

A SUMMARY OF CULTURAL RESOURCES PROJECTS REDWOOD NATIONAL PARK



Janet P. Eidsness

July 1988



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Prepared for
Redwood National Park
Pursuant to Purchase Orders
PX8480-7-0217, PX8480-7-0689, PX8480-8-0316
Issued by Redwood National Park
Arcata, California

DEDICATION



This report is dedicated to Florence L. Shaughnessy, 1902 - 1988. Florence was an exceptional person--respected elder, a teacher of the Yurok language, knowledgeable about traditional places and lifeways, and an expert basketmaker. She was proud of her heritage and a generous, warm and patient person. Florence had a wonderful spirit, a delightful sense of humor, and she kept a lively interest in the people and events in the world around her.

Many people sought her out--anthropologists, researchers, students, Park and Forest Service staff, friends and family--she always freely shared her time and knowledge. It is in large part due to people such as Florence that we are able to work towards the preservation of cultural resources and the continuation of traditional Native American culture. (Photograph of Florence Shaughnessy taken in 1981 on a basket material gathering trip in the Redwood Creek basin.)

FOREWARD

Many individuals assisted in the preparation of this report. Special appreciation is given to Park Archaeologist Ann King Smith, who identified the need for this summary, offered valuable comments and unswerving support, and contributed the discussion of Native American consultation. Special thanks to Patsy Givins and Peggy Givins of PRO PEN, Arcata, who edited the report, and to Sharon Waechter, who suggested the use of professional editors. Nelson B. Thompson and Rusty Rossman are commended for their fine illustrations and maps. Thanks to historic photographer Peter Palmquist and Park Management Assistant Robert Belous for providing several of the photographs. Gratitude is given to Park Environmental Specialist John Sacklin and Park clerical staff Jill Cyphers, Jill Albert and Sherry Romanini, and Lee Purkerson, Chief of Technical Services, for their technical assistance.

A note about the report style. Since this summary was intended to pull together a large volume of material primarily for National Park Service staff and secondarily for researchers and professionals, it was decided to omit most reference citations from the body of the text. By this means, the report became more readable. However, a fairly complete bibliography is included as is a glossary, both of which should be useful for readers.

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CHAPTER 1

INTRODUCTION

A large number of cultural resources projects have been completed for Redwood National Park (RNP) in conjunction with the Park's establishment, expansion and watershed rehabilitation program. These include archaeological surveys and excavations, historic studies, a research design, artifact analyses and Native American consultations. The primary purpose of this summary is to make the cultural resources data more available to Park and Service staff. The summary should also be useful to professionals and community groups.

This summary: (1) provides background information on archaeological methods, cultural context and local chronology, (2) summarizes and evaluates the Park's cultural resource projects to date, (3) describes the cultural resources data base, (4) discusses implications for future studies and (5) provides management recommendations.

Cultural Resources Management

Cultural resources may be defined as those tangible and intangible aspects of cultural systems, both past and present, that are valued by or representative of a given culture, or that contain information about a culture. For management purposes, the Park Service recognizes three types of cultural resources: (1) those having prehistoric significance, (2) those having historic significance and (3) those having significance to the contemporary ethnic communities. At Redwood National Park contemporary ethnic cultural resources are those associated with the Native American people. Archaeological sites, defined as a concentration of remains representing past human activities, are the most commonly recognized type of cultural resource.

Prehistoric cultural resources are archaeological deposits that contain artifacts such as stone tools or shell ornaments and cultural features such as structures, fire hearths, tool caches, or human burials. They represent areas of focused Indian land use or occupation dating before sustained White contact and are usually thought of as places of great antiquity. The Indians of northwest California, however, lived a traditional life, very different from and unaffected by White culture, until the 1848 discovery of gold in the Trinity region. This event triggered a mass immigration of non-Indians, effectively destroying the traditional culture of the aboriginal peoples. The division between historic and prehistoric times, therefore, is dependent on local events. Because Indians had no written record of past events, archaeologists classify the time before sustained White contact as prehistoric.

Historic cultural resources include archaeological deposits like concentrations of antique bottles in trash pits and privies, or architectural features like homesteader's barns dating from the time of sustained White contact. As defined by law, an historic resource of at least 50 years is protected by the Archaeological Resources Protection Act of 1979 or if 100 years old by the Antiquities Act of 1906.

Contemporary Native American cultural resources include such sacred places as traditional Indian burial grounds and formal cemeteries, and areas used by Indian doctors-in-training or for special ceremonial gatherings. Often these sacred places are described in the ethnographic record obtained by early 20th century anthropologists, who interviewed Indian elders familiar with their traditional culture and language. Further, specific areas supporting native plant and animal materials used in crafts or ceremonial regalia may be included as contemporary Native American resources.

Federal agencies evaluate the legal significance of cultural resources in terms of criteria set forth by the National Register of Historic Places:

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

b) That are associated with the lives of persons significant in our past; or

c) That embody the distinctive characteristics of a type, period, or method of construction, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history (36CFR60.6).

Thus the significance of a particular cultural resource is evaluated in terms of three main criteria: integrity, historical importance or distinctiveness, and information or research potential.

The integrity of a cultural resource is considered a matter of degree. For example, although a prehistoric cultural resource may have been impacted by subsequent activities such as logging or road building, portions of the archaeological deposit may still be fully

intact and therefore potentially significant. When considering the integrity of a cultural resource, managers assess how much has been impacted and evaluate the research potential of the intact portion.

In order to evaluate the historic importance or distinctiveness of a cultural resource, cultural resources managers consider the property within a broader context of local, state, national and world history. When performing such comparative studies, managers determine the property's place in regional history, and whether it was associated with important events or individuals. In addition, they determine how unique or common such sites are to public lands, since these properties are best protected by cultural resources preservation laws.

The information or research potential of a particular cultural resource relates to its ability to answer questions about the past, contributing to a better understanding of history and prehistory. Prehistoric cultural resources may yield information on space/time systematics, settlement/subsistence patterns and interaction/exchange systems. Historic cultural resources may yield information about technology, class structure and relations, subsistence, type of society, rates of assimilation of ethnic groups, dynamics of social change and intra-ethnic relationships.

Because each cultural resource is classified by the type of significance it exhibits, prehistoric, historic or contemporary Native American, it is possible for a single resource to have more than one type of significance. For example, a prehistoric Indian camp, later homesteaded during the historic era, represents a cultural resource having prehistoric and historic significance.

Cultural resources management, CRM, is a process involving three phases: (1) identification of the resources, (2) evaluation of its significance and (3) determination of the appropriate treatment for preserving it. This last phase often occurs in response to a proposed project which may have an adverse effect on the resource and might entail preserving all or part of the resource either by redesign of the project, or execution of a data recovery program. In the case of significant sites which cannot be preserved in situ, a scientific excavation of the site, guided by a formal research design and followed by a report summarizing the project, constitutes an acceptable mitigating measure. Preservation of sites, however, is the primary goal of the Park as well as cultural resources managers in general.

It is through the study of cultural resources that archaeologists work towards the reconstruction of culture history, a description of lifeways of earlier cultures and an understanding of the processes or laws of culture.

Park Cultural Resources Projects

Established in 1968, Redwood National Park is located in north coastal California within Humboldt and Del Norte counties (Figure 1). The Park was expanded in 1978 when funding was appropriated for a major watershed rehabilitation program for restoration of logged lands within the Redwood Creek basin.

Initial cultural resource studies focused on identification and evaluation of prehistoric sites located within the original Park boundaries. These sites had been documented by early 20th century ethnographers. Basic historic data for RNP was compiled in 1969.

Following the 1978 Park expansion, formal consultations with the local Indian community were initiated and researchers began identifying cultural resources within the new holdings. Historic structures were evaluated and an historic overview of Park holdings within the Redwood Creek basin was prepared. A research design for RNP cultural resource studies was prepared and the prehistoric resources of the Bald Hills vicinity evaluated. An analysis of artifacts collected to date from archaeological sites in the Park was performed.

Coinciding with the initiation of the watershed rehabilitation program in the Redwood Creek basin, a series of archaeological reconnaissances were undertaken to identify cultural resources there, and archaeological test excavations were conducted to evaluate site significance. More recently, RNP historic properties were reevaluated, and prehistoric artifacts collected from Park holdings were analyzed. Since 1978, Native American Heritage Advisory Committees, composed of local Indian representatives, have provided input into Park planning documents, developments, interpretation and the CRM program.

Twenty-one reports concerning the Park's CRM program have been prepared since RNP was established. In addition, documentation of Native American consultations is contained in an extensive file. These are the focus of this management summary.

Report Organization

Five chapters and a glossary of terms are contained within this management summary. Chapter 2 offers a short course in archaeological methods and an overview of the prehistory and history of northwest California, providing a context in which to place the Park's cultural resources.

Chapter 3 summarizes and evaluates the Park's cultural resources projects completed to date. Projects are reviewed chronologically and arranged by type: archaeological surveys, archaeological excavations, research design, artifact analyses, historical studies and Native American consultations.

Chapter 4 provides descriptions of the cultural resources identified to date within the Park. These are arranged by site type: prehistoric, historic or contemporary Native American.

Chapter 5 discusses the implications for future research of the Park's cultural resources, and concludes with management recommendations.

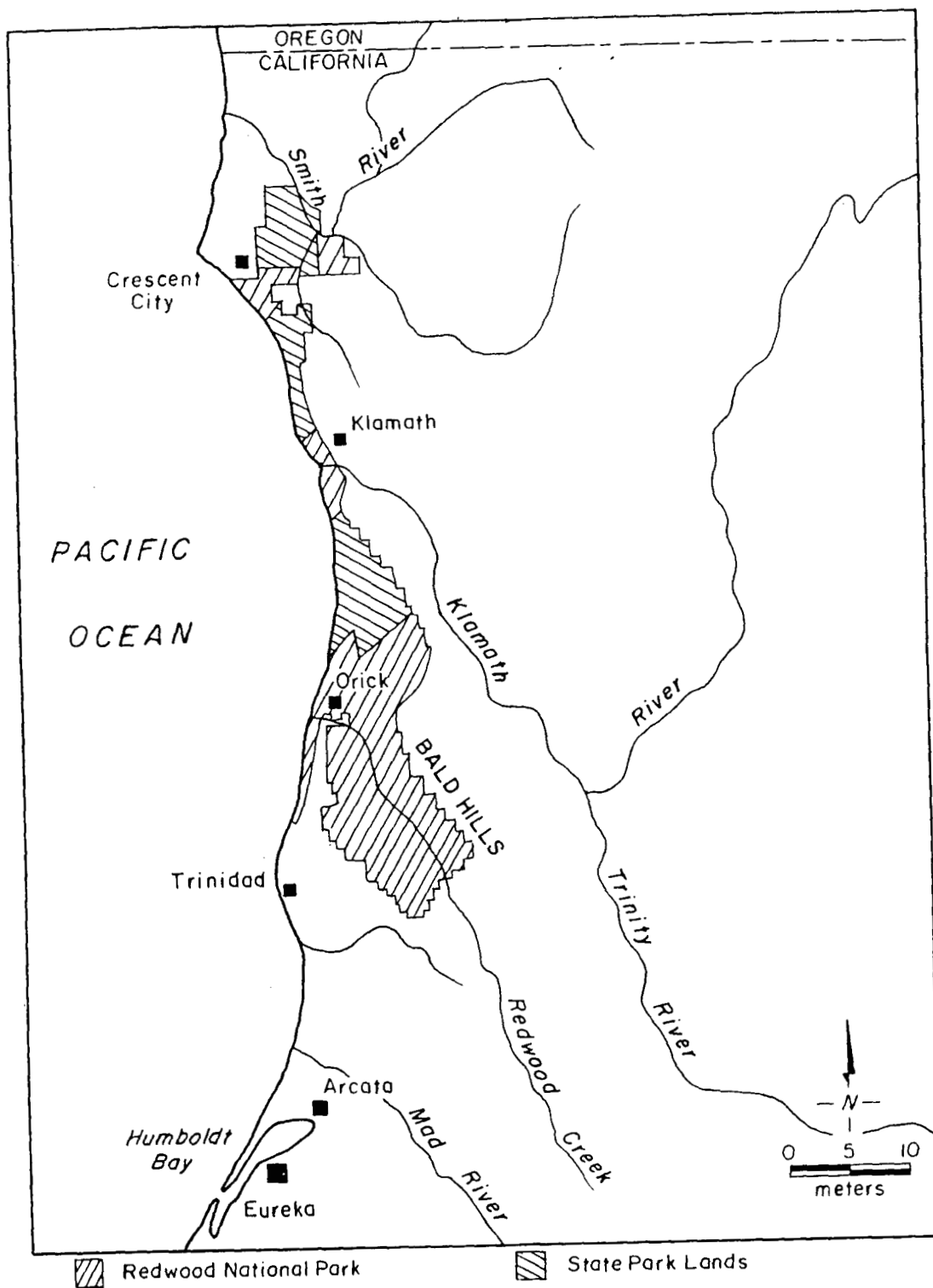


Figure 1. Location map: Redwood National Park.

CHAPTER 2

CULTURAL CONTEXT

Prehistoric Overview

Archaeological Research Methods

Before reviewing the specific prehistory of northwest California as currently reconstructed by archaeologists, it is helpful to understand the three principal research domains of California archaeologists. These include: (1) space/time systematics, (2) settlement/subsistence patterns and (3) interaction/exchange systems.

Space/Time Systematics

Studies of space/time systematics are concerned with the relationship between a particular space in time, in other words, determining the age and the area of a particular archaeological deposit. An archaeological deposit is spatially defined by mapping the horizontal and vertical extent of its cultural remains, both artifacts and features. The distribution of archaeological remains on the ground surface usually defines its horizontal extent. Archaeological excavation techniques are used to determine the depth, or vertical extent, of the cultural deposit.

Dating of an artifact, artifact assemblage, or site is typically made by employing one or more of the following techniques: carbon-14 analysis, obsidian hydration measurement, stratigraphic analysis and relative dating. The greater the number of dateable samples and/or dating techniques used, the better the probability for accuracy.

Carbon-14 Analysis

Carbon-14 analysis is a chemical dating method, representing an absolute dating technique. During life, all organisms ingest carbon atoms, or C-14, as part of the oxygen exchange process. When the organism dies, the ingested C-14 begins to deteriorate through radioactive decay at a fixed rate, or half-life of $5,568 \pm 30$ years. By measuring the amount of radioactivity remaining in C-14 archaeological samples, typically charcoal from old fire hearths, an estimate of its age is made. The result is a date expressed in years before present. Before present, abbreviated as B.P., was established arbitrarily at 1950. This date carries an associated probability factor, also expressed in years, plus or minus. For example, 1450 ± 50 years B.P. equals A.D. 500 ± 50 years, or the probability range A.D. 450-550. Because C-14 samples may become contaminated while they are in the ground, during the collection process or in the dating laboratory, it

is highly desirable to test several C-14 samples derived from the same archaeological feature, and/or correlate the C-14 date with dates arrived at by other methods.

Obsidian Hydration Measurement

Hydration measurements made on obsidian artifacts are commonly used to date these artifacts relative to each other. Obsidian, a natural glass formed in volcanic eruptions, absorbs minute amounts of water on its surfaces at a constant rate over time, forming a layer, or rim, over the exposed surfaces. The greater the time, the greater the amount of water absorption, or thicker the hydration rim. When obsidian tools were made by Indians in prehistory, new surfaces were exposed on both the tools and discarded chips, called flakes. Eventually the tools and flakes entered archaeological deposits, where they hydrated at constant rates over hundreds or thousands of years. Using special procedures to remove a small cross-sectional piece of these artifacts and measure their respective hydration rims, typically smaller than 1% of the thickness of this paper, the analyst determines the thickness, measured in microns, of each artifact's hydration rim. Using sets of these data, archaeologists can then determine the relative ages of obsidian artifacts. For instance, an arrowhead with a hydration rim measuring 2.5 microns is younger than a spear point with a hydration rim of 4.7 microns. Several factors that affect hydration rates must be controlled because (1) obsidian flows are chemically distinct and different obsidian flows may have different hydration rates, (2) different climates or effective temperatures affect hydration rates and (3) postdepositional factors like the burning of artifacts in a campfire or forest fire, or reworking of an older tool later in time, can affect hydration.

Stratigraphic Analysis

Stratigraphic analysis may be used to date, relatively, an archaeological site that has been used for a long period of time or for distinct uses in distinct areas of the site. The principal of vertical stratigraphy holds that the deeper layers are older than the layers above. Within a vertically stratified archaeological deposit, each layer represents a past cultural or geologic event. A period of intensive use by humans may be represented in one layer, flooding during a time of site abandonment in another. Horizontal stratigraphy will occur where specific areas were reserved for certain activities, or where, during the history of site use, specific areas were used during relatively brief time spans.

Because archaeological interpretations are inferred from the patterning of archaeological remains found in situ, it is necessary for archaeologists to assess the physical integrity of stratified archaeological deposits. In northwest California, buried archaeological deposits are often disturbed by rodents, by other burrowing

animals and by insects attracted to the often rich and loose soils of the midden deposit. Other natural agents which may disturb the integrity of a buried archaeological deposit include the roots of plants and sometimes, the repeated swelling and shrinking of clay minerals due to weather changes. Wind and water action, coupled with the forces of gravity, can likewise erode the integrity of an archaeological deposit. Finally, humans can alter the deposit, either during the period when it was being laid down, such as through the reuse of an old cemetery disturbing earlier burials, or afterwards through development of the site for other purposes such as the construction of roads or houses. It is not uncommon to find a correlation between the locations of old Indian villages and modern towns, particularly in interior northwest California where the steepness of terrain often limits development to the few large flats near potable water sources.

Relative dating

Relative dating is possible where chronological sequences have been established through previous archaeological research. The method assumes that certain artifacts known to have had fairly restricted periods of use in one area also represent good time markers in nearby areas. The method essentially involves comparing undated artifacts with dated artifacts. Aluminum beer cans, diaper pins, "No Nukes" buttons and compact cars, for example, suggest a specific time period and particular cultures or subcultures. Arrowheads, atlatl and spear points are among the most time-sensitive prehistoric artifacts in northwest California.

Settlement/Subsistence Patterns

By employing dating methods and then mapping the geographic distribution of certain artifact types and assemblages, archaeologists can infer the subsistence, land use and settlement patterns of past cultures. They may reconstruct when and how past groups of people organized themselves, what they ate, and how they acquired food and materials to construct weapons for hunting, tools for processing foods, building shelters and making clothes.

Figuring into recent settlement/subsistence pattern studies are palynological data implying that during the past 8000 years or so, significant climatic changes have occurred in interior northwest California. These slight but significant temperature fluctuations altered the distribution of vegetation communities, affecting the distribution and productivity of certain critical foods such as deer and elk, and acorns and other seed crops that were consumed by people in prehistory. These climatic changes may also have affected the productivity of salmon and other anadromous fish in local rivers. Historic-era environmental changes in some areas have been dramatic. Consequently,

the present environment surrounding an archaeological site, or "catchment area," may be very different from what it was when the site was occupied in prehistory.

Interaction/Exchange Systems

The third research domain, interaction/exchange systems, is concerned with questions about the mechanisms of interaction between different Indian groups living in different areas at particular points in time, and changes in those interaction spheres due to population movements, territorialism, etc., over time. The first task is to determine which artifacts in an area represent exchange or trade items. Since obsidian does not occur naturally in northwest California, obsidian artifacts found there in archaeological deposits represent prehistoric exchange or trade goods. Because each obsidian flow is chemically distinct due to geologic conditions present at the time and place when each was formed, obsidian artifacts may be chemically sourced to specific, known localities through x-ray fluorescence analysis. Combining obsidian source data with age data obtained through measurement of obsidian hydration rims, archaeologists may address such questions as: What were the primary sources of obsidian used by northwest California Indians? How distant were these sources? Did the preferred sources there differ from those preferred in neighboring areas? Were particular sources used to manufacture particular types of artifacts? Did the preferred sources change over time? Other types of trade items are suggested by ethnographic data; for example, clamshell disk beads traded by the Pomo, or glass trade beads introduced by non-Indians.

Prehistoric Chronology

By addressing the above research questions, archaeologists have advanced a prehistoric cultural sequence for northwest California. At present, this sequence is best understood in terms of archaeological patterns, defined as follows:

An archaeological pattern ... represents an adaptive mode shared in general outline by a number of analytically separable cultures over an appreciable period of time within an appreciable geographic space. A pattern is characterized by (a) similar technological skills and devices (specific cultural items); (b) similar economic modes (production, distribution, consumption), including especially participation in trade networks and practices surrounding wealth (often inferential); and (c) similar mortuary and ceremonial practices ... (Fredrickson 1973:118).

Archaeological patterns are not absolutely fixed in time, and do not necessarily occur in a fixed sequence from one region to another. Different patterns may occur simultaneously in adjoining areas.

Four archaeological patterns apply to prehistoric cultural resources within RNP. The earliest of these, the Borax Lake and Willits patterns, were recently refined on the basis of archaeological research conducted at 13 high-elevation sites located some 30 miles southeast of RNP in the South Fork Mountain/Pilot Ridge vicinity. Until fairly recently, little was known of the archaeology of interior northwest California. The latest pattern applicable to coastal Park areas, termed the Gunther Pattern, was based on research of coastal sites located along Humboldt Bay northward to the Crescent City area. The latest pattern applicable to back-from-coast Park areas, especially the Bald Hills bordering Redwood Creek, is provisionally named the Gunther/Augustine Pattern, because it represents a blending of traits from two geographically and culturally distinct areas of California.

Borax Lake Pattern (2500 B.C. - 800 B.C.)

Corresponding to a significant Xerothermic warming trend that followed the Ice Age, the human adaptation known as the Borax Lake Pattern is thought to involve generalized hunting and gathering by small, highly mobile family groups. Small groups of people used mobility as an adaptive strategy in which the emphasis was on moving people to the resources--deer, elk, acorns and other edible seeds. Thus far, Borax Lake Pattern sites are best represented along high-elevation ridgetops. Because temperatures were 1 to 2 degrees Centigrade warmer than at present, higher elevations could have been used for a larger portion of the year. Geographically, Borax Lake Pattern sites are distributed throughout California's North Coast Ranges, Klamath Mountain Province and possibly into the southern Cascades of northern California and southern Oregon. Archaeologically, these sites typically contain a similar array of artifact types, implying that they all functioned, more or less, as base camps where similar activities took place. Time-sensitive artifacts include relatively large, widestemmed spear points, typically made of locally available chert, as well as handstones and millingslabs (see Figure 2). Obsidian artifacts are relatively rare, suggesting that no formal obsidian exchange networks were established.

Willits Pattern (800 B.C. - A.D. 900)

The general adaptation oriented towards use of low-elevation villages, located along salmon-bearing streams near acorn crops and occupied by larger concentrations of people during the winter months is known as the Willits Pattern. It is marked by the advent of storage facilities, particularly for fish and acorns to feed the community during lean winter months. Moving the resources to the people resulted in a variety of functionally different site types that reflect more specialized activities. This shift is linked to a significant cooling trend, the Neoglacial, beginning ca. 3300 years ago, which particularly affected the resource base of interior northwest California. At higher elevations, the kinds and quantities of food resources declined, and in

local rivers, annual salmon runs were more productive. Geographically, while Willits Pattern sites occur throughout the North Coast Ranges, they may be more frequent in northwest California and southwest Oregon. Archaeologically, this pattern is represented by a greater diversity of projectile point forms, including spear and atlatl tips, that are typically smaller than earlier forms, and by a greater reliance on use of mortars and pestles over millingslabs and handstones (see Figure 3). Archaeologists hold that mortars and pestles, used to grind acorns, a staple food, represented an important technological innovation.

Gunther Pattern (A.D. 900 - ca. 1850)

At the time of historic contact the Yurok and Tolowa, among others, practiced an adaptation characterized as the Gunther Pattern. Confined to the coastal zone and lower waterways of northwest California, this reflects strong influences from the greater Northwest Coast Culture Area to the north. Significant traits include a well-developed woodworking technology, riverine fishing specialization, wealth consciousness, and distinctive artifact types, including zoomorphs, large obsidian ceremonial blades, antler spoons, steatite pipes and bowls, bone and antler harpoon points, Dentalium shells and small, barbed arrow points (see Figure 4). For much of the year, populations were concentrated in villages located around Humboldt Bay and coastal lagoons, along the coast and adjacent to the major rivers. This adaptation was similar to, but a more refined and specialized form of, the preceding adaptation. Exchange networks were regularized. Dentalium shells, indigenous to Vancouver Island, became the common medium of exchange along the northwest coast of California. At a site in Humboldt Bay, obsidian for manufacture of large, ceremonial blades was regularly imported from sources located more than 400 km distant, while obsidian used to manufacture utilitarian objects, such as arrowheads, was imported from Medicine Lake Highlands, some 280 km east.

Gunther/Augustine Pattern (A.D. 900 - ca. 1850)

At historic contact the Chilula Indians of the Redwood Creek basin practiced an adaptation characterized as the Gunther/Augustine Pattern. The Gunther/Augustine Pattern represents a blending of traits of the Gunther Pattern, described above, and the Augustine Pattern, focused in California's Central Valley. The Augustine Pattern adaptation is distinguished by an emphasis on hunting, fishing and reliance on acorns as a staple food source. After A.D. 1400, clamshell disk beads were widely used as money. Time-sensitive artifacts of the Gunther/Augustine Pattern include a variety of small, barbed or notched stone arrow points, and hopper mortar slabs and pestles (see Figure 5).

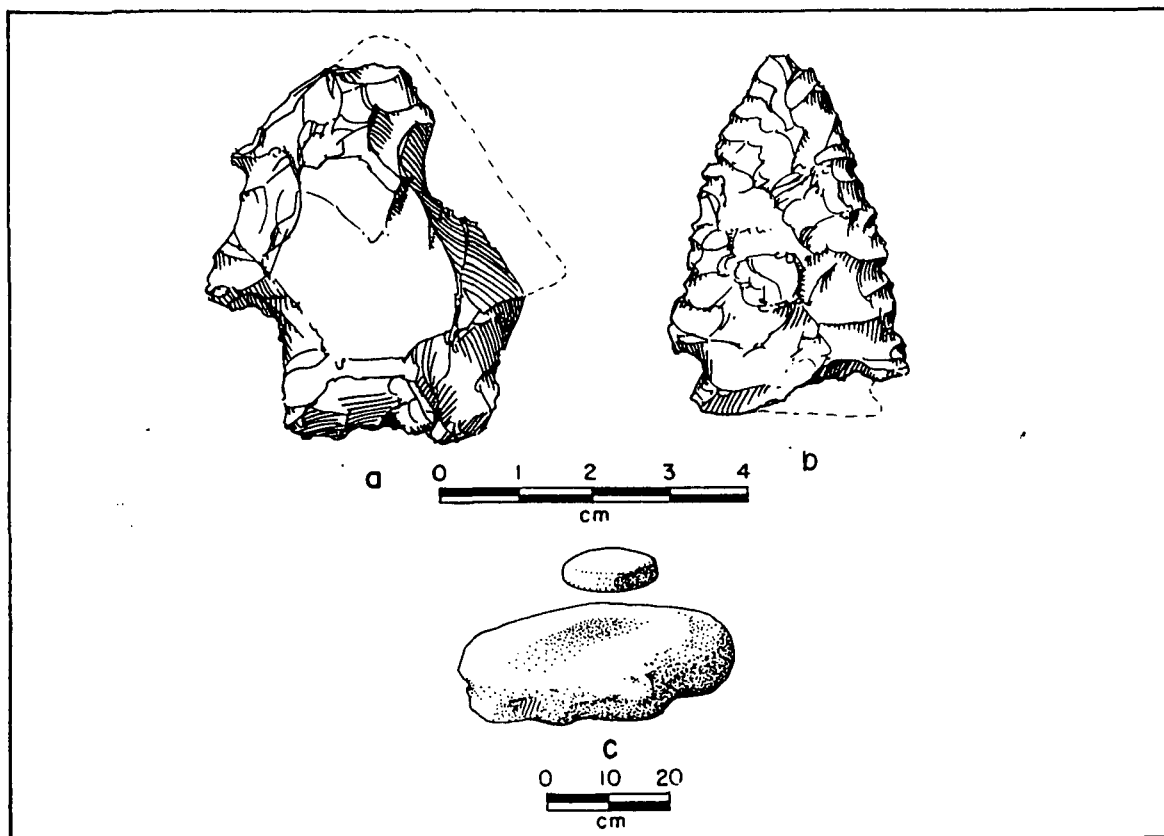


Figure 2. Borax Lake Pattern: archaeological elements.
a-b, d, stone spear points; c, handstone and millingslab

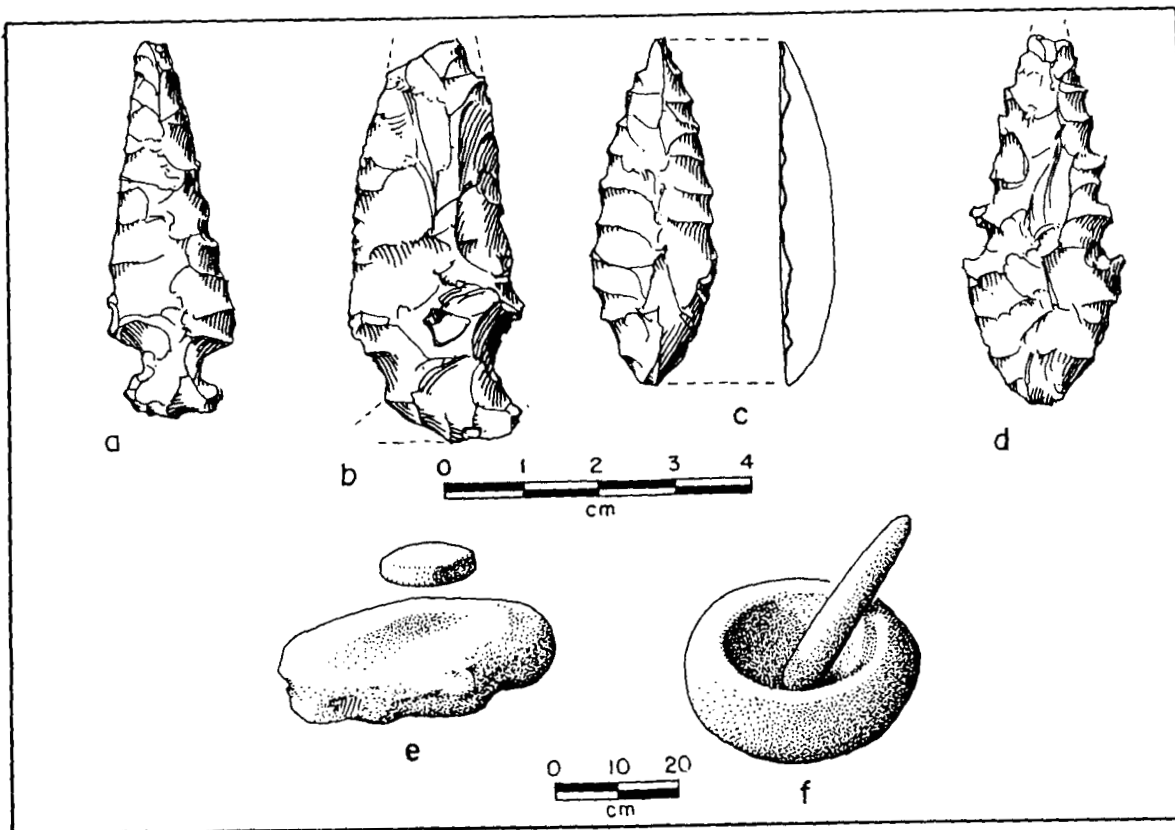


Figure 3. Willits Pattern: archaeological elements.
 a-b, d, stone spear and atlatl points; c, unifacial tool; e,
 handstone and millingslab; f, stone bowl mortar and pestle

