current

standards, and no resources have been documented, then the activity will likely not affect historical or archaeological resources. Preserve staff should review the database for possible conflicts prior to permitting any ground-disturbing activities. Unfortunately, most of the Preserve has not been formally surveyed and, therefore, it cannot always be determined if cultural resources can be avoided. Thus, some potential resolutions to this problem can be found below in Recommendation #2.

2. Incorporate Student Learning Programs through the University:

Student research at the graduate or undergraduate levels may offer a number of money-saving opportunities with careful and timely planning with Preserve staff. Early coordination with the ASC or SSU's History and Anthropology Department staff could provide opportunities for both students and Preserve management. For example, the ASC offers two internships to graduate students: the Site Survey Internship and the Small Projects Management Internship. The internships are designed to give students hands-on training in the field under the direct supervision of qualified archaeologists. With proper coordination and scheduling, portions of the Preserve could potentially be surveyed each year and sites recorded (Figure 11), thus building a larger database of cultural resources on the Preserve, as well as, providing larger areas for student research where no resources would be impacted, thus, simplifying the project review process.

Additional opportunities for student projects may include: building and maintaining a cultural resources GIS database for the Preserve; developing an archaeological fieldschool or field classes at the Preserve, further oral history studies, the creation of information pamphlets or kiosks, and giving educational tours to students and visitors. Additionally, opportunities for students to participate in site stewardship and

Confidential information has been removed from the redacted version of this thesis.

Figure 11: Possible sites to be recorded during future student studies.

monitoring programs (recommendation #3), interpretive programs (recommendation #4), and establishing relationships with Native American and local interest groups (recommendation #5) may also be incorporated into personally designed projects or internships through the Anthropology Department. The opportunities are numerous.

3. Develop Site Stewardship and Cultural Monitoring Programs:

Site stewardship and cultural monitoring programs can be a very effective management strategy, informing long-term management decisions. Site stewardship programs typically require a professional archaeologist or trained employee or volunteer to periodically check on cultural resources to determine the effects of everyday activities occurring at the Preserve as well as impacts to resources from natural environmental processes. Cultural monitoring programs may be implemented when activities which may have the potential to affect cultural resources are monitored by a professional archaeologist to ensure resources will not be damaged.

Site stewardship programs have been effectively implemented by State and Federal agencies to track long term impacts related to ordinary activities. Through the California Archaeological Site Stewardship Program (CASSP) the Society for California Archaeology offers a specialized 2-day training course to volunteers who are interested in learning about and protecting archaeological and historical resources by visiting sites regulating and reporting changes to those resources. Volunteers get training and support from professional archaeologists (CASSP 2015). The basis of the stewardship program is the GIS archaeological database maintained by staff. Information resulting from stewardship activities should be incorporated into the database.

Similarly, site monitoring programs typically involve coordination with a qualified archaeologist to monitor activities which may have the potential to affect cultural resources. This may be done in culturally sensitive areas or areas where no previous identification efforts have been made. However, it is always a good idea to avoid culturally sensitive areas or to conduct surveys or inventories well in advance of ground-disturbing activities. The monitoring program may not be a practical option for large-scale projects that have not gone through a formal environmental review process, but may be useful for very minor activities where little notice is given, such as student projects that require some type of ground disturbance. An ongoing site steward/cultural monitor internship program could be created through the History or Anthropology Department or the ASC where students can work directly with Preserve staff and SSU faculty to report on site disturbance or accompany students, researchers, and maintenance staff on their projects.

4. Develop Interpretive Programs:

A variety of interpretive programs can be incorporated into Preserve planning, ranging from student-created information pamphlets to complete educational programs and tours designed to enhance visitor experience. These programs may take an array of forms and can be designed specifically to student interests. Some examples of interpretive programs include: tours for visitors, K-12 outdoor classes, educational pamphlets, information kiosks or displays about cultural resources. Information may include the cultural history of the Preserve, resources used by various groups (Native American, ranchers, loggers, homesteaders) and/or information about the sensitivity of cultural resources as non-renewable resources. The information can be tailored for a

particular interest group or for the education of staff, faculty and students using the Preserve.

5. Establish Relationships with Local Native Americans and Interest Groups:

Developing long-lasting and collaborative relationships with local Native American groups, local interest groups, and historical societies could prove to be a valuable experience for the Preserve. This recommendation not only addresses proper consultation to meet legal obligations, which is now mandatory with the passage of AB-52, but it also encourages the development of ongoing and collaborative relationships with Native American groups beyond legal compliance.

