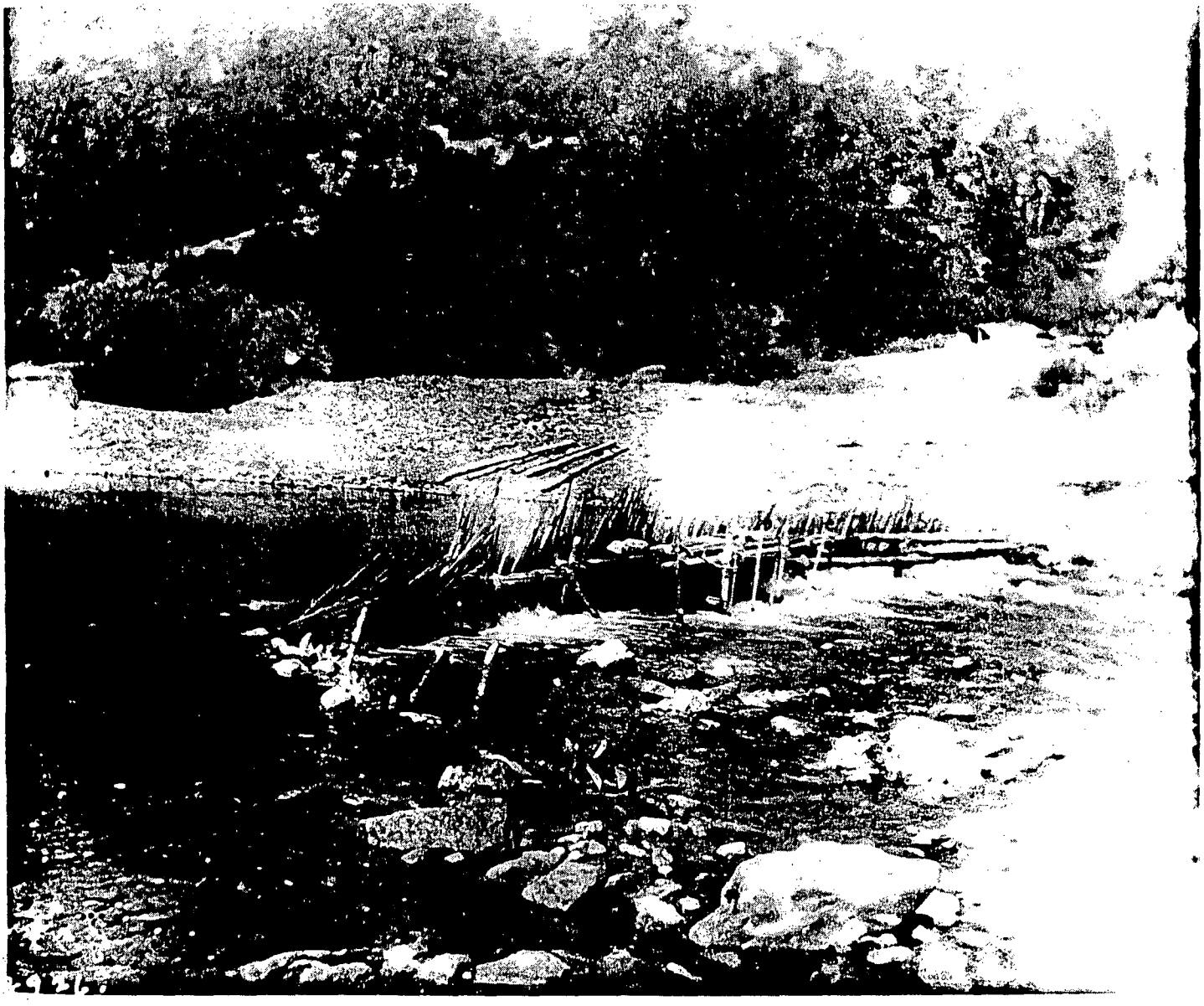
A STUDY OF CULTURAL RESOURCES IN REDWOOD NATIONAL PARK

by

Polly McW. Bickel

1979



Frontispiece. Fish weir on Redwood Creek, photographed in 1902 by anthropologist P.E. Goddard. Lowie Museum of Anthropology, University of California, Berkeley.

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Polly McW. Bickel
April 1979

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Report of the project entitled "Archeological Surveys and Cultural Resource Section of a General Management Plan, Redwood National Park, California."

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United States Department of the Interior
National Park Service
Denver Service Center
Denver, Colorado

CONCORDANCE

Sites recorded in Redwood National Park during 1978 survey.

Field Designation	State Trinomial
RNP S-9	CA-DNO-90
RNP S-6	CA-DNO-92H
RNP F-5	CA-DNO-91H
RNP S-7	CA-HUM-442
RNP S-14	CA-HUM-444
RNP F-15	CA-HUM-445H
RNP S-16	CA-HUM-446
RNP S-17	CA-HUM-447
RNP S-18	CA-HUM-448
RNP F-19	CA-HUM-449H
RNP F-20	CA-HUM-450
RNP S-21	CA-HUM-451
RNP S-22	CA-HUM-452
RNP S-23	CA-HUM-453
RNP S-26	CA-HUM-454H
RNP S-29	CA-HUM-455
RNP S-30	CA-HUM-456
RNP S-31	CA-HUM-440
RNP S-32	CA-HUM-441
RNP S-35	CA-HUM-443
RNP F-3	CA-HUM-438H
RNP-S-4	CA-HUM-439

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In spite of all this assistance, errors and shortcomings inevitably will be found in the work of the project and in this report; responsibility for these is solely mine.

Polly McW. Bickel
March 1979

NOTE

INDIAN LANGUAGE SPELLINGS

Words in Indian languages which are underlined have been spelled in nontechnical equivalents of the standard technical alphabet used in the California volume of the Handbook of North American Indians (Sturtevant 1978). In underlined Indian words, capital letters are not used for proper names or at the beginning of a sentence. The nontechnical spellings were used to assist those readers who are unfamiliar with the technical alphabet in pronouncing the words (incorrectly, but with close approximation to the correct pronunciations).

Indian words which are not underlined are those which were recorded by nonspecialists or before the phonemic system of the relevant language had been analyzed, and which could not be respelled in phonemic transcription; they are spelled in the standard English form in which they were recorded. Indian words in parentheses or quotations which are not underlined are spelled as they were recorded by the ethnographer; context makes it clear which ethnographer's spelling is being cited.

Moratto (1973:12-22) lists variant spellings of many of the names cited here. Technical spellings from which the nontechnical spellings were derived may be found in Gould (1978:128), Pilling (1978:139), and Wallace (1978:170).

I. INTRODUCTION

This paper reports upon inventory and evaluation studies of cultural resources pertaining to past and present Native American use of lands in and near Redwood National Park. The work was conducted under contract with the National Park Service to assist that agency in complying with its responsibilities toward cultural resources as specified in the National Historic Preservation Act, Executive Order 11593, the National Environmental Policy Act and other legislation.

This study is but one of several which have been conducted to that end since the creation of Redwood National Park in 1968. The major identification and evaluation of historic resources, including those pertaining to the historic presence of groups other than Native Americans, was accomplished by Bearss (1969). Laura Soulliere, an architectural historian for the National Park Service, has recently supplemented Bearss' compilation of historic resources (Soulliere 1978). Gordon Chappell (personal communication, 1979), an historian in the National Park Service Western Regional Office, has updated a number of National Register nominations of historic resources drafted by Bearss. Prehistoric resources, treated briefly by Bearss, were more specifically addressed in a series of archaeological studies carried out by Moratto (1971, 1972, 1973). In his 1973 report, Moratto offered an archaeological overview of Redwood National Park set against a background summary of existing linguistic, ethnographic, ethnohistorical and archaeological information about northwestern California.*

The present study, conducted between August 1977 and March 1979, was undertaken to supplement the data in the 1973 archaeological overview and to provide recommendations to assure adequate consideration of archaeological and other cultural resources, including areas of contemporary concern to local Native Californians, during the formulation and implementation of a General Management Plan for Redwood National Park. Work began under the direction of Michael J. Moratto, then Professor of Anthropology at San Francisco State University. He was principal investigator from August 1977 through January 1978, when he resigned from the university to pursue his archaeological career elsewhere. The author of this report, Polly McW. Bickel, served as principal investigator from January 1978 through completion of the project.

The primary goal of the project was to contribute to the formulation of a cultural resources management plan, to be included as part of the General Management Plan, which will recommend actions for the

*Readers unfamiliar with the anthropology of northwestern California should review Moratto's 1973 work before reading this report.

preservation and interpretation of cultural resources in Redwood National Park. Chapter VII presents the general recommendations which were developed after study of a variety of data collected in the course of background research, fieldwork, and consultations.

Background research focused upon a review of northwestern California ethnography, linguistics, ethnohistory and archaeology. This was a necessary preliminary to the formulation of the research design and sampling strategy for the archaeological survey of new lands, and provided a basis for evaluating the significance of Park cultural resources. As part of this effort, reports of recent archaeological work and recommended future directions were solicited from researchers active in northwestern California; these are included in this paper as Appendices 1 through 4. Contributed Chapters III and IV on linguistics and ethnohistory serve to expand and update the treatment of those topics in the previous overview (Moratto 1973).

Fieldwork included revisits to previously recorded archaeological sites, examination of some alternative areas proposed for development, archaeological survey of some of the lands newly acquired by the Park in 1978, and location of some places identified in consultations. Collections made during fieldwork are presently deposited under accession number 79-5 at the Northwest Regional Center, Anthropology Laboratory, Sonoma State College. Chapter VI discusses fieldwork in detail, and Maps I through IV show the areas surveyed and sites located. The site descriptions in Chapter VI, on pages 87 through 101 , comprise a list of known archaeological resources within Redwood National Park as of 1978, with an evaluation of their significance.

The major consultation effort was to gather inventory information and recommendations from local Native Californians regarding interpretation, development and preservation of archaeological and ethnohistoric resources of the park area, including traditional use areas, ceremonial and sacred places of continuing contemporary significance. Because the number of people consulted was unusually large compared to previous National Park Service efforts elsewhere, and because the result has been more Native American input to the planning process than has occurred in other planning efforts, the consultations and procedures leading to them are summarized in some detail in Appendix 5. Altogether, more than fifty Native Californians with traditional ties to Park lands were consulted through individual interviews, a group conference, and meetings of five Native American Heritage Advisory Committees formed at the conference. There were two phases of consultations during this project, one to collect inventory information and recommendations, and one to permit the advisory committees to review and react to preliminary management proposals with regard to their potential impact on cultural resources. It is hoped that communication between Redwood National Park and the local Native American communities will be maintained through the continued use of committees by the Park and individuals in the communities.

Other project consultations took the form of conversations with several non-Indian long time residents of the Park area. These were sources of local history useful for identifying historical remains located in the field, and they provided information about previous land use practices which had affected some of the surveyed areas and some of the recorded archaeological sites. Local history and archaeology was also a part of the information gathered from consultations with Native Americans. In this regard, project consultations served to identify a third set of Park resources in addition to natural and cultural resources. These are the human resources represented by the long time residents, Native American and non-Indian alike, who command knowledge and experience of earlier traditions and history of the area. It is suggested that attention to these resources should be part of the Park program, perhaps through an oral history project as recommended in Chapter VII.

In addition to information-gathering consultations discussed above, there were frequent discussions with National Park Service personnel about project actions and results, to provide planners and Park staff with data and informed advice regarding cultural resources. To a great extent these discussions, supplemented by written interim reports on fieldwork and consultations, accomplished the major informational and advisory functions of the project, by supplying National Park Service personnel with inventory information and recommendations while the basic planning effort for the General Management Plan was in progress. Concerning other matters, a conference regarding project consultations with Native Americans was important, because it enlisted the participation of National Park Service cultural resources personnel in the planning of consultations of greater scope than has been customary, but which may become a regular aspect of future National Park Service planning efforts. Another consultation of value was a briefing presented by project personnel to the staff of Redwood National Park. This provided an opportunity to acquaint the general staff with the Park's legislative responsibilities toward historic preservation and Native American concerns, to introduce them to an anthropological perspective on the significance of Park cultural resources, and to briefly summarize the resources. A formal meeting between a contractor and general Park staff is unusual, but in this case served to disseminate project results pertinent to ongoing procedures in the Park. For example, protection personnel were informed of archaeological sites of which patrolling rangers should be aware; interpretive staff were informed of the existence of Native American Heritage Advisory Committees as sources of advice and participation in the interpretive program. Since it often takes time for a project report like this one to filter down to the people who can use it in everyday work, a project briefing to staff can be a useful interim measure.