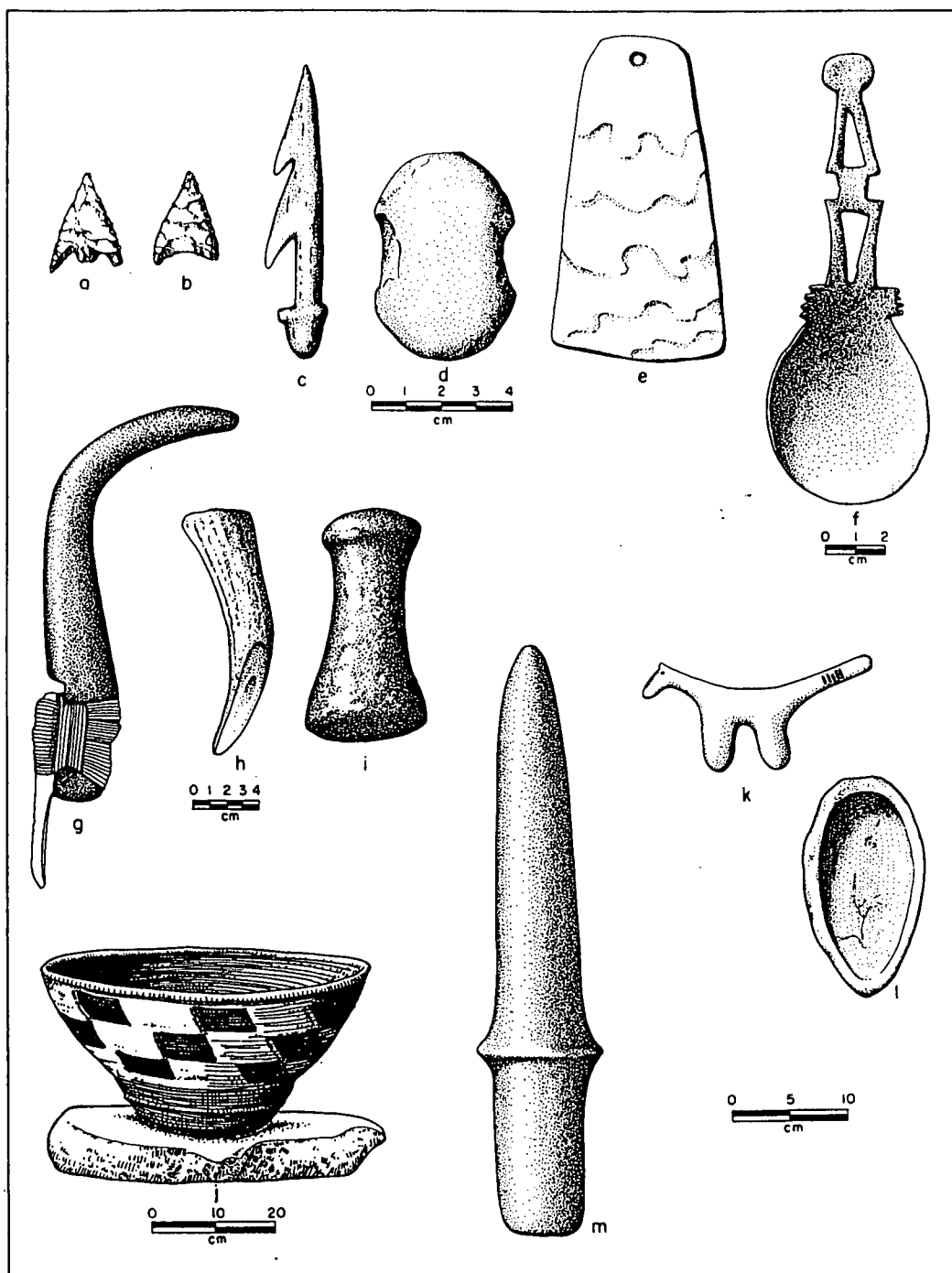


Figure 4. Gunther Pattern: archaeological elements.

a-b, stone arrow points; c, bone harpoon point; d, notched stone net weight; e, abalone shell pendant; f, elk horn spoon; g, stone adze with shell blade; h, elk horn wedge used with i, stone maul; j, basket hopper on stone mortar base used with m, stone pestle; k, stone zoomorph; l, stone serving/cooking bowl

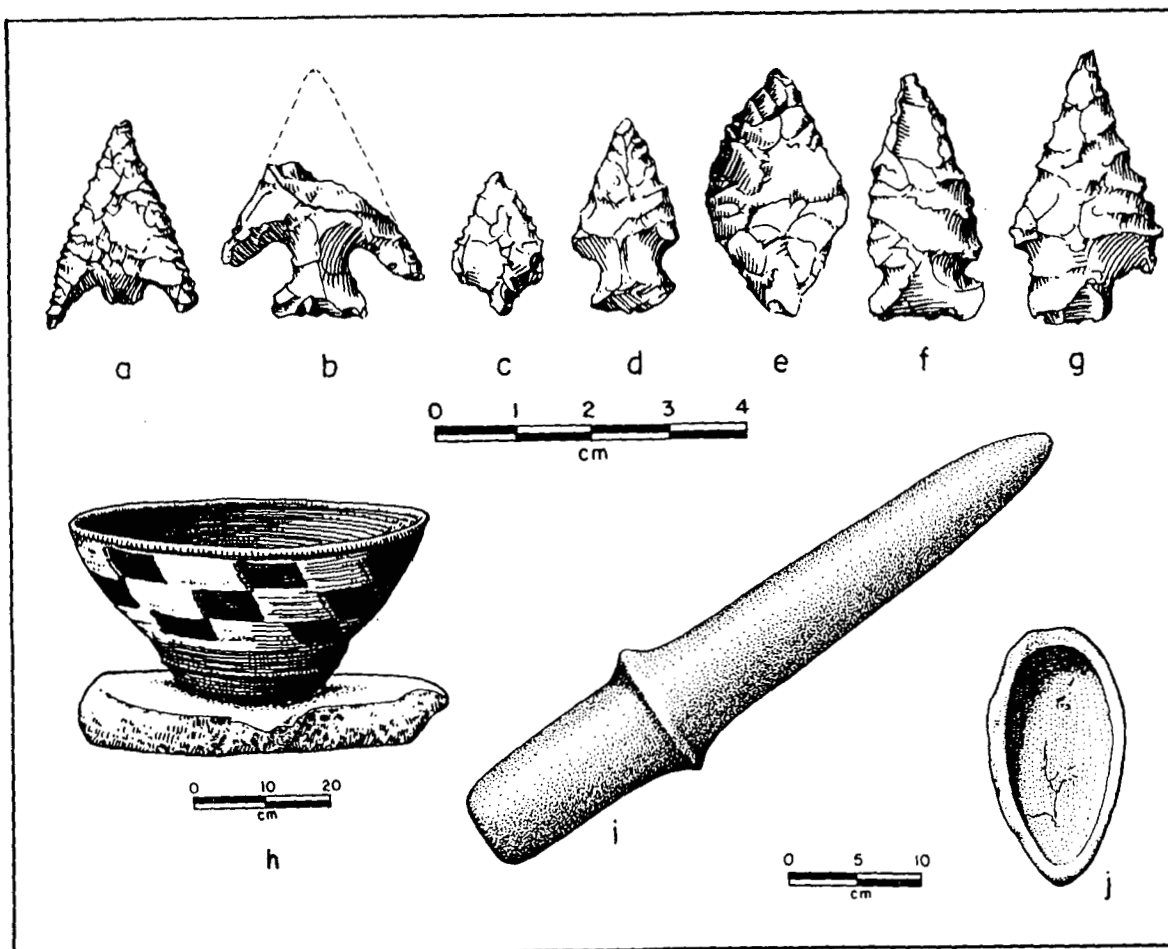


Figure 5. Gunther/Augustine Pattern: archaeological elements.
a-g, stone arrow points; h, basket hopper on stone mortar
base used with i, stone pestle; j, stone serving/cooking
bowl

Ethnographic Data

As shown on Figure 6, the Park encompasses portions of the territories held at the time of historic contact by three distinct Indians groups: the Tolowa, the Yurok and the Chilula. Descriptions of the lifeways of these groups, or ethnographic data, were systematically gathered by cultural anthropologists during the early 20th century. The basic ethnographic sources were compiled by Goddard, Waterman, Kroeber and Drucker, who interviewed elderly members of these groups who were familiar with their respective traditional Indian culture. Although the groups spoke different languages and were distinctive in certain customs, they, along with the neighboring Hupa, Karok, Wiyot, Chimariko, Whilkut, Nongatl, Mattole, Lassik, Wailaki and Sinkyone groups of northwest California, shared fundamental philosophical and socio-economic patterns, leading anthropologists to classify them as belonging to the distinctive Northwest California Culture Area. Summarized below are aspects of the traditional culture of the Tolowa, Yurok and Chilula.

Territories, Languages and Populations

Prior to 1850, the Tolowa controlled an approximate 640 square mile area, extending along the coast from the mouth of the Winchuck River in extreme southern Oregon southward to the mouth of Wilson Creek, and encompassing most of the Smith River watershed (Figure 6). The Tolowa spoke an Athabascan-affiliated language that is more akin to the dialects spoken to the north than to that spoken by the Hupa of interior northwest California. Prior to historic contact, the Tolowa numbered an estimated 2400 individuals.

Bordering the Tolowa on the south, Yurok territory extended along the coast from Wilson Creek southward to Little River below Trinidad, and along the lower 45 miles of the Klamath River drainage (Figure 6). The Yurok spoke an Algonkian-affiliated language that may be distantly related, by some 2000 years, to the language of their southern neighbors, the Wiyot, who occupied the Humboldt Bay vicinity. With an estimated population of 2500 in 1848, the Yurok were the largest ethnographic Indian group in northwest California.

Flanking the Yurok on the east, the Chilula inhabited most of lower Redwood Creek drainage, plus the Bald Hills district. They spoke an Athabascan-affiliated language which is almost indistinguishable from that spoken by their eastern neighbors, the Hupa, who controlled the lower Trinity River area. The Chilula numbered an estimated 600 individuals in 1848.

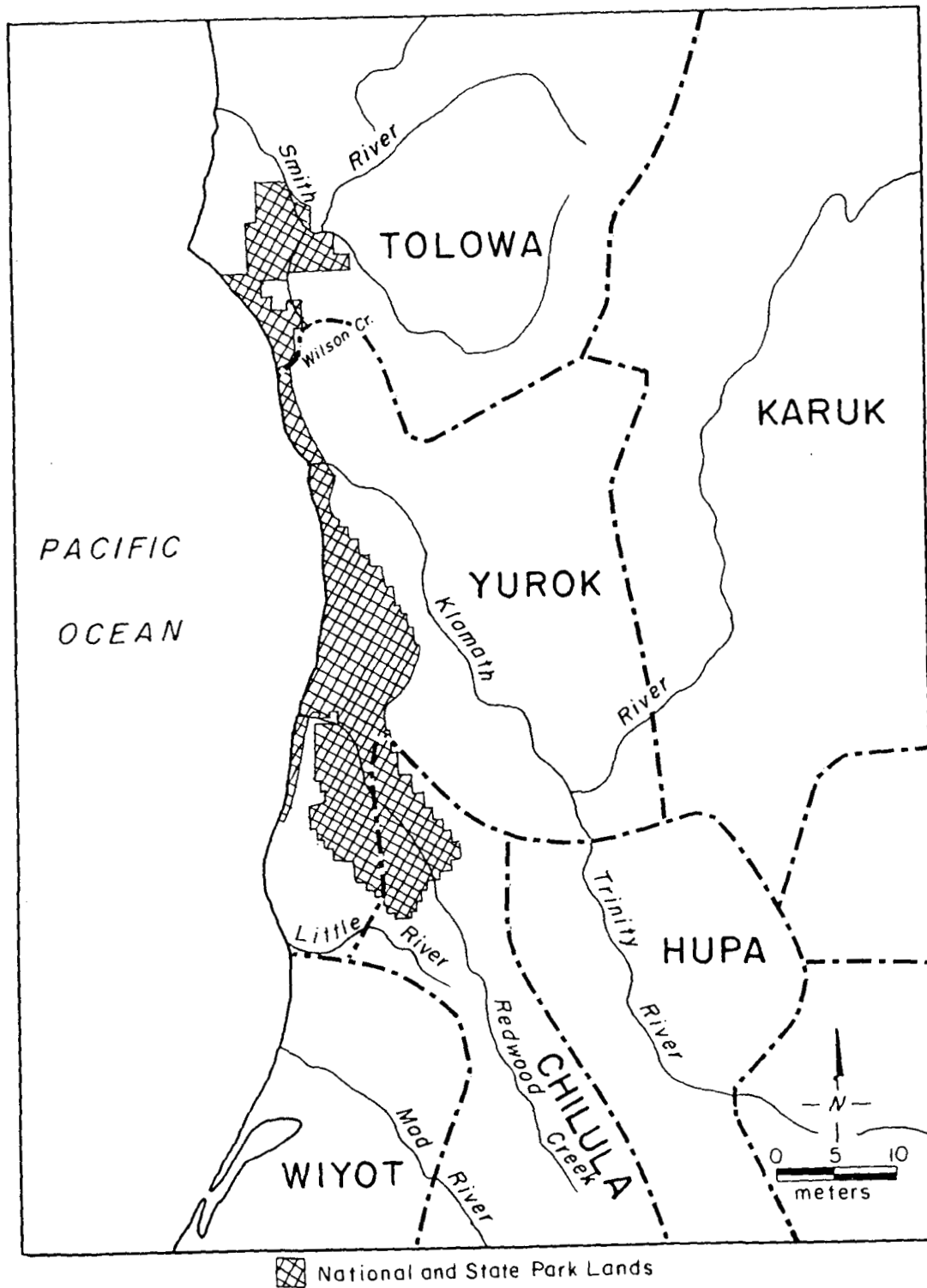


Figure 6. Ethnographic map: north coast California Indian groups.

Settlement Patterns and Subsistence Practices

Due to the rugged terrain and dense forests which characterize the territories controlled by the Tolowa, Yurok and Chilula, their principal settlements were typically located along the shores of the coast, coastal lagoons and rivers or creeks. Major villages were characterized as places occupied by a relatively large group of people, where important ceremonies were held, and where the wealthiest men often lived. Subsidiary villages, or hamlets, were often located in the vicinity. Both types of habitation sites were occupied by the bulk of the population for the better part of the year. Temporary campsites, representing a third type of habitation site, were occupied seasonally by smaller groups for special activities, such as acorn harvesting or smelt fishing.

Both the range of resources utilized and the subsistence technology were diverse. While fishing was particularly emphasized in the traditional economy, shellfish collecting, hunting of sea and land mammals, fowling, and gathering floral products, especially acorns, were also important subsistence activities. Although the abundance and diversity of resources available enabled these Indian groups to reach the highest population density and cultural complexity known among any food-gathering peoples, the seasonal availability and cyclical productivity of these resources brought times of privation or outright starvation, particularly during the late winter months when stored surplus foods were in short supply. The techniques used to store surplus foods included smoking or sun-drying fish, steaming and drying clams, storing dried acorns, nuts, seeds, berries and seaweed in baskets or boxes, and rendering the oil from sea mammals and certain fishes.

The seasonal round practiced by the Indians of the north coast was:

Spring: Chinook and silverside salmon and sturgeon caught in rivers and creeks. Certain roots and berries collected in late spring. Hazel shoots gathered for making baskets. Young greens gathered. Eels trapped. Various land mammals hunted. Clams dug.

Summer: Ferns, beargrass and hazel shoots gathered for baskets. Blackberries, thimbleberries, salmonberries, huckleberries and raspberries picked. Deer, rabbits, etc. hunted. Surf fishing for smelt in later summer. Hazel nuts collected. Cormorant eggs and nestlings gathered. Foraging for seaweed, mollusks, abalone, etc. Some sea mammals hunted.

Fall: Special work groups left the main village to gather acorns and then to fish for Chinook and silver salmon. Numerous plant foods gathered, including hazel nuts, wild onions, camas, wild potatoes, chinquapin nuts, huckleberries,

manzanita berries, fern roots, soap root, skunk cabbage roots, many kinds of grass seeds and pine nuts. Quail, deer and rabbits hunted. Sea mammal hunting continued.

Winter: Best sea lion hunting was in late winter/early spring. Waterfowl hunted. Steelhead, candlefish, eels and sturgeon caught. Deer and elk hunted. Most likely period for beached whales. Economic pursuits diminished and increased reliance placed on stored foods (Moratto 1973b:28-29).

Architecture

Two types of semisubterranean structures were common to the villages of the Yurok, Tolowa and Chilula: houses and sweathouses. Both types were made of redwood or cedar planks, split by antler wedges and stone mauls from felled logs and cross-cut with fire, which was controlled with wet clay to prevent irregular burning. Rectangular or square, the plank houses featured gabled roofs consisting of either two or three pitches (Figure 7). Circular or square doorways were cut into one of the end-wall planks near the ground, often entering onto an excavated porch area lined with flat slabs. A large, rectangular sunken pit was centered within the house, while the elevated perimeter was used to store firewood, food baskets, fishnets and other household effects. Sleeping areas were furnished with mattresses of deer, elk, or mountain lion skins, or woven tule mats. In addition, the Chilula constructed brush-covered summer houses at the temporary summer camps, and used hollow redwood trees as shelters during inclement weather.

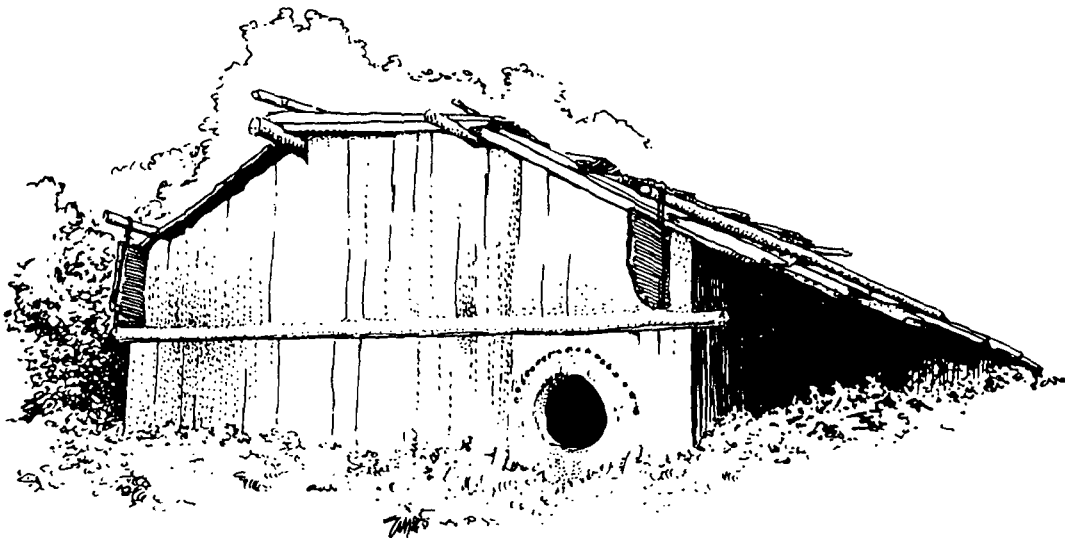


Figure 7. Traditional Yurok redwood plank house.

Sweathouses were situated near a stream, lake, or the ocean so that the men could plunge into cold water after sweating and were typically rectangular or square and featured a gabled or single-pitched shed roof, the latter form covered with a mantle of earth. Sweathouses were used strictly by men for social, medicinal and ritual sweating, and also served as dormitories for men and older boys. In addition, the Chilula constructed large round dance houses that are characteristic of the region to the south.

Money and Wealth

Among the north coast Indians, special treasures or wealth items included ceremonial regalia: white deerskins, red woodpecker scalps, and very large chert and obsidian blades. Dentalium shells, acquired through trade from more northerly Indians, served as a common medium of exchange, much like our money today (Figure 8). These shells, strung on a fiber twine, were valued by measuring the strings against tatoos on the arms of men. In his exhaustive study of Tolowa economics, Richard Gould observed the following:

While the exchange of subsistence goods (particularly food) for "treasures" was not an everyday affair, it nevertheless was common... Given the fact that "treasures" could be and were exchanged for food, it becomes easier to realize the basic importance of man's access to women's labor in his quest for wealth. The more women a man had working for him, the more food he could expect to store--thus furnishing him with articles which could be exchanged for "treasures" and at the same time furnishing a direct means of enhancing his prestige at feasts... (Gould 1966:87).

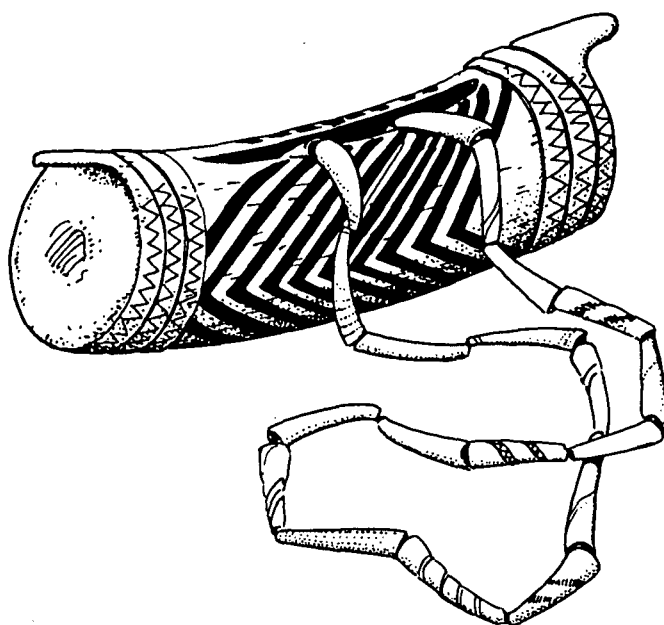


Figure 8. Elk horn purse with string of Dentalium.

Clothing and Adornment

Women's clothing consisted of a skirt made of fringed buckskin or, less commonly, shredded maple bark, worn over the front with a twined apron, lavishly decorated with shells, pine nuts and beads. Twined basket caps were worn on the head, and necklaces of Dentalium shells and other beads were greatly admired. Women's chins were tattooed with vertical lines running from the mouth downward.

Men typically wore a buckskin wrap or breechcloth. Leggings were indispensable during hunting expeditions into brushy country. Both men and women wore moccasins of deerskin or elkhide during winter or when trekking great distances. Capes or blankets of animal fur were used in cold weather.

Basketry and Other Material Arts

Baskets played an important role in the lives of north coast Indians--from the cradle basket used at birth, to baskets designed for dipping, cooking, storage of water and other items, fishing, grinding acorns, and carrying burdens, to items of personal adornment, such as basket caps used by women, and those used in ceremonies. Yurok, Tolowa and Chilula women practiced the twining technique, bringing the craft of basket weaving to a high degree of excellence (Figure 9).

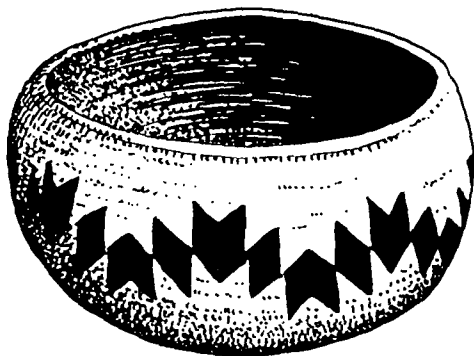


Figure 9. Tolowa basket, used to serve acorn soup.

Perhaps 200 distinct types of utensils were made in addition to the many sorts of baskets and dance paraphernalia. Among these were bows and arrows, musical instruments, woodworking tools, fishing tackle, eating and food serving utensils, dugout redwood canoes, gaming pieces, pipes, purses of elkhorn, bone hairpins, awls and punches.

Tobacco and Smoking

The Indians of northwest California cultivated a single plant, native tobacco (Nicotiana sp.). A level plot was covered with fir, spruce and hemlock boughs, which were burned to ash. In the spring wild tobacco seeds were sown and the young shoots carefully tended. Men typically smoked their tobacco pipes in the sweathouse before retiring.

Treatment of the Dead

The traditional mortuary practice among north coast Indians involved the removal of the corpse from the house through a special opening in the wall. Never was the regular door used to remove the dead. In a cemetery area, typically near the houses, kinsmen dug a shallow grave and lined it with boards. Wealth items, often broken, were placed in the grave with the deceased. After the burial, poles were erected at the grave site and hung with baskets, dance costumes and other valuables. Following the funeral all persons involved with the burial underwent a ritual cleansing, lest they be contaminated by the dead.

The deceased's property was distributed only to kinsmen, or burned if it could not be used. The typical mourning period lasted one year for relatives, particularly for widows, who singed their hair, covered their faces with pitch and ashes, and generally refrained from social contacts during that period.

Religion and Mythology

The Yurok, Tolowa and Chilula participated in the World Renewal Cult, a ceremonial system whose purpose was to reestablish the positive relationship between humans and the earth. The ceremonies consisted of rites performed by a spiritual leader, along with the White Deerskin and Jump dances. The songs and regalia varied for each dance. Woodpecker scalp headbands and dance baskets were used for the Jump Dance; albino and other unusual deerskins plus long chert and obsidian blades were used for the White Deerskin Dance. The dance locations were dependent on tradition and the availability of religious structures. In addition to these, the Brush Dance was held for the purpose of healing children.

Like all California Indians, the north coast groups had a rich mythology that recognized countless spiritual entities. Among the Yurok, three were particularly important: Wahpeku-mau was the creator and controller of natural resources; Pulu-kuhl-gerreg could transform evil beings into harmless ones; and Coyote was the paragon of deceit, a trickster who often emerged victorious. Two myths are especially relevant to the Park vicinity:

Oregos: At the time of creation, Wahpeku-mau informed all spirits that they could choose what they wanted to be. Oregos decided to be the tall rock on the north bank at the mouth of the Klamath River... (Figure 10). To Oregos was given the responsibility of directing the salmon into the river when spawning conditions were right. Oregos also saved people from drowning and fishermen prayed to her for calm seas.



Figure 10. Oregos, at mouth of Klamath River.

Nock Maye (Split Rock): Long ago, Nock Maye was a single great rock on the coast a few miles south of the Klamath River. Nearby lived an aging widower with his unmarried daughter of 20 years. When the old man announced that his

daughter wished to marry, a large number of single men gathered at Nock Maye to compete for her hand. The bride, it was determined, should go to the man who could cast his net into the sea and catch the most fish. The men fished all day, but they caught nothing. After making fishing magic, Beaver flung his great net into the sea as far as the sun, securing the near end of his net to a stake driven into Nock Maye. So many tons of fish were netted that the strain on the anchor stake split the rock. Beaver was permitted to marry the girl and the split in Nock Maye may be seen to this day... (Moratto 1973b:35-36).

Historic Overview

Historical Research Methods

What basically distinguishes historic researchers from the prehistorians in their attempts to reconstruct the history of a particular area is that the historian uses "verbal" evidence, nonexistent in prehistory, in conjunction with "mute" evidence. Mute evidence consists of objects such as buildings, drawings, tools, fragments of pottery or any physical object bearing no words. Verbal evidence includes both written documents and spoken words, the latter including oral traditions, tape recordings and oral testimony. Written evidence may be divided into several subgroups: manuscript and printed, private and public, intentional and unpremeditated. Intentional pieces of written evidence include affidavits, court testimony, secret or published memoirs--items that reflect the intent of the author to record a sequence of events. Portraits, historical paintings, scenic sculpture, coins, medals and certain kinds of films are also intentional transmitters of facts. Unpremeditated pieces of written evidence include the laws of states, ordinances of cities, charters of organizations, checkbook registers and shopping lists--it is only as "unconscious evidence" that they become part of a historical narrative. Written evidence may provide additional clues to the authenticity of research; the paper and ink of a 15th century manuscript served as external evidence for evaluating the probability that the document is not a forgery, while the words and punctuation provide internal evidence of its authenticity.

In order to evaluate the importance or distinctiveness of a particular historic cultural resource, the property must be evaluated within a broader context of local, state, national and world history. The information or research potential of a specific historic resource is judged by evaluating its ability to reveal patterns or generalizations about technology, class structure and relations, subsistence, type of society, rates of assimilation of ethnic groups, dynamics of social change and intra-ethnic relationships.

By using theoretical models as abstractions of historic reality, historians, and historical archaeologists and architects assess the significance of a particular cultural resource in terms of a broader context. In developing a model, the essential aspects and main tendencies of a given society such as its modes of production, ideology and reproductive arrangements, must be isolated and accounted for in order to construct a logical conception of reality. Thus the development of a historical model helps isolate the critical aspects of historic cultural resources for intensive comparative investigation.

Historic Chronology

Historic studies conducted for RNP significantly contribute to an understanding of the north coast California history. The brief historic overview presented below is primarily drawn from the RNP studies.

Early Sea and Land Exploration

The Spanish sea expedition of 1542-53 was the first to explore the Pacific coast of California. Juan Rodriguez Cabrillo was the commander of the two ships San Salvador and Victoria, until his death during the expedition when Bartolome Ferrelo succeeded in command. No documented landfalls north of Cape Mendocino are known, however.

The English explorer Francis Drake, commanding the Golden Hind, may have been the first European to sight the Humboldt coast in 1579. Landfall by this expedition is unlikely, probably because they failed to discover the entrance to Humboldt Bay, which lacks obvious landmarks and is often shrouded in fog.

Seeking a safe harbor for the Manila Galleons involved in commerce in the Phillipines, Spanish Commander Sebastian Vizcaino and his crew in the Tres Reyes may have entered the mouth of Eel River in 1603. Swollen from rains during an intense storm which also blew the ship off course, the Eel Delta was thought to be a large bay. Upon entering the Eel River, the ship was visited by a number of Indians in canoes, who offered fish, game, hazelnuts, chestnuts and acorns.

Worried that the Russians and the Hudson's Bay Company were making headway in establishing claims along the coast of northern California, the Spanish sea expedition of 1775 set out to investigate the rumors and cement Spain's claims to Alta California. On June 9th the schooner Sonora, under the command of Juan Francisco de la Bodega y Cuadra, anchored in Trinidad Bay. Nearby lay the flagship Santiago, commanded by Bruno de Heceta. During the nine day stay, the crew of Sonora restocked supplies of food and water, charted the harbor, repaired the ship, reconnoitered the land resource potential on a one day expedition, and observed the customs of the Yurok, who lived at a

village nearby. Also during their visit, a cross was erected on Trinidad Head to commemorate the Spanish claim to this port, named for the Catholic holiday celebrating the holy Trinity.

Two American sea expeditions were next to make landfall in the Park vicinity. In 1804 the *Lelia Byrd*, under the command of William Shaler, anchored in Trinidad Bay to take on water, fuel, and timbers to repair the foremast. Armed guards were positioned when many Indians arrived, no doubt after hearing about the earlier distribution of gifts from the strange White visitors. In 1805 Captain Jonathan Winship first anchored the American ship *O'Cain* north of Trinidad Bay, finding Big Lagoon, and then anchored in Trinidad Bay. There the Americans conducted trade with the Indians, who had many furs and who became more numerous as the days passed. Fearing outright hostilities, Captain Winship soon put out to sea. In 1806 he returned to the Humboldt coast, finding and charting Humboldt Bay.

Trade in sea otter furs attracted American, Russian and British ships to the north coast over the next decade. Following the depletion of sea otters, overland expeditions by British and American trappers were conducted more regularly, mostly in the interior valleys. The first party to penetrate the mountains of interior northwest California was led by Jedediah Smith, who traversed the Park in the spring of 1828, reaching the coast near Crescent City and then turning northward.



Figure 11. "Trinidad Anchorage, from the Cove," January 21, 1851.
(Courtesy of Huntington Library)

Early Settlement and Conflict

While the early sea and overland explorers had little impact on the Indians of northwest California, this would not be the case with the 1848 discovery of gold by Major Pierson B. Redding in the upper Trinity River area. This event triggered a mass immigration of American miners and traders into the area in the early 1850s. One of the first to arrive at the diggings was Josiah Gregg, who organized an expedition to explore the unknown region west of the Trinity. Reaching the coast at the mouth of Little River, the Gregg party first explored Trinidad Head and Big Lagoon, and then turned southward, finding Humboldt Bay. Word soon reached San Francisco that a large bay and river (Klamath) lay west of the Trinity diggings, and investors funded expeditions which established supply ports at Humboldt City (Eureka), Union (Arcata), the ill-fated settlement of Klamath City upstream from the river's mouth, and Crescent City.

The discovery of gold also coincided with the American takeover of California. In 1850 the newly formed California legislature established Trinity County, originally encompassing present-day Humboldt, Del Norte, Siskiyou and Trinity counties. Due to rapid population increases associated with the mining industry, the boundaries of Humboldt County were changed in 1851 and again in 1852, 1853 and 1857.

As Indian groups were displaced by incoming Whites, access to their traditional food resources was curtailed, and their populations declined due to diseases, starvation and outright conflict. In 1851 U.S. Indian Agent Colonel Redick McKee travelled through the Klamath and lower Trinity River areas, making treaties which were never ratified with a number of Indian groups. In 1853, with American settlers at Humboldt Bay concerned for their defense against the Indians, Fort Humboldt was established under the command of Captain Robert C. Buchanan. In 1853-54, the Tolowa inhabitants of two villages near Crescent City were massacred by Whites. In 1855 a call by White miners and settlers in the Weitchpec area for Indians to hand over their firearms instigated the "Red Cap" Indian war. Whites made the first move, burning Indian villages and committing atrocities with the women. When the Indians retaliated, military assistance was requested from Fort Humboldt.

Soon after, in an effort to quell hostilities, Special Agent Whipple proposed the Klamath River Reservation along the lower twenty miles of the river (a portion now within RNP), which was established in 1855 through executive order by President Pierce. Subsequently, the Wau-Kell Agency post was established, followed by the military outpost Fort Ter-Waw at present-day Klamath Glen.