The long history of ranching and logging and small scale lumbering on the Preserve may be a source of interest for other local interest groups and historical societies. Collaboration and exchange of information between the Preserve and such groups could help develop a more in depth history of the Preserve and important figures who were involved with the property. Student involvement may include exercises in appropriate tribal consultation or expanding oral history projects and interviews with additional members of the community.

6. Plan for Unanticipated Discoveries and Human Remains:

There is a high possibility that subsurface archaeological deposits may exist on the property, given the archaeological sensitivity of the area and the fact that much of the Preserve is covered by moderate to substantial deposits of colluvium and alluvium. If concentrations of prehistoric or historic-period artifacts are encountered during ground-disturbing work on the Preserve, then all work in the immediate vicinity should halt until a qualified archaeologist can evaluate the finds and make recommendations. Prehistoric

materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rock, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones). Historical materials might include stone, concrete, or adobe footings and walls; artifact filled wells or privies; and deposits of metal, glass, ceramic and/or other artifacts.

The possibility of encountering human remains in the study area cannot be entirely discounted. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human grave. If human graves are encountered, work should halt in the vicinity and the County coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission (NAHC). The NAHC shall then notify the most likely descendant (MLD) of the deceased. The MLD then has 48 hours to offer recommendations for the treatment or disposal, with appropriate dignity, of the remains and any associated grave goods (PRC 5097.98).

Activity Specific Recommendations

General Maintenance and Caretaking:

General maintenance and caretaking may include: grading of roads, repair and maintenance of facilities, protection of property boundaries from unauthorized use and trespassing, off-road vehicle use, and the creation of trails whether advertent or inadvertent.

Activity	Recommendation
Grading and Upkeep of Roads:	Due to the heavy precipitation during the rainy season, the upkeep of roads can be essential in allowing visitor access to the Preserve. Care must be taken when grading or any ground-disturbing activity is done within the boundary of an archaeological site. This should include proper planning and education of maintenance staff in order to avoid cultural resources. If avoidance is not possible an archaeologist should be present to monitor ground-disturbing activities and to offer recommendations if discoveries are made.
Repair of Facilities:	Repair of facilities can include an array of activities from subsurface repairs such as utility lines and pipes to the repair of the roof or beams in a building or structure. Care must be taken when any subsurface repair is taking place within a known archaeological site or within an area deemed culturally sensitive. Appropriate planning needs to be considered when repairs are made to a building or structure that is NRHP or CRHP eligible. Materials and construction may need to adhere to certain specifications under these circumstances.
Installation, Removal, Replacement or of Fences:	Protection of property boundaries may include the repair, removal or installation of fence posts and fence lines. This may entail the pounding or digging of post-holes and may require heavy equipment for installation. Again, care should be taken within an archaeological site and an archaeologist should be consulted.
Off-road Vehicle Use:	General maintenance may require off-road vehicle use to get supplies and equipment to the location of the activity. Off-road vehicle use may cause ground disturbance and care should be taken within archaeological site boundaries and in culturally sensitive areas.
Creation of Trails:	The creation of trails, whether advertent or inadvertent, may cause ground disturbance and thus damage to an archaeological site. While this activity may be difficult to control, proper education is key to understanding and preventing impacts to sites. It is recommended that visitors stay on existing trails whenever feasible and the creation of formal trails should always go through environmental review.

Table 5: Recommendations for general maintenance and caretaking activities.

Erosion Control:

Erosion control may include: road grading; the installation of water bars, rolling dips, and culverts; outsloping or recontouring of road surfaces; the stabilization of banks along creeks and streams; and other ground-disturbing activities. Erosion may cause pooling and flooding in roads, near facilities, or other places needing access. Erosion can also impact natural habitats and waterways. All of these activities may damage or expose buried cultural resources. Care should be taken to avoid performing these activities within an archaeological site.