II. ETHNOGRAPHIC INFORMATION

Members of at least six Native American groups formerly occupied lands which now fall within Redwood National Park or near its boundaries: Tolowa, Yurok, Karok, Chilula, Hupa, Wiyot. In the early historic period, before the disruption described in Chapter IV, the distribution of these groups was approximately that shown in Figure 1. Thus the Tolowa, Yurok and Chilula were the groups actually resident historically on what are now Park lands, and it is the ethnographic descriptions of their cultures which give the fullest available picture of the way those lands were being used 150 years ago. However, as is discussed later, archaeological and linguistic evidence suggests that these groups were differently distributed prehistorically, each one arriving separately in Northwestern California to initially occupy land which later became the territory of another group. For example, it is likely that Karok and Wiyot people at one time used lands now within the Park, although this was not so in the historic period. A primary goal in the anthropological study of northwestern California is to come to an understanding of the peopling of the region, to learn the sequence in which groups arrived, from whence they came and why, which social and cultural attributes were brought from elsewhere, and what adjustments were made to a new homeland.

The study of the settlement of northwestern California by Native Americans is of especial interest because together, these groups shared to varying degrees in a cultural pattern distinctive from that found elsewhere among Native Americans in California. Briefly, this involved a subsistence economy which intensively exploited the resources of large rivers and the seacoast; a philosophy which emphasized the individual's responsibility to self over subordination to group interests; a corresponding minimal political orgainization with no formally designated leadership positions; a developed system of civil law; a work ethic which lauded diligence and asceticism in the pursuit of wealth; and a set of religious beliefs which offered no single creator-being nor creation myth, but which specified prayers and ceremonial acts to accomplish periodically the symbolic renewal or recreation of the world.

Details of the northwestern California cultural pattern are presented in Moratto's 1973 archaeological overview of Redwood National Park, and in the bibliographic sources recommended therein. Important new sources include a collection of Yurok myths (Kroeber 1976), a discussion of the beneficial ecological effects of certain northwestern California rituals (Swezey and Heizer 1977), and articles about each

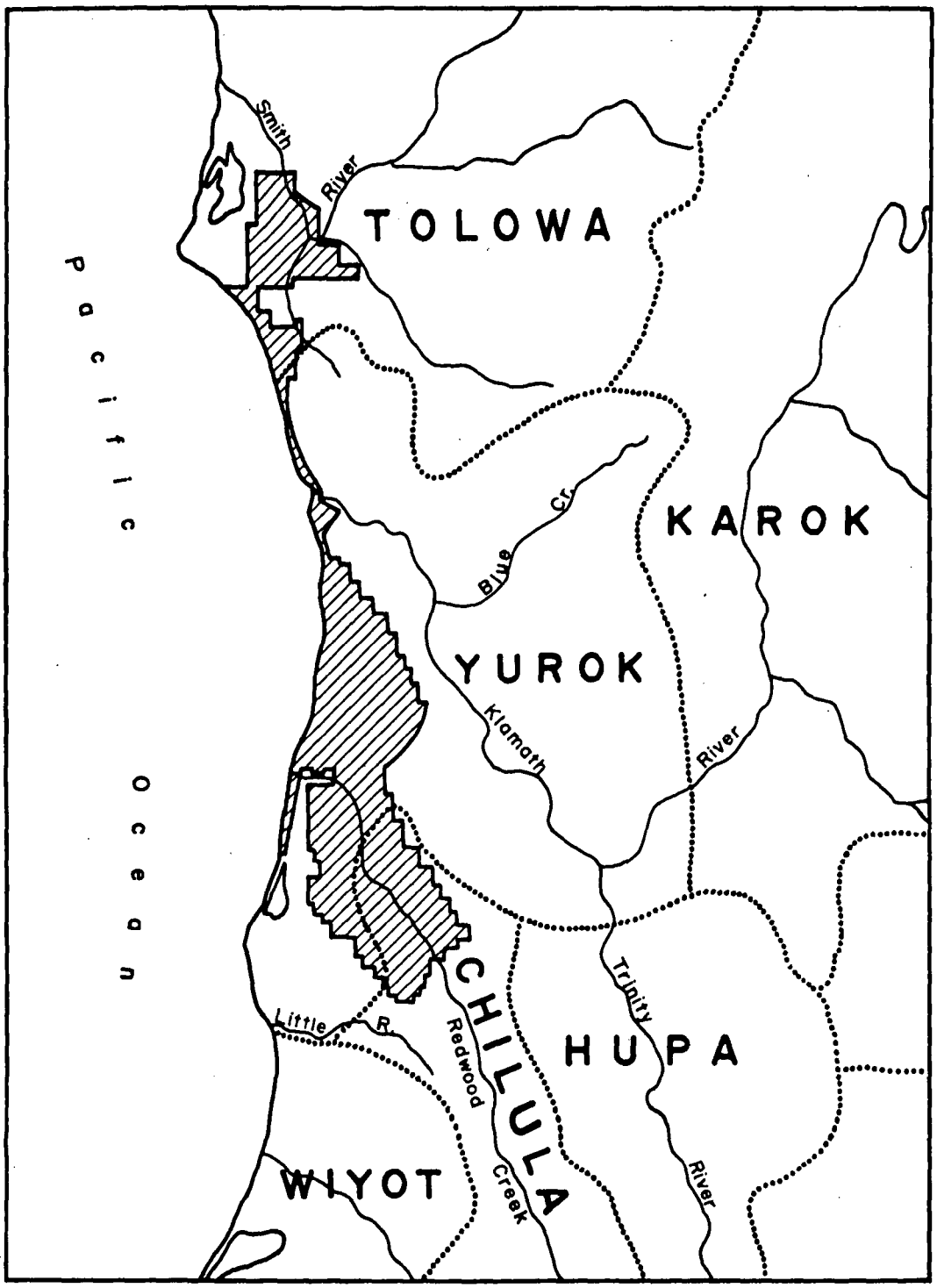

Figure I. Ethnolinguistic Groups In Northwest California
(after Waterman 1920)

of the northwestern groups in the recently issued California volume of the new Handbook of North American Indians (Sturtevant 1978). Chapters on linguistics and ethnohistory in the present report expand and update the treatment of those topics in the previous overview. Together, all of these sources provide an abundance of information which can and should be drawn upon to convey to users of Redwood National Park the cultural achievements of the original inhabitants of its lands. They also provide information which has been used to guide the identification and evaluation of the Park's cultural resources, prehistoric, historic and contemporary, in the context of the anthropological project reported upon here.

Of most importance to the work of this project were two kinds of ethnographic information, that pertaining to the continuity of old customs, and that dealing with land use and settlement patterns. The first was important for the effort to identify areas of contemporary traditional use within the Park, and the second, for the attempt to locate prehistoric and historic sites. In many cases there has been continuity in the use of places of contemporary concern to Native Americans over historic and prehistoric times; thus information about continuing traditions often complements that about earlier patterns of land use.

Continuing Traditions

The primary source of information about continuing traditions was Native Americans in the local communities around the Park, people still residing near the lands occupied by their ancestors. An effort was made to contact people recognized by their peers as knowledgeable about traditional ways (see Appendix 5 for details of the consultation procedures). In addition to these direct sources, transcriptions of previous interviews with Tolowa and Yurok elders (Brown 1972 and White 1971) were useful, as was a review of the work of other anthropologists who have been concerned with documenting ongoing traditions in this part of northwestern California (Pilling 1975, 1978; Gould 1966; Pilling and Pilling 1970).

Information sought in consultations was very particular: specific beliefs, practices and places that planners should be informed about so as to ensure that future Park management would respect continuing religious concerns and would provide for the continuing practice of traditional activities as these involved places and things within Park boundaries. Of most concern to the people consulted were burial areas, other sacred places, and gathering sites where a variety of foods and raw materials had traditionally been obtained. In addition to identifying these locations, consultants offered recommendations for their appropriate treatment in Park plans.

The check on accuracy, completeness and validity of data gathered in this way lies in the procedures by which the information was gathered. These procedures, recommended by members of the Native American Heritage

Commission and the Northwest Indian Cemetery Protective Association (NICPA), were designed to ensure that many people were consulted, and that consultations were multiple. No individual commands knowledge of traditional use of all lands within the Park. Historically, different parts of these lands were used by people of three different ethnolinguistic groups, and by different local communities within the three groups. In selecting consultants, the effort was made to contact knowledgeable people with traditional ties to different areas within Park lands so that information about all areas would be forthcoming. The selection of consultants depended totally on the judgment of members of the local Native American communities, beginning with personnel of NICPA, expanding to include suggestions from people contacted by NICPA, and eventually including additions to the membership of the Native American Heritage Advisory Committees over the course of several committee meetings. The fact that many people were consulted provided a broad information base; it also provided opportunities for checking information. Likewise, the occurrence of multiple consultations contributed to completeness; memories were jogged in the interim between meetings, and other members of the community were contacted by consultants. The best check on the validity of the information, for those who might question whether non-traditional practices were being passed off as traditional, was the fact that each consultant's information was subject to the commentary of others; in the course of discussion, a consensus would usually develop to resolve such questions.

It is our hope that the information gathered has been sufficient to ensure that the General Management Plan for Redwood National Park will adequately reflect continuing Native American concerns for places and things within the Park. Gaps doubtless remain in the information gathered, but this is to be expected in a open-ended inventory procedure which essentially asked people to fill in a blank map. As particular areas come to be affected by future Park actions, the Native American Heritage Advisory Committees exist as bodies to be consulted to ensure that Native American concerns for those areas are known.

Land Use and Settlement Patterns

Ethnographic information about prehistoric and early historic settlement patterns consists mainly of lists of settlement names and locations mapped between the 1850s and 1930s, and accounts of traditional subsistence practices collected in the early 1900s from people who remembered the pre-White era, or collected later from descendants who had been taught about the old ways. A general description of subsistence practices compiled from this information, as well as a list of ethnographically recorded villages in and near Redwood National Park, is provided in the 1973 overview (Moratto 1973).

To the settlement list should be added the following Chilula spots, recorded in 1906 by Goddard (1914b). These locations are all within or near lands added to the Park as a consequence of the 1978 expansion. Archaeological remains of two of these places were identified

with certainty in 1978 fieldwork, and there is reason to believe that the other two sites were also located (see Chapter VI). Goddard's descriptions are cited in full here (1914b:273-274, 277, 278); spellings in brackets are those used elsewhere in this report. The accuracy of Goddard's locations for these places is discussed on pages 84-86 .

> Kinkyolai [kyingkyohlay'], A large and important former village situated on the eastern end of a ridge above Jonathan Lyons' ranch house and about a mile east of it (near the middle of south side of Section 24, Township 9 North, Range 2 East). There is timber nearby on the northern slope of the ridge. In the edge of the timber is a spring which furnished the village with water. Besides the sweathouse site, seventeen house pits were counted. This village was the home of the Socktish family, many of whom are now living with the Hupa. The head of the family at the coming of white people was a man of influence and a noted warrior. His name was KiLtcil, "crazy." His wife was a Hupa woman and perhaps for that reason the family moved to Hoopa Valley. (See pl. 39, fig. 1) [Plate 2A in this report; see also Plates 1A and 1B in this report].
>
> Kinyukkyomuna [kyingyikya wmingwah]. This site was not visited. It is said to be on the north side of Coyote Creek below a large rock (southeast corner of Section 26, Township 9 North, Range 2 East). There are said to be house pits there. Tom Hill said this was the village where the people who lived at Kinkyolai spent the colder months of the winter. It is unlikely that two permanent villages were maintained by the same families. Perhaps the site of Kinkyolai is the more recent and was formerly only a summer camping place.
>
> Senalmatsdin [tse na lma ts' ding]. A summer camp for gathering seeds. A glade on the south side of the main ridge east of Kinkyolai (probably in the southeast quarter of Section 24, Township 10 North, Range 2 East).
>
> A rocky point on the top of the ridge about a mile northeast of Lyons' house was used as a dancing-place for those who were training to become shamans (middle of east side of Section 19, Township 9 North, Range 3 East). Stones were arranged to include a space about four by six feet. Within this a fire was built, around which the candidates danced (pl. 39, fig. 2)[cf. Plates 3A and 3B in this report].

Settlement lists and after-the-fact accounts of subsistence practices provide information useful as far as it goes, but such material suffers at least two major deficiencies. First, it describes only the situation in the early historic time period. Second, it is incomplete, with a bias toward major or permanent settlements and the more noteworthy subsistence activities. Goddard (1914b:265, 276), Waterman (1920: 195), and Drucker (1937:227, 228) all acknowledge the incompleteness of

their ethnographic information for the Chilula, Yurok, and Tolowa, respectively. The result of deficient data is incomplete and incorrect understanding of prehistoric and early historic land uses and settlement patterns. Archaeological data can remedy some of the deficiencies and correct the record, but caution is necessary. The ethnographic information, deficient though it is, often affects expectations and search strategies in archaeological surveys which, in turn, affect what is found.