Flooding of the Klamath in the winter of 1861-62 destroyed Fort Ter-Waw, the agency at Wau-Kell and hopes for establishing an agricultural commune at the Klamath River Reservation capable of

sustaining in peace and prosperity all the Indians of northwest California. This reservation was not formally terminated, however. In 1862 the Smith River Reservation was established to replace the agricultural lands of the Klamath Reservation destroyed the previous winter, and in 1865 an Indian reservation was established in Hoopa Valley with the purpose of concentrating all the Indians of northwest California.

In the late 1860s and 1870s, hearing rumors that the Klamath River Reservation would be opened to Whites for settlement, a number of Americans took up residency there and made improvements. Meanwhile many Yuroks maintained their homes along the Klamath, surviving on salmon and other traditional foods, cultivating small gardens and building log and board cabins. Both sides lobbied for their rights to occupancy, and tensions mounted as White settlers continued to trespass on Yurok fishing rights at the mouth of the Klamath. Further, the Yurok feared and hated cattle ranchers, as their stock destroyed the acorn and berry crops, and frightened away the wild game. In 1879 a military force evicted the Whites, which led to a general outcry in the country. In 1891 President Harrison issued an order to enlarge the Hoopa Valley Indian Reservation to include lands along the Klamath River to one mile on either side, from the Valley to the Pacific Ocean, thus encompassing the Klamath River Reservation. In 1892 the U.S. Congress enacted legislation to open the Klamath River Reservation for homesteading by Whites, and to award allotments to Yurok living along the river.

Commerce and Industry

In the early 1850s, a number of coastal towns were founded as supply centers for the gold mines of the rugged interior and a series of mule pack trails were established to connect the two areas. Many of these routes likely followed older Indian trails. Pack trails passed through areas where the Chilula and others traditionally resided, and areas where displaced Indian groups had sought refuge. With the establishment of coastal towns, farmers and ranchers were soon attracted to the north coast, first settling in the rich bottomlands near the population centers. They, too, settled along pack trails in the more remote areas.

In RNP a stopping place was established in the 1850s at Elk Camp along the Trinidad Trail on the Bald Hills above Redwood Creek. Here, pack trains would delay their travel into the interior until a sufficient number had accumulated to make safe passage through Indian territory. Several ranches established in the vicinity of Elk Camp produced beef for the mining districts, but ceased operations by 1870 because of frequent conflicts with Indians. The second focus of settlement on Bald Hills was at Elder, where a ranch was established along a pack trail in the late 1860s by Jonathan Lyons. The Lyons' shift from cattle to sheep raising in the 1870s typifies the historic trend in livestock raising in northwest California during this era.

In route to the mouth of the Klamath River in 1850, an exploratory party from Trinidad discovered glittering particles of beach sand, which proved to be gold. After gathering a small sample and acquiring provisions at Trinidad, the party returned to "Gold Bluffs" only to discover that the surf had changed directions, sweeping away or burying the treasure. Hearing word of this discovery, several San Francisco based mining companies were quickly organized and vessels chartered to transport prospectors. As Trinidad was the nearest port to these diggings, its population swelled with men seeking easy fortunes at the beach of gold. To work the beach sands, miners would traverse it with mules at low tide, shovelling the streaks of pay sand occasionally exposed by the surf, into panniers, which were then packed to sluice boxes for separation on higher, drier land. It was soon realized, however, that no efficient process could be devised to separate the gold from the black and grey sands. By 1872 John G. Chapman, accompanied by his family, took up residency on nearby Major Creek now within RNP lands. He served as superintendent of the San Francisco owned Union Gold Bluff Placer Mine until the company disbanded in 1902. Using a local workforce, which included Native Americans, the mine showed a profit during the late 1870s and early 1880s, but faired poorly in the 1890s.

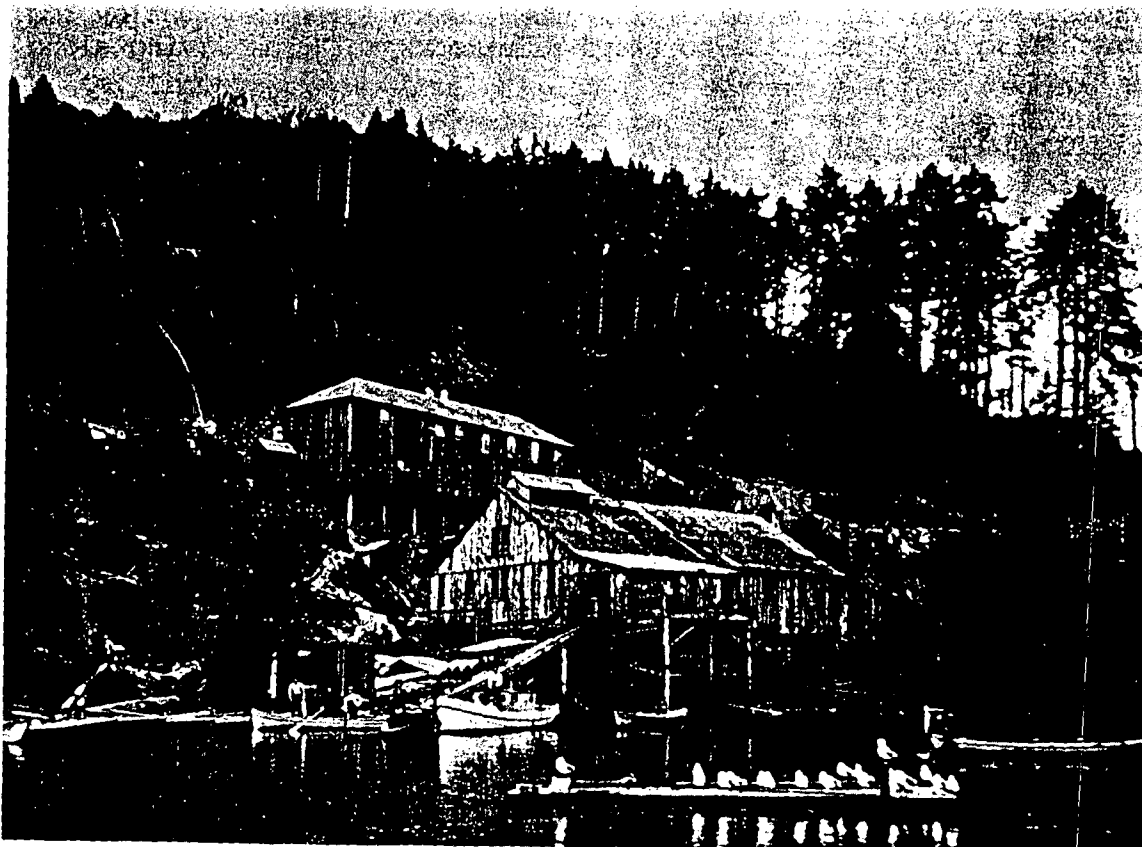


Figure 12. "Del Norte Salmon Cannery, Requa, Cal.," circa 1915.
(Richard A. Childs Collection)

In 1876 the first commercial fishery was established at the mouth of the Klamath by two Americans, Martin V. Jones and George Richardson. Protesting their presence, the Yurok lobbied successfully to have them evicted in 1879 from the Klamath River Reservation lands. In the late 1880s several commercial fisheries were established by Whites along and near the lower Klamath, employing many Yurok on a seasonal basis. The largest was known as the Klamath Packing and Trading Company, based at Requa. Using nets in the Klamath, up to 10,000 salmon were caught daily during the heyday of commercial fishing. Most were salted or canned, and transported in small schooners to San Francisco. In 1934 commercial fishing was declared illegal on the Klamath, following arguments that the fishery was being depleted by commercial activities.

The dairy industry was also important along the north coast during the late 19th century. For example, butter and other ranch products were transported to Crescent City from the Joseph DeMartin Ranch, in RNP at the mouth of Wilson Creek.



Figure 13. Dolbeer spool donkey logging in Fort Dick area, circa 1895. (Richard A. Childs Collection)

The timber industry represents perhaps the most important historic enterprise for the region. For the Park area, the history of Del Norte County's Hobbs, Wall Company illustrates the shift from the earlier era of relative self-sufficiency to the era of dependency, when north coast

California commerce became more economically dependent on the outside world. Founded in the early 1880s, Hobbs, Wall produced raw materials for manufacture of boxes, which were transported as far south as Central America, north to Alaska, east to Salt Lake City and west to Hawaii, Australia and Tahiti. Keeping abreast of the new technologies, the company made huge investments in logging railroads, locomotives, steam donkey engines, modern saw, shingle and planing mills, and lumber ships. By the 20th century Hobbs, Wall owned tens of thousands of acres of timber lands and employed several hundred workers.

Tourism has also contributed to the historical economic base of the north coast region. Until the Old Redwood Highway was completed in 1923 through Humboldt and Del Norte counties, visitors travelled primarily by sea in commercial ships and steamers out of San Francisco. At the mercy of occasionally severe storms, these vessels sometimes failed to complete their voyages. Among the more famous of these disasters was the 1865 sinking of the sidewheel steamer Brother Jonathan, which struck a reef off Point St. George, drowning 215 passengers and crew.

When the Old Redwood Highway was constructed, the California Highway Commission supported preservation of the old-growth redwoods within the right-of-way, a practice atypical of the times. Construction of this highway also coincided with the establishment of the Save-the-Redwoods League, founded in 1918 by a group of conservationists dedicated to urging government agencies to establish tree preserves. In 1923 land acquisition began for Prairie Creek Redwoods, Jedediah Smith Redwoods and Del Norte Redwoods state parks.

The conservationist movement was revived some four decades later when in 1963, the National Geographic Society provided a grant to the National Park Service to finance a special study of California coast redwoods. Five years later Redwood National Park was established by an act of Congress, and then expanded in 1978.

CHAPTER 3

CULTURAL RESOURCES STUDIES

Archaeological Surveys

Surveys constitute the first phase of archaeological research. They are intended to identify or inventory cultural resources in specific areas which have not been previously or adequately subjected to systematic archaeological reconnaissance. Such surveys are commonly initiated in response to land modification projects, or by agency or legislative mandates requiring that inventories be compiled as an aid to future project planning.

Prior to fieldwork, archaeologists conduct record searches for their study area. By reviewing pertinent ethnographic and historic records and maps, records of previous archaeological studies in the vicinity and environmental data, archaeologists generate a set of expectations or predictions of the types and locations of cultural resources that may be encountered during fieldwork. More recently, archaeologists have developed formal "sensitivity models," predicting the types and locations of both historic and prehistoric sites, based on historic, archaeological and/or ethnographic data. The testing and refining of such models may justify future decisions by cultural resource managers to survey only "archaeologically-sensitive areas," resulting in a more cost-effective approach to CRM as well as a better theoretical understanding of settlement/subsistence pattern changes over time.

An archaeological survey involves a systematic walk-over of a particular area to identify cultural resources (Figure 14). The intensity of this visual field inspection, or how narrowly the survey transects are spaced, often depends on predictions generated through pre-field research, as well as on ground visibility. For example, flat, open areas near water sources in the Park may be more intensively surveyed than thick stands of redwood on steep slopes, since the probability of finding habitation sites, either historic or pre-historic, on steep slopes is less likely.

Nine archaeological survey projects have been completed for RNP (Table 1), as documented by nine technical survey reports and one report designed for general distribution. As a result, a total of 29,582 acres representing 27.9% of lands within the Park (including state park holdings) have been surveyed and 68 cultural resources have been formally recorded. These totals can be further analyzed with respect to specific areas and completeness of survey coverage. Within the Redwood Creek basin, 14,500 acres or 28.9% of the area have been surveyed and 45 archaeological sites have been recorded, including five

on the west side of the creek and 40 on the east side. All surveys within the basin sought to identify all prehistoric, historic and contemporary Native American cultural resources. Virtually all of the surveyable Park holdings located in the basin have been subjected to systematic archaeological reconnaissance. Excluding the basin and state park holdings, 7000 acres or 24% of lands within RNP have been surveyed and seven archaeological sites have been recorded. This earlier survey coverage, however, involved a field strategy which focused on relocating ethnographically described Indian sites within the coastal zone, and additional cultural resources may be present.

The technical survey reports for RNP typically include the following components: study purpose; delineation of survey areas, including topographic and air photos; explanation of study methods for pre-field research and field survey; survey results, including site location maps and records; and CRM recommendations which are both site-specific and general. Pertinent environmental, ethnographic, archaeological and historic background data are also often included. Although every component of each report is not specifically noted here, all reports are summarized and critiqued. It should be noted that a majority of the reports' recommendations have been carried out by the Park. A more complete discussion of management recommendations is found in Chapter 5.



Figure 14. Conducting an archaeological survey in the Redwood Creek basin, Redwood National Park.

Table 1. Archaeological survey projects for Redwood National Park.

<u>Reference</u>	<u>Study Area (acres)</u>	<u>Survey Method</u>	<u>Sites Recorded</u>
Moratto 1971	coastal frontage lower Redwood Creek lower Redwood Ck. Trail Lady Bird Johnson Grove	incomplete "mixed"	22 ethnographic Indian sites, incl. 14 within state & RNP lands
Moratto 1972	Freshwater Lagoon area Crescent City Beach Tall Trees Loop Trail High Bluff Visitor Center Cushing Creek, mouth	incomplete "mixed"	2 ethnographic Indian sites, both outside RNP
Moratto 1973a	Smith River vicinity lower Klamath River coastal frontage Prairie Ck. State Park area lower Lost & Little Lost Man Cks. Counts Hill Prairie (total 1971-73: 13,510 acres)	incomplete "mixed"	no new sites
Bickel 1979	Redwood Creek basin, mostly east side (2050 acres)	complete "mixed"	23 sites, incl. 19 prehistoric (Bald Hills Arch. District), 4 historic
Salzman 1979	Redwood Creek basin: 1) 6-mile rehab. access road to west side units; 2) Airstrip Creek Unit (east side); 3) Counts Hill Prairie (east side)	complete "mixed"	1) 9 isolates & several manu- ports; 2) 1 prehistoric site, 1 isolate; 3) 1 isolate
Salzman & Bickel 1979	Redwood Creek basin: 1) 8 rehab. units (2200 acres), incl.: Bond Creek, M-6-2 Road, M-3 Road & M-7-5-1 Road on west side; Copper Ck., 2004 Road, 2005 Road & W-Line Rd. on east side; 2) 12 small parcels;	complete "intensive"	1) 5 prehistoric & 1 historic sites, 3 isolates; 3) 3 isolates; 5) 3 prehistoric sites

Table 1, continued

<u>Reference</u>	<u>Study Area (acres)</u>	<u>Survey Method</u>	<u>Sites Recorded</u>
	3) margins, Bald Hills Rd.; 4) Mont. pine plantation; 5) Redwood Valley PPZ (126 acres) Outside basin: 6) Skunk Cabbage Rehab. Unit		
King 1980	Redwood Creek basin: 1) Lower K&K Road Unit (east side, 80 acres); 2) Devils Ck. Y-2 Road Slope Unit (west side, 300 acres)	complete "mixed"	no sites
Baker 1981	Redwood Creek basin: 1) 5 rehab units on east side: D-Line R/S, C-30/W-Line R/S, Upper & Lower Slide Ck., north side Copper Creek, Lower K&K R/S; 2) 6 rehab. units on west side: Y-2 R/S, end of Y-Line R/S, M-7-5-2 R/S & M-7-5-1 Road, Y-Line/M-2 R/S, Bridge Ridge, M-6-1/ M-6-2 R/S (1900 acres total)	complete "mixed"	1) 4 prehistoric sites, 1 historic site, 5 isolates; 2) 2 prehistoric sites, 8 isolates
Baker & Salzman 1982	Redwood Creek basin: 1) 6 rehab. units on west side; L-1-5, C-Line, M-6-1/M-6-2, M-3, M-7-5/ 1800, Y-2-1/0-2-1 2) C-20/C-10/C-14 rehab. unit (east side) 3) ridgeline near east side unit (7000 acres total)	complete "mixed"	1) 1 prehistoric site, 6 isolates; 2) 6 prehistoric sites, 8 isolates; 3) 1 prehistoric site

An Archaeological Survey of Selected Areas of Redwood National Park
Michael J. Moratto, 1971

The first archaeological survey project within RNP, contracted to Michael J. Moratto of San Francisco State College soon after the Park was established, was designed to inventory cultural resources within selected critical development or use areas. These included:

all the coastal frontage of RNP including state park holdings from Point St. George southward to a point below Stone Lagoon, except the 5-mile stretch between Redwood Creek and Espa Lagoon;

both margins of Redwood Creek between its mouth and the confluence with McArthur Creek;

the segment of the Redwood Creek Trail from McArthur Creek to the Tall Trees area on the southwest side of Redwood Creek;

the Lady Bird Johnson Grove vicinity.

The survey bias was towards field identification of prehistoric or ethnohistoric Indian sites mapped by early ethnographers, rather than historic or contemporary Native American cultural resources.

This brief report is divided into three sections: archaeological background, survey areas and results, and recommendations.

The archaeological background section summarizes published prehistoric archaeological research of coastal and interior northwest California and southwest Oregon, and provides previously unreported data on several coastal sites. Noting that only a handful of sites in the region had been investigated, and that except for the earliest C-14 date of 2260 ± 210 B.P. (310 B.C.) for the Point St. George site, none of the coastal sites appeared to be older than 1000 years old, Moratto suggests that the then-known archaeological record for the coast was biased towards preservation of more recent sites. He argues:

considering (1) the wealth of marine, littoral and riverine resources, (2) the mild climate, and (3) the known presence of peoples in the adjacent Klamath Basin as early as 5750 ± 130 radiocarbon years ago..., the 'sudden' appearance of coastal villages after 900 A.D. is a highly suspect proposition (pg.9).

The twenty-two site or site locations identified and formally recorded include 14 that are within national or state park lands. Moratto notes that nearly all of the sites have been damaged or completely destroyed, while only two sites within RNP have escaped serious modifications. While his survey methods are not stated, it appears that he used maps of ethnographic Indian villages as a guide for determining archaeological sensitivity. Moratto summarizes certain aspects of these prehistoric sites:

ethnographic Indian placenames
site types (village, camp, rock shelter)
occupants (Tolowa, Yurok, or unknown)
archaeological features (housepits and houses)

archaeological value or significance (estimated age, relative size)
present site conditions, including estimates of the percentage of each archaeological deposit that remained intact.

Moratto recommends:

- (1) nominate the "two most important coastal sites in Northwest California," representing Yurok and Tolowa village middens, to the National Register of Historic Places;
- (2) conduct an archaeological test excavation of a relatively intact coastal village site within RNP which may soon suffer impacts due to increased public use of Enderts Beach;
- (3) continue archaeological surveys within RNP; and
- (4) establish a cultural resources interpretive facility, "designed with the full cooperation and creative involvement of local Indian groups" (pg. 13-14).

Archaeological Investigations in the Redwood National Park Region, California Michael J. Moratto, 1972

Following the 1971 field season in RNP, Moratto was contracted by the Service to continue the inventory of prehistoric cultural resources within selected critical development and use areas of the Park, and to expand the Park's CRM program by conducting a test excavation at a prehistoric site in RNP at Enderts Beach. The survey areas included:

- a proposed transmission route near Freshwater Lagoon;
- the "new" Crescent Beach recreation area;
- the proposed Tall Trees Loop Trail;
- the proposed site of a visitor center at High Bluff;
- the mouth of Cushing Creek.

Again, the emphasis was on locating ethnographically-reported Indian village sites. Specific field methods and survey area maps are not included in the report.

Moratto summarizes archaeological background information pertaining to northwest California and southwest Oregon, expanding upon his 1971 report. In particular, he describes the major archaeological studies of the north coast which contributed to an understanding of the prehistoric Gunther Pattern. Still believing that the northern California coast must have been utilized prior to A.D. 1100, Moratto suggests that periodic flooding of river terraces and erosion of coastal bluffs may be reasons why older habitation sites are virtually unknown.

Moratto describes artifacts recovered from looter's backdirt at the Yurok village known as Tsahpek^w near Stone Lagoon on state park property and the results of his ethnographic analysis of this site. Two additional prehistoric sites, both outside park boundaries, were recorded.

Moratto recommends that an archaeological survey of ethnographically-sensitive areas within RNP should be completed, anticipating "that the (pre- and protohistoric) archaeological sites which might be found on the interior drainages will differ in nature, distribution and, possibly, age from those already documented on the coast." From a research perspective, he argues that "...no meaningful excavation strategy can be devised until the surveys are finished and the balanced picture of site types and distributions can be evaluated" (pg. 61).

A Survey of Cultural Resources In and Near Redwood National Park, California Michael J. Moratto, 1973a

Under contract to perform a third field season survey, Moratto summarizes the results of the 1971 and 1972 surveys and presents the results of the 1973 Park survey. In addition, this major report includes detailed information on linguistics, ethnography and ethnohistory, summarizes previous archaeological research in northwest California and southwest Oregon, and addresses the implications of the Park's "Master Plan" for the CRM program. The purpose of such detail is to provide an overview of the Park's CRM program, useful not only to archaeologists and cultural resource managers, but to Park personnel, particularly those involved in interpretive services. An extensive bibliography is attached to the report.

After identifying the Indian groups known to have occupied RNP and describing their territories and languages, Moratto advances a model of prehistoric population movements within northwest California based on glottochronology, a comparison of degrees of language differences. The hypothetical time-depth of Indian groups in northwest California that are pertinent to the study of the Park's cultural resources follows:

Ancestral Karok (Hokan Family):	5500 years
Ancestral Hupa/Chilula (Athabascan Family):	1200-1300 years
Ancestral Yurok/Wiyot (Algonquian Family):	900-1000 years

The purposes of the chapter on ethnography are four-fold:

- (1) To identify points of anthropological interest in and near Redwood National Park and to provide data concerning their significance;
- (2) to sketch the ancient lifeways of the Indians in the vicinity of the park so as to provide the N.P.S. with information useful in the preparation of interpretive exhibits and literature;

(3) to document the salient cultural activities of aboriginal northwest California as a stimulus for the benefit of local Indian people and the edification of park visitors; and
(4) to review a wide range of technical sources in the hope that this chapter will serve as a key resource for non-specialists who may wish to research ethnographic matters in more detail...(pg. 9).

After describing the Northwest California Culture Area, Moratto synthesizes the major ethnographic references in his descriptions of the following aspects of north coast Indian culture:

- demography, including Tolowa, Yurok and Chilula village sites
(depicted on maps)
- houses
- boats
- subsistence technologies
- money and wealth
- clothing and ornamentation
- miscellaneous material arts
- tobacco and smoking
- shamanism
- mortuary practices
- religion
- mythology
- miscellaneous aspects of social organization.

Co-authored by Patricia Hickman and Michael Moratto, the chapter on ethnohistory summarizes significant historical events which affected the traditional cultures of the north coast Indians from 1542 to 1871. Listed chronologically, the descriptions of these events were drawn from published historical and ethnographic accounts of the region.

Moratto reorganizes and reiterates much of his 1971 and 1972 reports. New information is provided on more recent archaeological surveys conducted along the Smith River in northwest California. Included is a synopsis of archaeological work within southwest Oregon.

The 1973 field survey focuses on ethnographically-sensitive areas, as well as specific areas proposed for development by the Park. The areas surveyed in 1973 include:

the west side of Smith River from opposite Peacock Creek to a point above Hiouchi Bridge one-half mile west of Sheep Pen Creek;

the lower three miles of Mill Creek and lower two miles of Cedar Creek;

a 3.5-mile stretch of the east side of Smith River in the vicinity of the Hiouchi Bridge;

the south bank of Klamath River below the Douglas Memorial Bridge;

the five mile stretch of coastal frontage between Espa Lagoon and Redwood Creek;

an area within Prairie Creek Redwoods State Park;

lower Lost Man and Little Lost Man Creeks;

Redwood Creek drainage between Tall Trees and the up-stream Park boundary;

and a portion of Counts Hill Prairie in the Bald Hills District to the east of Redwood Creek.

Topographic maps showing areas surveyed and sites recorded during three field seasons of work within and near RNP are attached to the report. All told, nearly 21 square miles (ca. 13,510 acres) were surveyed over a total of 34 person-days, averaging nearly 400 acres per person per day. The chapter concludes by addressing the likelihood of additional sites which may be present within those areas surveyed, as well as field conditions such as soil visibility, erosion and flooding which may have affected the completeness of the survey in particular areas.

The 22 prehistoric and protohistoric cultural resources identified during the 1971-1973 field seasons are described. Included is information on site location (including photos), Indian placename and site function, and cultural constituents (artifacts and features).

Moratto addresses the potential impacts to cultural resources resulting from a number of projects proposed by RNP. Specific CRM recommendations are advanced on a project-by-project basis.

Moratto recommends:

(1) perform archaeological surveys of lands slated for future development in RNP;

(2) develop an interpretive program concerning the Park's cultural resources that might include reconstruction of a traditional Indian village, development of conventional exhibits, placement of explanatory plaques at Indian landmarks and compilation of a booklet;

(3) establish contacts with the local Indian communities in order to collect new ethnographic data of the memory cultures, and with them develop a program of dances and crafts for Park visitors;

(4) monitor sites near RNP that were recently placed on the National Register of Historic Places, and conduct historical research of one site now located on state park lands;

(5) encourage the preservation of cultural resources within the cooperative management zone; and

(6) develop a formal prehistoric archaeological research design in consultation with local Indian leaders and archaeologists that emphasizes the preservation of cultural resources within RNP.

An Archaeological Overview of Redwood National Park

Michael J. Moratto, 1973b

This final report by Moratto, published by the Service's Western Archaeological Center is a reworking of the report described above. Minor editorial changes have been made and precise site locations deleted, a protective measure necessary for wide public distribution.

In summary, the three early survey projects directed and reported by Moratto are valuable for the following reasons:

(1) they initiated an inventory of cultural resources within the original Park boundaries and on state park lands;

(2) they recognize the value of the prehistoric record exemplified by the Park's cultural resources;

(3) they recognize and address the concerns of existing northwest California contemporary Native Americans having ties to their traditional lands;

(4) they summarize pertinent linguistic, ethnographic, ethnohistoric and archaeological background data; and

(5) they advance sound CRM recommendations for RNP.

Several limitations to the work of Moratto are:

(1) the survey is biased towards locating ethnographically--described Indian villages and camps, and additional archaeological sites of both historic and prehistoric significance may be present within the areas surveyed;

(2) the large number of acres surveyed per person per day (ca. 400 acres) implies that not all lands within the outlined survey areas were systematically examined; these surveys therefore should be considered preliminary and incomplete;

(3) no consultations with the Native American community were performed in an attempt to identify places of concern to the modern Indian community; contemporary Native American cultural resources may be present within the areas surveyed; and

(4) it is difficult for this author to deduce the number of sites recorded and their location per field season from Moratto's reports. This is due to Moratto's fieldwork reporting technique and to the fact that the state and national park boundaries were not yet finalized.

A Study of Cultural Resources in Redwood National Park

Polly McW. Bickel, 1979

Initiated by Michael Moratto in 1977 and completed by Polly Bickel in 1979, this major study was contracted by the Service to:

(1) supplement data provided earlier by Moratto (1973a);

- (2) initiate the inventory and evaluation of prehistoric and historic cultural resources within the 1978 Park expansion lands;
- (3) consult with local Native Americans in order to identify contemporary concerns; and
- (4) contribute to the cultural resources component of the Park's General Management Plan.

The study focuses on prehistoric and historic cultural resources associated with Indian people who lived upon and used lands currently held by RNP, including archaeological sites and places of contemporary Native American concern. Non-Indian historic cultural resources are not addressed by this study, since they had been considered by Bearss in 1969 and Soulliere in 1978. Bickel's methods of data collection included:

- (1) ethnographic, linguistic, ethnohistoric and archaeological background research;
- (2) archaeological surveys within selected areas of RNP and state park holdings; and
- (3) consultations with over fifty local Native Americans having traditional ties to Park lands; several non-Indian, long-term residents of the Park knowledgeable about local history and land use; professional archaeologists familiar with northwest California; and National Park Service (NPS) staff.

Study methods and results are presented in Volume I, containing 116 pages of text, an extensive bibliography, nine appendices, six pages of illustrations, five maps and 25 plates. Volume II contains approximately 350 pages of National Register of Historic Places draft nomination forms, archaeological site records and artifact catalogue sheets.

Bickel briefly describes pertinent ethnographic information, referring to the more detailed overview presented by Moratto in his 1973 studies, and presents additional published references which relate to the newly acquired holdings. She then addresses two kinds of ethnographic information directly relevant to the study at hand: (1) consultations with modern Indians having traditional ties to RNP who identified areas of contemporary concern; and (2) prehistoric settlement/subsistence pattern data used to develop a sensitivity model and guide the survey. The consultations with local Indians are notable in that many people were contacted and the accuracy and completeness of the data are verified by the consultants. Consultants also made recommendations for the management of these resources. The goals, methods and results of consultations with Native Americans are detailed in Appendix 5 of the study, along with recommendations for future consultations and a description of the consultation costs. Burial areas, other sacred places, and food and raw material gathering sites are concerns highlighted by the Indian consultants. Established during this study, five Native American Heritage Advisory Committees continue to exist, ensuring that Indian concerns are addressed by RNP managers.

The linguist Kenneth Whistler, using linguistic and archaeological data, develops a model of prehistoric population movements in the northwest California coastal area which differs in order and ages from that proposed by Moratto in his 1973 study. The following sequence is proposed by Whistler in the Bickel report:

Ancestral Karok and/or other Hokan affiliates:	earliest
Ancestral Wiyot:	1000 years B.P.
Ancestral Yurok:	850 years B.P.
Ancestral Tolowa/Hupa/Chilula:	650 years B.P.

Whistler's model suggests new archaeological test implications for RNP.

An ethnohistoric overview, authored by Leo Barker, examines the effects of White contact upon the three identified Indian groups who formerly occupied Park holdings. Using documentary materials on file in several libraries throughout the state, plus historical reports prepared for RNP, Barker organizes the data by specific time periods characterized by different White activities: early sea explorations (1542-1800), fur trade by land and sea (1800-1848), early American era (1848-1870), and later American era (1870-1900).

Bickel summarizes archaeological background data presented earlier by Moratto and discusses research performed since 1973 in the vicinity of the Park. Appendices summarizing the research of four individuals supplement her discussion. Bickel notes that a large number of previously documented prehistoric sites no longer exist, mainly due to coastal development, while the remainder of recorded sites typically show damage from logging, farming and road building activities, making the preservation of cultural resources within RNP all the more critical.

The focus of the archaeological background chapter is to test the validity in RNP of a predictive model of prehistoric site locations based on subsistence/settlement pattern data for the Middle Eel drainage, south of the Park. The extant model predicts that certain functionally different types of sites, such as seasonal and year-round habitation sites or task-specific sites, would be found at certain localities, including major trending ridges, secondary ridges, river terraces, lower slopes and mid-slope flats. While the model accurately predicts archaeologically-sensitive areas within the Redwood Creek basin, it fails to predict the kinds of cultural remains suggestive of site function. For example, named Chilula principal village sites are located near the ridgecrests, not downslope near the major water course as the model predicts. Modifications to the predictive model as applied to parklands in the Redwood Creek drainage are suggested, demonstrating the utility of applying such models to structure analyses of survey data. Bickel concludes the chapter by discussing an implication for future research in RNP, specifically a comparative study of uplands use by the Chilula, Yurok and Tolowa.

The first survey goal, to supplement Moratto's 1973 data, involved several specific tasks: relocation and assessment of several previously recorded sites; inspection of several specific areas identified by Indian consultants; examination of Special Study Sites designated by Park planning teams; and a search for archaeological evidence of the specific historic cultural resources described in written records. This effort led to the identification of 15 prehistoric sites, four historic sites and several negative findings.

The second goal of the survey was to initiate the inventory and evaluation of cultural resources within the newly acquired Redwood Creek basin. This included information for long-range planning and management of Park lands, and the refinement of the subsistence/settlement pattern models currently being addressed by northern California archaeologists by developing and testing a research design for the Redwood Creek drainage. Bickel determined that use of a formal survey sampling strategy was not productive or cost-effective because poor surface visibility, frequent soil slumpage and heavy logging disturbances hampered discovery of sites within the time allotted for fieldwork. Based on archaeological data from other areas of northwest California, a decision to focus fieldwork on more archaeologically-sensitive settings, such as major trending ridges and prairie/oak-woodland boundaries, was justified.

Twenty-three cultural resources recorded within the 2050 acres surveyed in the Redwood Creek basin include 19 prehistoric villages and seasonal camps, trail use sites, 'concentrations,' flake scatters, isolated finds, a doctor training site and four historic-era features. Of the 19 prehistoric cultural resources identified, all but three are located on the east side of Redwood Creek, primarily on or near major trending ridgelines. These sites are recommended for inclusion on the National Register of Historic Places as the Bald Hills Archaeological District. Bickel's attempt to correlate specific archaeological site locations with mapped ethnographic Chilula villages and camps discloses the limitations of the ethnographic data.