Activity	Recommendation
Placement of Water Bars, Rolling Dips, and Culverts:	If Preserve management works with archaeologists, the placement of water bars, rolling dips and culverts can often be placed just outside of the site boundary. Indirect impacts should also be considered as water flow can be redirected and cause impact to resources as well.
Erosion Control within a Site:	If erosion control within a site is unavoidable, possible mitigation may include archaeological testing to determine the extent of subsurface deposits and/or archaeological monitoring.
Stabilization of Embankments:	The stabilization of embankments may require bringing in additional soils and rocks, replanting of vegetation, and modifying waterway to redirect water flow. Flat areas adjacent to permanent and perennial water sources have much higher probability for being culturally sensitive areas. Even if archaeological surveys were previously conducted, extra care should be taken in these areas. When dense vegetation is present during a survey it can severely impact visibility thus there is a great potential to miss an archaeological site. Archaeological testing and cultural monitoring is recommended even in areas where there are no previously recorded sites.

Table 6: Recommendations for erosion control activities.

Invasive Species and Habitat Restoration:

Invasive plant species on the Preserve include: Harding grass, scotch broom, and yellow-star thistle. Invasive animals include wild turkeys and feral pigs.

Activity	Recommendation
Habitat Restoration or Removal of Invasive Species:	Ground-disturbing activities such as digging/grubbing for plant removal or habitat restoration can impact cultural resources. An archaeologist should be consulted prior to these activities to determine potential impacts to cultural resources. If cultural resources are present within the restoration area, an archaeologist should be present during all ground-disturbing activities.
Feral Pigs and Invasive Animals:	Feral pigs have been known to cause extensive ground disturbance on the Preserve. Control of pig and/or other invasive animal populations may lower impacts to cultural resources.

Table 7: Recommendations for invasive species and habitat restoration.

Timber Harvest:

Impacts caused by timber harvest, the removal of dead and dying trees, and sudden oak death may include: damage to cultural resources caused by falling timber, limbs and branches; damage caused by heavy machinery used to fell and remove trees. These activities have the potential to crush archaeological resources or churn soil exposing archaeological deposits.

Activity	Recommendation
Timber Cutting and Removal:	Timber cutting and removal can cause significant impacts to cultural resources. All timber activities should involve a project review process. If archaeological sites cannot be avoided then an archaeologist should be consulted for recommendations, that may include monitoring.
Creation of Skid Trails and Staging Areas:	Skid trails and staging areas are often overlooked in the planning process. These activities can also have significant impacts on cultural resources. All timber activities should involve a project review process. If archaeological sites cannot be avoided then an archaeologist should be consulted for recommendations, that may include monitoring.

Table 8: Recommendations for timber harvest.

Ranching and Grazing:

In the event that the Preserve is used for ranching or grazing, relevant activities should be considered for impacts. Ranching and grazing of cattle, sheep, or other livestock can cause various impacts including: ground-disturbance by animal activity, water diversion, and feeding; the construction of buildings or structures to house livestock; or the use of existing historical structures for livestock.

Activity	Recommendation
Grazing Areas:	Grazing areas, water diversions and the construction of facilities to house food and livestock should be chosen wisely keeping in mind avoidance of cultural resources.
Modifications to Existing Buildings:	When modifications are necessary, reconstruction in kind should be practiced if the building is an historical resource.

Table 9: Recommendations for ranching and grazing.

Facility Use and Student Research:

The Preserve is open to staff and students of the university for various research and projects including: species studies, watershed studies, environmental education, and land management. Programs are also open to K-12 grade students, university students and the public. Work parties are also part of the land management activities and often entail targeting invasive species and trail work. All of these activities may have the potential to impact cultural resources to some degree.

Activity	Recommendation
Research which involves Ground-Disturbing Activities:	Education of staff, faculty, students, and visitors of the Preserve is essential in avoiding impacts. A project review process should be implemented to determine the potential for impact within a culturally sensitive area.
Work Parties:	Work parties have the potential to impact resources. Working with an archaeologist to avoid sensitive areas or having an archaeologist present may limit impacts.

Table 10: Recommendations for the use of facilities and student research.

Construction of New Facilities and Roads:

Several cultural studies have already been conducted on the Preserve as an advanced planning tool in connection with the proposed construction of a field station and observatory on the Preserve. The field station may include several buildings, a campground and a parking area. Additionally, the road to the field station and observatory may be stabilized, widened and paved. At present, no final design plans have been completed and approved. In the future, this and other projects will occur on the Preserve which will likely have high potential to impact cultural resources. All work at this level should go through a formal environmental review process that includes archaeological review.