Ethnographic information regarding settlement patterns for northwestern California shows a clear bias toward the recording of coastside, riverside, and stream-side settlement locations, and a corresponding emphasis on the importance of activities carried out in or near these places. This bias contributed to the coastal, river- and stream-side focus of previous archaeological surveys in Redwood National Park (Moratto 1973:79). As a consequence, there is still virtually no information on record about the archaeological resources of inland and upland areas of historic Tolowa and Yurok territory within Park lands. Ethnographic information for these areas does include some named places where fishing, hunting and gathering activities took place regularly. Both Waterman (1920:222) and Drucker (1937:228) indicated the presence of structures ("shacks", "houses", "sweathouses") at some of these places. This suggests that visible traces of historic and prehistoric use may remain at these spots. While the locational information provided for inland sites is imprecise (usually because the ethnographer did not visit these places), it is important that future archaeological surveys take these data into account. Some of these places are still known to living Native Americans; their assistance should be sought.

Goddard did record for the Chilula a number of named summer and fall settlement locations away from Redwood Creek; those within Park boundaries are listed in the 1973 overview, as supplemented above. Archaeological survey in the vicinity of those locations resulted in the discovery of a number of settlements not recorded by Goddard. Evidently his consultants did not know about them, presumably because those settlements had been abandoned before their births; here the time limitation of the ethnographic record is evident.

PREFACE TO CHAPTER III by Polly McW. Bickel

At the suggestion of reviewers, a preface to Chapter III is provided for readers who find it difficult to read a linguistic discussion. We feel that the chapter is clear, and we encourage its perusal, but offer a brief extract of points immediately pertinent to this report for readers who may wish to pass over the chapter.

Five languages were spoken aboriginally in the northwest California coastal area: Chetco-Tolowa, Hupa-Chilula, Wiyot, Yurok and Karok. See Figure 1 on page 5 for the historic distribution of speakers of these languages. Hupa and Chilula, shown separately on Figure 1, are varying dialects of a single language, as are Chetco and Tolowa (Chetco is not shown on Figure 1 because its speakers occupied territory north of the map's boundary).

A variety of linguistic evidence suggests that the distribution of ethnolinguistic groups recorded historically was a relatively new configuration; that is, speakers of Tolowa, Hupa-Chilula, Wiyot, Yurok and Karok had not occupied their historic territories (those shown on Figure 1) for any great length of time. While it is impossible, without further linguistic and archaeological work, to reconstruct the prehistoric movements of speakers of these languages with certainty, Whistler presents the most recent educated guess. This places speakers of ancestral Karok in northwestern California as the "old occupants" of the area (how old is not known; at least as old as 310 B.C., the earliest radiocarbon determination for an archaeological site in the Redwood National Park environs). It is hypothesized that they were a people with no special riverine or coastal adaptations and, as a consequence, were underexploiting the northwest coastal area, perhaps using it only seasonally from bases further inland. Speakers of ancestral Wiyot entered the area from the Columbia Plateau sometime around A.D. 900, taking up a more coastal orientation. Speakers of ancestral Yurok entered separately, also from the Columbia Plateau, around A.D. 1100, bringing a riverine adapted technology; they occupied and heavily exploited the lower Klamath River with its intense salmon runs. Finally, as part of a southward movement of a number of ethnolinguistic groups along the coast ranges of Oregon and into the Siskiyous and California North Coast Ranges, speakers of Tolowa and of Hupa-Chilula moved into the positions which they occupied historically, arriving about A.D. 1300.

Thus Whistler hypothesizes a sequence of occupations of the northwestern California coastal area which may be detectable in archaeological remains within the Redwood National Park area. He postulates an early occupation by speakers of a language ancestral to Karok, followed by the arrival (c. 1050 years ago) of speakers of ancestral Wiyot, bringing or developing a maritime orientation. Subsequently (c. 850 years ago), speakers of ancestral Yurok arrived on the Klamath River, probably displacing Wiyot-speakers from some sites along the coast north and south of the Klamath. Finally (c. 650 years ago), Tolowa-speakers came into the northern portion of northwestern California, and speakers of Chilula arrived in the Redwood Creek drainage, displacing former (Karok-speaking?) users of these areas.

III. LINGUISTIC PREHISTORY OF THE NORTHWEST CALIFORNIA COASTAL AREA

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Introduction

This chapter examines the languages of the Northwest California coastal area with the following goals in mind: 1. Clarifying the internal classification, external relations and interactions of the languages of the area; 2. Deriving inferences about relative chronology, origins and development of those languages, based on geographic, glottochronological, and linguistic archaeological analysis; and 3. Outlining an overall linguistic prehistoric sequence consistent with the results of 1 and 2, for eventual comparison and testing against archaeological models of Northwest California prehistory.

Distribution and Classification of Languages

The territories occupied by the various Native American peoples of the Northwest California coastal area are described elsewhere in this report. This chapter concentrates instead on the nature, status, and classification of the languages spoken by those peoples. In the course of this discussion, an effort is made to provide for clear and accurate usage of terminology for ethnic group, speech community, and language - three notions which are often confused in the literature.

First of all, some terms for the description of languages and their classification must be defined:

A. A dialect is a (more or less) discrete variety of a language, generally shared by all members of a given speech community.

B. A language may be practically defined as a collection of one or more dialects, all of which are mutually intelligible.(1) [Notes appear at the end of this chapter, page 26.]

C. A language family is a group of languages (at least two) which can be demonstrated, by rigorous comparative methods, to have developed from a single ancestral language, called the proto-language for that family.(2) The languages of a true language family, by analogy (only partly accurate) to evolutionary schemes, are said to be genetically related to each other. In complex families, where for classificatory purposes some taxonomic depth is required, the terms superfamily and subfamily are often used for more and less inclusive subdivisions of the family as a whole.

D. An isolate language is a language which has not been determined to be genetically related to any other language or languages. Sometimes the term has been applied also to languages which are only relatively isolated linguistically, in that they had at first no obvious genetic relatives but have been proved ultimately to be related distantly to some larger linguistic family. For this latter case, the term relative isolate language may be preferable.

E. A language stock (or phylum) is a grouping of languages and/or language families which are suspected of being related but which have not been (or cannot be) proven to be genetically related in the ordinary sense. "Hokan" and "Penutian" are examples of stocks whose genetic status has remained unresolved. Even more inclusive groupings, such as the "Hokan-Siouan" superstock (or phylum), are very controversial and have been essentially abandoned by most linguists, except for a few limited purposes.

It should be clear that the terms such as "Hokan-speakers", often appearing in discussions of California prehistory, are technically misnomers, since Hokan is not a language but a language stock, and cannot be "spoken" at all. Even such relatively more conservative usage as "Athapaskan-speakers" should only be employed when it is clear the phrase is intended as shorthand for something like "speakers of some variety or varieties of a language which has been shown to be genetically affiliated within the Athapaskan language family." Otherwise, use of the formula "X-speakers" should be restricted to members of a speech community or communities linked by the criterion of mutual intelligibility.

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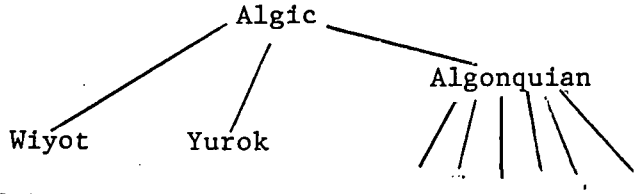
According to the definitions above, there were five languages spoken aboriginally in the Northwest California coastal area(3): Chetco-Tolowa, Hupa-Chilula, Wiyot, Yurok, and Karok. These five languages include representatives of three very distinct linguistic groupings: the Athapaskan family, the Algic superfamily, and the Hokan stock. These are taken up in turn below.

1. Athapaskan family. There were two Athapaskan languages spoken in the Northwest California coastal area: Chetco-Tolowa and Hupa-Chilula. Chetco-Tolowa is one of a group of Athapaskan dialects lumped together as the Rogue River Athapaskan group of the Pacific Coast division of the Athapaskan family. As such, it is the southernmost of the Athapaskan language of Oregon, and is not particularly closely related to Hupa-Chilula. Hupa-Chilula, sometimes mistakenly identified as two languages, is a single language with only slight dialect differentiation. Its closest relatives are the more southerly California Athapaskan languages: Mattole, Wailaki, and Kato. These classificatory relations are summarized below in Figure 2. Note that while the Athapaskan family is an obvious and well-established one, many aspects of the internal classification of the family are still

controversial. Figure 2 is only an interpretation by a non-Athapaskanist of the current state of the Athapaskan classification, especially for Pacific Coast Athapaskan; other interpretations are possible. The terms "division", "subdivision", group", and "subgroup" are used to subdivide the family without making the claim that the resulting taxonomy represents the actual historical sequence of diversification of the family. The question of the time depth of the Athapaskan family is discussed in a subsequent section.

Both Chetco-Tolowa and Hupa-Chilula are still spoken by a few people, but the languages are moribund and rapidly disappearing. Krauss (1973:920) reports about 10 fluent speakers of Hupa and "perhaps five people with some memory of various dialects of the Tolowa-Tututni complex."

2. Algic superfamily. The Algic superfamily, also referred to in the literature as Algon-Ritwan (Haas 1967), Algonkian-Ritwan (Haas 1958) and Algonkian-Wiyot-Yurok (Haas 1973), is composed of three branches: a) the great Algonquian (or Algonkian) family of North America east of the Rockies, and the two California relative isolate languages: b) Wiyot and c) Yurok. The reason why Wiyot and Yurok should be considered relative isolates is that they have no particularly close affiliations, either with each other or with any single Algonquian language proper. The exact nature of this relationship occasioned much debate early in this century, following Sapir's (1913) claim of Algonquian affiliation of Yurok and Wiyot. But Haas (1958, 1960, 1966, 1969, 1973) has firmly established the Algonquian-Wiyot-Yurok hypothesis as used here. The currently accepted 3-branch structure of Algic can be diagrammed as:



Note that this 3-branch structure implies that Yurok-Wiyot (or Ritwan) is not a genetic subgrouping of Algic. However the Wiyot and Yurok presence in California is explained (see the section below on linguistic geography for an examination of the alternatives), it is not correct to speak of Proto-Wiyot-Yurok (cf. Moratto 1973:8) or Proto-Ritwan, since Wiyot and Yurok do not together form a genetic subgroup.

Also, some care should be exercised in the use of the term "Algonquian" or "Algonquian-speakers" when referring to Wiyots or Yuroks, since their level of affiliation is outside the Algonquian family per se. "Algonquian" properly designates only the languages east of the Rockies.

Wiyot is extinct. It apparently had no important dialect divisions. Yurok is still spoken by a few people. The coastal dialects, especially near Trinidad Head, were somewhat distinct from the Klamath River

Figure 2: Internal Classification of the Athapaskan Family

Sources: Hoijer (1960), Krauss (1973), Wallace (1978), Golla (personal communication, 1978)

I. Northern Athapaskan division
[a large geographic group; probably consists of 8 or 9 genetic groups, comprising many languages]

II. Southern Athapaskan division (Apachean)
[a geographic group, consisting of just a single genetic group]

III. Kwalhioqua-Tlatskanie
[virtually identical, perhaps one language with 3 dialects. Kwalhioqua-Tlatskanie has been considered either as a (geographical) part of Pacific Coast Athapaskan or as a (linguistic) intermediate between Pacific Coast Athapaskan and Northern Athapaskan.]

IV. Pacific Coast Athapaskan division
- A. Oregon subdivision
  - 1. Upper Umpqua [dialect differentiation unknown]
  - 2. Rogue River Athapaskan group
    - a. Galice-Applegate
    - b. Lower Rogue subgroup
      - i. Upper Coquille
      - ii. Chasta Costa
      - iii. Tututni [7 bands, probably some minor dialectal variation]
      - iv. Chetco-Tolowa
- B. California subdivision
  - 1. Hupa-Chilula [one language, with minor dialect differentiation]
    - i. Hupa proper
    - ii. Chilula (Redwood Creek)
    - iii. Whilkut [claimed by Goddard to be dialectically distinct from Hupa]
  - 2. California Athapaskan [probably a dialect continuum]
    - a. Mattole
      - i. Mattole proper
      - ii. Bear River
    - b. Wailaki [with dialectal variation]
      - i. Lassik
      - ii. Nongatl
      - iii. Sinkyone
      - iv. Wailaki
    - c. Kato

dialect, but were still intelligible to speakers from river villages. (Kroeber 1925:15).