Bickel recommends:

- (1) develop procedures to systematically and regularly use the established network of advisory groups, consisting of local Indians, professional anthropologists, archaeologists and historians to effectively manage the Park's cultural resources;
- (2) develop and implement cultural resource interpretive programs by using the expertise of professional historians, anthropologists and local Indians;
- (3) hire a staff archaeologist, and establish a cultural resources reference library for staff use, an oral history program, a photo archive and curatorial facility for housing of archaeological specimens;
- (4) continue the inventory of cultural resources, and initiate archaeological test excavation programs and analyses of archaeological specimens;

(5) promote the ongoing use of cultural and natural resources such as the Brush Dance ceremonial site and traditional gathering areas by Indians having ties to Park lands;

(6) consult with archaeologists before any land alteration activities within RNP; and

(7) perform site-specific archaeological and historical studies.

The 1979 Bickel study is valuable because:

(1) the specific concerns of present-day Indian people for preservation and on-going use of the Park's cultural resources are formally and systematically addressed; Native American Heritage Advisory Committees are established;

(2) the inventory of cultural resources within the 1978 Park expansion into the Redwood Creek basin is initiated by a field survey which tested prehistoric settlement/subsistence pattern models;

(3) it is recognized that cultural resources located in upland areas of the Park, including areas disturbed by past logging activities, are significant because of their potential to yield data regarding differences in settlement/subsistence patterns of different areas;

(4) elements of ethnographic data which are relevant to archaeological research in RNP are identified;

(5) a model of prehistoric population movements within the north coast region is advanced by Whistler, who applied an archaeological linguistic approach; test implications of this model are offered for RNP;

(6) recent archaeological research in the vicinity of the Park by four individuals is summarized;

(7) the attention to detailing the methods and results of the study serves as a model for future reporters; and

(8) thoughtful, detailed CRM recommendations are advanced for the Park.

Three criticisms of the report are:

(1) the paucity of site-specific descriptions of contemporary Native American cultural resources in RNP suggests that these highly confidential data are not identified, although such identification was a stated goal of the project;

(2) temporal changes in prehistoric settlement/subsistence patterns within RNP are not addressed; and

(3) forested areas in the basin are not evaluated for their potential to yield archaeological data.

Redwood National Park Archaeological Survey of Proposed Rehabilitation Road Route and of Airstrip Creek Rehabilitation Unit with Comments on Survey of Logged Land Areas Sally Salzman, 1979

This brief report describes the results of an archaeological survey of three areas involved in the newly established Redwood Creek Basin Rehabilitation Program, including:

the proposed 6-mile long road designed to access rehabilitation units on the west side of Redwood Creek, originating at Highway 101 immediately south of Orick and mainly following a series of existing and former logging access roads;

the proposed 160-acre Airstrip Creek Rehabilitation Unit located on the east side of Redwood Creek immediately west of Counts Hill Prairie; and

the southern arm of Counts Hill Prairie, located immediately west of the above-named rehabilitation unit.

Discussion of survey methods and field conditions emphasizes the difficulties in locating archaeological remains in areas greatly disturbed by previous logging and road building activities. Like the 1979 work of Bickel in the Redwood Creek drainage, Salzman focused fieldwork on archaeologically-sensitive areas, such as prairies and prairie/woodland margins, and spent less effort on inspecting steep slopes characterized by heavy duff and logging debris or by dense forests. Further, Salzman performed only cursory field inspections by automobile of those portions of the proposed road which follow "major logging by-ways, well-graded and heavily graveled in the recent past," assuming that "any resources which may have been present on the roadbed would have been destroyed or obscured by road improvements" (pg. 3).

Along the proposed road, nine isolated prehistoric stone artifacts were recorded on or near ridgelines, and several manuports, unmodified cobbles believed to have been transported by humans and cached for later use, were noted. Within the proposed rehabilitation unit, one prehistoric camp site and one isolated prehistoric artifact were recorded, and one additional isolated find recorded immediately outside the unit in Counts Hill Prairie. A possible ethnographic reference to the site is discussed, and Salzman recommends that the camp site be included within the proposed Bald Hills Archaeological District.

The archaeological significance of the survey findings, Salzman argues, lies in their ability to contribute to an understanding of the full range of environmental settings used by humans over time in the Redwood Creek basin and so add to the settlement/subsistence pattern studies. The discovery of archaeological materials, including isolated artifacts, in areas heavily damaged by past logging activities, argues for the continuation of surveys in disturbed areas of the Park.

Salzman recommends:

- (1) perform intensive archaeological surveys of all prairies, prairie margins, all existing ungraveled roads and other manmade or natural clearings;
- (2) perform initially cursory field inspections of all logged over areas in order to assess potential for locating exposed soil surfaces, which should be intensively surveyed;
- (3) avoid ground-disturbing activities in areas where archaeological sites are known, and in areas where surface visibility is poor;
- (4) on an experimental basis, perform intensive surveys of a 10% sample of logged-over areas in order to address the sensitivity of these difficult-to-survey areas in terms of cost-effectiveness;
- (5) periodically monitor known archaeological sites in areas near rehabilitation activities; and
- (6) restrict activities along the margins of the archaeologically-sensitive Bald Hills Road.

The 1979 Salzman study is valuable because:

- (1) survey results expand those reported by Bickel in 1979 for the Redwood Creek drainage; and
- (2) specific survey and protective measures are advanced for the Redwood Creek Basin Rehabilitation Program.

Deficiencies are:

- (1) the lack of reference to historic and contemporary Native American resources in the report suggests that either (a) these resources were not specifically addressed by Salzman, or (b) these resources are not present within the study area;
- (2) because of the lack of environmental, ethnographic and archaeological background data in this report, it does not stand alone as a significant resource document on the CRM program at RNP.

Archaeological Survey in Rehabilitation Units in Redwood National Park, California Sally Salzman and Polly Bickel, 1979

The purposes of this study were to:

- (1) identify and evaluate cultural resources in areas scheduled for Park undertakings,
- (2) identify and assess the kinds of impacts to cultural resources that may result as a consequence of project implementation, and
- (3) recommend management procedures aimed at reduction or elimination of potential adverse effects to cultural resources.

Survey areas consisted of the following:

nine rehabilitation units, totalling nearly 2200 acres, located mainly on the east side of the Redwood Creek basin; 4

12 small parcels involved in planned Park maintenance and minor construction projects;

the margins of the Bald Hills Road where select cutting was proposed to remove conifers which were intruding upon former prairies;

a Monterey pine plantation scheduled for removal; and

a 126-acre section of Redwood Valley located in and near the Park Protection Zone.

The effective environment of the rehabilitation units study area addresses specific variables which pertain to survey methods, results and management recommendations. These variables include:

(1) present vegetation on logged slopes and how it affects ground visibility during fieldwork;

(2) cultural impacts of past logging practices or how major surface disturbances and subsequent erosion affect topographic features; and

(3) planned rehabilitation procedures or what these procedures are and how they may impact cultural resources.

Because so little is known of the potential for prehistoric site occurrence on steep, formerly forested mid-slope areas of the Redwood Creek basin, a complete, intensive survey of rehabilitation units was performed to generate data which could be used to develop future mixed strategy surveys in similar settings. In this report a total of eight prehistoric and one historic sites are newly described; new data are given for three prehistoric sites recorded by Bickel in 1979, and six isolated prehistoric artifacts are noted.

Other aspects of project research include:

(1) Native American consultations designed primarily to inform special interest groups of the nature and goals of the present study, and secondarily, to obtain new ethnographic data pertaining to the study area;

(2) archival research and oral history interviews concerning the historic Lyons Ranch, the results of which are described in an appendix;

(3) project briefings and site inspection tours with NPS staff, other state and federal agency archaeologists, students and local Native Americans.

Critical evaluations of survey methods and theoretical results are provided by Salzman and Bickel, making a significant contribution to the Park's CRM program. First, survey rates within the rehabilitation units are discussed: although complete, intensive survey coverage averaged 45 acres per person day, the range--from 20 to 90 acres per person day--was great due to differences in steepness, ground visibility, access time and site recording time. Second, prehistoric site occurrence and its relationship to survey coverage biases within rehabilitation units is addressed: while logged areas, low and

mid-elevation slopes and the west side of Redwood Creek basin are all disproportionately under-represented in the nearly 4300 acres surveyed by Bickel in 1979, Salzman in 1979, and Salzman and Bickel in 1979, the data suggest that the east side of the basin, prairie and oak woodland settings, and ridges and upper slopes are the most archaeologically-sensitive areas. Of significance, they note that theirs was the first known discovery of substantial prehistoric archaeological deposits in sloped areas severely impacted by logging, since only isolated artifacts and sparse lithic scatters had been previously identified in this setting.

Assessing survey conditions and results, they note that vegetation regrowth and ground visibility are key factors for determining the feasibility of survey and likelihood of site discovery. Salzman and Bickel conclude their discussion of methodological results by proposing that future surveys in rehabilitation units perform mixed strategy surveys to identify areas requiring intensive inspections. The emphasis should first be placed on evaluating survey feasibility, and second, on testing a model of site occurrence within the basin based on existing data.

Regarding theoretical results of their study, they note that:

(1) new ethnographic data concerning a Chilula village was obtained from an Indian consultant;

(2) the present study results support earlier studies in the Redwood Creek basin, suggesting specific avenues for future research of prehistoric settlement/subsistence patterns; and

(3) survey findings in Bald Hills and Redwood Valley serve to illustrate the significant differences in topography and the contrast in settlement patterns between the northern and southern portions of Chilula territory--a point suggested by existing ethnographic data. Regarding the latter, they advance the following hypothesis to be addressed by future researchers:

...the northern Chilula spent relatively little time in occupation sites on the lower slopes or adjacent to Redwood Creek; instead, their principal settlements were on the upper slopes and ridges of the Bald Hills. In contrast, the southern Chilula spent much time on the lower slopes and adjacent to the creek; their principal settlements were located on creek-side flats (pg. 37).

Two future research needs are outlined:

(1) refinement of survey strategies for rehabilitation units by developing a model of prehistoric archaeological sensitivity as an aid to cultural resources managers; and

(2) interpretation of survey findings by developing a settlement/subsistence pattern model for the basin as an aid to archaeological research.

Salzman and Bickel recommend:

(1) surveys should precede rehabilitation activities by two years, allowing adequate time for the assessment of potential impacts, for consultations with appropriate state and federal agencies, and where necessary, for development and execution of multiphase testing and mitigation programs;

(2) a mixed strategy field survey should be performed with the aid of air photos; and

(3) information on all planned rehabilitation activities, including crew camp and access road locations, should be acquired as early as possible to head off potential conflicts between historic preservation and the rehabilitation program.

Addressing the Park's responsibility towards cultural resource preservation within the Park Protection Zone, Salzman and Bickel recommend that archaeological assessment of timber harvest plans and other proposed activities be included as a component of the review before the Park approves any action which might destroy significant cultural resources. Finally, recommendations are offered for site-specific rehabilitation units.

The 1979 Salzman and Bickel study is valuable because:

(1) new cultural resources data are documented for the Redwood Creek basin, supplementing that presented earlier by Bickel in 1979 and Salzman also in 1979;

(2) archaeologically-sensitive areas within the basin are formally identified, and biases in survey coverage and difficulties encountered during fieldwork are set forth based on systematic analysis of available survey data;

(3) a methodologically-sound and cost-effective mixed strategy survey approach is proposed for future surveys within rehabilitation units based on the above;

(4) a testable hypothesis is advanced for future studies of Chilula settlement/subsistence patterns based on analysis of archaeological and ethnographic data for the Chilula;

(5) the value of modern ethnographic research is demonstrated;

(6) positive public relations between the Park and archaeologists from other public agencies, college students, and the Indian community are fostered; and

(7) appropriate management recommendations are offered.

Criticisms are:

(1) contemporary Native American cultural resources are not specifically identified within the survey areas, and these may exist;

(2) temporal control of archaeological deposits and changes in vegetation over time are not addressed in the analysis of settlement pattern differences between the northern and southern portions of ethnographic Chilula territory.

Archaeological Reconnaissance of Two Rehabilitation Units: The Lower K & K Road Unit and the Devils Creek Y-2 Road Slope Unit and the Archaeological Testing at CA-HUM-484, Redwood Creek Basin, Redwood National Park, California Ann G. King, 1980

The purpose of this study was to identify prehistoric and historic cultural resources within two proposed rehabilitation units located in the Redwood Creek basin along the southern boundary of RNP, and to formally evaluate the significance of a single prehistoric site by performing a test excavation. The study area included:

the 80-acre Lower K & K Road Unit located on the lower slopes to the east of Redwood Creek,

the 300-acre Devils Creek Y-2 Road Slope Unit located on the mid-slopes to the west of Redwood Creek.

Natural and cultural factors affecting the survey are discussed. In particular, factors which affected ground visibility include regrowth vegetation, soil instability and ground disturbances from past logging activities. Natural variables, such as degree of slope and presence of drainages, and the location of a Chilula village described in the ethnographic literature figure into an evaluation of the archaeological sensitivity of these units. Consequently, a mixed strategy survey, as defined earlier by Salzman and Bickel was undertaken by Ann King, who details field conditions in each unit.

No cultural resources were identified during this survey. King notes, however, the remote possibility that buried archaeological materials may be unearthed during rehabilitation activities, and recommends that work be temporarily halted in the vicinity of such finds to allow for an archaeological evaluation of their significance. Further, she suggests that prehistoric use of the study areas may have occurred, although archaeological evidence has not been encountered during fieldwork. King notes that the west side unit supports a large number of tan oaks which may have been harvested by the Chilula, and suggests that a trail may have crossed the east side unit, leading down a subsidiary ridge to Redwood Creek from a recorded village site located above the unit.

The 1980 survey by King contributes to the cultural resources data base of the Redwood Creek basin, since negative findings may also advance our understanding of past human land use.

Criticism are:

- (1) failure to address potential for contemporary Native American cultural resources;
- (2) failure to address historic archaeological sensitivity;
- (3) ethnographic and archaeological background data are not detailed;
- (4) few pertinent references are cited.

An Archaeological Survey of Eleven Inventory Units, Redwood National Park, Humboldt County, California Suzanne Baker, 1981

Suzanne Baker of Archaeological Consultants, Oakland, was contracted in 1980 by RNP to perform a mixed strategy archaeological reconnaissance of approximately 1900 acres located in 11 inventory units in the Redwood Creek basin rehabilitation project area. These included:

- five units situated on mid-slopes to the east of Redwood Creek,
 - C-30/W-Line roads and slope
 - D-Line roads and slope
 - Upper and lower Slide Creek
 - North side Copper Creek

- six units situated along upper ridges to the west of Redwood Creek,
 - Y-2 road and slope
 - End of Y-Line road and slope
 - Y-Line/M-2 roads and slope
 - M-7-5-2 road and slope
 - M-7-5-1 road
 - Bridge Ridge M-6-1/M-6-2 roads and slope.

Baker notes that this project involved the most extensive survey of lands on the west side of Redwood Creek, an area virtually unknown archaeologically. The purposes of the study were to provide the Park with the following information:

- (1) inventory data to insure the proper management, evaluation, and protection of cultural resources;
- (2) information to aid in evaluating cultural resources for nomination to the National Register of Historic Places; and
- (3) a systematic body of data for future researchers' use (pg. 1).

A descriptive summary of the study area notes that inventory units primarily consist of extensive regrowth within clearcut areas, and that past logging activities have caused extensive ground surface modifications.

Ethnographic data suggest that the Chilula were the primary users of the area, although it is possible that the Yurok had also utilized the ridgeline of the west side units separating the two territories. Ethnographic and archaeological data gathered by Salzman and Bickel in 1979 provides information on the settlement/subsistence pattern for the Chilula within the basin. Also provided are pertinent references concerning Chilula ethnography, ethnohistory, previous archaeological studies in RNP and elsewhere, and regional history, focusing on factors which figured into the archaeological sensitivity of the study area. The research design for RNP by Bickel and King in 1980 guided the study.

Prefield research involved a review of pertinent ethnographic, historic and archaeological data. Native American consultations were the responsibility of the Park Archaeologist, and those methods and results are not included in the report.

Based on the recommendations of Bickel and King made in 1980, a mixed strategy survey was performed. Factors affecting fieldwork such as ground visibility and steepness of terrain are detailed, and specific tasks performed and types of data gathered by the survey crew, such as environmental data and ground visibility, are summarized. Disturbed areas and locations of archaeological materials are mapped and described in fieldnotes.

A total of seven archaeological sites and 13 isolated prehistoric artifacts were located during the survey. These include two prehistoric sites and eight isolated prehistoric artifacts found within the west side units, and four prehistoric sites, one historic site, and five isolated artifacts found in the east side units. Specific factors affecting the survey are given for each unit, along with a descriptive summary of the cultural resources recorded, including location, shown on maps and in photographs, observed archaeological remains, physical integrity of the deposit, pertinent ethnographic and historical references, and discussion of the potential significance of each resource.

Regarding the survey of east side units, Baker notes that findings confirm expectations that areas of high archaeological sensitivity include prairie/oak woodland margins, and flats or benches found at mid-elevations above Redwood Creek. Further, the findings of sites on major ridges to the west of the creek confirm expectations in an area that was previously unknown archaeologically. Finally, the discovery of isolated prehistoric artifacts on steep, heavily logged slopes demonstrates the need to continue surveys in these settings, particularly because logging activities have modified natural features, such as benches and flats, springs, and vegetation. Of note, Baker suggests that significant vegetation changes may have occurred within the basin since prehistoric times.

Baker recommends:

- (1) only cursory surveys of graveled roads cut into 50% or greater slopes need be performed;
- (2) mixed strategy surveys within clearcuts should be performed as early as possible due to the problem of rapid regrowth affecting surface visibility; and
- (3) a general historic overview should be prepared for RNP in order to assist with evaluations of historic site significance.

This 1981 Baker study is valuable because:

- (1) seven archaeological sites are located in areas of predicted high archaeological sensitivity;

(2) differences in the intensity of prehistoric human use of the eastern and western sides of the basin are disclosed;

(3) the report stands as a useful reference of cultural resource studies completed for RNP;

(4) the potential for significant vegetation changes within the basin is recognized; and

(5) legitimate CRM recommendations are advanced for RNP.

A shortcoming of the report is that Native American consultations performed by in-house staff for this project are not documented.

An Archaeological Survey of Seven Inventory Units, Redwood National Park, Humboldt County, California Suzanne Baker and Sally Salzman, 1982

Archaeological Consultants of Oakland was contracted in 1982 to perform a mixed strategy survey of approximately 7000 acres located within the Redwood Creek basin. The particular emphasis was on inventorying prehistoric cultural resources on the west side of the basin, where six of the seven rehabilitation units under study are located. The primary goals were identical to those stated for the 1981 survey by Baker. Additional goals included:

(1) provide data to test archaeological sensitivity models for the entire basin;

(2) provide data to examine settlement/subsistence pattern differences between the eastern and western sides of Redwood Creek; and

(3) ascertain whether certain artifacts found along the ridgecrest separating the Redwood Creek basin from the coast could be used to define the territorial boundary between the Chilula and Yurok.

The description of the project area environment is essentially the same as that provided by Baker in 1981, except that a list of flora and fauna observed during fieldwork is included in this study. Likewise, the discussion of ethnographic, archaeological and historic background data repeats that presented by Baker in 1981, with the two notable additions, a discussion of the ethnographically-described settlement/subsistence pattern for the Yurok and a description of historical references to the Trinidad Trail, which possibly traversed the study area.

In the discussion of prefield research, Baker and Salzman cite specific archaeological, ethnographic and historic references. The description of survey methods virtually duplicates that presented earlier by Baker, except that the mixed strategy approach to this study is explicitly defined, as follows:

(1) all portions of each unit are field checked;

(2) areas with less than 50% slope and adequate ground visibility are surveyed as completely as possible;

(3) areas with greater than 50% slope and adequate visibility are given at least limited inspection; and

(4) archaeologically-sensitive areas are inspected as completely as possible.

In addition, complete, intensive survey coverage was performed for highly sensitive areas located on ridgecrests outside the rehabilitation units under study. Factors affecting fieldwork are described.

Six prehistoric sites and eight isolated finds, including one recent flume, were recorded for the east side unit, and one prehistoric site and six isolated prehistoric artifacts were recorded for the west side units. In addition, one prehistoric site was recorded outside the east side unit. Adopting the format developed by Baker in 1981, Baker and Salzman detail survey unit locations, field conditions and archaeological findings for each unit, addressing factors such as ground visibility which affect fieldwork, topography and historic ethnographic references which affect archaeological sensitivity.

A summary of present and past survey work within the Redwood Creek basin and recommendations for future research there conclude this report. Considered unique are the cluster of six sites and three isolated finds found during the present study, along with two previously recorded sites located in previously forested settings on the east side of Redwood Creek. Observed artifacts are suggestive of year-round habitation, whereas their settings are suggestive of exploitation of forest resources. Future comparative analyses of site data may disclose temporal changes in the advance and retreat of forest and prairie communities. Further, the finding of four of these sites on subsidiary ridges suggests a settlement/subsistence pattern which may apply to similar settings. The frequent occurrence of isolated artifacts along subsidiary ridges further suggests trail use. The lack of firm evidence of the historic Trinidad Trail in the form of wagon ruts within the study area may be due to extensive land modifications.

Reviewing the studies completed within the basin, Baker and Salzman observe that prehistoric use of the west side was clearly less intensive than the east side. West side cultural resources are mostly suggestive of trail use, although seasonal resource exploitation activities are also suggested by the two possible habitation sites identified there (CA-HUM-527, -677). They note that projectile point forms observed at these two sites are unlike those reported for Yurok coastal sites, implying temporal differences. Because so few sites are known for the west side of the basin, they were unable to perform a systematic comparison of settlement/subsistence pattern differences between the west and east sides. Survey data confirm the archaeological sensitivity model advanced for the east side, and new findings imply that subsidiary ridgelines are also sensitive. Ridgecrests on the west side are clearly the most sensitive setting

there. Their finding of an isolated stone net sinker, common to Yurok coastal villages, tentatively implies use of the west side by the Yurok.

Baker and Salzman recommend:

(1) subsidiary ridges trending north/northeasterly from the Bald Hills, should be surveyed in order to acquire data to address Yurok-Chilula and Hupa-Chilula interactions, inland resource exploitation patterns and early prehistoric migration routes;

(2) palynological studies should be conducted to reconstruct temporal changes in vegetation, particularly the advance and retreat of prairies and forests; and

(3) the two habitation sites identified on the west side (CA-HUM-527, -677), recognized as the only substantial archaeological deposits located between parklands in Redwood Creek and the coast, should be test excavated in order to formally address site significance in terms of National Register criteria.

The 1983 Baker and Salzman study is valuable because:

(1) the theoretical scope of archaeological survey work for RNP is expanded, demonstrating the usefulness of survey data for investigating intraregional settlement/subsistence pattern differences in the Redwood Creek basin;

(2) the prehistoric archaeological data base for the basin is expanded, particularly for the west side;

(3) sensitivity models for prehistoric use of the basin are tested and modified;

(4) potential temporal differences between particular sites in the basin are identified;

(5) potential changes in vegetation patterns in the basin are recognized; and

(6) sound CRM recommendations and archaeological research questions are advanced.

Two criticisms are:

(1) discussion of settlement/subsistence patterns, namely the cluster of east side sites found in forest settings, would have been more meaningful if temporal controls had been applied; and

(2) the methods and results of Native American consultations performed by the Park Archaeologist for this study are not documented in this report.

Summary of Survey Projects

Archaeological survey projects completed to date for RNP contribute to advances in the Park's CRM program, as well as archaeological method and theory. These contributions are:

(1) a cost-effective "mixed strategy" survey procedure for Park holdings in the Redwood Creek basin was recommended and tested, contributing to advances in archaeological method;

(2) most of the surveyable lands within the Redwood Creek basin are subjected to a "mixed strategy" survey procedure as defined in 1979 by Salzman and Bickel, resulting in the identification and formal recording of 68 historic, prehistoric and contemporary Native American cultural resources;

(3) a reliable predictive model of archaeologically-sensitive areas within the Redwood Creek basin is advanced, contributing to archaeological research of prehistoric settlement/subsistence patterns in California; and

(4) Park actions, particularly the Watershed Rehabilitation Program, are in full compliance with pertinent CRM policies and laws, and fulfill the Park mandate for preservation of cultural resources.

Criticisms of the survey reports are:

(1) The reports fail to fully document the results of consultations with Native Americans having ties to the Park, since no references are made of specific contemporary Native American cultural resource sites identified by consultants. These sites are identified by Native American Heritage Advisory Committees, but site-specific descriptions and locations are excluded from survey reports because of the confidential nature of these data.

(2) The survey projects are biased towards identification of prehistoric cultural resources, and although many also address historical sites, they fail to state these survey findings, even negative ones. The focus on prehistoric archaeology, however, is common to California archaeological surveys prior to the 1970s.

(3) The discussion of prehistoric settlement/subsistence patterns by Bickel, 1979, and Baker and Salzman, 1982, among others, fails to address the possibility that the archaeological sites analyzed are not of equal age. This unstated assumption, that all sites represent more-or-less contemporary human use, was commonly held by archaeologists studying the prehistory of northwest California until quite recently. The early 1980s investigations at South Fork Mountain/Pilot Ridge, in particular, contributed new archaeological method and theory, by demonstrating (a) the usefulness of obsidian

hydration analysis as a dating method, and (b) an older and more complex prehistoric chronology of northwest California than was previously hypothesized (refer to Chapter 2 of the present report for details).

(4) The archaeological surveys performed by Moratto in 1971, 1972 and 1973, along the coastal frontage areas of the Park are not complete, and additional reconnaissance may be necessary to identify other, non-ethnographic cultural resources within those areas.

Archaeological Excavations

Seven RNP archaeological test excavation projects and descriptive reports were completed between 1972 and 1983 (Table 1). A total of 14 prehistoric sites were investigated, including two coastal sites located in ethnographic Tolowa territory and 12 sites located in Chilula territory on Bald Hills ridge. Among these 14 sites, ten were test excavated, and the remaining four were subjected to intensive surface analysis and limited auger testing.

The purpose of these investigations was either (1) to acquire data in order to evaluate the integrity and significance of the deposits for National Register nominations, or (2) in compliance with Section 106 of the National Historic Preservation Act, to advance mitigation measures to reduce or eliminate adverse impacts expected from Park undertakings.

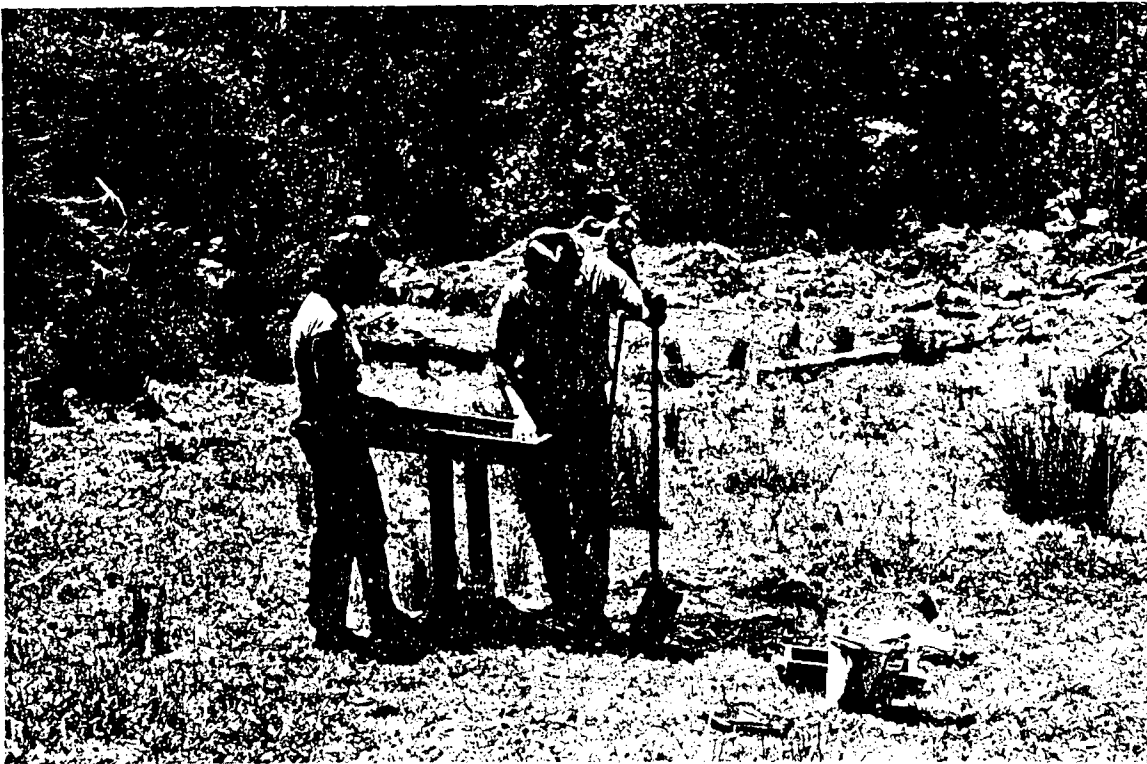


Figure 15. Archaeological excavation at CA-HUM-528, Redwood National Park.

A number of standard archaeological methods were employed during the Park excavation projects. Prepared during fieldwork were accurate, to-scale site maps showing the locations of excavation units and sample

areas, and, usually, site boundaries and pertinent geographical features. A permanent mapping reference point was established on-site so that future investigators can relocate these features. Because archaeologists wanted to compare the numbers and kinds of artifacts found at certain depths in certain volumes of the deposit, excavation units were regular in shape and soils were usually excavated in 10-centimeter standardized increments. Picks, shovels and hand trowels were the more common tools used to excavate sites, except where cultural features such as human burials and fire hearths were encountered. In these instances, excavation techniques were employed to carefully remove surrounding soils and expose these remains in place. Unit soils were screened through 1/4 or 1/8-inch mesh in order to recover all artifacts and other cultural constituents such as animal bones and shellfish remains (see Figure 15). After each level was completed, the artifacts were placed in bags labelled with their provenience, and unit-level records were completed, noting site and unit numbers, level depths, numbers and kinds of cultural items, soil color and texture, evidence of disturbance and other salient features. Excavation units were usually terminated after non-artifact bearing soil or bedrock was encountered. Where changes in soil color and/or texture were visible in the side-walls of units, these stratigraphic profiles were sketched. Occasionally, soil samples from the unit side-wall were recovered for future study. In situ cultural features were sketched to-scale and/or photographed, and the associated remains bagged separately for later analysis. In addition, these projects were photo-documented before, during and after the excavation. Finally, units were back-filled, sometimes after being lined with perforated plastic or other time markers.

After fieldwork all recovered cultural remains were washed and air-dried, and sorted into categories. A permanent accession number was assigned to the artifact assemblage from each site, and a catalogue prepared. During cataloging, each artifact or group of artifacts was counted, weighed, described and labelled, resulting in a permanent record of the collection. Afterwards, all cultural constituents assigned to each category were totalled by number and/or weight, and special analyses were conducted on particular groups. For instance, the shellfish remains were segregated by species and obsidian hydration analysis was conducted on samples of obsidian flakes.

From the data generated at the ten test excavated sites we now have a better understanding of the prehistoric human use of the Park. We know that the two tested coastal sites were used by the Tolowa into the historic period, while the Bald Hills sites were used by the Chilula and possibly by earlier peoples who were identified by significantly different archaeological assemblages. There are considerable differences in the preservation of culturally-introduced organic remains at interior and coastal archaeological deposits. Fish, mammal bones and shellfish discarded by the former inhabitants of the Enderts Beach site are plentiful, while similar organic constituents

are rarely preserved at the Bald Hills sites. Consequently, dating of interior sites weighs heavily on use of obsidian hydration analysis and cross-dating techniques, while C-14 analysis may be used in conjunction with other techniques to date coastal sites. Studies of the seasonality of site occupation and of the various plant and animal resources exploited during prehistory are more likely to be directly reflected by organic remains preserved in coastal sites.

All of the excavation reports include field and analytical methods, results, site maps, artifact illustrations and presentations of data in table form. Where discernable soil changes and/or cultural features were observed, stratigraphic profile sketches and feature drawings and/or photographs are provided. Catalogues are included as appendices for most of the reports.

Table 2. Test excavated sites reported for Redwood National Park.