Activity	Recommendation
Stabilization, Widening and Paving of Existing Road:	Road stabilization and widening projects typically involve some degree of ground-disturbance. All areas of new ground disturbance should be formally surveyed and cultural resources formally recorded. Attempts should be made to avoid cultural resources, if feasible; otherwise impacts may need to be mitigated.
Installation of New Roads and Parking Areas:	Installation of new roads or parking areas shall involve some degree of ground-disturbance. All areas of new ground disturbance should be formally surveyed and cultural resources formally recorded. Attempts should be made to avoid cultural resources, if feasible; otherwise impacts may need to be mitigated.
Construction of New Buildings:	Construction of new buildings and facilities shall involve some degree of ground-disturbance. All areas of new ground disturbance should be formally surveyed and cultural resources formally recorded. Attempts should be made to avoid cultural resources, if feasible; otherwise impacts may need to be mitigated.
Construction of a Campground:	If feasible, campground locations should be selected in areas away from cultural resources. In addition to direct impacts created by camping within an archaeological site (such as crushing, relocating or collection of artifacts) indirect impacts created by trails to and from the campsite are also possible. A potential mitigation measure might include constructing campsites on raised platform which may protect resources.
Formation of Unapproved Trails:	The formation of unapproved trails, whether advertent or inadvertent, may cause ground disturbance and thus damage an archaeological site. While this activity may be difficult to control, proper education is key to understanding and preventing impacts to sites.

Table 11: Recommendations for the construction of new facilities and roads.

Site Specific Recommendations

CA-MEN-2544

Prehistoric site CA-MEN-2544 is a possible seasonal camp located immediately adjacent to a natural pond. The site measures approximately 700 feet (215 m) N/S by 820 feet (250 m) E/W and consists of 60+ obsidian and chert flakes, two lancelet shaped projectile points, five bifaces, one core, and one milling slab fragment. Due to dense vegetation and tree duff, site boundaries may not be clearly delineated.

It is recommended that the site be periodically monitored to assess impacts from ordinary Preserve activities. Significant impacts should be noted and site records should be updated accordingly if warranted. If additional artifacts become visible or site boundaries are extended further, site records and GIS data should be updated.

Additionally, it is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

CA-MEN-2545

Prehistoric site CA-MEN-2545 is a possible seasonal camp situated in a grassy area adjacent to a natural spring. The site measures approximately 820 feet (250 m) N/S by 500 feet (150 m) E/W and consists of 100+ obsidian and chert flakes, two obsidian projectile points, two bifaces, one core, one flake tool and one hand stone. Due to dense vegetation and tree duff, site boundaries may not be clearly delineated.

It is recommended that the site be periodically monitored to assess impacts from ordinary Preserve activities. Significant impacts should be noted and site records should be updated accordingly if warranted. If additional artifacts become visible or site boundaries are extended further, site records and GIS data should be updated.

Additionally, it is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

CA-MEN-2546

Prehistoric site CA-MEN-2546 was not relocated. Only two artifacts were found in the vicinity of the coordinates provided in the first archaeological site record. It is very likely that the original coordinates are inaccurate. Efforts should be made to locate the site and formally record it.

It is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries and depth of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

CA-MEN-2732

Prehistoric site CA-MEN-2732 is a small seasonal camp in the vicinity of several natural springs. The site measures approximately 100 feet (30 m) N/S by 230 feet (70 m) E/W and consists of a slight scatter of chert and obsidian debitage, three handstones, one

handstone fragment, a large milling slab, a milling slab fragment, a chert scraper, and the midsection of an obsidian projectile point. The site is currently disturbed from timber activities and no artifacts were located. The artifacts were likely collected prior to timber harvest. However, there is a high possibility that additional artifacts lie below the ground surface.

It is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries and depth of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

CA-MEN-3256/H (P-23-004084)

Multicomponent site A-MEN-3256/H is an artifact concentration containing prehistoric, proto-historic, and historic-era components. The site measures 300 feet (90 m) N/S by 250 feet (75 m) E/W and is situated on a ridge just above Rancheria Creek. Prehistoric components consist of 29 chert and obsidian flakes, one handstone, one projectile point, three cores, and a bone fragment of unknown origin. Protohistoric components consist of eight pieces of modified bottle glass. Historic components consist of bottle glass fragments, one fragment of WIE, and the remnants of an iron pan.