3. Hokan stock. Karok is an isolate language affiliated with the Hokan stock. Despite extensive comparative work (Sapir 1917, Bright 1954, Jacobsen 1958, Silver 1964), Karok has not yet been definitively proven to be related to any other Hokan language. Currently emerging evidence (Haas 1977, Hinkson 1978) suggests, however, that some Hokan affiliation may still be established on a firm genetic foundation eventually. But for comparative work in Northwest California it is still safest to treat Karok as a genetic isolate rather than as just a member of a putative Hokan "family".

Bright (1957:1) reported no significant dialect differentiation among surviving Karok-speakers at that time, although the far upriver Karok, near the Shasta, probably did once speak a slightly different dialect (Bright 1978:180). A few speakers of Karok remain today, but as with the other Northwest California languages, the Karok speech community is rapidly dwindling in numbers.

Linguistic Geography

The distribution of languages and the internal classification and external affiliations of language families often enable certain inferences to be made about the prehistory of those languages, and thus indirectly about the ancestors of their speakers. A widespread distribution of a language with relatively little dialectal differentiation implies recent spread of the language (e.g. Numic in the Great Basin, English and Spanish in America). On the other hand, a small, compact language family with deep divisions (e.g. Pomo) or a language with major dialectal distinctions in a small area (e.g. English in Britain) implies a longer period of occupation by that language (or family) in that area, since a longer occupation results in an accumulation of gradual, diversifying changes in the language(s). Thus for large families, the origin of their linguistic spread can often be pinpointed by identifying the area of maximal linguistic diversity. By this criterion it is clear, for instance, that the Athapaskan language family originated in Alaska and that California Athapaskan languages are the result of the movement of some Athapaskan language(s) and people(s) south into California.

The relative cohesiveness of the distribution of languages has also been argued to reflect their prehistory. Thus, a broken up, scattered distribution of a language family may imply temporal priority in an area, followed by intrusion of another language (or family), which in turn should show a more centralized and compact distribution. For example, in California it has long been suggested that the scattered distribution of Hokan and the compact distribution of California Penutian imply Hokan priority in the state, followed by Penutian intrusion (or intrusions). This point of view is considerably weakened,

however, by recognition of the fact that Hokan and Penutian are still hypothetical linguistic groups, i.e. stocks, rather than proven linguistic families. Geographical arguments about relative priority of Hokan and Penutian are accordingly fraught with difficulties. Another example of a misapplication of inference from the geographical distribution of languages is provided by Krantz (1977), who claims (incorrectly) that the broken up distribution of Pacific Coast Athapaskan implies ancient Athapaskan occupation of the coastal area. Quite the contrary, the evidence points to recent Athapaskan entry into California, and as is pointed out below, the scattered distribution of Athapaskan is perfectly well explained by certain geographical and ecological facts.

These age-area arguments about linguistic prehistory are most reliable for large, diverse language families and when applied on a large geographic scale. For linguistic isolates, however, they provide little information. The Northwest California coastal area is intermediate between these extremes - a complex mixture of small, relatively isolated linguistic groups and representatives of large linguistic families. What can a linguistic geographic approach tell us about the linguistic prehistory of that area?

First of all, a consideration of the linguistic geography of Athapaskan, which shows great linguistic diversity in the north, especially Alaska, and relatively less diversity in the southern branches, indicates that the proto-Athapaskan origins were in the north. Sapir (1916) adduces a number of other arguments which support this contention in detail. But if the family spread from north to south, the southernmost extensions, namely Apachean and Oregon and California Athapaskan groups, must certainly have arrived in their respective locales more recently than the inferred time for the beginning of the southward push by the family. Since the entire Athapaskan family is relatively shallow and uniform, as linguistic families go, there is a strong case for relative recency of Athapaskan entry into California. (Proposed dates are discussed below in the section on glottochronology.)

Wiyot and Yurok provide a more complex case. Their relation to Algonquian is undeniable but distant. The Algonquian family proper is assumed to have started expanding from Ontario, Canada about 3100 years B.P. (Siebert 1967:39). There are several possibilities as to how Wiyot and Yurok ended up in California:

1. Wiyot and Yurok may be early splinters off a pre-Algonquian line in the east. They then moved west to California at some unspecified time.
2. Wiyot and Yurok may be the remnants of an old pre-Algonquian line in California. Algonquian proper was originally a splinter group that moved east and then expanded.
3. Wiyot, Yurok, and Algonquian may all be separate branches of a pre-Algonquian line somewhere in north Central America. Wiyot and Yurok moved west, Algonquian east to Ontario and then expanded.

4. Wiyot and Yurok are the westernmost extensions of the Algonquian proper expansion. They have both been sufficently influenced by isolation and by contact with other languages to change rapidly, thus giving a false appearance of relation to Algonquian as a whole, rather than as one subbranch of the family.

Possibility 4 can probably be rejected. Much of the long-standing argument about Wiyot-Yurok affiliations was devoted to showing that the two languages could not be seen as branches of Algonquian proper, even considering the possibility of isolation and exotic contacts. Possibility 2 also seems unlikely. It runs counter to archaeological evidence; also we would probably expect more of a linguistic residue in the west if the Algic homeland were there. Possibility 1 cannot be ruled out, but at this time seems less likely than Possibility 3. Positing an Algic homeland in some place like Alberta seems to lead to the most reasonable interpretation of Algic dispersal. Wiyot and Yurok then must be separate entrants to California from a northeastern direction. Note that the possibility of Wiyot and Yurok being a single group (i.e. Ritwan) which entered California and then diverged into two languages is not a viable one, despite the somewhat unlikely coincidence of the location of the Wiyot and Yurok territories immediately adjacent to each other. The Ritwan alternative could only be maintained until it was conclusively shown that Wiyot and Yurok are both as closely related to Algonquian as to each other. Currently, the explanation for Wiyot and Yurok proximity seems more likely to be found by looking for parallel migrational responses by two similar but separate groups at different time to similar geographic and ecological pressures and/or opportunities.

The situation for Karok is indeterminate. As a linguistic isolate, geographic conclusions are premature. However, if Karok is conclusively shown to be genetically related to other Hokan languages, then the extreme time depth of the relation would suggest that Karok (and languages ancestral to it) had been in California for a very long time.

Glottochronology

Before tackling the problem of relative chronology of Hupa, Tolowa, Wiyot, Yurok and Karok in Northwest California, it is necessary to review the results of glottochronological studies of this area.

Glottochronology was devised as a method of attempting to provide absolute dates for the divergence of related languages. Note that only known genetically-related languages can be suitable for glottochronological comparisons, since it is necessary to have a detailed knowledge of the nature of the phonological correspondences in order to identify true cognates for glottochronological statistics. Thus all attempted glottochronological investigations at the linguistic stock or phylum level must be considered completely unreliable. Even

within well-established families such as Athapaskan, glottochronological calculations are equivocal at best and are little if any more accurate than the educated guesses of knowledgable comparative historical linguists. It is critical that a given glottochronological calculation not be considered in the same class as radiocarbon dates, for instance, in establishing absolute dates in prehistory.

The Athapaskan language family has had a long history of lexicostatistical and glottochronological investigation. Moratto (1973), Cressman (1977) and Krauss (1973) review some of these studies. Interestingly, the estimated dates of Athapaskan divergence have tended to increase as the family has become better documented. This is the result of the relatively close relations between the more southerly Athapaskan groups in the U.S. and Canada for which the first reliable data was available. Further work in Alaska has revealed greater linguistic diversity in the Alaskan Athapaskan groups than anywhere else in the family and has thus forced estimates of divergence upwards. Early estimates of Athapaskan time of divergence were as low as 1300 years (Hoijer 1956), but shifted to 1500 years (Swadesh 1958), 1800 years (Hymes 1957), and 2000 years (Hoijer personal communication to Hymes, 1960). Krauss (1973:953) estimates maximum divergence within Athapaskan at 2400 $\pm$ 500 years, based on more data from the divergent branches of the family. It is still true, however, that the southern branches of the family have much shallower time depths, with current estimates ranging around 1000 years of divergence.

Moratto (1973:6) calculated 1062 years for the average distance among Hupa, Kato, and Mattole in California. This divergence estimate is used to support a reconstruction which places Athapaskan entry to California at 12 - 13 centuries B.P. However, the estimate of entry is quite likely too early. For one thing, the possibility that Athapaskan speech was spreading across ethnic groups and was being adopted as a prestige language in some areas raises the possibility that some of the apparent California Athapaskan divergence may be the result of substrate language influence rather than inherent time of divergence. Second, Moratto's choice of the upper end of the estimates of divergence to date Athapaskan entry is unjustified. A divergence estimate, even if accurate, does not give any sure evidence of a time of entry or arrival at the endpoint of a migrational movement. Cressman (1977:92), in criticizing a similar early estimate by Elsasser and Heizer, makes the following comment:

> The statement by Elsasser and Heizer (1966:2), "The Hupa are estimated, by lexicostatistic method (Hoijer 1956; Hymes 1957) to have been resident on the Lower Trinity River for about 1,000 years...," is a misinterpretation of glottochronological data. These say only that the divergence time of the Hupa and the Northern groups was about 1,000 years and give no information whatever on the arrival date of the Hupa on the Lower Trinity River.

In fact, for the California Athapaskans, a much more recent time of entry than proposed by Moratto or by Elsasser and Heizer, perhaps 600

or 700 B.P., will make more sense of Northwest prehistory, while still allowing ample time for the observed divergences between the various California Athapaskan languages to develop in place.

There are no glottochronological calculations for divergence in Algic as a whole. The Algonquian family itself is generally considered to be 3000 to 3500 years deep. This would rank it as more divergent than Athapaskan but less than Salishan or Siouan, for instance. The more inclusive Algic grouping probably began diverging 4000 or more years ago. Here, however, we must be careful - that date is only a guess, and there are numerous processes which could increase the apparent divergence of isolated groups such as Wiyot and Yurok. Contact with nonrelated groups, cultural change occasioned by environmental differences in the territories occupied, and different linguistic areal influences might (but not necessarily would) result in faster linguistic change in the isolated group. These effects probably cannot be quantified, however, so we may have to stick with the guess of 4000 years of divergence, more or less. Also, as for Athapaskan, a divergence date is not the same as an estimated time of arrival at the endpoint of a migration. 4000 years divergence for Algic does not mean that Wiyot and Yurok have to have been in California that long. For resolution of the issue we have to turn to the archaeological record to seek plausible correlations and evidence of intrustion of foreign groups into Northwest California.

Karok, as a language isolate, cannot be dated by any lexicostatistical techniques. However, given the current state of Hokan studies, if Karok is indeed genetically related to any other Hokan language, that relation must be in the vicinity of 5000 or more years deep. This estimate is based on the extreme lexical and structural differentation of Karok vis a vis other members of the Hokan stock. In the absence of any compelling evidence for Karok migration from elsewhere, however, it seems reasonable to suppose that some Hokan-like language ancestral to Karok preceded both Algic and Athapaskan descendants in the Northwest California coastal area.

Linguistic Archaeology

Linguistic archaeology (also known as linguistic paleontology) is a diverse collection of methods for inferring information about the past from comparative linguistic material. What most of these methods share is the assumption that language and culture are intimately related--and more specifically that the meanings of words in a language (whether in a living language or in a reconstructed proto-language) are necessarily interconnected with the material and social world of the speakers of that language. Furthermore, since the structure and vocabulary of a given language is one of the more stable aspects of human culture, linguistic evidence often provides one of the clearest windows to the not-too-distant past.

However, in doing linguistic archaeology, two of the crucial desiderata are time depth and accuracy of data. When comparing languages, the more individual, divergent but related languages are involved, the deeper into the past one can effectively probe. With language isolates there is very little time depth since there is no comparative evidence to probe the past of such languages. That is one reason why the issue of long-range genetic comparisons is so crucial in linguistics. The need for accuracy (and completeness) of data is perhaps self-evident. However, it is easy to underestimate the poor quality of many records of Native American languages until one has actually wrestled through the philological problems of their intrepretation. Many half-baked ideas about prehistory have been supported in the past by inaccurate interpretations of inaccurate linguistic recordings.

So what is the situation for the Northwest California coastal area? The prospects for linguistic archaeology turn out to be bleak on several accounts. First, there are too many isolate and relative isolate languages in the area. Karok is an isolate, as is the nearby Hokan-affiliated Chimariko language. And the state of Hokan comparative studies is still such that certainly none of the lexical reconstruction which has been done so far is either reliable or criterial for inferences about Karok prehistory.

Wiyot and Yurok, as relative isolates, have some of the same problems characteristic of true isolates. They are so divergent from Algonquian itself that the amount of lexical reconstruction which has been done so far has been sufficient to prove the genetic relationship but not enough to give much of a picture of Proto-Algic vocabulary (or culture and environment). This problem has been compounded by the dearth of good lexical data on Wiyot--only a small fraction of the Wiyot vocabulary has been published. Also, the Proto-Algonquian reconstruction itself is only fragmentary as yet--so that it is often unclear what Algonquian forms to compare with Wiyot or Yurok vocabulary.