<u>Reference</u>	<u>Site #</u>	<u>Location</u>	<u># units(cu.m.)</u>	<u>Interpret.</u>
Moratto 1972 Moratto 1973a	CA-DNO-14	Enderts Beach	3 (7.2)	Tolowa summer camp, late
Benson 1978	CA-DNO-15	Cushing Creek	1 (0.6)	historic Tolowa burial
King 1980	CA-HUM-484	Bald Hills	5 (2.1)*	possible Chilula village, late
King & Bickel 1980	CA-HUM-439	Bald Hills	2 (1.5)	Chilula village, late; "earlier" use
	CA-HUM-452	Bald Hills	3** (1.6)	"earlier" village
Benson 1981	CA-HUM-442	Bald Hills	6 (3.6)	"earlier" temporary camp
Benson 1983	CA-HUM-643	Bald Hills	3 (2.8)	"earlier" temporary camp
	CA-HUM-444	Bald Hills	4 (1.4)	"earlier" temporary camp
	CA-HUM-446	Bald Hills	4 (3.2)	"earlier" village
	CA-HUM-479	Bald Hills	4 (2.3)	late and "earlier" village

* Total estimated

** Includes one incomplete unit

Archaeological Investigations in the Redwood National Park Region,
California Michael J. Moratto, 1972

In 1972 Moratto conducted archaeological test excavations south of Crescent City at the mouth of Nickel Creek at Enderts Beach, designated as site CA-DNO-14. This ethnographic Tolowa site was known as Shinyatlchi or "in summer where they dry surf fish." Amelia Brown, then a 104-year old Tolowa consultant, had, as a very young girl, often visited her grandfather living there. Oral history data provided by Amelia Brown, published ethnographic data, comparative excavation data for nearby coastal sites and the excavation results obtained by Moratto were all used to interpret the lifeways of the former site inhabitants.

Archaeological remains at CA-DNO-14 consisted of three midden areas situated on a low bluff and adjacent terraces overlooking Enderts Beach. Since the site's abandonment, the archaeological deposit has been modified by the natural agents of wave cutting and slippage and by the cultural agents of construction of an access road, parking lot and picnic/camping area, and by uncontrolled looting.

The panoramic view, fresh water source and proximity to a variety of abundant marine, littoral and terrestrial resources may have been factors in the selection of this locality as a habitation site. Moratto describes the more common plants, land and sea mammals, shellfish, fishes and birds important to the Tolowa presently found in the site vicinity. Although the site is exposed to the prevailing northwesterlies, the Tolowa traditional use of large, semi-subterranean houses would likely have made strong winds inconsequential.

In addition to the three excavation units dug by Moratto, one additional unit had been excavated earlier by Richard Gould, a noted Tolowa ethnographer and archaeologist. Moratto's excavations addressed several objectives: faunal and lithic remains were systematically collected in order to reconstruct the diet, exploitative pursuits and seasonality of site use; charcoal samples and obsidian flakes were collected to date site occupation; and comparative archaeological data were acquired in order to investigate cultural relationships between this site and other contemporary coastal habitation sites. The size of the test units, one, 2x2 meter unit, and two, 1x2 meter units, suggests that Moratto hoped to encounter and document cultural features by exposing fairly broad areas.

Three types of cultural features are reported for CA-DNO-14. One type, interpreted as a "dump" area for food refuse, consists of an irregular layer of crushed shells and bone fragments situated at the base of the archaeological deposit. Observed within one of the exposed "dump" features was a dense layer of tiny fish bones and fine sand, underlain by a thin, even layer of charcoal. The second feature type consists of a house floor where a stone chopper, bone awl fragment, stone drill, arrow point, bone fishhook, incised bone and a circular

fire hearth like that described for the historic Tolowa were found. The final feature type consists of a human burial encountered in a sub-midden pit. The human remains were not cleared of soils, nor were they removed.

Artifacts and other cultural constituents recovered during the excavation are listed in Table 3. The recent or historic items found in the upper 30-cm of the deposit are probably not associated with the Indian occupation. The preponderance of chert and occasional milky quartz flaking debris, over obsidian flaking debris implies that chert and quartz tools were manufactured on-site, whereas finished obsidian implements were traded to the coast. Using x-ray fluorescence analysis data, Moratto determined that the obsidian traded to the coast was sourced to Medicine Lake Highlands. There is evidence that fire was used to fracture chert cobbles, producing fortuitous chips. These chips were selected for later retouching. Preliminary analysis of the fish remains indicates that both deep and shallow water species were present in the midden sample.

Amelia Brown visited the site during excavation. She was able to give a wealth of information about the Indian settlement prior to its abandonment in the 1870s or 1880s, including locations of family houses and a sweathouse, the importance of smelt fishing as an economic activity, salmon and trout fishing in Nickel Creek, offshore sea lion hunting, butchering of sea mammals on a large log, specific gathering areas for "quahogs" and ocean mussels, and locations of trails to other habitation sites and for hunting forays into the forested interior.

Table 3. Selected cultural remains from Enderts Beach site, CA-DNO-14.

Chipped Stone:

14 projectile points
1 drill
1 biface
18 flake tools
1 cobble chopper
8 "formal" chert cores
ca. 125 fire-fractured chert cores

Bone & Antler:

9 antler wedges
1 harpoon tip
1 incised bone
4 bone fishhooks
7 pointed bone implements
1 bone needle
2 bevelled bone implements
1 whale (?) bone "blade"
2 bird bone tube fragments

Mammal Remains:

brush rabbit
ground squirrel
gopher
wood rat
whale*
gray fox
black bear
raccoon
sea otter
mountain lion
sea lion*
harbor seal*
elk*
deer*

Ground & Pecked Stone:

5 fishnet sinkers
1 tobacco pipe fragment
1 whetstone
1 piece of red ocher
9 beach agates ("curiosities")

Historic (intrusive):

5 .22-caliber shells
1 iron spike
1 small metal box

Molluscan Remains:

Washington clam*
gaper*
heart cockle
rock cockle*
ocean mussel*
razor clam
bent-nose clam
giant rock oyster
sea urchin
periwinkle
acorn barnacle
olive snail
chiton

*possibly the most important in diet

Moratto postulates that CA-DNO-14 represents a small settlement of three or four houses occupied during the summertime by Tolowa fishing and gathering parties from another, larger village up Crescent Beach. By cross-dating certain artifacts to ones recovered from nearby coastal sites, he concludes that the site represents a single component occupation, dating back two to three centuries at most and terminating in the 1870s.

The report on the excavation of CA-DNO-14 was important in that Moratto identifies the types of archaeological and ethnographic data, excavation methods, and research strategies necessary to accomplish specific research objectives. Further, he documents the pertinent new ethnographic data gathered from Amelia Brown, and demonstrates a sensitivity, uncommon for that time, to the contemporary Indian community by leaving the human burial in situ. His report documents the results of the excavation project and contributes to our understanding of Tolowa prehistory over the past several hundred years. Methods used by Moratto more than a decade ago have only recently become common practice in California archaeology. Moratto might be criticized for not performing obsidian hydration analysis, a stated research strategy. The Service might be criticized for not funding detailed fish and carbon-14 analysis.

A Cultural Resources Survey In and Near Redwood National Park, California Michael J. Moratto, 1973a

In Chapter 6 of this report, Moratto briefly summarizes the results of his test excavation at the Enderts Beach site, CA-DNO-14. This summary was drawn from his earlier, more detailed report and presents no new data.

An Excavation and Reinterment of a Burial at 4-DNO-15 in Del Norte County, California James R. Benson, 1978

This brief report by Benson describes the archaeological recovery and reburial of human remains which had been exposed by erosion along the edge of an ocean bluff. Located nearly four miles south of Crescent City, CA-DNO-15 is situated on a 15-meter high terrace overlooking the ocean immediately north of Cushing Creek. Unmapped cultural features observed on the surface include two .5-meter high mounds and a possible housepit depression.

Benson's brief review of pertinent ethnographic background data is not useful. Although he names the Tolowa as the ethnographic inhabitants of the area, comparing their settlement/subsistence pattern to the Yurok, he does not describe these patterns or cite pertinent ethnographic references. In his discussion of archaeological research in Tolowa territory, Benson states that research "...has resulted in no major contributions to the culture history of northwest California, nor any substantial progress toward the reconstruction of prehistoric Tolowa lifeways" (pg. 2). He briefly describes the results of the tentative projectile point sequence for CA-DNO-11, the Point St. George site, and mentions the functional differences in point forms attributed by Tolowa and Yurok informants. Benson fails, however, to recognize the major contributions by Gould toward understanding Tolowa and north coast prehistory. Gould was the first to recognize evidence of

prehistoric cultural change along the north coast of California, and his C-14 date of 2260 ± 210 B.P. (circa 310 B.C.), from the Point St. George site, represents the earliest radiocarbon date yet recorded for any northwestern California site.

Prior to the removal and on-site reinterment of the human skeletal remains, Benson contacted two Tolowa consultants familiar with the Cushing Creek site to determine if the project plans were consistent with their wishes, and to obtain new site-specific ethnographic data. Mr. Goble Richards, who had visited the site as a child, recalled the sweathouse being used by an old man. Mrs. Lena Lopez recalled the names of four other former site occupants and the approximate locations of three houses and a sweathouse. Unfortunately, no information about the date of the site's abandonment is reported.

Benson's report contains an ethnographic description of Tolowa burial practices, and a lengthy account of early Del Norte settler Joseph F. Enderts' visit to the Cushing Creek site focusing on former resident, Cushing Creek Jack. Also included are dated historical photographs of several site occupants and the former sweathouse, implying that the site was still inhabited by at least three persons as late as circa 1910.

An excavation unit was superimposed over the exposed skeletal remains. Representatives of RNP and the Tolowa community witnessed the excavation and reburial. Archaeological remains recovered per each level included:

- 0-10 cm: none
- 10-20 cm: 3 pcs. glass, 1 chert flake, 1 pc. ceramic, 1 elk tooth fragment
- 20-30 cm: 5 pcs. glass, 3 chert flakes, 1 pc. redwood, top of skeletal remains exposed
- 30-40 cm: human skeletal remains, 2 pcs. redwood, 1 small pc. charcoal

The skeleton was incomplete and in poor condition. Oriented with the head to the north, the body was lying on the back with legs straight. A sketch of the burial is not included, although several photographs of the excavation are.

Based on the presence of "associated" glass fragments, Benson suggests that the burial represents that of a Tolowa dating to historic times. Because these pieces of glass were found above the skeletal remains and were not described as to color or identifying marks, this correlation is tenuous. The pieces of associated redwood suggest that the burial was lined with redwood planks, a finding common to other burials excavated locally. In accordance with the wishes of Mrs. Lopez, the remains were reinterred immediately after the excavation.

Benson recommends an archaeological excavation of the bluff area, followed by the planting of vegetation to reduce the rate of erosion.

The systematic removal and reinterment of a single human burial from CA-DNO-15 represents an appropriate CRM measure designed to mitigate the potential loss of archaeological data due to bluff erosion. Performed in consultation with Tolowa descendants having ties to the site, the immediate, on-site reburial displayed a sensitivity to the concerns of living Native Americans. While the burial may be historic, its dating is not thorough.

The report is deficient in that the probable date of site abandonment is not determined; locations of former structures and other pertinent locational and archaeological features are not cited; pertinent ethnographic and archaeological references are not cited; and Benson fails to recognize the importance of Gould's research at the Point St. George site and among the Tolowa.

Resource Evaluation at Nine Archaeological Sites, Redwood Creek Basin, Redwood National Park, California Ann G. King and Polly McW. Bickel, 1980

In order to provide input for the Watershed Rehabilitation Plan Environmental Assessment, the Service contracted for a cultural resources evaluation at nine prehistoric sites, designed to:

increase site data by examining samples of site surfaces in detail, to recommend methods for classifying site types and predicting site contents during future work, to recommend methods for determining site disturbance or integrity, and to gather subsurface data on two habitation sites (pg. 2).

Methods included: review of ethnographic data, test excavation of two sites, surface analysis of eight sites and limited auger testing of nine sites. All sites are located on the east side of the Redwood Creek basin along an 8-mile stretch of Bald Hills ridge within the Bald Hills Archaeological District.

Three Chilula descendants having ties to the area were informed of the project before fieldwork commenced. They supported the project as a means of obtaining information "for a people who have so little known history" (pg. 3).

In their review of pertinent ethnographic data, King and Bickel describe Chilula territory, the known or possible village names associated with the sites and the subsistence/settlement pattern. To be tested were: (1) the 1979 survey findings of Salzman and Bickel which suggest that in northern Chilula territory, settlement occurred on the upper slopes and ridges of Bald Hills rather than along Redwood Creek; and (2) the Whistler model of population movements.

King and Bickel provide a brief but comprehensive discussion of historic era land use in the Redwood Creek basin. Road building and logging activities, circa 1940-1960, as well as homesteading and development of trails connecting the coast with the interior, were activities which had particular impact on the cultural resources under study.

King and Bickel note that artifact forms and inventories for the coast are different from those described for the lesser known interior, making the project of particular interest, since it lies between these two research areas. Because surveys conducted in the interior generally support the prehistoric settlement pattern model proposed earlier by Jackson for the Middle Eel drainage, they expected that their site surface analysis would refine Jackson's site type model.

The test excavations at CA-HUM-439 and -452 were directed towards: (1) acquiring data about "apparent" habitation sites in the basin; (2) comparing these data with other sites excavated in the Park vicinity; (3) determining the age of the deposits; and (4) determining if data may be used to more specifically characterize the "principal occupation site" type. In addition to employing standard excavation techniques, augers were used to test soils below the terminal level of each unit; larger rocks were sorted according to whether they were fire-cracked or non-fire-cracked, and weighed for each unit-level; and backdirt from a looter's hole at CA-HUM-439 was screened to recover artifacts. Table 4 lists the total artifacts recovered. No discernable stratigraphy or cultural features were encountered at either site.

Table 4. Artifacts from CA-HUM-439 and -452 test excavations, Bald Hills.

<u>CA-HUM-439</u>	<u>CA-HUM-452</u>
19 projectile points	10 projectile points
1 biface	38 flake tools
4 flake tools	1 core
3 pestle fragments	1 possible pestle fragment
1 milling slab fragment	6 milling slab fragments
1 mortar fragment	11 ground & pecked tool frag.
1 ground & pecked tool fragment	16,735 chert flakes
1 piece of shell (freshwater)	2,050 obsidian flakes
60 pieces of bone *	(intrusive historic items
156 chert flakes	included: 4 nails, 1 pc.
254 obsidian flakes	glass, a 1957 coin)

* too fragmentary to analyze

Based on comparative data for coastal and interior sites, King and Bickel note that both study sites, particularly CA-HUM-452, contain a higher frequency of obsidian flaking debris. Obsidian sourcing data imply that most was obtained from Medicine Lake Highlands. Both sites exhibit a similar range of artifact types, implying that tool manufacturing, hunting, cooking, and processing of plant and animal products occurred at both. The relative abundance of scraping tools at CA-HUM-452 suggests that activities involving use of such tools were more important there than at CA-HUM-439.

Cross-dating of projectile point forms found on the two sites implies that CA-HUM-452 represents an older (Willits Pattern) deposit similar to those in the interior, and that CA-HUM-439 is more akin to coastal sites of the Gunther Pattern. Obsidian hydration data, summarized below, support this relative dating interpretation.

<u>Site</u>	<u>Sample #</u>	<u>Range (microns)</u>	<u>Average (microns)</u>
CA-HUM-439	24	1.2 - 3.6	2.4
CA-HUM-452	29	2.6 - 6.6	4.1

King and Bickel recommend that before further excavations are conducted at either site, additional lithic artifact analyses be performed on the materials collected during their investigation.

The purpose of the site surface analysis was (1) to expand site data; (2) to better define the "flake scatter" site type; (3) to refine the site typology for the basin; and (4) to evaluate the usefulness of surface analysis studies. The eight sites analyzed included two midden sites, one probable midden site, one flake scatter, two trail use flake scatters, and two concentrations within trail use flake scatters. The study method involved the placement of ten, 1x1 meter surface units at each site. Five surface control units were placed at pre-selected localities, while the remainder were placed on the basis of high concentrations of visible surface artifacts. After vegetation was cleared from each unit, all artifacts were collected, sorted, tabulated by type and frequency, and then returned to the unit. Study sites were described, mapped and the results tabulated.

King and Bickel note the following:

- (1) surface analysis does not necessarily result in observation of the total range of artifact types which may occur;
- (2) study results do not contribute to refinements of the "flake scatter" site type or the Redwood Creek basin site typology;
- (3) where future excavation is anticipated, surface analysis is useful for predicting the subsurface contents;
- (4) surface analysis is not likely to be useful for typing sites during surveys within the basin, although it is recommended as a follow-up procedure to assist in site evaluations.

Limited auger testing was undertaken to ascertain the usefulness of such tests in determining the area and depth of sites and for locating disturbed areas within them. Eight auger locations per site were selected. Because a power auger was used, artifact depths could not be maintained. Soils were screened through 1/8-inch mesh, and the artifacts collected. Strategies for placement of auger holes are described for each site.

King and Bickel note that, while augering was most useful for discovering buried deposits, negative results from limited augering may not rule out the existence of subsurface deposits. Limited augering programs were not particularly useful for defining site boundaries, or for locating disturbed areas within sites, tasks which might be better accomplished by using more intensive augering programs. King and Bickel recommend that in the future, limited augering programs be used only to test for buried deposits during follow-up site evaluations, and that a hand auger be used, so that artifact depth records may be maintained.

King and Bickel make several important contributions to the archaeological data base and to the Park's CRM program for the Redwood Creek basin. Excavation data indicate that inland sites evidence a lengthy period of human use and show affinities to both coastal and interior sites. Unfortunately King and Bickel did not note the presence of more obsidian than chert flakes at CA-HUM-439, a unique finding for the north coast area. Noteworthy are the many research questions, both theoretical and methodological, posed and the variety of field and analytical methods used to address them. Although their surface analysis program does not aid in refining the "flake scatter" site type or site typology being used for the basin, its usefulness for predicting the types of artifacts likely to occur within buried deposits is highlighted, as is the usefulness of limited auger testing.

Archaeological Reconnaissance of Two Rehabilitation Units: The Lower K & K Road Unit and the Devils Creek Y-2 Road Slope Unit and the Archaeological Testing at CA-HUM-484, Redwood Creek Basin, Redwood National Park, California Ann G. King, 1980

Located on a secondary ridge extending southwesterly off the Bald Hills, CA-HUM-484 is considered significant for the following reasons:

- (1) it was one of the first (sites) to be encountered on a highly disturbed logged slope; (2) it was one of the first substantial prehistoric sites to be noted at less than an 1800 foot elevation; and (3) its location, in a dense forest, conflicted with some ethnographic models (pg. 20).

The purpose of the test excavation was to determine if the deposit would be significantly impacted by rehabilitation activities that involved construction of a ditch and water bar, and removal of a road, a portion of a log deck and two ponds on the log deck.

During a prefield meeting between Park staff and the Chilula Advisory Committee, the proposed work was discussed and arrangements were made for an Indian representative to monitor excavations. Five test units were placed in the potential maximum impact areas, including three within the log deck and two within the roadbed. Unit size was not stated. Soil samples were taken for later study, artificial soil berms on the log deck were screened to recover artifacts, and surface artifacts were collected during an intensive surface inspection.

Test excavation results discuss soil stratigraphy and describe the artifacts recovered. Unit soil profiles disclose that the site had been heavily disturbed by previous logging activities. King argues:

It was difficult to interpret the results of excavations in the absence of a control unit from a less disturbed area of the site which might have shown a more complete soil profile and which might have provided more representative information about the distribution, quantity, and nature of subsurface prehistoric cultural material in the site (pg. 24).

A total of 136 pieces of chert flaking debris, one chert tool, and two ground stone tool fragments were recovered from the test units. An additional 33 chert flakes were recovered from the screened berm soils. One chert projectile point tip, one possible pestle fragment, and one pestle were collected from the surface, leading to a further enlargement of the site boundaries.

King concludes that the on-site rehabilitation project would not significantly impact those areas where activities were proposed, since the stratigraphic integrity of the deposit was poor and few artifacts were likely to occur. Archaeological monitoring during rehabilitation activities is recommended in the event that undisturbed cultural deposits are encountered. The significance of CA-HUM-484 may be high, due to its size and diversity of artifact types. King suggests research questions pertaining to site chronology, settlement/subsistence patterns and past environments.

King recommends:

- (1) for future projects, excavate at least one control unit in an undisturbed portion of the site to provide comparative baseline data;
- (2) perform tree-ring and pollen studies in or near deposits to reconstruct the history of the advance and retreat of plant communities and to inferentially date the deposits.

King's investigations are noteworthy because:

- (1) the nature of logging impacts to archaeological deposits was systematically investigated;
- (2) the potential impacts to CA-HUM-484 resulting from rehabilitation activities were mitigated;
- (3) the Chilula descendants participated in the project; and
- (4) appropriate research questions and strategies were advanced for future archaeological excavations in RNP.

Two omissions to the report are noted:

- (1) King fails to specify unit size which would be useful to archaeologists comparing artifact densities in different sites, and
- (2) although King generally describes the site artifacts recovered earlier by Salzman and Bickel and those analyzed by Hayes and Fredrickson, she does not include a table listing all of the cultural remains previously recovered from the site as an aid to future analysts comparing site assemblages.

Archaeological Test Excavation of CA-HUM-442, Redwood National Park, California James R. Benson, 1981

James Benson was contracted by the Service to conduct a formal significance evaluation of prehistoric site CA-HUM-442, located on Bald Hills ridge in the immediate vicinity of proposed rehabilitation activities. Earlier surface analysis and limited augering of this site by King and Bickel in 1980 disclosed a subsurface deposit and enlarged site boundaries.

Located in the transition zone between the prairie/oak-woodland environment and a mixed conifer forest, the site may have been used for the important plant and animal resources found nearby. Common species historically observed and presently found, are listed, and locally occurring chert and sandstone deposits are noted. Earlier site impacts had resulted from road construction and slopewash erosion typical of prairies. After citing earlier cultural overviews and published ethnographic accounts for the Chilula, Benson focuses on the site's role in the Chilula settlement/subsistence system. He postulates that CA-HUM-442 represents a temporary camp like that described for the Chilula by Kroeber in 1925.

The purposes of the test excavation were to assess stratigraphic integrity and to determine the area and depth of the archaeological deposit, its age, function and nature of historic-era site impacts. The six, 1x1 meter excavation units were placed in a large area held to be moderately to severely disturbed and in an area believed to be relatively undisturbed. Surface artifacts were collected from the highly disturbed portion of the site.

Prehistoric cultural remains recovered during this investigation, plus those recovered earlier are described. Artifact totals are presented in Table 5.

Table 5. Artifacts from CA-HUM-442.

<u>Collected Earlier</u>	<u>Surface</u>	<u>From Excavation</u>
1 projectile point	1 scraper	1 scraper
1 bifacial tool	1 bifacial tool*	332 chert "utilized"
1 knife fragment	5 millingstones*	flakes
	62 "utilized" &	491 chert flakes
	non-utilized	41 obsidian flakes
	chert flakes	1 ground & battered tool
		6 millingstones*
		2 pcs. rusted metal
		2 pcs. glass
		1 square nail

*includes fragments

Little is said of the single "distinct" archaeological feature encountered at the base of the deposit, other than note of "the association of a fragmentary millingstone with a ground and battered stone" (pg. 15). No mention is made of the many angular rocks shown in the photograph of the feature which are suggestive of either a disturbed fire hearth or bedrock. Further, no mention is made of the few historic period artifacts encountered in an area Benson believed had high integrity. Comparing obsidian hydration data for the study site with that from two nearby sites, Benson concludes that CA-HUM-442 is similar in age to -452 (Willits Pattern) and older than -439 (Gunther Pattern). Like other sites investigated in the vicinity, obsidian was obtained from Medicine Lake Highlands.

In working with the excavation data, Benson particularly focuses on analysis of utilized flakes and concludes that the edge damaged flakes are the result of tool use for processing a few specific rather than a variety of resources.

Basing his site interpretation on Chilula ethnographic data and excavation results, Benson hypothesizes that CA-HUM-442 is the same age as CA-HUM-452, represents a seasonal seed and bulb gathering site and that some hunting likely took place on or near the site. He concludes that area A has little archaeological potential while area B has high archaeological potential. He recommends that rehabilitation activities be confined to existing roads and area A, public use of area B area be discouraged until revegetation is complete and the site be periodically monitored during rehabilitation activities.

Benson's test excavation of CA-HUM-442 provides some important new comparative archaeological data for the Redwood Creek basin. Shortcomings are many, however. The interpretive values or significance of the cultural feature and historic period artifacts encountered during excavations are not discussed. Problems exist with the Benson's analysis of utilized flakes, and no discussion is made of other factors which may cause edge damage to flakes such as soil movement or trampling underfoot. Most importantly, little effort was given to comparing assemblage data for CA-HUM-442 with that for CA-HUM-439 and -452.

Archaeological Test Excavations at Four Sites in Redwood National Park, Humboldt County, California James R. Benson, 1983

In order to mitigate impacts on four prehistoric sites in the vicinity of proposed rehabilitation activities on Bald Hills ridge, Benson conducted excavations to evaluate site integrity and significance of CA-HUM-444, -446, -479 and -643. Since this was the last major cultural resources project anticipated for the foreseeable future, he sought to synthesize the prehistoric archaeology of the Redwood Creek basin by including a comparative study of all sites excavated in the basin to date.

CA-HUM-643 is situated in a redwood forest setting, while the other three sites are located within or near prairie margins. Soils and vegetation data offer important insights on the former vegetation of logged-over sites, the probable stability of these vegetation communities over the past few centuries and the relative degree of earlier impacts to site soils. Prairie soils are typically underlain by siltstones and generally exhibited well-developed 'A' soil horizons, whereas forest soils are underlain by sandstones and lacked well-developed 'A' horizons.

Two of the study sites had been severely impacted by road construction and logging, two by road construction and one may also have been repeatedly plowed.

Benson reviews earlier Park and northwest California archaeological and ethnographic research to evaluate the potential for testing hypotheses advanced for RNP. Regarding the research implications for RNP drawn by Whistler from his model of prehistoric population movements in northwest California, Benson questions whether differences between northwest California ethnographic groups are reflected among the pertinent archaeological assemblages. He observes that most hypotheses for RNP and vicinity involve "generalizations concerning the similarities and differences among archaeological assemblages," suggestive of temporal and functional differences between sites, and "formal statements describing and predicting the type, function and location of settlements" (pg. 21). Benson concludes that

hypotheses relating to prehistoric chronology are most pertinent, since temporal control of archaeological remains must be accomplished before meaningful comparative studies can be performed. Noting that archaeological remains suitable for C-14 dating or obsidian hydration analysis are not common to interior sites, he proposes that cross-dating of time-sensitive projectile points is most likely to contribute to the development of a prehistoric chronology.

Field methods involved intensive site surface examinations, the collection of surface artifacts and the excavation of test units placed in both disturbed and undisturbed areas, where rehabilitation activities were proposed. At -643, a spoils pile was screened to recover artifacts. As a control measure, 1/8-inch mesh was used to screen a portion of each level to determine the potential loss of data using 1/4-inch screens.

The artifacts recovered from these four sites are listed below in Table 6. No cultural features were encountered during excavations. Analytical methods include: adopting the projectile point attributes used by Hayes and Fredrickson to make data consistent; comparing RNP projectile points to those from other areas in northwest California; consulting with four archaeologists familiar with prehistoric assemblages from northwest California; and utilizing an earlier procedure to study a sample of "utilized flakes." Benson did not conduct obsidian studies, feeling that larger sample sizes were needed from better preserved sites.

Table 6. Artifacts from CA-HUM-444, -643, -446 and -479.

<u>CA-HUM-444</u>			
Collected Earlier:	Surface:	Excavation:	
1 projectile point	13 chert flakes,	13 chert flakes	
1 biface fragment	8 "utilized"		
1 pestle fragment			
1 chert core			
1 scraper			
"numerous" chert flakes			
<u>CA-HUM-643</u>			
Collected Earlier:	Surface:	Excavation:	Spoils Pile:
2 projectile point frag.	72 chert flakes,	3 chert flakes,	39 chert flakes,
	14 "utilized"	2 "utilized"	17 "utilized"
	1 scraper	1 scraper	1 biface frag.
	1 chert core		
	43 chert "bull-dozer artifacts"		
<u>CA-HUM-446</u>			
Collected Earlier:	Unknown Provenience	Excavation:	
2 projectile point fragments	1 milling slab	4 projectile point fragments	
	2-3 unmodified cobbles	8 scrapers*	
		1 biface	
		2 handstones	
		4 chert cores	
		660 chert flakes,	
		196 "utilized"	
		15 obsidian flakes,	
		8 "utilized"	
		round & square nails	
		metal fragments	
		bottle & window glass	
<u>CA-HUM-479</u>			
Collected Earlier:	Surface:	Excavation:	
4 projectile points*	7 scrapers	5 projectile point fragments	
"several" bifaces	2 biface fragments	1 McKee uniface tool	
1 milling slab	1 unmod. cobble	1 scraper	
	7 chert cores	1 biface fragment	
	1 broken milling slab (2 pieces)	2 chert cores	
	4 milling slab frag.	304 chert flakes,	
	7 handstones	87 "utilized"	
		11 obsidian flakes,	
		9 "utilized"	

* Including fragments. Note: Total flake counts above only include those recovered from 1/4-inch screens.

Benson describes unit locations relative to disturbed areas, the relative densities of artifacts by depth and total number of artifacts recovered. He postulates the age of each site based on cross-typing projectile point forms, the site function and the intensity of relative site use. He notes that -444 and -643 are quite similar in environmental settings, artifact assemblages, small site sizes, and shallow and sparse deposits, concluding that since neither site contains late period projectile points, they may predate the late period. These sites contrast with -446 and -479, which are relatively large deposits exhibiting much higher artifact densities. The lack of late period projectile points at -446 leads him to conclude that the site predates the late period, whereas -479 contains projectile points cross-dating to both the late and earlier periods, implying a longer span of use. Diverse activities at all sites included hunting, the processing of plant and animal resources, and stone tool making. The seasonality of site use could not be determined due to a lack of faunal or floral remains. The replicative study of "utilized flakes" implies that both the analytical methods and results of this type of analysis are invalid.

Hoping to gain insights as to where particular site types occur, Benson summarizes a number of environmental and archaeological attributes for these and other excavated sites in the basin. He observes that flake densities are highest at sites located near good, existing water sources, scrapers are more common at ridgetop sites and -452 exhibits the highest density of obsidian and chert flakes. He concludes that there is not enough data to make meaningful statements about the relationships between site types and environmental variables.

Benson proposes a projectile point sequence to aid future investigations in RNP and vicinity. Cross-dating the projectile points found in Redwood Creek basin sites to ones found elsewhere in northwest California, he proposes tentative ages for each point style. Although Benson's approach is largely intuitive, his projectile point sequence is generally supported by the later analyses of Hayes et al. Benson also offers tentative dates for CA-HUM-479 (use over last 4000 years) and -446 (3000-2000 B.P.).

Benson asserts that data relating to prehistoric chronology, settlement/subsistence patterns and exchange systems are most likely to be useful to the contemporary Native American community. He makes the following observation:

...any potential value of cultural resource management investigations to the Indian community will be more easily realized so long as an atmosphere of cooperation and communication between the archaeological community and the Native American community prevails (pg. 69).

Although several Chilula were involved in this project, the nature of their involvement is not documented in the report.

Benson recommends mitigation measures in light of site integrity and significance. Noting that -643, -444 and -479 have suffered varying degrees of impact from earlier logging and road building, he recommends that rehabilitation activities proceed and be monitored by an archaeologist. Because -446 exhibits the highest integrity and research potential, rehabilitation activities there should be confined to the roadway, public use of the site be discouraged, and site conditions be periodically monitored. Artifacts collected during earlier Park excavations should be analyzed along the same lines as those in his study, and in-depth comparative studies be made of the RNP artifacts and those recovered from other sites in the vicinity. Further, he suggests that hypotheses concerning the prehistory of RNP be formalized and test implications advanced. Also recommended is the recovery of potentially time-sensitive artifacts during any CRM activities in RNP. Finally, Benson suggests that environmental and archaeological attributes be refined and tabulated for each site in order to facilitate intersite comparisons.

In her contribution to this report Polly Quick takes issue with Benson's methods and interpretations on several counts. She stresses the importance of assessing the prehistoric rather than the modern environment of study sites. The soils and geologic characteristics of prairies and forests, for example, might elucidate past environments in other areas of the Park. Other approaches include quantification of vegetation communities to differentiate site settings, comparison of historical photographs of late Indian sites with the present condition of these same sites, and correlation between artifact types and site environments. While she agrees that relative dating techniques are most likely to contribute to defining the prehistoric chronology for interior northwest California, she criticizes Benson's assignment of absolute dates based on information from fairly distant sites to the projectile point sequence and RNP sites. Quick generally agrees with Benson's interpretation of the relative ages of the basin sites.

Addressing the topic of archaeological assemblages, Quick objects to the comparative analysis methods used by Benson, since he focuses on particular artifact types rather than on whole assemblages. Quick notes that for the tested Bald Hills sites, the assemblage differences seem more apparent and that these likely relate to functional and temporal differences. While Quick acknowledges Benson's effort to compare assemblage data using tables summarizing pertinent attributes, she notes omissions and argues that the attributes used in comparative studies should be refined in hopes of making them more conclusive. Regarding Benson's criticism of the problems inherent in associating archaeological assemblages with language groups, Quick suggests that by using the 'direct historical approach,' excavation data from known ethnographic sites may be used initially to distinguish the material traits characterizing use by the Wiyot, Yurok and Tolowa.