It is recommended that the site be periodically monitored to assess impacts from ordinary Preserve activities. Significant impacts should be noted and site records should be updated accordingly if warranted. If additional artifacts become visible or site boundaries are extended further, site records and GIS data should be updated.

Additionally, it is recommended that no ground-disturbing activities occur in within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

CA-MEN-3275/H (P-23-002519)

Multicomponent site A-MEN-3275/H is an artifact concentration containing prehistoric and historic-era components. The site measures 65 feet (20 m) N/S by 200 feet (60 m) E/W. Prehistoric components consist of 10 chert and obsidian flakes, one biface fragment, and one handstone. Historic components consist of bottle glass fragments, five fragments of WIE, wire fencing, and a collapsed.

It is recommended that the site be periodically monitored to assess impacts from ordinary Preserve activities. Significant impacts should be noted and site records should be updated accordingly if warranted. If additional artifacts become visible or site boundaries are extended further, site records and GIS data should be updated.

Additionally, it is recommended that no ground-disturbing activities occur in within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

The Lumber Mill Work Camp at Livingston Creek (ASC-01-11-02)

This site is a historic-era residential work camp associated with logging, located along Rancheria Creek, near the confluence of Livingston Creek and Rancheria Creek.

The site consists of historic artifact concentrations, several fruit trees and five historic features. One prehistoric chert projectile point was found in a drainage adjacent to the site.

It is recommended that additional oral history and background research is conducted to determine the site's age and to provide a more detailed historic context. Additionally, it is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

The Hulbert Muffley Sawmill (GWP-42012-01)

This historic-era site is the remains of the Hulbert Muffley Sawmill situated at the confluence of Rancheria Creek and an unnamed stream channel. The site measures approximately 500 feet (150 m) N/S by 375 feet (115 m) E/W and contains eight historic features consisting of the cement foundation of the main sawmill, a depression where the burner once sat, scrap metal debris and other materials associated with the burner, another rectangular depression, a pile of old logs and lumber, the remains of two automobiles, and a small artifact scatter containing a bed frame and a homemade stove.

It is recommended that no ground-disturbing activities occur in within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

The Mill at Livingston Creek (GWP-42012-02)

This historic-era site consists of remains of a lumber operation along Livingston Creek, near the confluence of Rancheria Creek and Livingston Creek. This site measures 300 feet (90 m) N/S by 350 feet (105 m) E/W and contains four features consisting of the cement foundation where the head rig sat, the remains of an earthen dam, three cement slabs, a metal pulley and some scrap metal.

It is recommended that additional oral history and background research is conducted to determine the site's age and to provide a more detailed historic context. Additionally, it is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

The Redwood Operation in Saffroni Canyon (GWP-42012-03)

This historic-era site is an old Redwood logging site located in Saffroni Canyon. The site consists of remnants from a lumber operation possibly dating to the 1920's. Historic debris includes: a large heavy metal railroad track, heavy duty metal cables, piping, metal scraps, redwood logs, and an old growth redwood stump with cable wrapped around it. Downstream there are remnants of an old wooden footbridge with a metal pipe railing.

It is recommended that additional oral history and background research is conducted to determine the site's age and to provide a more detailed historic context. Additionally, it is recommended that no ground-disturbing activities occur within the site

boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

Saffroni Canyon Dam (GWP-42012-04)

This historic-era dam is located in an unnamed creek in Saffroni Canyon. It is constructed of concrete and contains a small wooden structure with a corrugated metal roof. Several historic-era metal pipes and modern PVC pipes run out of the structure, likely providing water to the Johnson home to the east.

It is recommended that additional oral history and background research is conducted to determine the site's age and to provide a more detailed historic context. Additionally, it is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

Apple Orchard and Homestead (GWP-42012-05)

This historic site is a historic-era homestead and orchard situated on a hillside approximately 100 feet (30 m) west of Rancheria Creek. The site measures approximately 250 feet (75 m) N/S by 700 feet (215 m) E/W and contains six features consisting of a rectangular depression, an old lumber pile, an orchard, two fences, several plumbing pipes protruding from the ground. Associated artifacts include wire nails, glass fragments, WIE, and non-native plants.

It is recommended that additional oral history and background research is conducted to determine the site's age and to provide a more detailed historic context. Additionally, it is recommended that no ground-disturbing activities occur within the site boundary, including a 50 feet (15 m) buffer. If avoidance is not feasible, further archaeological study is recommended to more accurately determine the boundaries of the site deposit, to assess its integrity, and to evaluate its significance in relation to the CRHP.