For Hupa-Chilula and Chetco-Tolowa, the problem is lack of accurate data. Goddard's materials, though voluminous, are often inaccurate linguistically, and no modern analysts have yet produced dictionaries of either language. This problem is offset by our certain knowledge, from comparative Athapaskan studies, that all Athapaskan languages in California have to have been recent entrants. However, detailed comparison of linguistic interactions between the Wiyot, Yurok, Karok and their Athapaskan linguistic neighbors is greatly hampered by the poor data on the Athapaskan languages.

Although detailed comparisons are as yet unavailable for the development of plant and animal vocabularies in any of the Northwest languages, Golla (personal communication, 1978) has reported impressionistically on the nature of Athapaskan ethnobiological nomenclature. Apparently, California Athapaskan languages have a distinctly non-settled and newcomer "feel" about their plant and animal terminology.

The terms often are multimorphemic, transparent compounds, or may show variability, rather than being simple, unanalyzable morphemes. The California Athapaskans do not seem to have known the plants and animals in their environment as thoroughly as some of the presumed long-time California residents, e.g. the Pomo or the Karok. Instead, they may resort to offhand, casual coinages such as "little-white-flower" when confronted with an unfamiliar but native little white flower. This is the kind of situation one would expect for a relatively recently arrived people confronted with unfamiliar species. Similar data is not available for Yurok or Wiyot, however, so the relative stability of their biological nomenclature cannot currently be judged.

Another potential source of information about linguistic interaction in the past is the record of linguistic borrowings between languages. When a language shows evidence of heavy borrowing from another language, the extent of that borrowing and the nature of the words involved often indicate much about the type of contact that has occurred. Here again, however, the Northwest California coastal area shows little of interest. The Athapaskan languages in general manifest a tendency not to borrow words from foreign languages, but rather to coin new words for novel or foreign concepts. Golla (personal communication, 1978) does report that Tolowa has borrowed some Yurok terms for oceanic faunal species, however. As for Wiyot, Yurok, and Karok, they also show little evidence of lexical borrowing (prior to the American presence in the area),(4) despite the fact that there obviously has been a massive diffusion of cultural traits between these groups. This curious situation has been the occasion of a fair amount of discussion as a possible test case for theories of linguistic and cultural relativity (see Bright & Bright 1965, Haas 1967, for example), and although much evidence of nonlexical linguistic diffusion and convergence has turned up, little has appeared which could be useful in reconstructing the prehistory of the area.

One important exception to the general lack of useful linguistic clues to the past in the Northwest is provided by Bauman & Silver (1975). They showed evidence of a morphophonemic rule convergence between Wiyot and Karok. The significance of this type of convergence is that it is likely to have resulted from direct contact between speakers of the two languages, yet in recent times both Yurok and Hupa-Chilula intervened between Wiyot and Karok. If corroborating evidence is discovered, this may mean that Wiyot and Karok preceded Yurok and Hupa in the area and were in fact once direct neighbors.

Another linguistic archaeological technique is toponymic analysis - the investigation of the origins of placenames. When linguistic boundaries shift, especially when they shift gradually by slow infiltration, intermarriage, bilingualism and eventual replacement of one language in an area by another, the original placenames are often retained by the speakers of the replacing language. For example, in California many hundreds of Spanish placenames have survived in the

former Spanish and Mexican-settled areas despite the fact that the newly arriving Americans spoke English. Perhaps more to the point, in the Northwest California coastal area a few Native American names have survived to this day as placenames in an overwhelmingly Anglo world: Weitchpec, Requa, Orick, Hoopa, Klamath, etc. The trick in prehistoric toponymic analysis is to examine all the recorded original native placenames for traces of exotic placenames not normal in that language. Such an analysis by J. Bauman (1977) has demonstrated for instance that many Trinity and Hayfork Wintu placenames were originally Chimariko, a fact which supports the hypothesis that the Wintu entered the Trinity drainage relatively recently from the east. For the Northwest California coastal area, however, there has been little analysis of this type. Bright (1952b) did an analysis of some Karok placenames, but since the Karok are presumably the oldest inhabitants of the area, their placenames provide less information about hypothesized population displacements than could be gathered from examination of the placenames of more recent migrants, particularly the Athapaskans. Such analysis has yet to be done, however, and its successful completion will probably have to await many more years of sifting and analysis of such linguistic collections as those of J. P. Harrington, P. E. Goddard, and C. Hart Merriam by Northwest California experts.

As Sapir (1916) demonstrated, it is also possible to reconstruct aspects of the prehistory of groups by careful analysis of non-linguistic cultural traits. Although somewhat far afield for this linguistic review, it should be pointed out that the techniques and methods of cultural reconstruction are in many respects analogous to comparative linguistic reconstruction. Several promising directions which should be researched include: 1. Comparative folkloristic analysis of the extensive mythic texts which have been gathered in Northwest California. This type of analysis could well result in crucial clues about the original homes of the Wiyot and Yurok. 2. Comparative structural analysis of highly organized aspects of Northwest ritual life, again with the goal of isolating and tracking elements and motifs. 3. Detailed analysis of basketry designs and techniques in the model of L. Dawson (1978).

Synthesis

Despite the disappointing inconclusiveness of many of the linguistic archaeological approaches to Northwest linguistic prehistory, it is possible to pull together what clues we do have to make a comprehensive statement about the most likely linguistic prehistoric sequence for the area.

Moratto (1973:8), depending heavily on glottochronological dates and on a misapplied criterion of internal divergence for Wiyot and Yurok, proposed the following order of arrivals:

Proto-Karok	(ca. 55 centuries?)
Proto-Hupa/Chilula/Tolowa	(ca. 12-13 centuries?)
Proto-Yurok/Wiyot	(ca. 9-10 centuries?)

Whistler (1977:167-171) reversed the proposed order of Algic and Athapaskan entries, largely on the basis of plausible archaeological correlations suggested by J. Bennyhoff (personal communication, 1977) and in accordance with geographical considerations. That sequence was conceived as:

Ancestral Karok	old occupants
"Algonquians" in 2 groups (Ancestral Wiyot & Yurok)	~700 ~1100 A.D.
California Athapaskan	~1100 ~1300 A.D.

Whistler (1978) discussed this sequence in a broader and more refined model of California prehistory. The essential features remained unchanged, but the details are slightly altered:

Linguistic Group	Date	Archaeological Manifestation
Ancestral Karok	old occupants	Pt. St. George-1 (~310 B.C.)
Ancestral Wiyot	~900 A.D.	Lower Gunther Island
Ancestral Yurok	~1100 A.D. (<1300 A.D.)	Patrick's Point, Tsurai, Tsahpek^{w}, etc.
Oregon Athapaskan		
California Athapaskan	~1300 A.D.	Pt. St. George-2

The notion of Wiyot and Yurok preceding Athapaskans in Northwest California is not a new one. The most complete discussion of the nature of the proposed late Athapaskan entry is provided by Jacobs (1937). Jacobs sees the Athapaskans as moving south through the interior, occupying the upper reaches of the coastal streams and then gradually, through a process of intermarriage and slow drift, moving downstream and towards the coast:

> ...The modern location of Athabaskan is actually not perverse in the least if it be assumed that the basic process was one of gradual movement out from the interior, a movement essentially a matter of speech boundary advance from village to village. If this is assumed the entire Athabaskan distribution is intelligible and reasonable. It is then clear why the frontier of Athabaskan had not penetrated to the coastal mouth of the more populous Umpqua and Klamath rivers and had done so on the more lightly populated streams in Mattole, Tolowa, Chetco, Rogue, Euchre, and Sixes territory. The languages of streams with fewer and smaller villages were less able to hold out against the numbers of aliens speaking upriver or interior languages. The success of the Yurok-speaking lower Klamath in resisting Athabaskan speech advance is paralleled on the Lower Umpqua and on the Lower Coquille (Jacobs 1937:61-62).

Jacobs sees this movement as relatively old, since the Athapaskan acculturation to coastal culture was so complete in Oregon and California. But as is clear in the above passage, the Athapaskan distribution

is comprehensible only as an occupation from the interior subsequent to Yurok occupation of the Klamath (and Wiyot of Humboldt Bay). The rough back country of Northwest California and Southwest Oregon can be seen as previously thinly populated (probably seasonally occupied) areas for which the northern interior-hunting Athapaskans would have been well-adapted. By way of contrast, the more favorable coastal, estuarine, and lower river course habitats would already have been heavily occupied, on this hypothesis, by Wiyot and Yurok groups, who apparently were able to maintain those territories intact, even though the back country was occupied by invading Athapaskans.

Where Golla (personal communication, 1978) and Whistler differ from Jacobs (1937) is in admitting the likelihood that Athapaskan entry was more recent than Jacobs implied and in positing a more westerly route of entry. Golla notes various cultural and linguistic evidence for recency of Athapaskan adaptation to California. Also, as mentioned, some of the linguistic diversity of California Athapaskan may have been the result of a spread of Athapaskan through asymmetric bilingualism with the language spreading to non-Athapaskan ethnic groups who chose to speak it rather than their former language. This phenomenon might also lead to overestimation of the date of entry of Athapaskan originally. As to route of entry, Jacobs (1937:67) suggested a route across the Columbia Basin south and then west across the Cascades and down the Klamath and associated rivers. Golla and Whistler propose instead a more coastal route, southward along the interior side of the coast ranges of Oregon (between the Coastal Oregon Penutian groups and the Willamette Valley Kalapuyas) and thence into the Siskiyous and California North Coast Ranges. This proposal has the advantage of requiring no essential changes in habitat for the Athapaskan groups as they moved south--in all cases they would have been exploiting a northern-type, back-of-coastal, forest environment. A similar route of Athapaskan entry is proposed by Cressman (1977:93): via the Puget Trough and the Willamette Valley into Southwestern Oregon.

This kind of argumentation can be taken back one step further to account for the location of the Wiyot and Yurok, in general outline at least. The hypothesis for this earlier period would be that the Northwest Coastal area would have been underexploited by the ancestral Karok, as a consequence of their (hypothesized) non-riverine, interior gathering orientation. The Algic groups could then be seen as entering California from the Columbia Plateau, probably via the Deschutes River Valley and the Klamath River, in two stages. The Wiyot came first and took up a more coastal orientation. The Yurok came second, bringing more advanced riverine-adapted technology, and occupied and heavily exploited the Lower Klamath with its intense salmon runs. From that Yurok core, influenced by further cultural diffusion from the north, developed the distinctive Northwest California cultural tradition, which was rapidly adopted by other nearby peoples as well as the subsequently entering Athapaskans.

The linguistic prehistoric synthesis proposed here, if correct, can be seen to have the following implications for archaeological models of the Redwood National Park area specifically:

1. There should be evidence throughout the Park (where preserved) of early seasonal occupation by interior-oriented peoples, probably identifiable as the ancestors of the Karok or some other Hokan or Hokan-like group.

2. From approximately 1000 B.P., there should be evidence of ancestral Wiyot intrusion, especially in the southern sections of the Park, and of the beginnings of the marine orientation.

3. From approximately 850 B.P., the Yurok occupation of the Klamath River should be evident. Sites in the Coast Yurok area may show evidence of a Wiyot-to-Yurok cultural sequence.

4. From approximately 650 B.P., there should be evidence of distinctive Tolowa occupation in the far north end of the Park and of Chilula occupation of the Redwood Creek drainage.

ENDNOTES

1. This kind of a definition has the advantage that for any given speaker or speech community, "my language" can be determined as including all those dialects out to the limit of mutual intelligibility; beyond that point "other languages" begin. In the real world, where linguistic boundaries are often not sharp and discrete, this means that "languages" are quite difficult to define absolutely--they tend instead to fade into each other. Other, non-linguistic criteria, including more importantly ethnic identity and/or nation, are involved in the decision of what the "real" boundaries of a given language are. However, for Northwest California, we are dealing with a number of very distinct languages, so that the criterion of mutual intelligibility will serve our purposes.

2. Again, there are problems with this definition as it stands, but they will not affect the consideration of Northwest California languages in this report.

3. This excludes, of course, more exotic languages spoken by temporary visitors to the coastal area and occasional residents (for instance wives) from further inland or up or down the coast.

4. Bright (1952:54) reports only a single Karok loanword from Yurok: takus 'pelican' Yurok tokus.

IV. ETHNOHISTORICAL OVERVIEW

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Preface

The goal of this chapter is to examine the general effects of Euro-american (White) contact upon native populations of the northwest coast of California. The focus is the area in and immediately adjacent to Redwood National Park, and the Yurok, Tolowa and Chilula groups, whose members lived in and used places within the present Park.