The project by Benson obtained information needed to meet compliance with Federal regulations and policies. Data for four Bald Hills prehistoric sites provide information about site integrity, age and function. Soils and vegetation data from Park specialists provide useful information about the study sites, data useful for reconstructing site environments in future studies. The most important synthetic treatment is the projectile point sequence which is generally supported in a later study by Hayes et al. Quick's critical evaluation and recommendations, among other suggestions, are also valuable contributions.

Benson fails, however, to reach meaningful conclusions about the prehistory of RNP based on comparative studies and so this study is not the synthesis of RNP archaeology that was hoped for.

Summary of Excavation Projects

Archaeological test excavation projects contribute to both methodological and theoretical advances pertinent to the management of prehistoric cultural resources in five important ways:

(1) Park actions involving the Watershed Rehabilitation Program are in full compliance with CRM policies and laws, and fulfill the RNP mandate for preservation of cultural resources.

(2) These studies demonstrate that while RNP coastal sites are similar to other Gunther Pattern sites investigated within the coastal zone, the Redwood Creek basin sites show affinities to both coastal and interior sites and suggest a longer period of use for the Bald Hills area. Thus, useful comparative data are generated.

(3) Archaeological research methods useful for investigating the prehistory of the Park and vicinity are tested and advanced, and additional methods recommended. The surface analysis of King and Bickel provides data useful for predicting the subsurface contents of archaeological sites. Obsidian hydration analysis is useful for relatively dating interior sites, where there is a paucity of organic remains suitable for C-14 dating. Among other studies for RNP, the projectile point sequence of Benson demonstrates the usefulness of comparative analysis.

(4) The extent and kinds of natural and earlier logging and road building impacts to prehistoric sites are disclosed.

(5) The concerns of Native Americans having ties to Park holdings are addressed and important new ethnographic data are obtained for two coastal sites.

Deficiencies in these reports are:

(1) in several instances, excavation data are omitted or not accurately presented in the reports;

(2) the involvement of Indian consultants is not always described;

(3) analyses of C-14 and fish remains recovered from the Enderts Beach site excavation were not funded by the Park in a timely manner; and

After cultural resources are identified and initially recorded, Bickel and King recommend that site significance evaluations be performed. During a second site inspection, more detailed information should be generated through surface analysis and limited auger testing. They strongly discourage surface collecting during these two study phases. If project impacts are unavoidable at particular sites, archaeological excavations should be conducted after consent has been granted by the appropriate Native American Heritage Advisory Committee.

For Park lands outside of the Redwood Creek basin, complete intensive surveys should be performed, since these areas have not had the same intensity of survey coverage as basin lands. Future surveys are needed to obtain site occurrence and settlement pattern data, especially in Tolowa and Yurok territories.

Study methods useful for addressing six research questions during future research are:

(1) Where do sites occur? Test the models of site occurrence advanced for the Park by Bickel and Salzman in 1979. Code locational data for known sites as this is useful for comparative studies.

(2) What can be said about site types in RNP, first in descriptive terms and eventually in functional terms? Refine the existing site typology by refining the descriptive aspects through encoding of archaeological and environmental attributes and then comparing data to discern patterns.

(3) What kinds of sites occur where? Use coded attributes and test settlement pattern hypotheses.

(4) What time periods are represented by archaeological sites? Develop time-sensitive artifact typologies useful for cross-dating. Perform obsidian hydration and C-14 analyses. Use ethnographic and historic data. Investigate changes in environment. Test the Whistler model of prehistoric population movements in northwest California.

(5) How do RNP sites compare with others, both within and outside the Park? Perform comparative site studies.

(6) What can oral testimony and tradition contribute to knowledge of Park anthropology? Obtain information from Indian and other knowledgeable consultants about site locations, functions and recent vegetation changes, and compare these data with other data.

Drawing from their synthesis of previous research, Bickel and King advance management procedures designed to meet federal laws, policies and Park mandates. They suggest general study methods for addressing prehistoric archaeological research questions. Little discussion is given to management of historic and contemporary Native American cultural resources. Their research questions and methods include ones common to prehistoric archaeological research in northwest California. These would be more useful to later researchers if the research questions were translated into a series of hypotheses and corresponding test implications, followed by explicitly defined analytical methods needed to address each hypothesis.

Artifact Analyses

Two RNP projects analyze prehistoric and historic period artifacts to determine the age, function and ethnic affiliation of archaeological sites. Data generated by artifact analyses were used to evaluate site significance relative to National Register of Historic Places criteria. In addition, management policies, research strategies and interpretive uses of the Park's historic and prehistoric cultural resources are advanced.

Analytical methods are explicitly stated in both reports. Artifact data are described and tabled and most of the artifacts illustrated in drawings or photographs.

Description and Analysis of Prehistoric and Historic Artifacts From Archaeological Sites Within Redwood National Park, California John F. Hayes, David A. Fredrickson, Adrian Praetzellis and Mary Praetzellis, 1980

In this study staff of the Anthropological Studies Center, Sonoma State University, analyze surface-collected prehistoric and historic era artifacts recovered during RNP surveys prior to 1980. Part I of the report, authored by Hayes and Fredrickson, focuses on the prehistoric lithic artifacts collected as isolated finds and from 20 sites located in RNP and state park holdings, mostly from the Bald Hills. Part II, written by Praetzellis and Praetzellis, deals with historic era artifacts recovered from five sites located throughout the Park.

Four different methods of analysis, defined as "qualitative," "quantitative," "comparative," and "functional," were performed on 206 stone tools. Obsidian sourcing and hydration analyses were conducted.

Qualitative analysis consisted of sorting artifacts into flaked and ground stone tool categories. These groups were then sorted into specific tool sub-categories such as projectile points and bifaces, two categories of flaked stone tools, and hopper mortars and ovate cobbles. The groups are described in regard to their material, form and similarity to other artifacts in the group. To generate comparative data the quantitative analysis involved the measuring of length, width, thickness and weight of each artifact, as well as neck, stem and base widths on projectile points.

Comparative analysis involved the identification of sites which have tool forms similar to those under study. Geographic aspects of sites and the presence or absence of tool forms at each were tabulated to discern patterns inferential of different site ages, functions and ethnic groups. Artifact collections and site reports for the North

Coast Ranges of California, north coastal California and southwest Oregon were reviewed. Comparison of projectile point forms, since they are most likely to be time-sensitive, and milling equipment because some forms may be time-sensitive and/or indicative of particular functions are of primary interest. Microscopic examination of edge wear and tool edge angles were performed. The methods distinguish between edge wear resulting from cutting or scraping of either soft or hard materials, and by inference, the activities performed at sites.

The qualitative and comparative analyses, coupled with the results of their obsidian sourcing and hydration analyses, produced the most definitive results. RNP projectile points are similar to time-sensitive ones found throughout northwest California and southwest Oregon. These forms, coupled with new obsidian hydration data suggest a lengthy period of use of Bald Hills, spanning approximately 2000 years. Eighteen obsidian artifacts subjected to x-ray fluorescence analysis are sourced to Medicine Lake Highlands, strengthening the hypothesis that obsidian exchange networks in north coastal California involve this important material obtained from northeast California. An older style obsidian projectile point sourced to Annadel in Sonoma County suggests interaction with more southerly groups possibly 1000 years ago.

Hayes and Fredrickson recommend that future studies investigate the prehistoric time depth and adaptive differences reflected in the differences between assemblages from coastal and inland sites. They argue that more archaeological excavation data are needed to address questions about group interactions, subsistence/settlement patterns and the effects of prehistoric environmental changes on humans.

In Part II of this report, Praetzellis and Praetzellis analyze 15 artifacts including 11 glass bottle fragments, three pieces of ceramic and one nail collected from the surface of two historic period deposits located near the Smith River, two sites in the Redwood Creek basin and one coastal site. They argue that meaningful conclusions could not be reached about the site functions, ages or cultural affiliations because:

- (1) collections from each site are small and unrepresentative;
- (2) there is a lack of specific information about where the artifacts were collected relative to structural remains or other cultural features;
- (3) there is a lack of site-specific background research in the form of chains of title and oral history data; and
- (4) there is a lack of comparative data for other RNP historic sites.

They suggest that the artifacts could be characterized in terms of their dates of manufacture and places of origin, data which may be used inferentially to date sites and identify ethnic affiliations of the former site inhabitants.

Bottle glass fragments are better age indicators than ceramics or nails. Representing domestic refuse, the glass and ceramic fragments suggest that those sites functioned as historic habitation sites. Vessel forms from Murphy's Ranch site, in existence by 1884, are types manufactured between 1870 and 1920. The medicine bottle collected from the former Yurok village of O'segen, abandoned circa 1860-70 was probably discarded during the period of site use associated with non-Indian mining and ranching activities, since this bottle type was manufactured in the early 20th century. Broken wine bottles found at a collapsed barn site and a former Indian fish camp site later homesteaded by Whites are types manufactured between 1890 and 1910.

Among the three types of historic artifacts, ceramics are most useful for identifying the archaeological remains of ethnic groups. The Chinese porcelain from Murphy's Ranch site is common to sites in California occupied by Chinese immigrants, but may also occur on sites used by non-Chinese.

The Praetzellis' observe that a research program of land ownership records and oral history interviews, coupled with field verification, are the most efficient methods for identifying the ages, functions and cultural affiliations of historic period sites. They argue that historical research must be completed before a useful program of systematic surface collection can be developed. Such a program should involve the careful mapping of historic site boundaries and features, and sampling of all types of materials with tight provenience controls. Where historic-era sites have not been greatly disturbed, systematic surface collections may be used to define special use areas within sites and these results may then be compared with data from other, similar types of sites to gain an understanding of the evolution of site structure over time.

The Praetzellis' suggest several future interpretative uses of historic artifacts and sites, arguing that historical research must first be completed to make the interpretive program effective. Based on background research, the better preserved and representative historic cultural resources may be used to illustrate the major stages of regional land use, social and economic history. Murphy's Ranch, for example might be used to demonstrate the development of ranching. The former Yurok village later used for mining and ranching activities would demonstrate the effects of White expansion into the region on Indian population. To demonstrate the purposes and techniques of historic archaeology, field records and artifact collections might be displayed. Any historic interpretative program should involve local, long-term residents, who are likely to provide pertinent information, historic photographs and other materials which might be used in exhibits.

The artifact analysis by Hayes et al. demonstrates the information potential and limitations of surface collected artifacts. The biases of different researchers as to which and how many surface artifacts

might provide useful information about the ages, functions and ethnic affiliations of these sites are exposed. The Praetzelis' offer useful recommendations for developing a program for collecting historic artifacts, while Hayes and Fredrickson offer general directions for future prehistoric archaeological research. Useful to future comparative studies are the formal presentations of data for both the RNP study sites and others used in the comparative analysis by Hayes and Fredrickson. However, no site location map is included and the report is not clear about where and when these artifact collections were made. Further, there is no mention of other RNP artifact collections from excavated coastal sites or why these are excluded from the study.

An Analysis of Redwood National Park Artifacts John F. Hayes, David A. Fredrickson and Thomas M. Origer, 1985

The purpose of this most recent study was to synthesize the prehistoric archaeology of the Redwood Creek basin based on analyses of lithic artifacts collected from 28 sites, most within the Bald Hills Archaeological District. Hayes et al. observe that earlier interpretative studies were limited because of a scarcity of comparative data for interior northwest California, and the small Park data base. The recent excavations at Pilot Ridge and South Fork Mountain (PR/SFM), some 30 miles southeast of the Redwood Creek basin Park lands, resulted in a proposed cultural sequence for interior northwest California and provided comparative data useful for investigating the Park sites. Hayes et al. observe that since the earlier artifact study, RNP artifact collections have become more representative of sites and the research potential of Park collections has increased.

Relevant environmental, archaeological and ethnographic background data are described.

Hayes et al. first cross-date projectile points from Park sites in the basin with time-sensitive styles identified at PR/SFM. Artifacts recovered from earlier RNP projects are assessed to predict which excavation units represented "clean, unmixed components," or areas of relatively short-term site use. Consequently, they predict that ten excavation units from eight Bald Hills sites represent single component areas and seven of these units yield sufficient hydration data to test predictions. These data sets are then tested by obsidian hydration analysis. Based on these results, time-sensitive artifact assemblages for the Bald Hills vicinity are identified and the projectile point sequence shown in Figure 16 is advanced. Finally, the RNP sites are compared to those at PR/SFM.

Hayes et al. observe that the Bald Hills area was used most intensively by humans after circa 800 B.C., and less intensively between ca. 2500 B.C. and 800 B.C. and possibly earlier. Significant differences

in prehistoric land use patterns between Bald Hills and PR/SFM are noted. During the late period of A.D. 900 - 1850, the inhabitants of Bald Hills were more influenced by coastal peoples and less by more inland groups than those inhabiting PR/SFM. Also during the late period, ridgetops bordering Redwood Creek were occupied for a number of purposes, whereas in the PR/SFM area, ridgetops were used less intensively by people who occupied villages near rivers. During the middle period of 800 B.C. - A.D. 900, Bald Hills was used more intensively than PR/SFM and use of Bald Hills may have been dominated by peoples from the north. During the early period of 2500 B.C. - 800 B.C., PR/SFM was used more intensively than Bald Hills.

Believing that during the early period there were no significant differences in environment or resource availability between the two areas, Hayes et al. hypothesize that a cultural boundary had been established between PR/SFM and the Bald Hills. The PR/SFM users were more influenced by southern peoples, while the Bald Hills users were influenced by northern peoples. Data from both study areas imply that the major ridge system encompassing Bald Hills and PR/SFM represents an interaction zone for peoples from the north and south during the middle period, if not earlier, and for peoples from all directions during the late period. Addressing the significance of their findings they argue that "based on extensive work in northwestern California, the RNP archaeology is an important key to understanding the prehistory of the region" (pg. 67).

The authors conclude with policy recommendations. Surface collection of time-sensitive artifacts with notations of their types, quantities and locations, and minimal subsurface testing to determine presence/absence of subsurface deposits are recommended during future surveys. Excavations should be guided by formal research designs, predicting the kinds and nature of materials and stating research methods. Excavation methods used at PR/SFM to identify single component activity areas on shallow, multiple component sites are likely to be useful for evaluating significance. Suggestions are also made for the treatment of sites whether it be for enhancement, protection or data recovery.

The recent artifact analysis report by Hayes, Fredrickson and Origer represents an important contribution to the prehistoric archaeology of the Park, especially the Bald Hills, and the northwest California region. Their analysis demonstrates that two independent data sets, time-sensitive artifact assemblages and obsidian hydration readings, may be used to identify site components and artifact assemblages which represent certain time periods or archaeological patterns. Future evaluations of sites in the basin which lack time-sensitive projectile points may be dated by obsidian hydration results. These types of age data may be used to assess the integrity of sites which have been previously impacted. Methods designed to make future data collection more consistent and productive are recommended. Not addressed are the RNP prehistoric cultural resources located outside the Redwood Creek basin.

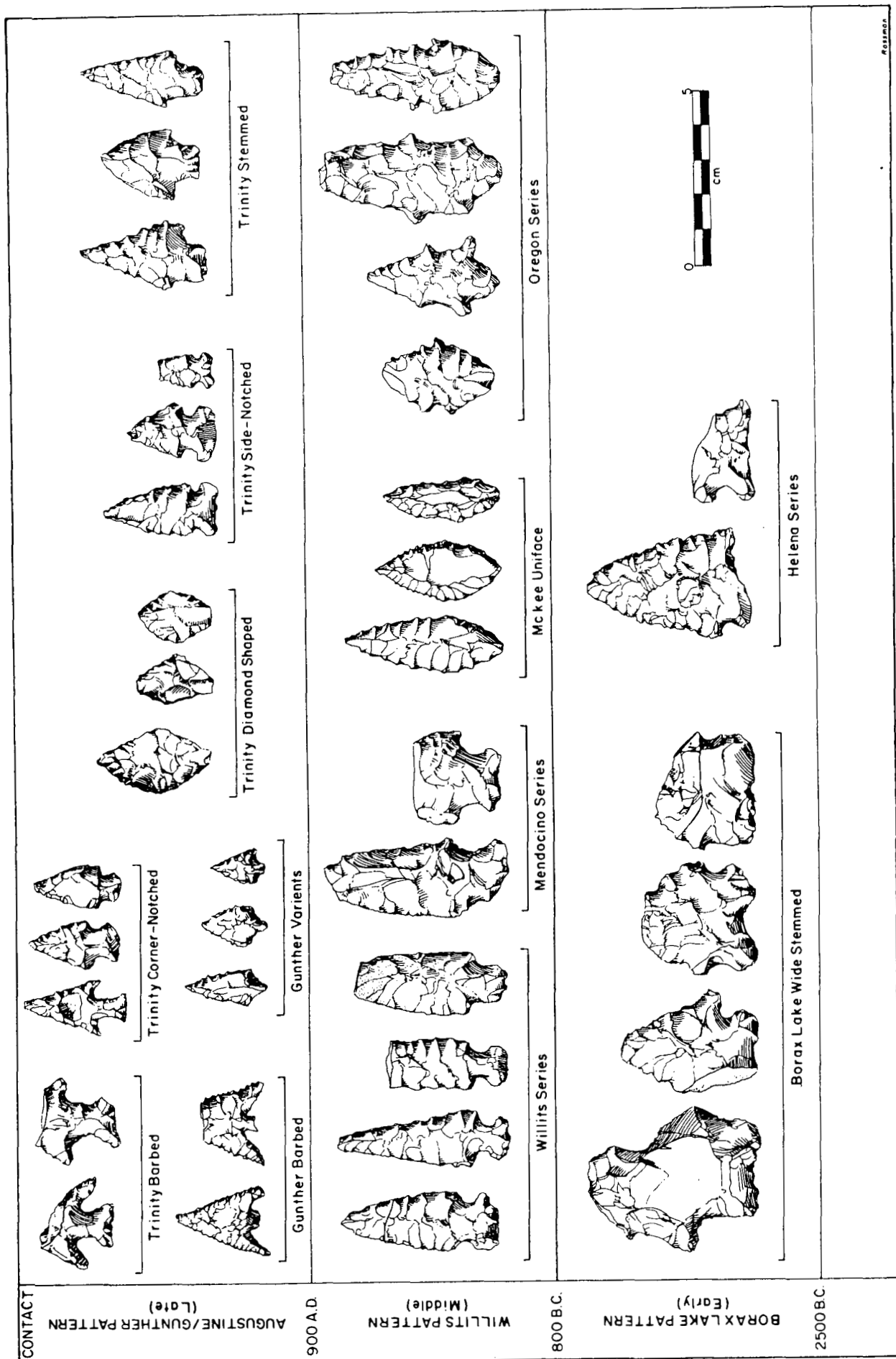


Figure 16. Time-sensitive projectile points, Redwood National Park and vicinity (Hayes et al. 1985:Fig. 2).

Historical Studies

Four RNP historical studies were completed between 1969 and 1983 to provide contexts for evaluating the legal significance of Park historic cultural resources. Based on field inspections of previously identified sites, historical research, RNP site records and survey reports, site significance evaluations and recommendations are made. These historic studies contribute to a better understanding of the history of the RNP vicinity, useful to Park managers and interpretive staff, and to people interested in local history. These reports are important because of the paucity of recent, well-researched historical overviews for north coastal California.

History Basic Data, Redwood National Park Edwin C. Bearss, 1969

In 1969 Edwin Bearss completed the first historical study for the Park. In the foreword, Bearss notes the accomplishments to date: historical sites in RNP and state park holdings have been identified, evaluated and plotted on base maps; classified structures, Class VI lands and resources have been identified; National Register of Historic Places nomination forms have been completed for historic structures and districts; and historic properties located outside RNP have been recommended for acquisition by the Service.

This historical overview focuses on major historical events which might serve as interpretive themes for Park visitors. Methods include archival and oral history research, plus limited archaeological surveys guided by historical data. National Register nomination forms for 12 historic resources, appended to the original report, are omitted from the 1982 reprint. Included are historical base maps, reproductions of pertinent historical maps, sketches, photographs and advertisements. The bibliography lists primary and secondary historical sources.

Historical events are organized in relationship to 14 major themes, ranging from the traditional cultures of the Yurok, Tolowa and Chilula to the establishment of RNP.

Described are traditional cultures of the Yurok, Tolowa and Chilula. Bearss recommends that an archaeological survey be performed to identify ethnographic village sites, that Indian housepits and sweathouses be excavated and restored for public viewing, that Indian cultures be described in exhibits, and that Indian basket making and fishing techniques be demonstrated for Park visitors. Coastal interpretive stations are recommended to describe sea explorations by the Spanish, English, Americans and Russians who were the first to make contact with the Indians.

The early overland expeditions of the Jedediah Smith and Josiah Gregg parties in the Park vicinity are detailed. Park field exhibits placed at Smith's known campsites should emphasize the difficulties early explorers encountered in penetrating the redwoods, while a Tall Trees exhibit should note that Gregg was the first to measure the giant redwoods.

Bearss recommends that the Service acquire the former site of Klamath City at Wau-kell Flat to develop an interpretive exhibit explaining the efforts by American investors to establish a Klamath River port to service the Trinity and Salmon gold mines, the establishment of Fort Ter-waw and the U.S. Army's role on the Klamath. The history of the Klamath River Reservation is detailed in three chapters.

Interpretive exhibits for several historical trails and roads should emphasize the difficulties in opening overland routes through the redwoods. The use of one trail to transport silver ore should be mentioned. Along the coast, field exhibits should interpret the duties, hazards and tragedies of the historic maritime industry, emphasizing the period before the 1920s when north coast residents were heavily dependent on ocean-going vessels for transportation and supplies.

Other field exhibits are recommended for Hamilton's Hotel to interpret tourism in the redwoods, the DeMartin house dairy farm, the Klamath River fishing industry, difficulty in Klamath River navigation, Gold Bluffs beach development and mining camps at Upper Bluffs near Fern Canyon.

Detailing the history of the lumber industry in Humboldt and Del Norte counties, Bearss names the major lumber companies and describes the lumber camps and the evolution of logging technologies. He recommends developing a "living history" exhibit of circa 1890 logging operations in cooperation with private lumber companies and public agencies, rebuilding of the Del Norte and Southern Railroad to shuttle visitors from Crescent City to the Mill Creek area, and emphasizing coastal logging of the 1851-1939 period to avoid duplicating other existing, local exhibits.

Bearss notes that the RNP vicinity is identified with the Japanese submarine offensive and free balloon assaults during World War II. He recommends that the former military observation station south of the Klamath be restored as an interpretive center.

Specific historical studies are also needed. These include archaeological surveys in the Gold Bluffs area to identify former mining camps and in the Mill Creek area to locate remains of Hiram Rice's circa 1890 mining operations; in-depth research of the Hobbs,

Wall Lumber Company in Del Norte County; historical structure reports of three former dairy ranches and the World War II observation station; and RNP administrative history.

The Bearss study initiated the inventory and evaluation of historic cultural resources in and near the Park. Bearss' well-researched overview represents an important reference for north coast history. The bibliography is particularly useful to historical research. His recommendations for interpreting major historical themes for Park visitors are sound, as are his suggestions for future research. The report fails, however, to explicitly state the purposes, methods and results of this study. These might be summarized in a preface should this important report be reprinted again by the Service for general distribution.

Architectural Survey and Evaluation, Redwood National Park Laura E. Soulliere, 1983

Service architectural historian Laura Soulliere updated and extended Bearss' work in this second historical study drafted in 1978 to assist in the preparation of the General Management Plan. She continued the identification and evaluation of historic cultural resources. An architectural survey and evaluation of buildings was performed within the newly acquired RNP holdings in Redwood Creek drainage, the leasehold properties in the Hiouchi area, and Jedediah Smith, Del Norte Coast and Prairie Creek Redwoods state parks then scheduled for inclusion in RNP. In addition to structural evaluations, Soulliere conducted oral history interviews with local residents and park staff, and researched archival records, published references, photographs, manuscripts and other records on file at local museums and libraries.

The report is organized by geographic area. Most of the significant architectural features identified by Soulliere are located in state park holdings. For these, she details pertinent historical background data. For the northern portion of the Park and Jedediah Smith Redwoods State Park, she describes the history of pre-1870 U.S. military posts in the Klamath and Smith River areas, the 1855 Kelsey Trail connecting Crescent City and Yreka, and the Howland Hill toll road connecting Crescent City to Sailors Diggings in Waldo, Oregon. For Prairie Creek Redwoods State Park, Soulliere details the history of the park headquarters site, the former Coast Guard beach patrol station at Espau Lagoon and Gold Bluffs. Soulliere evaluates the associated sites, describing historic architectural features, noting modifications to the original buildings, roads or trails, and commenting on the integrity of their natural settings. She summarizes site significance in terms of National Register criteria and makes recommendations for preserving significant structures.

Many structural features of unknown or of no significance are briefly described. Soulliere notes the dates of construction, functions, present conditions and data sources, and makes recommendations for further study and/or treatment.

For the RNP holdings in Redwood Creek basin, Soulliere describes structures such as the cribbed log bridge over Copper Creek and the Garret barn which are associated with recent logging or ranching activities, and historic ranch structures which may have architectural or historic significance such as the bunkhouse at Lyons Ranch, and the Lane and Dolason barns, recommending that the latter be preserved and additional research be conducted. Because of their potential to serve as reminders of the intensity of logging in the drainage, Soulliere suggests that several of the logging structures, namely the Copper Creek bridge and railroad tank cars used for gas and water storage during the 1960s be left in place. She recommends that other recent features be removed at the Park's discretion.

Other RNP structures evaluated by Soulliere include debris from a lumber mill at Lagoon Creek and the Redwood Ranger Station built in 1942 as a field station for staff of the Pacific Southwest Range and Experiment Station at Berkeley. Archival research and a historic structure report are recommended for this site, considered by Soulliere to be eligible for inclusion on the National Register as a resource associated with local conservation history. Debris from the circa 1960 mill operation on the Yurok Loop trail is not considered significant.

The Soulliere study expands the inventory of RNP historic cultural resources. Her findings imply that few significant historic structures occur within the Park. Based on her site evaluations, sound recommendations are made for future research and treatment of structural remains. Lacking from the report is a map showing locations of study sites and discussion of survey methods used by architectural historians. The Park might be criticized for the delay in making this report available.

Historical Overview of the Redwood Creek Basin and Bald Hills Regions of Redwood National Park, California Linda W. Greene, 1980

In 1979 Service historian Linda Greene performed background historical research, providing a context for evaluating site significance for the Redwood Creek basin. Because the development of this area was inherently linked to the history of north coastal Humboldt County and interior northwest California, she first summarizes important historical themes for the region, then focuses on the historical development of the basin and Bald Hills area. Greene describes and evaluates study area historic cultural resources and makes recommendations for further treatment. Included are a

bibliography of historical references, copies of area maps dating from 1865 to circa 1937 and a topographic map showing locations of study area historic sites.

Like other chroniclers of north coast history, Greene opens with a review of early historic coastal and overland explorations. Because the history of the basin and Bald Hills was intimately linked to the economic development of the region, she describes the three major topographic areas, coastal lowlands, redwood forest and mountainous prairies/forests, emphasizing the agricultural and ranching potential of each area.

The early historic settlements of Trinidad, Humboldt City, Union (Arcata), and Eureka as supply centers for the Trinity and Salmon mines are described, followed by discussion of the packing trade as an important economic development for the county. The Trinidad Trail, crossing Redwood Creek and travelling along Bald Hills towards Hoopa Valley, provided an important commercial link between coastal supply centers and the mining centers at Weaverville and Orleans. White-Indian hostilities of the 1860s caused a decline in the pack trade, which failed to recover due to an easterly shift in mining populations toward Scott and Shasta valleys.

After the early 1850s preoccupation with mining, the local economy shifted towards agricultural development by a more stable population. Once the prime agricultural lands along the coastal river valleys had been homesteaded, development expanded into the more remote interior valleys and prairies. By 1857 cattle ranches had been established on Bald Hills. Greene asserts that early homesteaders soon abandoned their remote ranches for fear of Indian attack, and details the impact on Indian culture and population by White settlement of the interior, focusing on the Bald Hills area. She also describes the major events of the so-called Indian Wars, and the U.S. military's efforts to quell the hostilities.

After hostilities ceased, homesteading increased along Redwood Creek and on the Bald Hills, the latter area recognized for its good grazing potential. Sheep were raised after 1865, becoming an important industry by 1900. The Lyons family was noted for producing the finest wool and mutton of the region. The cattle industry was re-established on Bald Hills and hogs were also raised. Greene names the early settlers of Redwood Creek and the Bald Hills, detailing the history of the Lyons family and several small settlements where post offices had been established. She also discusses the early roads begun in the 1870s.

The local lumber industry first concentrated logging efforts in more accessible places along the coastal strip but after World War II, logging was begun in the Redwood Creek basin, which stimulated a decline in ranching on the Bald Hills. When the Park was expanded in

1978, nearly all of the redwoods had been harvested and a number of historic and prehistoric cultural resources had been impacted or destroyed by logging activities.

The Jonathan Lyons homestead near Schoolhouse Peak and a remnant of the Trinidad Trail near Tall Trees are recommended for inclusion on the National Register of Historic Places. The significance of the Lyons homestead includes:

- (1) the potential to investigate regional settlement patterns and land use during the historic and prehistoric periods;
- (2) the continuous occupation by the Lyons family since the 1860s;
- (3) the development of a homestead typical for the region;
- (4) importance to the general pioneering movement in northern California; and
- (5) good integrity.

The Trinidad Trail represents an important transportation route dating from the 1850s to circa 1900. Due to their potential historical significance, the Dolason Barn, a possible 1860s barn on the Lane property and a hand-dug, stone-lined well near the Tomlinson property are recommended for preservation.

Resources not considered historically significant include: the Tomlinson barn ruins; the Garret and South barns; the "Ingomar Club"; and a shelter constructed in a redwood tree near Redwood Creek.

The study by Greene summarizes historical data needed to evaluate the significance of cultural resources identified in the Redwood Creek basin. This study focuses on the newly acquired RNP holdings, expanding the research areas of Bearss and Soulliere. Historical data are drawn from published local and regional histories, magazines, newspapers, directories, newsletters, pamphlets and maps, plus earlier reports for RNP. This information should be useful to Park interpretative and CRM staff, and to students of local history. Not discussed is the potential for other historic cultural resources in the Redwood Creek basin.

An Interpretation and Assessment of the Significance of the Historic Cultural Properties of Redwood National Park Laurence H. Shoup, 1983

On staff of the Service in 1983, historian Laurence Shoup assessed the legal significance of RNP historic cultural resources in regard to National Register of Historic Places criteria. In order to fully assess site significance, he initially developed a theoretical model, applicable to the history of RNP holdings. Part I of Shoup's report presents the model, and Part II assesses the RNP historic cultural resources in relation to this model. He makes use of published and unpublished local and regional histories, RNP archaeological site records and reports, Federal census, Humboldt County Courthouse and

other public records, RNP files and historical studies, and interviews with local persons familiar with the history of the study area. In the front of the 1985 reprint, Ann King Smith, Park Archaeologist, comments on recent RNP actions.

Shoup discusses the legal basis for evaluating site significance in terms of three main National Register criteria: integrity, historical importance or distinctiveness, and information or research potential. He then discusses the usefulness of theoretical models as abstractions of historic reality for providing a comparative framework to evaluate site significance.

Identified are two models relevant to RNP area history, the "Dependency" and the "Self-Sufficiency," which can only be fully understood by reference to a third model, the "Metropolitan." Ideally, the Self-Sufficient society is concerned with the basics of material life; a society characterized by people who are isolated and independent, such as a community of small farmers who occupy marginal quality land. In contrast, outside markets, trade and production of raw materials for export are critical to Dependent societies. Ideally, these rely on outside forces for food and technologies, social values, ownership of resources, capital, production decisions and the labor supply. The Dependent society is inherently connected to the Metropolitan society which represents the economic and political power center. Attributes of each model are delineated in the report, including ones that may be evidenced by or extrapolated from the historic and archaeological records.

Because the Victorian Era corresponded to much of the project area's historical period, Shoup describes its characteristics, noting aspects which correspond to the Dependent and Metropolitan models. In general, this era was characterized by intense industrialization, accompanied by massive technological change and demands for primary production which led to the development of dependent settlements. Shoup develops hypotheses about the relationships between and within the three types of societies which may be tested against the historic and archaeological records.

Shoup systematically compares these "ideal" models to RNP historical reality manifested in documents, printed materials, oral history and archaeological sites. In order to investigate changes over time, he isolates main trends, evaluating the significance of Park resources in terms of their importance or distinctiveness and research potential.