Site #	Description	CRHR preliminary eligibility	Recommendation
CA-MEN-2544	Prehistoric	Criterion 4	Monitoring and avoidance. Further studies and formal evaluation if warranted.
CA-MEN-2545	Prehistoric	Criterion 4	Monitoring and avoidance. Further studies and formal evaluation if warranted.
CA-MEN-2546	Prehistoric	Likely Ineligible	Monitoring and avoidance. Further studies and formal evaluation if warranted.
CA-MEN-2732	Prehistoric	Likely Ineligible	Monitoring and avoidance. Further studies and formal evaluation if warranted.
CA-MEN-3256/H	Multicomponent	Criterion 4	Monitoring and avoidance. Further studies and formal evaluation if warranted.
CA-MEN-3275/H	Multicomponent	Criterion 4	Monitoring and avoidance. Further studies and formal evaluation if warranted.
ASC-01-11-02	Historic-era logging camp	Criteria 1, 2, 4	Avoidance and further studies. Formal evaluation if warranted.
GWP-42012-01	Historic-era lumber mill	Criteria 1, 2, 4	Avoidance and further studies. Formal evaluation if warranted.
GWP-42012-02	Historic-era lumber operation	Criteria 1, 2, 4	Avoidance and further studies. Formal evaluation if warranted.
GWP-42012-03	Historic-era lumber operation	Criteria 1, 2, 4	Avoidance and further studies. Formal evaluation if warranted.
GWP-42012-04	Historic-era dam	Criteria 1, 2, 3	Avoidance and further studies. Formal evaluation if warranted.
GWP-42012-05	Historic-era homestead/ orchard	Criteria 1, 2, 4	Avoidance and further studies. Formal evaluation if warranted.

Table 12: CRHR preliminary evaluations and site specific recommendations.

CONCLUSIONS

This thesis has provided: (1) an overview of the history, ethnography and prehistory of the Preserve and its general surroundings; (2) the methods and results of several archaeological investigations taking place within the Preserve and the documentation of the cultural resources discovered during those investigations; (3) the regulatory context for all activities that constitute a *project* under CEQA and PRC, as well as the environmental process required for addressing resources within a *project* area; and (4) recommendations for avoiding or minimizing impacts to those resources.

The cultural resources within the Preserve, tell us a story about its past. These resources fill in the gaps of the known history and prehistory of the Preserve obtained through research and oral histories. Many people do not realize that rusty cans and broken glass, appearing to be ordinary trash, can provide us with information about the timeframe that the area was used and about the people and the lifestyle they lived. For example we can learn what kinds of food people ate, what ethnicity they may have been, what kinds of social activities they may have participated in, and whether there were women and children living at these sites. Similarly, obsidian flakes can be analyzed in a lab to get approximate timeframes for the Native American occupation of the area. Flaked stone tools such as projectile points and scrapers can provide information about what these groups hunted and how they processed their resources. Groundstone such as milling stones and handstones can also be analyzed for residues and can tell us what foods were processed, such as acorns or even lizards.

Cultural resources do not only have value to historians and archaeologists who are studying the past, they also have value to the descendants of those people who once

occupied the area. For the Preserve, those descendants may include both Native Americans and great-great grandchildren of the early loggers and ranchers on the property. The resources also provide a story for visitors to Preserve, telling about the rich cultural history of the area. Sometimes it's hard to imagine that these quiet forests were once bustling with activity. For these reasons, it is important to leave the resources in place and to try our best to avoid these resources during projects taking place within the Preserve. We have a legal obligation to look at certain activities within the Preserve and assess how they will impact environmental resources, including cultural. In addition to our legal obligations under CEQA, we also have an ethical responsibility to protect the environment of the Preserve. This also includes cultural resources. Given the mission of the Preserve, this particular location has great potential for teaching students and the public about the interaction of humans with the environment and to provide opportunities for in-depth research into these processes. It is my hope that this thesis has provided meaningful information about the cultural history of the Preserve and offers a valid explanation of why it is important to preserve our resources, beyond compliance, and honors the wishes of Fred Galbreath to preserve the environment and all of its resources using the land as an outdoor classroom from which we can all learn.

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