The effects of contact are considered in four sections, devoted to separate time segments, each characterized by different activities of White groups, and by varying Indian reactions to those activities. Each section is introduced with a synopsis of the patterns of the era, followed by specific examples which illustrate the patterns and the variability within them. No attempt is made here to describe the present day population of descendants of the native inhabitants of northwestern California. Such a study is beyond the scope of this work; however, Chapter II and Appendix 5 discuss some of the concerns of these people with regard to Redwood National Park lands.

Documentary materials on file at the California Historical Society's Schubert Library in San Francisco, and the Bancroft Historical Library at the University of California in Berkeley were used to compile most data presented here. Additional information was drawn from the San Francisco State University Library, the Humboldt Collection at the Humboldt State University Library in Arcata, and from past reports prepared for Redwood National Park, specifically Palais (1958), Bearss (1969), and Hickman and Moratto (1973).

Bibliographic citations for this chapter have been incorporated into the general list of references at the end of this report.

Early Sea Explorations (1542-1800)

Coastal explorations by the English and Spanish empires resulted in the first contacts between European and northwest coast cultures in California. These early contacts, with a primary goal of

reconnaissance, were sporadic and short-termed, and yet they offer a unique and valuable view of coastal peoples in northern California prior to more disruptive forces which would alter these cultures in the nineteenth century.

Between the years of 1542 and 1603, four separate expeditions sailed along the coast of northern California. In 1542, after the death of Juan Rodriguez Cabrillo, his pilot, Bartolome Ferrelo, sailed as far as the mouth of the Rogue River. In 1579, the English privateer Sir Francis Drake sailed along the Humboldt County coast. Neither of these explorations landed along the coast. In 1595, Sebastian Rodriguez Cermeno skirted the coast in his Manila galleon in search of suitable anchorage for ships returning from the Philippines. Fearing the supposedly rocky coast, Cermeno remained off the coastal waters and did not attempt landings until further south. Finally, in 1603, Sebastian Vizcaino sailed northward to Latitude 43°, and although he also did not land, he sighted natives in boats of "pine and cedar" near the mouth of the Eel River (Hickman and Moratto 1973:37).

For nearly 175 years there is no record of any ship entering these waters until 1775, when the Spanish expedition of Captain Bruno de Heceta and Lieutenant Don Juan Francisco de la Bodega y Cuadra anchored in Trinidad Bay in the ships Sonora and Santiago. From June 9-19 examinations were made of the surrounding land and of the Yurok who lived at Trinidad Head (the town of Tsurai). Trade and generally friendly relations were established during their stay (Heizer and Mills 1952:21-55; Coy 1929:23; Lewis 1943:3).

During Heceta and Bodega y Cuadra's exploration of the Trinidad area, the Yurok of churey (Tsurai) were witness to punishment inflicted upon a deserter of the Santiago who had returned to the ship. Heceta, the captain of the Santiago, immediately suspected the Yurok of having harbored the second deserter, who was still missing, and ordered most of the crew to arm themselves. Then Heceta descended upon churey, seizing the first old man he saw, throwing him to the ground and, according to the diary of the second in command of the Santiago, "giving him so many blows that he left him maimed and prostrate" (Heizer and Mills 1952:55). Heceta continued to force the deserter to inform on whatever Yurok had harbored him, but the man answered that none of them had. At that, Heceta ordered the man tied and lashed 200 times in full view of the Yurok (Heizer and Mills 1952:55). According to the diary of the chaplain of the Santiago, it was the Yurok who interceded and implored mercy for the victim of the lash (Heizer and Mills 1952:42). All the officers involved resented these actions on Heceta's part, but did nothing to stop them. The second deserter was never found.

Aside from this one action, the stay of the Sonora and Santiago at Trinidad Bay was a peaceful one. Numerous journals and diaries of the expedition exist and English translations are given by Heizer

and Mills in The Four Ages of Tsurai (1952:21-55). These include the writings of Don Juan Francisco de la Bodega y Quadra, Don Bruno de Heceta, Fray Miguel de la Campa, Don Francisco Antonio Mourelle, and Don Juan Perez. These authors present the first views of Yurok culture in history. The following is a synopsis of some of their observations.

At one time nearly three hundred male and female natives were seen mingling on the beach. These were divided into groups which appeared to form separate societies (possibly towns). Descriptions of body type and dress almost all mention the tattooing of bands on the arms of men and lines from the lower lip down to the point of the chin on women. Pierced ear lobes with polished bone pins were also seen. Heceta noted that when preparing for war or to meet with an enemy, these people would paint their bodies with black, red and various other colors.

Bodega y Cuadra's journal describes the Yurok redwood plank house with some detail. Still other accounts mention another form of "house":

> which was underground and well sheltered; the floor was covered with boards, and in the center there was a fair-sized pit of stones, in which they always kept a fire. It was observed that they went in, and by mourning indicated that they felt some grief. They came out sweating very much and they then washed themselves; then, entering they continued weeping. They explained that someone had died and they were burning him, which was evident from the bad odor from the underground house (de la Campa, translation Heizer and Mills 1952:41).

This "house" was the sweathouse of the Yurok. The mention of cremation appears in many of the accounts but is dubious according to Heizer. (The observed smoke and odor is a natural counterpart of a sweathouse of the Californian type, heated by fire rather than steam.)

Heceta stated that women accomplished most of the plant food gathering tasks, and that the only plant cultivated was tobacco, which Bodega y Cuadra noticed growing in small plots near each house. This tobacco was then smoked "in tubes similar to the mouthpiece of a trumpet" (Bodega y Cuadra, translated in Heizer and Mills 1952:25). Observations were also made on the hunting of deer, elk, bear, seal and the sea otter. Numerous fish were caught from canoes, but apparently the Yurok used no hooks in fishing. Hunting and warfare were accomplished by arrows "with flint points, flint knives, and some badly made knives of iron that appear to be pieces of old swords" (Bodega y Cuadra, translated in Heizer and Mills 1952:24). These knives are of particular interest as they may represent the influence of the northern fur trade already manifesting itself through native trade routes south from the Vancouver area. When questioned about these blades "they all answered pointing to the coast to the north,

except one who, with vivid and intelligent signs, conveyed to us that his had been made from wreckage of a ship which the sea had cast up onto the beach" (Heceta, translated in Heizer and Mills 1952:33). These swords were kept hanging around the neck or wrist of Yurok men by attached wooden handles and strings.

There is little record of the actual items which changed hands in trading. Don Francisco Antonio Mourelle noted that:

> They place great stock in iron, greatly valuing knives, old cask hoops, and any worthless little thing. They readily accepted beads and scorn clothing and food. Though they civilly took bread, meat and other food, they pretended to try it, but really threw it away, though a little before our departure they kept the hardtack and it appeared to us that they ate it (translated in Heizer and Mills 1952:49).

Whether the Yurok offered or gave items to the Spanish is not recorded.

Shortly after the punishment of the deserter, the Santiago and Sonora left Trinidad Bay.

Eighteen years later, in 1793, Trinidad Bay was twice more surveyed, first between May 2 and 5 by George Vancouver in the ship Discovery; and second, by Lt. Don Francisco de Eliza in the Spanish brigantine Activo during August (Heizer and Mills 1952:61-64, 68-69; Lewis 1943:5). The Vancouver expedition charted and studied the flora, fauna and native populations; while the later Eliza expedition made a few observations on native customs. Both parties established trade relations while anchored at Trinidad.

The journal of Archibald Menzies, the naturalist of the Vancouver exploration, stated that upon arrival:

> While we were Mooring a Canoe came along side in which there were two men and on giving them some pieces of Iron & a few Nails they paddled hastily to the shore again to a small Village which we observed on the north side of the Bay. After dark another Canoe came off with a fire kindled in it, but they kept hovering at a little distance and would not venture near us till we shewd them a light, when they came alongside under the gangway & the whole Crew consisting of four men stood up & gave us a song accompanied with a dance... They kept beating time with their paddles on the sides of the Canoe seemingly in perfect unison with their song which was a kind of solemn air not destitute of harmony & ended in a loud shriek in which they all joind rising up their heads at the same time, one of them also broke off at intervals during the Song with a kind of shrill noise in imitation of some wild Animal. All of them had dresses of Deer Skin wrapped around their Waist & two foremost had their heads ornamented with white feathers (Heizer and Mills 1952:61).

With the completion of this performance, Vancouver's men had little trouble in charting the harbor and establishing trade relations with the Yurok. Trade consisted mainly of the exchange of nails, beads and "other trivial matter", for bows, arrows, "very inferior" sea-otter skins, mussels, sardines, small herrings and some "flat fish" (Vancouver, in Heizer and Mills 1952:64).

As trade continued, the native group began to grow. Groups approaching from the south by land and canoe "seated themselves together at a distance from our nearest neighbors, which indicated them to be under a different authority (Vancouver, in Heizer and Mills 1952:65). Although apparently prepared for battle upon arrival, soon these visitors, possibly of the Wiyot groups to the south, joined in bartering.

Vancouver recorded a number of interesting notes about the Yurok around churey. His visit to the town allowed him to examine the fine plank structures, four of which appeared to be newly constructed. He speculated about the population of the town and the average occupancy of each plank house:

> Four of these houses seem to have been recently built, and were on a level with the ground. These seem to be calculated for two families of six or seven persons each; the other which was smaller and nearly half underground, I supposed to be the residence of one family, making the village according to this estimate to contain about sixty persons (Vancouver, in Heizer and Mills 1952:64).

This estimate should have been somewhat less, considering that the smaller house was presumably a sweathouse. In addition to these notes, Vancouver's account provides two interesting facts. One, almost all the Yurok showed signs of attrition of their teeth, probably as a result of the consumption of meal processed by stone grinding. Two, nowhere in Vancouver's notes is there any mention of the iron implements of which the Heceta and Bodega y Cuadra exploration had written. Vancouver specifically states:

> Their arrows were made very neatly, pointed with bone, agate, or common flint; we saw neither copper nor iron appropriated to that purpose; and they had knives also made of the same material (in Heizer and Mills 1952:65).

When the Eliza expedition arrived in August of 1793, trading was the only recorded interaction. Here the Spanish were able to trade baize (a coarse woolen cloth) with the Yurok, and in return were given small reed baskets "and much of the wild tobacco which they prize highly". Sea-otter skins were rarely produced in the bargaining, and when Eliza's men attempted to give the Yuroks hooks, they were thrown away. The Yurok made understood that they were of no use, for "what was good were shell fish and the large deer [probably elk] which they told us were in the hills" (Eliza, in Heizer and Mills 1952:68-69).

In summary, this early period of exploration had little immediate impact on native groups along the coast of northern California. The attitude of the surveying parties was generally friendly, and there is a remarkable interest in these native cultures portrayed in the remaining journals of the seamen. Trade relations were established directly between the European and Yurok cultures, and some form of trade had begun with those cultures to the north which were already involved with the fur trade. The era of early sea explorations may be seen as a prelude to more pervasive changes which would occur in the following period.

Fur Trade by Land and Sea (1800-1848)

During this period, the coast of northern California began to experience the exploitative interests of Russian, English and American trappers and traders. Beginning as an expansion of the northwest coast sea otter expeditions, by 1817 the operations of the Russian-American and Hudson's Bay Companies resulted in the almost total extermination of sea otter along the northern coast of California. Following this depletion, expeditionary voyages along the coast waned, while the interior valleys of northern California began to be explored by trappers from the Hudson's Bay Company and the Rocky Mountain Fur Company. Although many of these interior trappers did not work along the northern coast, they did instigate an interest in the vast inland resources of the area, and promoted a renewed search for harbors which would facilitate these activities. Early business ventures have left a record from which we can view the native cultures of the coast, but, more importantly, they represent a drastic shift in atitude toward these populations. These were businessmen with little time for the particulars of another culture, let alone respect for it (Coy 1929:32; Heizer and Mills 1952:73, 193; Lewis 1943:25, 73).

The years from 1804-1843 demarcate the main thrust of the coastal exploration and exploitation by the Russian-American and Hudson's Bay Companies. Of these explorations, four major landings stand out as significant in terms of the interactions they generated with Yurok groups. These were the arrivals of the Lelia Byrd (also Delia Byrd), commanded by William Shaler, in May 1804; the O'Cain, under the command of Captain Jonathan Winship, in June 1806; the Kodiak (also Kadiak), commanded by Kuskof, in late October 1808; and the Columbia, in July and August 1817 (see Coy 1929:28, 31; Corney 1896:78-81, 74A-77A; Heizer and Mills 1952:73, 82-83; Lewis 1943:7-20; Ogden 1933:220). All of these ships landed at Trinidad Bay. Other expeditions were made, but because they are relatively poorly documented, the activities of the four above-mentioned anchorings will suffice to exemplify the interrelations of this era. Three of the undiscussed voyages are the 1808 landings of the Mercury and the Albatross, under the command of Captain George Washington

Eayers and Captain Nathan Winship, respectively, and the 1836 landing of the Cadborough, under the command of Captain William Brotchie of the Hudson's Bay Company. The first two of these ships landed at Trinidad; the last supposedly landed and explored the mouth of the Klamath River in a small sloop (Duflot de Mofras 1937:18, Coy 1929:34; Heizer and Mills 1952:73-74).