RNP historic resources are discussed in reference to the two main historical eras: the era of relative self-sufficiency, 1850s-1920s, and the era of relative dependency, 1920s-1950s. For the earlier era, Shoup identifies two types of relatively self-sufficient, early

agricultural sites: interior sites, initially focusing on cattle, then on sheep, as cash crops; and coastal sites, where dairy farms produced milk and butter for export.

During the era of relative self-sufficiency in the Bald Hills area, the earliest settlement was at Elk Camp, a major 1850s stopping place along the Trinidad Trail used by packers, who would delay pack trains until a sufficient number had accumulated to make safe passage through Indian territory. Nearby at least ten small cattle ranches were established, including the Morton Ranch, McCouaghy Ranch and Hill Ranch. These were soon abandoned, possibly because the ranchers feared Indian attack. While Shoup notes that no archaeological remains associated with early ranching near Elk Camp have been identified, he suggests that the Park may contain significant deposits associated with this little known era.

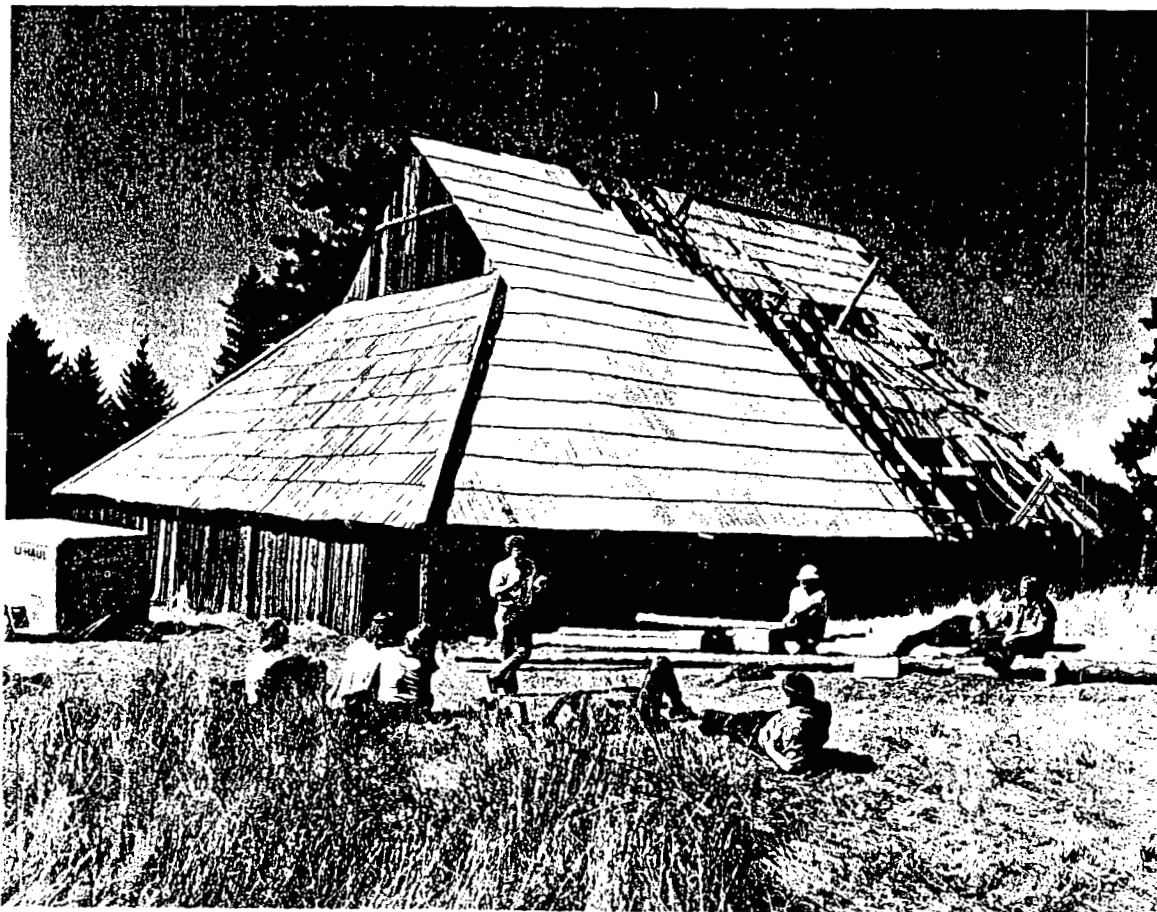


Figure 17. Preservation efforts at Lyons Barn on Bald Hills, Redwood National Park, by California Conservation Crew.

During the late 1860s, the Jonathan Lyons Ranch at Elder was the second agricultural settlement on Bald Hills. Largely self-sufficient from the 1860s to the 1890s, the Lyons Ranch first focused on cattle raising, adding sheep in the 1870s. Wool and mutton profits were used to expand ranch holdings, and, combined with the ranches established nearby by other family members, the Lyons family had the largest ranch holdings in the Bald Hills area. From the 1890s to the 1920s, the Lyons Ranch became increasingly dependent. During this period roads were built, their wool received international recognition at a Paris exhibition, and World War I created higher demands for wool and mutton. Shoup identifies five RNP sites associated with the Lyons family on Bald Hills, including: Lyons Ranch; Dolason Barn; Tomlinson Barn ruins; Lane Barn; and a cabin and barn at Dooleyville. Arguing that they represent an example of the shift from a predominately self-sufficient to a more dependent system between the 1860s and 1920s, Shoup recommends that the group be nominated to the National Register as the "Lyons Ranch Historical District." This has since been accomplished, along with measures designed to preserve historic structures such as the Lyons barn (see Figure 17).

Murphys Ranch near Smith River is assessed to be less significant and not eligible for inclusion on the Register. This ranch was occupied for a shorter time, had fewer structures and no structural remains now exist.

Shoup identifies three coastal agricultural sites associated with the era of relative self-sufficiency. Located near the mouth of the Klamath, the Johnson Ranch/Hamilton Hotel/Crivelli House exhibits poor integrity and low research potential. The DeMartin House and barn site near the mouth of Wilson Creek likewise displays poor integrity and low research potential, and the house is not considered to be architecturally significant. Shoup recommends that the DeMartin House not be removed because of potential impacts to a remnant of a former Yurok village underneath the structure. It was renovated and converted into a hostel by American Youth Hostels, Inc., in 1987. The potential significance of the Alexander/Pozzi Ranch south of Crescent City could not be fully assessed by Shoup because it was then a working ranch, and the site had not been fully recorded. The property was acquired in 1984. After a full evaluation, it was determined not to be eligible for listing on the National Register, and structures were removed in 1987.

The Union Gold Bluffs Placer Mine, 1872-1901, represents an exception to Shoup's model, since it corresponds mainly to the dependency model in that it relied on outside capital and technologies. Some elements of the self-sufficiency model are noted by Shoup, however, namely a local work force and some local food production. Because the site has poor integrity, he determines that it is not eligible for the Register, although it does represent an important interpretive feature for RNP.

With improved logging technologies and land transportation to formerly isolated areas of RNP, the historic era of relative dependency evolved between the 1920s and the 1950s. Historic sites affiliated with two logging companies and a military site are associated with this era. Noting the importance of Hobbs, Wall to Del Norte County history, Shoup argues that a full-scale survey of associated RNP archaeological remains and corporate history research are needed before significance can be fully assessed. Recent structural and dump remains associated with the California Barrel Company are not considered significant. Already listed on the National Register is the World War II Radar Station B-71 near the mouth of the Klamath.

Also discussed are linear historic features in RNP. While remnants of the Trinidad Trail and Kelsey-Little Bald Hills Trail have little information potential, their association with significant historical events may make them eligible for inclusion on the National Register. The old Redwood Highway was listed on the Register in 1979.

While the Harris House site near the Klamath's mouth represents an important example of Yurok acculturation to Euro-American culture, retaining important traditional self-sufficiency aspects, the structure is not architecturally significant. Since Shoup's writing, this structure has been removed.

The Shoup study contributes a theoretical framework useful for evaluating the legal significance of RNP historic cultural resources and provides historical background and site-specific data. In contrast to other studies, however, is Shoup's use of land ownership records and his theoretical and comparative rather than narrative approach to Park area history. Shoup's model may be tested and refined by future RNP historic research and archaeological investigations. Lacking from his report is a base map showing RNP site locations.

Summary of Historical Studies

Each of the four reports makes a valuable contribution to north coast history: Bearss' study provides a wealth of data and a general overview; Soulliere's report describes important architectural features in both RNP and state park holdings; Greene's study narrates the historical development of the Redwood Creek basin; and Shoup's report provides a testable theoretical model for understanding the historical development of the Park vicinity and for evaluating, on a comparative basis, the legal significance of other historic resources which may be identified in and near RNP.

Several deficiencies are noted: site location maps and other useful data are not included in several reports; the potential for finding additional RNP historic sites is not always discussed; and study goals, methods and results are not always explicitly stated.

Native American Consultations

by Ann King Smith

The lands now within RNP are part of the territories of the Tolowa, Yurok and Chilula. With the advent of Whites into northwest California, the lives of the Indians were severely disrupted and many died from introduced diseases and hardship, were killed or were temporarily relocated. The few Chilula that survived joined the Hupa, their allies to the east. The Tolowa and Yurok fared somewhat better with larger numbers surviving and remaining in their traditional territories. But the cultures persisted and are now undergoing revitalization. People continue with subsistence activities such as hunting, fishing and gathering. Many traditional items are made--baskets, canoes, dance regalia, elk horn purses, bows and arrows--and some of the old villages and dance places have been reconstructed. Dances continue to be held, including ones that have not been performed for decades. Elders speak the languages and younger people are learning. As with any culture, new technologies have been incorporated and adjustments made to current situations involving economics and land ownership. Chainsaws are now used to rough out redwood canoes, and dances, formerly held at various places and times, are now held at set locations on regular schedules.

The Yurok, Tolowa and Chilula/Hupa vary in their political organization and land base. The Hupa are federally recognized, have a tribal council and a tribal roll. The Yurok, although federally recognized, do not have a tribal council or set roll. Among the Tolowa, a number of different groups have petitioned or are in the process of petitioning for federal recognition. There is a Hoopa Valley Indian Reservation which encompasses portions of both Hupa and Yurok territories. Some reservation lands, however, have passed into private ownership, both Indian and White. There are smaller rancherias and allotment lands, some in trust status and others not. And, of course, many Indians live on private holdings, in and away from traditional territories.

Prior to 1978, Park Native American consultations were sporadic and unstructured. National Park Service Native American Relationships Policy guidelines did not exist, and the Indians themselves were just beginning to assert their rights on Park lands. During this period local Native Americans demonstrated basket and canoe making for Park visitors, and a Brush Dance was held on Park lands. Conflicts occurred over the status of Park lands within the boundaries of the Hoopa Valley Indian Reservation in the vicinity of the mouth of the Klamath.

In 1978 formal consultations with Native Americans were initiated. The NPS issued Special Directive 78-1, which states in part that each park "... will develop and execute its programs in a manner that reflects informed awareness, sensitivity, and serious concern for the

traditions, cultural values and religious beliefs of Native Americans who have ancestral ties to such lands..." Also in 1978, national efforts were underway for the passage of the Native American Religious Freedom Act (Public Law 95-431). In conjunction with these directions, RNP requested M.J. Moratto to "Consult with appropriate groups or representatives of Native Californians... regarding interpretation, development and preservation of ethnohistoric and archaeological resources of the park area. Recommend cooperative endeavors between the National Park Service and local Native Californians" (Contract No. CX-2000-7-0062, Section II, Item 3). Polly McW. Bickel, who followed Michael Moratto as principle investigator for the contract, requested the assistance of the Northwest Indian Cemetery Protective Association, Inc., in organizing a conference of members of the local Indian community with traditional ties to lands now within the Park. Held in the spring of 1978 and attended by more than forty Native Americans, this conference was unusual in that the focus was on gathering information from conference participants about places now within the Park which had continuing, contemporary significance to Indians and on obtaining recommendations for the protection of these places.

The places of most concern are burial grounds, sacred training sites, and food and raw materials resource areas. Participants recommended protection of these places through restriction of public access, and also requested guaranteed Native American access and harvest rights to the resource areas. The conference had two important results: an initial inventory of contemporary Native American cultural resources in Park lands was obtained, and five Native American Heritage Advisory Committees (NAHAC), representing the different geographical areas of the Park, were established. Since 1978, NAHAC meetings have been held frequently.

Park Planning Documents

One of the first issues discussed with the NAHAC was the RNP General Management Plan (GMP). An initial inventory of contemporary Native American cultural resources and recommendations for the protection of these sites, along with requests for Native American access and use, was incorporated into the GMP. Trails and proposed developments have been located away from burial grounds and ceremonial places, campsites have been removed from old village sites, interpretive signs which drew attention to a power training area have been removed and public access to these places is not encouraged. Also included in the GMP is a statement of Park commitment to:

- (1) continue to inventory and protect contemporary Native American cultural resources,
- (2) involve Native Americans in interpretation of Indian lifeways,
- (3) support traditional ceremonies and culture,
- (4) seek a resolution for problems related to the overlap of Park and Hoopa Valley Indian Reservation lands,

- (5) employ Native Americans on Park staff, and
- (6) develop a policy regarding Native American traditional use of Park resources.

These statements set the direction of future Park/Native American interactions. Similar review processes were conducted for the Park Watershed Rehabilitation Plan and the Back Country Trail Plan.

Park Projects

Although an initial inventory of contemporary Native American cultural resources was obtained at the 1978 Native American conference, participants recommended future review of Park projects and developments since (1) it was not possible to obtain complete information about contemporary resources within the Park at the conference, and (2) many participants were reluctant to reveal confidential site information unless these places were threatened by specific Park projects. Subsequent Park projects have been reviewed by the NAHAC, including the proposed May Creek Information Center, the Redwood Information Center and associated developments at the mouth of Redwood Creek, the conversion of the DeMartin house into a youth hostel, and the removal of structures. These consultations have shown that there is a clear need for this type of review. More detailed information about Yurok use at the mouth of Redwood Creek, at Prairie Creek, at DeMartin Beach and at the Brush Dance site was obtained. Actions to transfer some surplus structures to the Native American community were taken, and problems were resolved early in the planning stages.

NPS Policies Concerning Native Americans

In 1978 the Park Service issued a Special Directive to guide actions of concern to Native Americans. This three page document provided broad directions for Native American ceremonial use of park lands, for consultations with Indians regarding park projects, for Native American involvement in interpretation and preservation of cultural materials, for confidential inventories of Native American cultural resources, and for Service ownership of cultural resources and artifacts.

That same year, work began on a comprehensive Management Policy on Native American Relationships. Drafts were published in the Federal Register in 1983 and 1987, and the final document was issued in late 1987. The NPS Native American Relationships Policy is a detailed document which includes sections on the guiding philosophy, pertinent legislation, traditional Native American activities, effective Native American consultations, archaeological and ethnographic studies, museum collections and Native American involvement in interpretation. Park consultations with the NAHAC were held on both the draft and final draft policies. This was a tedious and time consuming process since it

is a long, technical document. The comments of local consultants were perceptive and valuable, and contributed to significant improvements in the final draft.

Archaeological Investigations

Members of the NAHAC have been and are involved in various aspects of archaeological surveys and excavations. Before areas are surveyed, committee members are contacted to find out about Native American resources in the area--trails, villages, traditional resource collecting areas and ceremonial sites. Prior to archaeological excavations, Park staff and contractors meet with consultants to explain the purpose of the excavations, to work out a policy should human burials be found, to discuss the consultants' knowledge of the place and to obtain approval for the projects. Native Americans also serve as paid observers on Park archaeological excavations.

Because so little is known about the Chilula, the Redwood Creek/Hupa NAHAC generally supports the archaeological excavations in the Redwood Creek basin. Consultants request that the artifact collections be stored at the Park instead of at the Archaeological Collections Facility at Sonoma State University. Consultants receive copies of project reports.

Access and Use

Native American Heritage Advisory Committees have requested access to and use of a variety of resources in RNP. This is a complex situation because:

- (1) it is a very important issue to Indians and one which is central to the continuation of traditional lifestyles;
- (2) the California Department of Fish and Game, the California Department of Parks and Recreation, the United States Fish and Wildlife Service and the Bureau of Indian Affairs all have jurisdiction over resources within Park boundaries;
- (3) the Park contains lands in the vicinity of the Klamath River which are also within the boundaries of the Hoopa Valley Indian Reservation; and
- (4) the Service is bound by its own Code of Federal Regulations which often conflict with Native American requests. Hunting, for example, is not allowed on park lands.

Redwood National Park attempts to support Indian requests for access to and use of traditional resources. The Yurok periodically hold a Brush Dance on Park lands near the Klamath River, within the boundaries of the Hoopa Valley Indian Reservation. Prior to 1978, RNP filled in the dance pit after use. In accordance with requests, the dance pit is no longer filled in, and the Park assists with dance structure materials and site preparation. In support of traditional and community projects, RNP donates redwood for a variety of projects

such as shakes for United Indian Health Service buildings, logs for canoes (see Figure 18), logs for split plank dance structures, and blocks for elementary school carving sessions. A few other natural resources are also used in small amounts by the Indian community--berries, acorns, elk antlers and basket making materials. The mouth of Redwood Creek, an area where the Yurok traditionally establish temporary surf fish camps, is also the site of the Park Redwood Information Center but at the request of the NAHAC, provisions are made for the camps.



Figure 18. George Blake (Hupa/Yurok) beginning a traditional redwood canoe.

The Park acquired land in the vicinity of the mouth of the Klamath from private landowners who had clear title to it, but since the extension of the Hoopa Valley Indian Reservation was never terminated, some Park lands are within the boundaries of the reservation. Local Yurok use these lands both for access to the Klamath River and for a traditional dance, and it is difficult for much of the community to accept Park jurisdiction with its accompanying rules and regulations. A transfer of these lands to trust status, desirable for the Yurok, may only be accomplished through congressional action.

Interpretation

The Park General Management Plan (GMP) states that "Input and active participation in methods to interpret Native American culture in Redwood National Park will be encouraged. Any programs developed for public viewing will be authenticated by local Native American advisors" (p.43). In compliance with this and with NAHAC requests, committee members review all wayside exhibits, trail brochures and proposed publications which interpret Native American lifeways. A wayside exhibit which drew attention to a ceremonial place was removed at the request of the NAHAC. Unfortunately Park interpretation has emphasized the natural rather than the cultural history of the area even though Indians have repeatedly expressed interest in cultural resources interpretation.

Native American Employment

The GMP states that "Hiring programs will continue to recruit and employ qualified Native American applicants" (p.43). In keeping with this policy, the Park has local Native Americans on staff. The Indian community is well represented on the Park temporary labor crew, but only one local Native American is on permanent Administration staff and Interpretation has not made efforts to place local Indians in staff positions.

Discussion

The Park Native American consultation program is generally quite successful. The Park meets with the NAHAC on a regular basis in order to discuss planning documents, development projects, Native American relationship policies, interpretation, archaeological investigations and employment. Not only is the community consulted, but their recommendations are, for the most part, carried out by the Park. Furthermore, RNP supports the continuation of traditional Indian culture by providing access to both natural and cultural resources.

The success of the consultation program is due to a number of factors. Since the Indian community is large and dispersed, the NAHAC serve as a vehicle for regular contact. The Park archaeologist serves as liaison with the community and, on staff for over six years, has

built up a solid relationship with the committees. Park staff are willing to spend time meeting with Native American consultants, and committee members and others from the community are generous in sharing their knowledge, time and effort in working with the Park.

Shortcomings in the Park's Native American program remain, however. First, although Native Americans comprise a substantial percentage of the local work force, only one local Indian is on permanent Park staff. Second, RNP has not met its potential for interpretation of the rich cultural history and prehistory of park lands. Third, while the Park has and continues to support traditional Native American culture by providing access to and use of natural and cultural resources, the response to requests is often slow. Finally, overlapping jurisdictions of RNP and the Hoopa Valley Indian Reservation in the vicinity of the mouth of the Klamath River continue to be problematic.

CHAPTER 4

THE RECORDED CULTURAL RESOURCES

Redwood National Park, as a unit of a federal land management agency, is guided by a strong preservation-oriented mandate. The Park is in a good position to preserve and manage a lasting record of past human land use. The importance of preserving these nonrenewable cultural resources is stated in the Historic Preservation Act:

the spirit and direction of the Nation are founded upon and reflected in its historic past...(and these) historical and cultural foundations...should be preserved... in order to give a sense of orientation to the American people (P.L. 89-665).

The Park is justifiably noted for its abundant and unique natural resources, but it is also rich in cultural resources, many of which have been identified and investigated. This chapter describes for each type the number of resources and kinds of remains, their locations, ages, functions, ethnic affiliations and present conditions.

Known Park cultural resources include 50 prehistoric archaeological sites, 19 historic sites and at least 21 places of significance to local Indian communities. The existence of a large base of information about these cultural resources may be attributed to several factors: establishment of the Park and its watershed rehabilitation program; compliance with Federal legislation protecting cultural resources; the inclusion of CRM components in Park planning documents; the employment, since 1980, of a staff archaeologist; sound CRM directions put forth in the earliest cultural resource survey reports; and the presence of a Native American community having traditional ties to Park lands and willing to participate in the management process.

Prehistoric Cultural Resources

Of the 50 prehistoric cultural resources, 11 are located along the coastal strip and 39 occur in the Redwood Creek basin, including the Bald Hills. Additional prehistoric sites probably exist in the Park, particularly along the coastal strip and in some inland areas where survey coverage has been less complete. Management recommendations will suggest that these areas are deserving of further investigation.

Coastal Sites

Coastal archaeological sites represent permanent or seasonal villages occupied by the Tolowa or Yurok. They are characterized as "shell middens," since large quantities of discarded shellfish remains make these sites highly visible to the trained eye. Fire-cracked rocks are fairly abundant, implying that foods were prepared on-site. Pestles and mortars used to grind acorns and other foods, and eating utensils such as steatite bowls, spoons of elk horn and mussel shells are also known. Chipped stone tools, made of local chert and imported obsidian, and refuse from the making of stone tools are common. Preservation of bone tools and food refuse is remarkably good. Bone fishhooks, harpoon tips and abundant notched stone net weights attest to the importance of fishing and sea mammal hunting in the Indian economy, as do the preserved remains of discarded fish and sea mammals. The importance of land mammal hunting is apparent from preserved remains of elk and deer, and hunting and butchering tools like stone arrowheads and knives. Also preserved are woodworking tools, such as antler wedges and stone mauls, used to split planks for house construction and to fashion canoes from redwood logs. Architectural features, semi-subterranean family houses and sweathouses, observed by early 19th century ethnographers are no longer evident on site surfaces. Most sites are likely to contain cemetery areas.

Park coastal sites may date back no more than 1000 years. Most were abandoned after 1850 when Whites settled the region, but several continued to be occupied into the 20th century. Early ethnographers documented the Indian names and functions for nine of these sites: seven are Yurok villages; two are Tolowa villages or camps. Two other coastal sites may represent "suburbs" of a named Tolowa site.

Most coastal sites are in poor condition. Four were impacted by highway construction, two by former lumber mill activities and four by coastal erosion. Looting has been common. Only one deposit may have high integrity and at present, heavy overgrowth and poor access enhance its preservation. Three RNP coastal sites are listed on the National Register of Historic Places.



Figure 19. Coastal Redwood National Park lands south of False Klamath Cove.

Redwood Creek Basin Sites

Inland prehistoric cultural resources differ from the coastal sites in number, kinds of remains, ages and functions. To date, 39 prehistoric archaeological sites are known for the Redwood Creek basin, including five on the west side of Redwood Creek and 34 on the east side. This suggests that during prehistory, the east side of the basin, including the Bald Hills, was used more intensively than was the west side. This difference may be attributed to environmental factors. Because the east side has a number of prairies bordered by oak woodlands and conifer forests, it may have provided a more attractive, diverse living environment than the west side, which was primarily forested.

Ridgecrests, serving as major trail routes, are the most sensitive area for prehistoric sites on the west side of Redwood Creek. Among the five recorded resources, two may represent major habitation sites, possibly used at different time periods by different Indian groups. Time-sensitive projectile points suggest a time depth of 4500 years.

While this territorial boundary area may have been used by both the Chilula and Yurok in late prehistory, the earliest users have not been determined. They may have been ancestors of these or other California Indian groups. Stone artifacts at habitation sites are suggestive of hunting, food preparation and stone tool making activities. In contrast to the coastal sites, faunal remains are not reported, and are not likely to be preserved due to acidic soils. The remaining three sites on the west side of the basin are suggestive of brief, task-specific activities, such as stone tool making or edge resharpening, or short-term base camps used during hunting or collecting forays.

The 34 prehistoric sites on the east side of the basin are on ridgecrests and mid-slope benches near springs or creeks. Most are located along major trending ridgelines, which served as trail routes, and near prairies bordered by oak woodlands and conifer forests, which provided close access to large game, seeds and bulbs. Twenty-six of these sites located primarily along the crest of Bald Hills and Schoolhouse Ridge are included on the National Register as the Bald Hills Archaeological District. Among these, six represent villages or seasonal camps, five of which are named Chilula villages; two are short-term trail use sites; nine are 'concentrations,' intermediate sites between the village and trail use site types; eight are flake scatters where no tools are known; and one circular rock feature is a ceremonial site. The remaining eight east side sites which do not exhibit enough integrity for listing on the National Register are situated on or near ridgecrests, including five habitation sites and three trail use sites.

Like other inland sites, the archaeological deposits on the east side of the basin show evidence of flaked and ground stone tools, such as projectile points, knives, scrapers, milling slabs and handstones. More common are chert and obsidian flakes, the refuse of stone tool making. Because of the intensity of use, habitation sites often have darkened soil middens stained by ashes from numerous campfires and organic remains. Fire-cracked rocks are also common.

The east side sites suggest roughly 4500 years or more of human use. The earliest inhabitants made sporadic use of the basin, briefly occupied small base camps, likely hunted elk and deer, and collected seeds and other plant resources. Beginning approximately 2800 years ago people from the north, or having strong ties to a more northern culture, began to use the basin more regularly, establishing the earliest major villages on the Bald Hills. Fish and acorns may have become important foods. The Chilula occupied the basin 1000 years ago or less, establishing villages on ridgecrests in the lower part of the basin and on river benches in the upper part of the drainage. After suffering heavy population losses in the 1850s and 1860s and being relocated to Hoopa Valley, the Chilula survivors founded and occupied a village on Bald Hills in the 1870s and 1880s. Determining which Indian

group or groups used the basin before the Chilula remains a goal of anthropological research. Many sites were repeatedly used over thousands of years.



Figure 20. Interior Redwood National Park lands in the Redwood Creek basin and Bald Hills.

Most Redwood Creek basin sites have been impacted by logging, road construction, homesteading or ranching. Surface soils exposed along logging roads and skid trails have also made archaeological remains more visible. Soil erosion, accelerated in some areas due to logging, and looting have further disturbed several of these resources. This vulnerability makes listing on the National Register of Historic Places all the more important, since listed sites are afforded the best protection under the law.

Historic Cultural Resources

Nineteen historic resources are known. Remains range from linear features such as trails and roads, to domestic refuse dumps, to architectural features such as barns and houses. They date from the late 19th century to World War II and reflect a variety of historic activities, including ranching, mining, logging, overland travel, the early tourist trade and military operations.

Coastal Sites

The coastal area historic resources include:

three dairy ranch sites--the Joseph DeMartin Ranch Complex, the Johnson Ranch/Hamilton Hotel/Crevilli House site and the Alexander/Pozzi Ranch site;

the Harris house site;

the Union Gold Bluffs Placer Mine site;

a World War II military radar station; and

a portion of the old Redwood Highway.

Dating from the late 19th century, the ranch sites now include few structural remains. Domestic trash dumps, roads, remnants of fences and corrals, and scattered farm equipment exist. Best known is the Joseph DeMartin house near Wilson Creek, converted into a youth hostel in 1987.

Built circa 1915 on an Indian allotment near the Klamath, the Harris house was recently removed by the Park because of its poor condition and lack of architectural significance. Refuse dumps may be buried nearby and a cemetery exists.

Dating between 1872 and 1901, the mining site at Gold Bluffs consists of a scatter of artifacts where structural foundations may be buried, remnants of two roads, and a trash deposit containing earthenware, glass, water pipe fragments and other materials. Looting has been reported.

The National Register lists a portion of the old Redwood Highway and the World War II Radar Station B-71, located on the ocean bluff south of the Klamath. The highway represents a significant property associated with early 20th century transportation and tourism in the region. The Radar Station, a uniquely preserved early warning station involved in Pacific coast air defense and significant to national military history, was manned around the clock by Army Air Corps crewmen, who were quartered at Klamath. Built of concrete, the power

generating and operations buildings were camouflaged with wooden siding and shingled roofs to resemble farm buildings. Other remains include those of a privy, shed and machine gun emplacements.

Redwood Creek Basin Sites

Six historic resources identified in the Bald Hills near Redwood Creek are associated with late 19th century cattle and sheep ranching activities, and in the lower Redwood Creek basin a remnant of the Trinidad Trail has been identified near Tall Trees. Initially used by mule pack trains, this trail connected coastal supply centers with the early gold mining sites of the interior and later served ranchers who established homesteads in the Bald Hills area.

Presently, the Jonathon Lyons ranch, Dolason barn and Lane barn sites are in the process of being nominated to the National Register as the Lyons Ranch Historic District. Architecturally significant due to hand-hewn construction, the structures include three barns and a bunkhouse dating to the late 19th and early 20th centuries. Domestic and ranch refuse deposits have been identified at several sites. Other late 19th century ranch sites in this vicinity include the Tomlinson barn ruins, a cabin and a rock-lined well site, a recently removed collapsed A-frame barn, and associated refuse at the former site of Dooleyville. Additionally, the Lyons ranch site contains both historic and prehistoric archaeological deposits yielding the potential to provide information about regional settlement patterns and land use from prehistoric to modern times.

Other Park Area Sites

In the Park east of Crescent City is the Murphy's Ranch and outlying barn site, dating from circa 1884 to the 1920s. Archaeological remains include refuse dumps, a water trough, wooden springbox, fencing, structural remains of a burned house and two barns. This ranch was established along the historic Kelsey Trail, a pack route linking Crescent City with the Salmon and Trinity gold mines.

Cultural resources associated with the Hobbs, Wall Lumber Company likely to be identified in the northern reaches of the Park include railroad grades, trestles, buried refuse dumps and foundations at former logging camps. Based in the Crescent City area, Hobbs, Wall was the largest and most important lumber operation in Del Norte County, employing hundreds of workers and controlling tens of thousands of acres by the turn of the century. Associated Park sites date after 1908, when operations expanded into the Howland Hill/Mill Creek watershed area, to the late 1930s, when the company shut down and sold its operations.

In the hills northeast of Elk Prairie is a logging camp site associated with the California Barrel Company. Although this manufacturing company dates back to the 1880s, the Park site was established

quite late, probably the 1940s. Identified were four collapsed structures, a small refuse dump of cans and bottles, automobile frames, a water tower and miscellaneous industrial artifacts.

Contemporary Native American Cultural Resources

To date, Native American Heritage Advisory Committees have identified 42 places of contemporary significance in national and state park lands, including 21 resources within RNP. These include 14 coastal localities important to the Yurok, five near Smith River important to the Tolowa, and two in the Redwood Creek basin important to the Chilula or Yurok. Because of the confidential nature of these site locations, they have not been formally recorded. Pertinent information and a base map are housed in the office of the Park archaeologist.

Eleven prehistoric village sites have been identified by advisory groups as significant to the Indian community. These sites are potential sources of information and places valued as testimony to the widespread and long existence of their ancestors. The information potential and general heritage value of these prehistoric resources is great; but beyond that, many have significance for members of the community whose ancestors founded, occupied and are buried within certain village sites. In addition, six important fishing or resource collecting areas and four sacred/ceremonial sites, significant for promoting the continuation of traditional Indian culture, are identified. Natural resources traditionally used for food gathering, basket and regalia making, make preservation of and Indian access to these areas especially important to local Indians. As in other areas where contemporary Indian concerns preclude wide public access, advisory committees desire that location of these natural resources be kept confidential. The four ceremonial or doctor-training places include the current Brush Dance site on the south side of the Klamath, and notable geographical landmarks such as prominent rocks, often referred to by oral traditions and ethnographies. Preservation of and access to these places is supported by the Park Service's Native American Relationships Policy.

Additional contemporary Native American cultural resources likely occur within the Park. Therefore, Park consultations with the Native American Advisory groups need to be held before future Park undertakings to ensure the protection of places important to Indian heritage.

CHAPTER 5

MANAGEMENT RECOMMENDATIONS

Management recommendations made by contract consultants, heritage committees and staff have appeared throughout this summary. Before delineating these and additional recommendations, it is this author's view that the Park and those involved in the development of the CRM program must be commended both for the tremendous amount of data generated and recorded to date and for the continual support and commitment of the Service and Park staff to this important work. Redwood National Park was created to preserve and maintain the natural resources of the area. If preservation of cultural resources was not the primary purpose for the Park's creation it is, without question, a major auxiliary benefit; a resource as valuable in its own way as a stand of old growth redwood.

Field Studies

Archaeological Surveys

To date, approximately 27% of RNP holdings have been subjected to archaeological surveys. The majority of surveyable land within the Redwood Creek basin has been systematically inspected, leading to a reliable model of prehistoric site sensitivity and a more cost-effective "mixed strategy" survey method. Another important outcome of basin projects is the advancement of a settlement/subsistence pattern model. In contrast, coastal area surveys are less complete and systematic; other resources may be present in these areas.

Additional surveys or field checks are needed (1) to identify presence/absence of resources where future Park undertakings are planned, and (2) to continue inventorying of prehistoric and historic cultural resources in order to facilitate project planning and resource management. Particularly lacking is complete survey coverage of coastal areas removed from ethnographic site locations and of the northern reaches of the Park. Until more site location data are acquired and analyzed for Park lands outside the Redwood Creek basin, surveys undertaken there should be complete and intensive.

Formal research designs are developed prior to large scale surveys and take into account existing archaeological, ethnographical, environmental and historical data. At a minimum, research designs should: predict locations of prehistoric and historic sites; predict site types, ages and ethnic affiliations, including kinds of cultural remains; address survey methods, including surface artifact collection

and site recording procedures; and address analytical methods and data needed to assess how well survey findings fit the predictions. Guided by formal research designs, future RNP survey projects are more likely to refine the prehistoric sequence and the historic model.

Recommended policy during surveys at prehistoric sites is:

- (1) Collection of time-sensitive artifacts and minimal subsurface testing to determine the presence or absence of buried deposits.
- (2) Collected artifact and test unit locations should be mapped in relationship to a permanent site datum.
- (3) All collected artifacts should be labelled, catalogued and accessioned into the Park system.
- (4) Funds should be made available for visual or XRF obsidian sourcing and hydration analyses to aid in dating sites identified during surveys.

The projectile point typology of Hayes et al. is useful for cross-dating. Such a policy will make data collection more systematic, and increase the data base.

In addition, Native American Heritage Committees should be consulted to identify contemporary Native American cultural resources within survey areas. These consultations should be documented in the survey reports.

Archaeological Excavations

Six test excavation projects are formally reported for RNP. Being preservation-oriented, these small-scale excavation projects involve significance evaluations of 13 prehistoric sites, and data recovery and reburial of human remains at a site threatened by coastal erosion. All but two sites are located in the Bald Hills area near Redwood Creek. Data generated by these studies led to National Register nominations of the Bald Hills Archaeological District and the Enderts Beach and Cushing Creek sites, and to recognition of changing human land use in RNP over the past 4500 years.

Future archaeological excavations are needed (1) to formally evaluate site significance, and (2) to recover data as a mitigating measure whenever significant data loss is anticipated. In order to assess site significance in terms of National Register of Historic Places criteria, a test excavation program may acquire data useful for evaluating a site's integrity and archaeological research potential. Significance evaluations may be conducted programmatically, or as needed on a project-specific basis. Presently, formal significance evaluations are recommended for CA-HUM-527 and -667, two major deposits located in the Rodgers Peak vicinity on the west side of the basin; and for CA-HUM-135 and -131, two ethnographic Yurok villages near the mouth of Redwood Creek.

More comprehensive data recovery excavation programs may constitute mitigation of adverse impacts when significant data loss is expected. These programs will be project-specific.

Any excavation project:

(1) should be performed in consultation with the appropriate Native American Heritage Advisory Committee;

(2) should be guided by a formal research design, predicting the kinds and nature of archaeological remains and stating research methods;

(3) should utilize research designs that draw from earlier RNP studies, summarizing and evaluating what is known about the Park's cultural resources, and from these data, advancing pertinent research questions to guide future research; and

(4) should include comparative analyses and use of obsidian sourcing and hydration data, and at a minimum, address the research questions advanced for the Park by Bickel and King.

Excavation methods used by Hildebrandt and Hayes in 1983 and 1984 to identify single component activity areas on shallow, multiple component sites are likely to yield productive results for certain RNP projects. Presently, the greatest research need is definition of time-sensitive artifact assemblages like that done by Hayes et al. in 1985.

Special Studies

At present, the nature and timing of environmental changes for the historic and prehistoric periods within Park holdings is poorly understood. Paleoenvironmental studies are needed to assess the effects of Holocene climatic change on human settlement/subsistence patterns, and on site formation processes. These might include pollen studies, site catchment analyses, and studies of the effects of historic period land use practices on native vegetation.

Questions raised by earlier archaeological research include:

(1) Have vegetation communities shifted over time? In other words, were prehistoric sites now found in forested settings formerly in prairies and if so, when and why did the changes occur, and what were the effects on economically important natural resources, and ultimately, on humans?;

(2) Were the effects of climatic change less significant in the RNP area, because of its being more coastal, than in interior northwest California? If so, what are the implications for regional settlement/subsistence patterns over time?;

(3) Is the earliest evidence of human use along the coast buried under thick sediments or submerged? If so, were these sites buried or submerged during particular climatic episodes such as the Neoglacial, and where might they be found?

These questions are critical to on-going northwest California archaeological research. RNP has the opportunity to make significant contributions for the north coast area, where there is a paucity of paleoenvironmental data for the past 4500 years of human occupation.

Also recommended are obsidian hydration, fish and radiocarbon analyses of materials recovered from the Enderts Beach site by Moratto in 1972. These studies were not performed at the time of Moratto's investigation due to a lack of funds, yet are likely to produce important data concerning site age, human diet and economic pursuits.

Site Monitoring

To enhance preservation of RNP cultural resources, it is recommended that site conditions be monitored periodically by Park staff. A field monitoring program might be established on an annual basis. It is critical that monitors be familiar with the nature and condition of the resources to make site monitoring effective. Photo points and other markers might be established to monitor erosion of sites, especially those located along the coast and adjacent to waterways subject to flooding. Vandalism or looting remains a serious threat to cultural resources, especially to coastal prehistoric sites. Vandalism of cultural resources on federal lands is a felony offense, punishable by law under the Archaeological Resources Protection Act of 1979 (P.L. 96-95). Public education is the best defense against vandalism. Any significant changes to a site's condition should be reported to the Park CRM staff, who should perform a site evaluation, complete supplemental site record forms, including sketch maps and photographs, and consider an appropriate course of action.

Historic Research

To date, four historic studies offer general and area-specific background data useful to Park managers and interpretative staff, among others. For the 19 known historic cultural resources, evaluations of site integrity, research potential and architectural significance have been performed, resulting in the National Register nominations of the Old Redwood Highway, the World War II Radar Station B-71, and the Lyons Ranch Historic District.

Additional historic resources are likely to be identified through archive and oral history research, and field surveys. Studies designed to evaluate these resources should test the theoretical model advanced by Shoup in 1985. Two specific research projects are recommended below.

Before any major Park projects are undertaken in the Howland Hill/Mill Creek area, a corporate history of Hobbs, Wall and Company is needed to predict where associated cultural remains may occur, and to

assess the integrity and significance of resources identified. A full-scale survey and site evaluation project should be conducted for resources associated with Hobbs, Wall. An oral history program involving former employees and/or persons familiar with Del Norte County logging and railroading history would be productive. Time may be of the essence, since former employees would be in their later years.

Also suggested is research into RNP administrative history. An oral history program might be initiated while memories are still fresh. In addition, a search for records, memorabilia, photographs, correspondences and other kinds of historical evidence might be gathered and stored in a permanent archive. The report might be prepared in time for the Park's silver anniversary in 1993.

Native American Consultations

Since 1978 consultations with Native American Heritage Advisory Committees have been an integral part of the Park's CRM program. Preservation of and access to places traditionally held sacred to Indians are guaranteed by the American Indian Religious Freedom Act of 1978 (P.L. 95-341). The Department of the Interior recently issued a Native American Relationships Policy, which permits access to traditionally used natural resources. The Park should continue promoting the ongoing use of cultural and natural resources by Indians having ties to Park lands.

To date, 21 places of significance to the contemporary Indian community are identified in the Park, and more are likely to exist. As discussed in Chapter 4, future consultations will be needed on a project-specific basis to identify additional contemporary Native American cultural resources in areas of Park undertakings. It might be appropriate to conduct a meeting open to local Indians in order to review the Park's CRM program and offer the Indian community an opportunity for comment.

The generous sharing of time and input by certain Indian elders should be formally recognized by the Park. Such recognition might include award of a certificate of appreciation at a dinner, and development of a photograph and narrative display.

CRM Records

Pertinent CRM records on file in the office of the Park archaeologist include base maps showing site and survey coverage locations, site records, artifact catalogue sheets, a photograph file, a reference library, original copies of RNP reports and National

Register nomination forms, and records pertaining to contemporary Native American cultural resources. At the request of the NAHAC most artifact collections are housed at the Park.

Since a large number of CRM records have accumulated over the past 15 years, it is suggested that the following records be reviewed: archaeological base maps; site records; artifact catalogue sheets and collections; and photograph file. For consistency, small-scale surveys and subsurface site tests conducted by in-house staff should be documented in brief reports, and the study areas and reports referenced on base maps.

Site records should be evaluated for completeness and accuracy. Unverified site locations should be field checked, and site record supplements prepared for poorly recorded sites, or when new data become available. Presently, Park staff are developing a program to computerize site records, which should facilitate data retrieval and comparative studies.

Locations of artifact collections should be clearly identified and the collections inventoried. A catalogue listing these collections, their contents, accession numbers and locations would be useful to Park staff and archaeologists performing comparative studies.

The completeness of the photo archive should be assessed, particularly in regard to historical photos pertaining to Park lands and cultural resources. These will be useful for future studies, and to interpretative staff. Other pertinent historic photographs might be identified during oral history interviews, or through research of collections housed at local history museums and historical societies, title companies, county courthouses and local libraries.

Communication Networks

Communication networks exist between the Park archaeologist and local Indian groups, professional archaeologists, anthropologists, historians and educators. Outside expertise is regularly sought during project planning and execution, and cultural resource reports are distributed. North coast professionals meet to share data and discuss current projects and issues, research directions and needs. The Park archaeologist makes presentations to school groups and professional societies.

It is imperative that the communication networks be maintained and enlarged, perhaps through development of a bi-annual newsletter. Local schools should continue to be encouraged to conduct fieldtrips in the Park to foster appreciation of its natural and cultural resources. Graduate students should be encouraged to perform research of the Park's cultural resources. Significant results should be published.

Major reports should continue to be widely distributed to the professional community and other interested groups or individuals; a second reprinting of the Bearss 1969 study would be appropriate at this time.

Public Interpretation of Cultural Resources

RNP's unique opportunity to interpret the history of the region has not been fully realized. Educating the public about the significance and fragile nature of the Park's diverse and non-renewable cultural resources, and the laws protecting them will enhance preservation.

A number of wayside exhibits describe the traditional life of the local Indians and historical events. Park interpretive staff offer talks on history and Indian use of Park lands to school groups and other visitors. A variety of books on local Indians and history are available at the Redwood Information Centers. Plans for construction of a traditional Yurok Indian village at Patrick's Point State Park are being realized by State Park staff in consultation with a Yurok Indian advisory committee.

In addition to the present report, the studies by Bearss and Moratto should be useful to Park staff for developing new interpretative themes. The expertise of archaeologists, anthropologists, historians, museum curators and librarians, as well as local Indians and long-term residents should be drawn upon. It will be critical to safeguard the locations of certain cultural resources, while informing the public of their existence.

Several suggestions for interpretation are offered, many of which were recommended more than a decade ago and should be realized. "Living history" exhibits such as Indian basketmaking and other crafts, dances, songs and story telling should be developed, as should exhibits of homesteading in the Bald Hills at Lyons Ranch and railroad logging in the Mill Creek watershed. Indians interested in sharing the knowledge and skills of their culture would make a valuable contribution to the interpretation program.

A variety of projects might be undertaken to assist children in learning about the Park, the life of Indians in redwood country, and the hardship experienced by explorers and settlers. A family-oriented pamphlet summarizing the cultural history of the Park vicinity might include a self-guided automobile tour route. Using pamphlets and signposts, self-guided hiking tours might be developed along historic trails, and other trails passing near places where notable historical events occurred.

Displays housed in the Park Headquarters and Information Centers might draw more attention to the importance of cultural resources by exhibiting artifacts and tools used by archaeologists, describing the cultural history and methods used to obtain this information, and mentioning the laws protecting cultural resources. Similar displays might be placed temporarily in other public facilities.

A video film on the Park's CRM program and cultural resources might be produced for Park and Service staff, school groups, historical and professional societies, and other interested parties. A film recently produced for Six Rivers National Forest entitled "Nin-A-Saw (Set Here for You)," focuses on the abundant natural resources of northwest California, as seen through the eyes of contemporary Indians who have strong ties to the land. Such films are both popular and useful for interpreting resources for the public.

Management recommendations suggested here are designed to enhance resource preservation by guiding future policy decision, research and public interpretation. Much valuable work has been done in the Park and these recommendations are the logical result of years of commitment by many people and agencies. There is much yet to learn about Park cultural resources, and about the history and prehistory of people on the land.

BIBLIOGRAPHY

Baker, Suzanne

- 1981 An Archaeological Survey of Eleven Inventory Units, Redwood National Park, Humboldt County, California. Report on file at RNP, Arcata Office.

Baker, Suzanne, and Sally Salzman

- 1982 An Archaeological Survey of Seven Inventory Units, Redwood National Park, Humboldt County, California. Report on file at RNP, Arcata Office.

Barker, Leo R.

- 1979 Ethnohistorical Overview. In A Study of Cultural Resources in Redwood National Park, Polly McW. Bickel, principal author, pp. 27-54.

Bearss, Edwin C.

- 1969 History Basic Data, Redwood National Park. Report on file at RNP, Arcata Office. [Reprint: RNP, Arcata, 1982]

Benson, James R.

- 1978 An Excavation and Reinterment of a Burial at 4-DNO-15 in Del Norte County, California. Report on file at RNP, Arcata Office.
- 1981 Archaeological Test Excavation of CA-HUM-442, Redwood National Park, California. Report on file at RNP, Arcata Office.
- 1983 Archaeological Test Excavations at Four Sites in Redwood National Park, Humboldt County, California. Report on file at RNP, Arcata Office.

Bickel, Polly McW.

- 1979 A Study of Cultural Resources in Redwood National Park. Report on file at RNP, Arcata Office.

Bickel, Polly McW., and Ann G. King

- 1980 A Research Design for Anthropological Work in Redwood National Park, California. Report on file at RNP, Arcata Office.

Bledsoe, Anthony J.

- 1881 History of Del Norte County, California. Eureka: Wyman. [Reprint: Wendy's Books, Crescent City, 1971]
- 1885 Indian Wars of the Northwest: A California Sketch. San Francisco: Bacon. [Reprint: Biobooks, Oakland, 1956]

Cook, Sherburne F.

- 1976 The Population of the California Indians, 1969-1970.
Berkeley: University of California Press.

Coy, Owen C.

- 1929 The Humboldt Bay Region, 1850-1875: A Study in the Colonization of California. Los Angeles: California State Historical Association.

Drucker, Philip

- 1937 The Tolowa and their Southwest Oregon Kin. University of California Publications in American Archaeology and Ethnology 36(4):221-300. Berkeley.

Elsasser, A.B., and R.F. Heizer

- 1966 Excavation of Two Northwestern California Coastal sites. University of California Archaeological Survey Reports 67:1-149. Berkeley.

Fredrickson, David A.

- 1973 Early Cultures of the North Coast Ranges, California. Unpublished PhD. dissertation, University of California, Davis, Department of Anthropology.

Goddard, Pliny E.

- 1914 Notes on the Chilula Indians of Northwestern California. University of California Publications in American Archaeology and Ethnology 10(6):265-288. Berkeley.

Gould, Richard A.

- 1966 Archaeology of the Point St. George Site and Tolowa Prehistory. University of California Publications in Anthropology 4. Berkeley.

- 1972 A Radiocarbon Date from the Point St. George Site, Northwestern California. Contributions to the University of California Archaeology Research Facility 14:41-44. Berkeley.

- 1978 Tolowa. Handbook of North American Indians, Volume 8, California, R.F. Heizer, volume editor, pp. 128-136. Washington, D.C.: Smithsonian Institution.

Greene, Linda W.

- 1980 Historic Overview of the Redwood Creek Basin and Bald Hills Regions of Redwood National Park, California. Report on file at RNP, Arcata Office.

Hayes, John F., David A. Fredrickson, Adrian Praetzellis, and Mary Praetzellis

- 1980 Description and Analysis of Prehistoric and Historic Artifacts from Archaeological Sites Within Redwood National Park, California. Report on file at RNP, Arcata Office.

- Hayes, John F., David A. Fredrickson, and Thomas M. Origer
1985 An Analysis of Redwood National Park Artifacts. Report on file at RNP, Arcata Office.
- Heizer, Robert F., Editor
1978 Handbook of North American Indians, Volume 8, California. Washington: Smithsonian Institution.
- Heizer, R.F., and A.B. Elsasser
1964 Archaeology of Hum-67, the Gunther Island Site in Humboldt Bay, California. University of California Archaeological Survey Reports 61:1-122. Berkeley.
- Hickman, Patricia P., and Michael J. Moratto
1973 Ethnohistorical Notes. In An Archaeological Overview of Redwood National Park, Publications in Anthropology 8, Michael J. Moratto, principal author.
- Hildebrandt, William R., and John F. Hayes
1983 Archaeological Investigations on Pilot Ridge, Six Rivers National Forest. Report on file at RNP, Arcata Office.
- 1984 Archaeological Investigations on South Fork Mountain, Six Rivers and Shasta-Trinity National Forests. Report on file at RNP, Arcata Office.
- Hughes, Richard E.
1980 Sources of Obsidian in the Redwood National Park, Humboldt County, California. In Description and Analysis of Prehistoric and Historic Artifacts from Archaeological Sites Within Redwood National Park, California, J.F. Hayes, D.A. Fredrickson, A. Praetzellis, and M. Praetzellis, authors, Appendix III.
- Jackson, Thomas L.
1976 Report of the Middle Eel Planning Unit Archaeological Survey. Report on file at Mendocino National Forest, Willows.
- Keter, Thomas S.
1987 Indian Burning: Managing the Environment Before 1865 Along the North Fork. Paper presented at the Society for California Archaeology Annual Meeting, April 16, 1987, Fresno, California. Manuscript on file at RNP, Arcata Office.

King, Ann G.

- 1980 Archaeological Reconnaissance of Two Rehabilitation Units: The Lower K & K Road Unit and the Devils Creek Y-2 Road Slope Unit and Archaeological Testing at CA-HUM-484, Redwood Creek Basin, Redwood National Park, California. Report on file at RNP, Arcata Office.

King, Ann G., and Polly McW. Bickel

- 1980 Resource Evaluation at Nine Archaeological Sites, Redwood Creek Basin, Redwood National Park, California. Report on file at RNP, Arcata Office.

Kroeber, Alfred A.

- 1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington, D.C.

- 1976 Yurok Myths. Berkeley: University of California Press.

Loud, Llewellyn L.

- 1918 Ethnogeography and Archaeology of the Wiyot Territory. University of California Publications in American Archaeology and Ethnology 14(3):221-436. Berkeley.

Milburn, J.W., D.A. Fredrickson, L. Demichael, and W. Van Dusen

- 1979 A Preliminary Report on the Archaeology of CA-HUM-129. Report on file at RNP, Arcata Office.

Moratto, Michael J.

- 1971 An Archaeological Survey of Selected Areas of Redwood National Park. Report on file at RNP, Arcata Office.
- 1972 Archaeological Investigations in the Redwood National Park, California. Report on file at RNP, Arcata Office.
- 1973a A Survey of Cultural Resources In and Near Redwood National Park, California. Report on file at RNP, Arcata Office.
- 1973b An Archaeological Overview of Redwood National Park. Publications in Anthropology 8. Tucson: National Park Service, Western Archaeological Center, Cultural Resources Management Division.
- 1984 California Archaeology. San Francisco: Academic Press, Inc.

Salzman, Sally

- 1979 Redwood National Park Archaeological Survey of Proposed Rehabilitation Road Route and of Airstrip Creek Rehabilitation Unit with Comments on Survey of Logged Areas. Report on file at RNP, Arcata Office.

Salzman, Sally, and Polly Bickel

- 1979 Archaeological Survey in Rehabilitation Units in Redwood National Park, California. Report on file at RNP, Arcata Office.

Shoup, Laurence H.

- 1983 An Interpretation and Assessment of the Significance of the Historic Cultural Resources of Redwood National Park. Report on file at RNP, Arcata Office.

Simons, Dwight D.

- 1983 Holocene Environmental Change. In Archaeological Investigations on Pilot Ridge, Six Rivers National Forest, W.R. Hildebrandt and J.F. Hayes, principal authors, pp. 3.1-3.16.

- 1984 Catchment Analysis at Pilot Ridge and South Fork Mountain. In Archaeological Investigations on South Fork Mountain, Six Rivers and Shasta-Trinity National Forests, W.R. Hildebrandt and J.F. Hayes, principal authors, pp. 33-44.

- 1986 Site Catchment Analysis. In Archaeological Data Recovery at CA-MEN-320/643 for the Proposed Black Butte Bridge, Mendocino National Forest, Janet P. Eidsness, principal author, pp. 27-39. Report on file at Mendocino National Forest, Willows.

Soulliere, Laura E.

- 1983 Architectural Survey and Evaluation, Redwood National Park. Report on file at RNP, Arcata Office. [Draft Report: 1978]

Swadesh, Morris

- 1959 Linguistics as an Instrument of Prehistory. Southwestern Journal of Anthropology 15(1):20-35.

Wallace, William J.

- 1978 Hupa, Chilula, and Whilkut. Handbook of North American Indians, Volume 8, California, R.F. Heizer, editor, pp. 164-179. Washington, D.C.: Smithsonian Institution.

Waterman, Thomas T.

- 1920 Yurok Geography. University of California Publications in American Archaeology and Ethnology 16(5):177-314. Berkeley.

- 1925 The Village Sites in Tolowa and Neighboring Areas in Northwestern California. American Anthropologist 24(4):528-543.

West, James R.

1981a Pollen Analysis of Sediments from Barley Lake, Mendocino National Forest, California. In Archaeological Investigations at Graves Cabin (CA-MEN-1609, CA-MEN-1614), Mendocino National Forest, J.M. Flaherty and D.A. Fredrickson, authors, Appendix D. Report on file at Mendocino National Forest, Willows.

1981b Pollen Analysis from Tule Lake, Mendocino National Forest, California. Report on file at Mendocino National Forest, Willows.

1983 Pollen Analysis. In Archaeological Investigations on Pilot Ridge, Six Rivers National Forest, W.R. Hildebrandt and John F. Hayes, principal authors, pp. 3.17-3.31.

1984 Pollen Analysis. In Archaeological Investigations on South Fork Mountain, Six Rivers and Shasta-Trinity National Forests, W.R. Hildebrandt and J.F. Hayes, principal authors, pp. 19-28.

Whistler, Kenneth W.

1979 Linguistic Prehistory of the Northwest California Coastal Area. In A Study of Cultural Resources in Redwood National Park, Polly McW. Bickel, principal author, pp. 11-26.

APPENDIX:

GLOSSARY

GLOSSARY

Absolute dating: dating in calendar years before present, as in Carbon-14 dating.

Accession, accession number: the recording of artifacts or other data for permanent storage and curation in a collections facility.

Adaptation: an adjustment by human cultures or groups to changing conditions, for example, to changes in the distributions and productivities of plant and animal resources due to a shift in climate.

Algonkian, Algonquian: refers to a language family classification, which includes the Yurok and Wiyot of north coast California, among others.

Alluvium: sediments such as gravel, sand and silt, deposited by a stream or river.

Anthropology: the scientific study of humans in their biological, linguistic and social aspects, both now and in the past.

Archaeological site: the location of past focused human activities, defined spatially by a more-or-less continuous distribution of artifacts.

Archaeologically-sensitive: an area where the occurrence of archaeological materials is predicted, often on the basis of settlement/subsistence pattern and environmental data.

Archaeology: the branch of anthropology devoted to the scientific study of past human cultures through their material remains. The goals of archaeology are to construct culture history, to reconstruct past lifeways and to study cultural processes.

Artifact: any object made or used by human hands; generally, artifacts are small enough to be carried away from a site.

Assemblage: a group of artifacts representative of a site, time period or specific activity.

Athabascan: a language family classification, which includes the Tolowa and Hupa of northwest California, among other groups.

Backdirt: the soils excavated from test pits, typically used to refill them once excavations are terminated.

B.P.: Before Present, by convention in radiocarbon dating, before A.D. 1950.

Carbon-14 dating, radiocarbon dating: a method used to determine the absolute age of culturally introduced organic remains, such as charcoal from a firehearth, by measuring the remaining amount of Carbon-14, a radioactive isotope which decays over time at a fixed rate. Carbon-14 dates are given in years B.P.

Chert: a flint-like rock naturally occurring in the Franciscan formation of the North Coast Ranges of California, which was commonly used by prehistoric peoples to make stone tools such as projectile points.

Chipping: see Knapping.

Chronology: the science of determining the sequence and dating of events; arrangement or relationship according to order of occurrence; a sequential list or table.

Clearcuts: a logging practice whereby relatively large blocks of timber are harvested at one time.

Complete survey: a surface investigation of all visible portions of the impact area.

Component: an association of all the artifacts and features from a restricted time period at a site.

Cross dating: a technique whereby the age of one artifact is inferred by comparison to a similar one that has been dated.

Cultural resources: those tangible and intangible aspects of cultural systems, both past and present, that are valued by or representative of a given culture, or that contain information about a culture. For management purposes, RNP recognizes three types of cultural resources: prehistoric, historic and contemporary Native American.

Cultural resources management (CRM): a branch of archaeology that is concerned with developing policies and actions in regard to the preservation and use of cultural resources.

Culture: in anthropology, a set of customs and artifacts which characterize a group of people.

Direct historical approach: an archaeological study method for reconstructing the past, beginning with more recent, ethnographically documented sites of known age and cultural affiliation, then moving backwards through time.

Ethnographic: pertaining to the direct anthropological study of living human groups or the study of recent, historically documented groups.

Excavation: the process of digging archaeological sites, removing the soil and observing the provenience and context of the finds (both cultural and noncultural) contained within, and recording them in a three-dimensional way.

Feature: culturally produced objects which, unlike artifacts, usually cannot be taken from a site intact. Examples include housepits, firehearths and burials.

Fire-cracked rocks: burned rocks, typically fractured during intense heating in a firehearth, that are fairly common to prehistoric archaeological sites.

Firehearth, hearth: typically a prehistoric feature containing ash, charcoal, burned rocks and/or other evidence of a fire kindled by people.

Flake: a thin, flattened piece or chip of stone intentionally removed from the core rock by knapping with either a stone or bone hammer. In prehistory, flakes were often worked further to make tools such as arrowheads, or were used as simple cutting or scraping tools; however, the majority were discarded during stone knapping, making them one of the more common artifacts found in archaeological sites.

Handstone: an ovoid or loaf-shaped, hand-sized cobble with flattened sides used on a millingstone for grinding seeds and other plant products.

History: the study of the past through written records. For northwest California, the historic period generally begins about 1850, when sustained White settlement began.

Hopper mortar: a base consisting of a stone slab, typically a flat boulder, upon which rested a conical basketry hopper lacking a bottom; a pestle completed the device, used to mill acorns.

Housepit: a depression of variable shape and size representing the former location of a partly subsurface (semisubterranean) structure.

Hydration, obsidian hydration: the natural process whereby volcanic glass absorbs water in small amounts at a regular rate over time, producing a thin layer or hydration rim; obsidian hydration analysis involves the measurement, in microns, of hydration rims, which may be used to relatively date artifacts in comparative studies.

In situ: in place; referring to archaeological remains found in their original, undisturbed location or position.

Interregional: of or pertaining to two or more geographic regions; in archaeology studies, usually involves a comparative analysis of the differences and similarities between groups of people living in two or more geographically distinct areas.

Intraregional: of or pertaining to a single region; usually a study of differences and similarities among people living within a single geographically defined area.

Knapping, chipping: making stone tools by controlled flaking, either by percussion as in using a hammerstone, or by exerting pressure on the stone edge with a pointed antler tool.

Language family: two or more languages that developed from a single ancestral language, implying a past historical connection.

Lithic: of or pertaining to stone, as in lithic artifacts.

Littoral: of or relating to a shore or coastal region.

Manuports: unmodified cobbles found in a place where they would not naturally occur, implying that a person carried it to that location; presumably these rocks were transported and cached for use as cooking stones or some other use in prehistory.

Midden: a deposit marking a former prehistoric habitation site, marked by locally darkened ash-stained soils, artifacts, fire-cracked rocks, and along north coast California, preserved remains of shellfish, other food remains, bone tools and human burials.

Millingstone: a naturally shaped or slightly modified stone slab or flat boulder upon which seeds and other plant products are milled with the aid of a handstone.

Mixed strategy survey: as defined for Redwood National Park projects, two variables define those areas that are surveyed: ground visibility (vegetation or forest regrowth) and archaeologically-sensitive indicators such as prairie margins.

Native American: synonymous with Indian.

Obsidian: natural volcanic glass, not native to the north coast California area. Obsidian was often the preferred material for the making of flaked stone tools in California during prehistory. Where unavailable locally, obsidian was usually acquired through trade networks.

Obsidian hydration: see Hydration.

Palynology, palynological: the study of fossil pollen for the purpose of reconstructing past climatic conditions and vegetation distributions; pertaining to fossil pollen data.

Pattern: an adaptive mode extending across one or more regions characterized by particular technological skills and devices, by particular economic modes such as exchange networks, and by particular burial and ceremonial practices. The pattern is a cultural unit lacking temporal implications, as the time period of a pattern in one region may not correspond to the time period in another region.

Predictive model: in archaeology studies, a conceptual structure that predicts the relationships between human land use and the environment, such as predicting where unrecorded archaeological village sites are likely to be found.

Prehistory: the archaeological record of human groups or cultures existing before the advent of written records. In northwest California the prehistoric period usually refers to Indian cultures before 1850.

Protohistoric: refers to the history of groups who lacked written records but who were written about by their contemporaries; for example, the Yuroks living at Trinidad in the 18th century were described in the journals of Spanish seafarers who visited them.

Provenience: the origin or source of an object; for example, an artifact's precise location in situ.

Radiocarbon dating: see Carbon-14 dating.

Reconnaissance: see Survey.

Rehabilitation unit: for Redwood National Park, an area which has been disturbed by activities such as logging or road construction, where measures are recommended and undertaken to more-or-less restore the landscape to its natural state.

Relative dating: determining the age of an object in relation to another, as in older, the same age or younger; for example, obsidian hydration data are commonly used to relatively date two or more artifacts.

Research design: a carefully formulated and systematic plan for conducting archaeological research, which specifies the goals, methods and expected results.

Sensitivity map, studies: predicting where unrecorded archaeological sites are likely to occur, based on analyses of where recorded sites are located in relationship to geographic and environmental features.

Settlement/subsistence pattern: distribution of human settlements (archaeological sites) on the landscape, in relationship to topographic features and economically important plant, animal and other natural resources.

Significance: for cultural resources management, the legal significance of a particular resource is evaluated in terms of criteria set forth by the National Register of Historic Places: that the resource possesses integrity of location, design, setting, materials, workmanship, feeling and association, and is associated with an important event or person, or is historically distinctive, or exhibits research potential.

Site: see Archaeological site.

Sterile soil: refers to non-artifact bearing soil or bedrock encountered at the base of excavation samples, below the cultural deposit.

Stratigraphy: the study of cultural and natural soil layers in archaeological and geological deposits, especially with the aim of determining the relative age of the layers; the principle of stratigraphy states that deeper layers will be older than shallower layers.

Subsidiary ridge, secondary ridge: a level or sloping ridge which is shorter in length than, but may originate from a major trending ridge; it is assumed to be a natural feature less conducive to travel by foot or other means, therefore is likely to exhibit less archaeological manifestations of past human land use, than major trending ridges.

Survey: a reconnaissance or on-foot examination of an area to determine its archaeological potential, and usually, to formally locate and record archaeological sites.

Trait: any definable element or feature of culture suitable for comparative purposes.

Transect: in archaeology, a survey is often conducted by people walking a study area which has been mentally divided into subareas, in order to systematically locate artifacts exposed on the ground; a series of transects, or passes, are walked by one or more persons in a parallel fashion.

Trending ridge: a relatively long, more-or-less level mountain system or ridgeline which is usually oriented along one axis; for example, the Bald Hills bordering Redwood Creek basin is a major trending ridgeline oriented northwest/southeast, which accommodates travel by foot or other means.