From May 11 to May 18, 1804, the Lelia Byrd anchored at Trinidad Bay to secure a new mast, spars, wood and water. A good deal of trading began with the Yurok of nearby churey. Within a few days numerous people from towns in the area began to congregate on the beach. Included in Shaler's notes are descriptions of churey and lengthy examples of native dress and material culture. Interestingly, Shaler did observe the use of iron in spears and daggers. He noted that bows were about three feet in length and strengthened with whale sinew glued onto the back. He also observed that canoes were squared at each end and could hold nearly fourteen people. Trade during this voyage was largely left unrecorded, but one account discusses the exchange of red ochre for a string of beads (Lewis 1943:7-16).

With continued interaction, native groups began to exhibit signs of hostility. By the 14th of May the once civil Yurok demanded payment for water being removed, and eventually several water casks were destroyed. The remainder of the Shaler visit was under the vigilance of an armed crew. Numerous natives were taken into custody, but released shortly after. By the 18th the situation had reached a point where the Lelia Byrd had to weigh anchor and leave Trinidad Bay (Lewis 1943:7-16).

The O'Cain was the next ship to enter Trinidad Bay, in June, 1806. This landing also met with hostilities on the part of the Yurok. This may reflect the fact that the Winship expedition included a contingent of about 100 Kodiak natives in their bidarkas (kayaks), under Russian command (Lewis 1943:17-20; Ogden 1933:220). Kodiak-Yurok relations are not clearly recorded, but a hunting force of 50 Kodiak were sent off on the 17th to hunt sea otter. On their return on the 18th, a marked change occurred in the native sentiment towards the O'Cain. On the 19th, the Yurok attacked the trading party and the Kodiaks were used to repulse them. During this battle one Yurok was killed. Following this, hostilities continued till the 22nd when the O'Cain left Trinidad Bay (Lewis 1943:17-20; Phelps n.d.: 16). Heizer and Mills suggest that molestation of native women or too sharp a trading resulted in these hostilities (Heizer and Mills 1952:73).

During the Winship visit, a great deal of trading was carried on but little record remains of what was being exchanged for furs. W. D. Phelps wrote that Winship paid up to 50¢ in trade goods for prime furs, but what these goods were is not recorded. On the other hand, as little as two cents in beads were paid for poorer furs.

Although started on a somewhat friendly tone, the final days of trading were accomplished under the ship's guns (Coy 1929:28; Lewis 1943:17-20).

In late October of 1808, Kuskof sailed into Trinidad Bay in the Kodiak and noted some important facts. First, he noticed that the villages of the area were all deserted. This may have been a result of a seasonal shift to acorn processing sites inland, leaving the towns practically deserted. Second, he felt that the sea otter population of the area had been decimated and would yield little. If this is true, then far more hunting had occurred in this region than available data suggest (Coy 1929:31; Heizer and Mills 1952:73).

The Columbia anchored at Trinidad Bay on both July 24 and August 20, 1817. From the works of Peter Corney, the first officer of the Columbia, we have an excellent image of the arrival:

> This bay is full of high rocks, which are always covered with birds, and round it are scattered many Indian villages. We had scarcely time to moor before we were surrounded with canoes; we triced our boarding nets up, and shut all our ports but one, at which the natives entered, keeping all the canoes on the starboard side; and, as the Indians came on board, we took their bows and daggers from them at which they seemed much displeased. One man would not give us his dagger, and we pushed him back into his canoe; upon which he immediately strung his bow, and pointed an arrow at me, as being the most active in sending him out of the ship. In an instant he had several muskets pointed at him, upon seeing which, he lost no time in laying his bow down. Shortly after he came on board, and seemed sorry for what he had one, and made me a present of a fine bow. Everything being thus settled, we gave them some bread and molasses, of which they eat heartily. We then commenced trading, and got a few land furs, which they brought off, for pieces of iron-hoop, cut into 6-inch lengths. They also brought us plenty of red deer and berries (Corney 1896:78-79).

Corney also noted that the Yurok canoes were 16 to 20 feet long and 6 to 8 feet broad. Little else is recorded by him, save an extensive description of Yurok women along with the simple note that "this is the only place on the coast where we could not induce the females to visit the ship" (Corney 1896:79). This may have been a result of the earlier visits of the O'Cain's Kodiaks.

On August 20, the Columbia returned from a voyage along the southern coast and momentarily stopped at Trinidad Bay. Leaving early on the morning of the 21, the Columbia sailed north and anchored off of Point St. George in sight of a Tolowa village, probably taa'aaden. Tolowa canoes came alongside the Columbia and numerous natives came aboard prepared to trade. In exchange, an axe was given for each good skin. Also many bows, arrows and

daggers were received for small beads. After the purchase of all available furs the Columbia once more set sail (Corney 1896:75A-76A).

Between the years 1826 and 1848, declining interests in the coastal fur trade was replaced by a growing inland fur trade. In 1826, while traveling up the Sacramento Valley into Oregon, Peter Ogden sent out a scouting party to reconnoiter down the "Clammitte" River. In February 1827, the party reported that the river had numerous friendly Indians along it. There were sighted "villages built of planks, large enough for thirty families in each, fine large canoes resembling the chinooks, and they have various trading articles from the American Ships" (Lewis 1943:22). These people were either the Karok, Hupa or Yurok. Little else was recorded of this expedition.

In 1828, between May 10 and June 23, Jedediah Smith entered the northwest California area. After being forcibly removed from Spanish lands, Smith and a large party of trappers with over three hundred head of half-wild horses and mules worked their way into the Trinity River drainage. As a partner in the Rocky Mountain Fur Company, Smith intended to explore the northwest in order to take over the fur trade south of the Columbia River and to establish a harbor on the Pacific so as to compete with the Hudson's Bay Company (Lewis 1943:30). By May 10 the group had passed through Hoopa Valley and were slowly making their way towards the ocean. Near wechpus (Weitchpec) or perhaps lo-olego, they sighted a "fishing establishment" (Roberts 1932:288). Totally exhausted from their trailblazing, they used Indian trails wherever possible, and camped near several Yurok towns in the following days.

On the 19th four Indians, possibly Chilula, entered camp and traded elk meat for presents of beads. On the 20th, shortly before leaving camp and Gans Prairie, a scouting party returned with news of a bay to the west (possibly Big Lagoon). This party had proceeded down Redwood Creek as far as Prairie Creek, and then struck off in a northwesterly direction till they reached Mussel Point. Getting within eighty to one hundred yards of the sea, they turned and headed to the northeast to ease the traveling. Becoming totally disoriented in the dense redwood forest undergrowth, they eventually returned to Gans Prairie. Shortly after their return a member of the party shot and killed an Indian, whom he felt was attacking him. In the following days the expedition had worked their way down along the Klamath River, which Smith continually calls the "Indian Scalp River", and on May 25 they were ferried across the river at sreghon, where they paid for native help with goods, beads and razors. During this time Smith noticed that many of the Yurok had pieces of iron knives and arrow points of iron. Minor trading, mainly of beads for raspberries or lamprey eels, continued as the party edged towards the ocean. On June 8, the party camped near omen at the mouth of Wilson Creek. Here clams, dried fish and small cakes of sea grass were obtained (Lewis 1943:30-56; Don Chase 1958: 13-28).

Heading north, usually along established Indian trails through the redwoods, Smith and his men crossed "Cap-pah", Ragged and Damnation Creeks, finally encamping on June 13 near the village of "Nec-Kah" (probably a Yurok name for the Tolowa talhme' or shinyalhshii) near Cushing Creek. On the 14th, camp was made on the south side of Elk Creek near the beach. Here they encountered a number of Tolowa who traded strawberries, clams, fish, and kamas root for the trappers beads. By June 23 they had skirted Lake Earl, crossing what would become the Smith River and the Oregon border. Shortly thereafter, nearly the entire party was massacred on the Umpqua River for their ill treatment of the natives. This occurred on July 13 (Doris Chase 1959:8; Don Chase 1958:28-34: Lewis 1943: 30-56; Hickman and Moratto 1973:39; Morgan 1953:260-265).

The general route of the Smith expedition, with probable camp-sites, has been carefully plotted by Steven Viers and is on file at the Del Norte County Historical Society (Moratto, personal communication, 1978).

In 1829, the first in a series of yearly hunts by the Hudson's Bay Company in southwestern Oregon and northern California began (Lewis 1943:83). At this same time Ewing Young continued the efforts of Jedediah Smith and the Missouri-Santa Fe fur traders, eventually beginning the first American settlements in Oregon, irking the Hudson's Bay trappers (Lewis 1943:75). Young is also reputed to have traveled the route Smith had followed through the "Indian Scalp River" region (Hunt and Sanchez 1929:314). No records of these activities are available.

In summary, this period of exploration and exploitation of fur resources in northwest California had some lasting effect upon the Yurok, Tolowa and Chilula. Trade goods, although known in the previous era of early sea explorations, became widespread in this period. News of aliens anchoring in native waters or wandering through native lands probably spread swiftly, including reports of some of their actions. The hostilities at Trinidad Bay, the death of a native on Redwood Creek, and the more subtle alteration of social life brought about by fur trading all must have helped to form an image of the new intruders in the native eye.

Heizer and Mills suggest that perceptions of native groups along the northern coast by the European traders were deeply affected also, but not by any actions on the part of the Tolowa or Yurok. Occurrences which transpired well outside the area of these northerly Californian cultures were affecting European thought. The massacre and seizure of the ships Boston at Nootka in 1803, Atahualpa at Millbank Sound in 1805, and the Tonquin at Woody Point in 1811 may have all aided in the formulation of this image of the native occupants (Heizer and Mills 1952:74). All of these incidents occurred closer to Vancouver than to northern California. Attitudes

developed in one region, whether based on fact or ignorance, were extended far afield, glossing myriad cultures and people simply as "Indians". In subsequent years this confusion of understanding would further compound the plight of the Yurok, Tolowa and Chilula, along with most native groups in California.

By 1845, large numbers of Santa Fe-Missouri trappers were working the country around the northern ends of the Sacramento Valley. In the spring of that year, Pearson B. Reading, while trapping and hunting with an expedition out of Sutter's Fort, entered the "Indian Scalp River" area. Returning there in the summer of 1848, Reading found the one thing that would totally shatter native life in northwestern California. On the confluence of the Cottonwood and Trinity Rivers, he found gold (Lewis 1943:103).

Early American Era (1848-1870)

With the discovery of gold in the Trinity region in 1848, northwestern California witnessed a tremendous explosion of new settlements, particularly in the drainages of the Salmon, Klamath and Trinity Rivers. The presence of these settlements, at first reliant for all transport and supplies upon the slow and expensive interior route up the Sacramento Valley, stimulated a renewed interest in the coastal region. In search of a more direct route and a more profitable method to tap the wealth of the northwestern mines and miners, a series of coastal expeditions were sent out, mainly from San Francisco, to secure and develop settlements on the Humboldt and Del Norte coast. As these settlements were established, pack trails were built to the mining regions. With supplies assured, the mining region burgeoned, and continued discoveries of rich mineral deposits (gold, chrome and copper) gave rise to more settlements. Coastal communities in turn prospered from their business activities. They attracted farmers and ranchers who began to settle at first in the open areas near towns, but eventually moved further and further into the remote valleys of creek and river drainages.

The resulting effect upon native populations of the area, although highly variable, usually was devastation of native lands, resources, settlements and lives. In order to resolve the growing frictions between a people who saw themselves as the vanguard of the pioneer spirit, and a people who had lived upon and owned the land being invaded, a number of councils were held and treaties made, but these were either left unratified, or were made with only a fraction of the affected native groups. The military establishment of reservations followed, although a vast number of Tolowa, Yurok and Chilula refused to live upon them. Those remaining off of the reservations were at the mercy of their own abilities and continued harassment by settlers, miners, transients, troops and volunteer forces. Some groups were able to conditionally work with the white

populations but, in general, a constant shifting of peoples through herding and inter-cultural pressures created by the growth of American communities, resulted in the continued disintegration of earlier lifeways. Inter-cultural native hostilities also grew as a result of the differential acceptance of white values or aid. By the end of the era much of the Tolowa and Yurok culture had been irreparably damaged. The Chilula, who resisted white intervention the most, were almost totally annihilated as a result.

Beginning in March of 1850, several expeditions were outfitted to sail north and settle the lands of northwest California. Those ships involved included the Cameo, Arabian, Paragon, California, Laura Virginia, Galindo, Isabel, James M. Ryerson, Ariel, Mallory, Whiting, and the General Morgan (Palais 1958). Many of the ships were grounded or broken up in the surf as a result of accident, rough seas or the attempt to navigate what were later concluded to be unnavigable waters (Hickman and Moratto 1973:40). Others, including the California, Laura Virginia, Isabel, and the James R. Whiting, anchored in Trinidad Bay and expedition members began to lay out the town of Warnersville, which would later become known as Trinidad (Heizer and Mills 1952:105-106; Bledsoe 1956:53).

The Cameo had attempted to land in Trinidad Bay, but due to turbulent seas, it continued northward in search of a harbor. Reaching Crescent Bay, the crew sighted the Paragon, which had already been grounded there (Palais 1958; Bledsoe 1881:12; Lewis 1943:189). A landing party from the Cameo was left at Point St. George and began to make its way to the south. Its leader, Herman Ehernberg, recorded numerous native villages. As they reached the mouth of the Klamath, the beach and riverside around the Yurok settlements of rek'woy (Requa), welhkwew and tsekwelh were alive with natives busily spearing salmon and eels from the banks and on the great sand bar which lay at the mouth of the river. Ehernberg noted the large settlements of redwood plank houses and the canoes gliding across the water. Then a number of the Yurok sighted the landing party and all activity stopped. Numerous orations were called out by the Yurok men, but the Americans understood none of them. With difficulty, the landing party was able to arrange to be ferried across the Klamath by native canoes. Upon reaching the south shore, Ehernberg, along with each man in his party, claimed 160 acres of land as allowed by U.S. law. It was the group's belief that this spot would be a prime location for a new seaport. Continuing southward towards Trinidad Bay, a portion of the group discovered gold in the sands along Gold Bluffs. The group finally arrived at Trinidad Bay on April 13, 1850, to find the area already subdivided and over 500 men living in make-shift and newly constructed houses (McBeth 1950:13-14). Shortly, Ehernberg returned with a small party to stake out claims on the Gold Bluffs, and to begin laying out Klamath City on the mouth of the Klamath River (McBeth 1950:31).

[illegible]settlements along the Humboldt and Del Norte coastline [illegible]ound Trinidad and Humboldt Bay. By 1853, Trinidad, Bucks-[illegible]ion (Arcata) and Humboldt had all been laid out and were [illegible]g the mining regions with much needed supplies. Easily [illegible]le from these coastal towns, two major mining areas, the [illegible]iver mines centered around the settlement of Weaverville, [illegible]Salmon and Klamath River mines centered around Orleans Bar, [illegible]prosper. The Gold Bluffs region south of the mouth of the [illegible]iver also underwent a mining boom as men from the Trinidad [illegible]iced the beach sands for gold (Elliot 1882:105-106; Van [illegible]814-5).

[illegible]key factor in the relations between the coast and the [illegible]districts was the establishment and maintenance of pack [illegible]These were begun as early as the summer of 1850 when a [illegible]ading from Trinidad to Big Lagoon and then across country [illegible]lamath River was constructed. At this time a secondary [illegible]from Klamath City intersected this one. The main trail ran [illegible]inidad up the coast to Big Lagoon, then across the divide [illegible]ood Creek, where it forded the stream at "Big Trees", [illegible]ng the crest of the Bald Hills to Elk Camp and then to French [illegible]ere the trail split and either went towards the Klamath or [illegible]oopa Valley (Bearss 1969:131). Other trails were later built [illegible]omodate the growing needs of the mines (Carr 1891:94, 121; [illegible]29:68-69; Bearss 1969:132). With the continual shift of pack [illegible]and the construction of new routes, numerous sporadic ferries [illegible]ttlements formed on the lower Klamath River, although the [illegible]ctive port of Klamath City failed (Genzoli 1973:11-12; Bledsoe [illegible]0; 1956:65). Trinidad and Union became the hubs of the pack-[illegible]de to the mining regions.

[illegible]full account of the conflicts which arose as a result of this [illegible]pilgrimage of Euro-americans to native lands would be impos-[illegible]Histories rarely contain enough data to understand even a [illegible]instant in time, let alone record all occurrences of similar [illegible]Hostile encounters were numerous. As early as 1850, a [illegible]on the forks of the Salmon River resulted in the burning of [illegible]illages and the killing of fifty to sixty Karok (Coy 1929: [illegible]In another incident, two white men were killed by Indians [illegible]redwoods, 18 miles from Union (Bearss 1969:65). In April [illegible]Thomas Gihon left Trinidad to go to the Gold Bluffs. As [illegible]eaded north along the coast with a party of miners, there [illegible]ttack on one of the Yurok settlements near Big Lagoon, [illegible]by the theft of some articles. As Gihon watched:

> [illegible]Some of the party went into the huts and found the stolen [illegible]articles and also about a dozen hatchets which they had [illegible]no doubt taken from Trinidad. The whites began firing [illegible]again on the Indians. I protested against this cowardly [illegible]and wanton murder of the poor naked savages, but I know [illegible]several were killed. One poor Indian had run and hid [illegible]among the rocks, but he peeped out to see what was going

> on and one of our men shot him. In another case I jumped and caught the hammer of a gun on my finger in order to save an Indian's life. This was very early in the morning. It seemed a dreadful way to begin a journey (quoted in McBeth 1950:27-28).

The pack trains passing along established trails brought miners and transients who cared little for the trouble they caused. As Redick McKee wrote in 1852:

> In all the frontier settlements there are many men from Missouri, Oregon, Texas &c., who value the life of an Indian just as they do that of a cayota, or a wolf, and embrace every occasion to shoot [them] down (quoted in Heizer and Almquist 1971:28).

In an effort to discourage continued intrusion into what was considered private property by most of the native groups of the northwest, Indians began to attack packers. Hostile actions of the Chilula along Redwood Creek were most noted, but the pattern occurred elsewhere, occasionally with devastating responses which surely had not been expected. Indiscriminate and escalated retaliations on the part of Whites resulted in the destruction of innocent native people. It is probable that guilty parties on either side rarely paid for their crimes. Examples of some of the hostilities follow.

In 1851, three prospectors were killed 8 miles south of what would soon be Happy Camp, in the upper Klamath River drainage. In retaliation, the remaining miners in the exploratory party followed an Indian trail which they presumed to be the killers' escape route. Coming upon the supposed village of the perpetrators, they summarily massacred a large number of the inhabitants (Bledsoe 1881:9; Bearss 1969:65-66; Goddard 1914:268). Four Tolowa were killed on the Smith River drainage as a result of the retaliatory expedition of J. B. Long and a number of vigilantes who were hunting a group of Shastas believed to be responsible for the death of two prospectors (King 1972:6). Another four non-Indian men were killed at Thompkins Ferry, a few miles below wechpus (at the confluence of the Klamath and Trinity Rivers) (Hickman and Moratto 1973:40-41). Captain McMahon, commanding a small detachment of apparently volunteer troops, attacked and fired upon a native town near wechpus in retaliation for the Thompkins Ferry incident. Heizer and Mills state that wechpus and two other neighboring towns had been burned at this time, the spring of 1851, adding to the rage of the Yurok and the Hupa (Heizer and Mills 1952:40). It is unclear whether this burning was part of the McMahon attack, or an earlier one. It is certain the McMahon and his men left the scene, and the liability of a murder and property destruction was left in the hands of White settlers along the river. This nearly resulted in the death of Robert Walker, who lived with three other men near the confluence of the Klamath and Trinity Rivers. Approximately four hundred Yurok and/or Hupa gathered at his log cabin demanding payment for McMahon's actions (Bledsoe 1881:79-80).

In 1851, Redick McKee, one of three federally appointed Treaty Commissioners for California, began to make treaties in northern California. Arriving at the confluence of the Trinity and Klamath Rivers in late September, McKee, with the aid of Robert Walker as interpreter, conferred with a number of representatives of various native groups (Bledsoe 1956:81). Present at these councils were people from "Wetch-peck", "Wuh-si", "Cap-pel", "Pak-wan", "Ut-cha-pah", "Sa-von-ra", "Cham-ma-ko-nee", "Coc-ko-man", "Chee-nah", and representatives of the "Mor-ri-ahs", "Ser-a-goines","Up-pa-goines, and "Hoo-pahs" (Heizer 1972b:93-95). Aside from the Hupa, these names refer to Yurok settlements along the Klamath River. The Tolowa, coastal Yurok, and Chilula were not represented at the peace-making councils. George Gibbs, an expedition interpreter, specifically noted of the Indians of Redwood Creek, "called by the whites Bald Hill Indians" and "termed Oruk by the Coast Indians, and Tcho-lo-lah by the Weits-peks" that "none of them could be induced to come in" (Heizer 1972a:41). A treaty was established with the groups present. It included provision for a reservation to be set up in the general area of the present Hoopa Reservation (Heizer 1972b:92-93).

McKee wrote the following pertaining to his efforts in the north:

> Considering the results which have happily followed, the expenses are trifling. Taken as a whole, I doubt whether ever, in the history of Indian negotiations in this country or any other, as much work has been done, as much positive good effected, and as many evils averted with such comparatively inadequate means at command (Bearss 1969:68).

Unfortunately, neither the native groups nor the White settlers would have agreed with McKee. The situation in the northwest continued to be punctuated with hostilities. In 1852, six White men were killed in their sleep at Blackburn's Ferry, 12 miles below wechpus. Following these deaths another band of volunteers was raised and several rancherias were attacked and burned (Bledsoe 1956:83-84). In April of the same year, Whites, in fear of retribution by Karok for murders perpetrated in the mining settlement, raised a party of volunteers and descended upon a nearby village, killing thirty to forty of the inhabitants. Women and children who escaped the pogrom were later seen in Scotts Valley, begging for food and mourning their dead (Heizer 1974a:24).

Throughout California, the growing sentiment was to rid the state of Indians, rather than to establish the reservations envisaged by McKee and other commissioners (Coy 1929:141). In April of 1852, the governor of California received a letter from senators of Trinity, Klamath, Shasta and Siskiyou Counties. They asked for reparation of $50,000 for White property stolen or destroyed in Klamath County alone. Regarding the cause of continued White-Indian conflict, they wrote:

> It has been charged that the hostility of the Indians was super-induced by acts of injustice committed by the Whites.

> As a general thing, we can state, from our knowledge, that this has not been the case; and have no hesitation in saying that it emanates from the known character of the Indians - a mischievous disposition and desire for plunder. In but few instances have the first offences been committed by the Whites (Heizer 1974b:193).

The letter ended with a request for military protection and urged that the guilty Indians be punished (Heizer 1974b:191-193; Coy 1929:142; Bearss 1969:68-69).

In this period, White actions continued to be piecemeal, decided upon by isolated individuals and groups. In contrast, the Hupa and Yurok of the middle Klamath River area were attempting to live up to their agreements with McKee. This was largely as a result of the efforts of four men who apparently were authority figures and well respected along the Klamath River. These men were "Ken-no-wah-i" (known to the Whites as "Trinity Jim"), and "Zeh-fip-pah" from the Hupa and Karok regions; and "Ma-roo-kus" and "Kaw-tap-ish" who lived in Yurok territory (Bledsoe 1956:83). Bledsoe writes:

> Many incipient difficulties had been adjusted or prevented by their intervention and assistance. It was owing to their efforts, more than to any other influence, that a serious outbreak was precipitated in 1852, and that there was actually a delay of two years before any considerable number of hostiles took the warpath (1956:83).

Although McKee's efforts may thus have had some good effects, they were useless in the long run. The treaty signed on the Klamath River, as well as 17 others drawn up by McKee and the other two commissioners, were rejected by the U.S. Senate in July of 1852 (Bearss 1969:68; Heizer 1974b:101). Opposition from the state, transmitted to the senate in a memorial from the California legislature, was an important factor in the rejection of the treaties. A major objection was the creation of reservations which would have formally given to Indians the title to lands which were economically attractive to non-Indians (Ellison 1978).

Around the time that McKee met with Indians on the Klamath River in 1851, Whites had begun to explore Crescent Bay and the Smith River drainage to the north, in search of a fabled lost cabin containing gold (Bledsoe 1881:11; 1956:69; Doris Chase 1959:18). Settlement along the Smith River began in 1852 (King 1972:7). By 1854, there were nearly three hundred houses in the newly founded Crescent City, containing a population of over eight hundred people (Bearss 1969: 138). At this time nearly seventy five farmers were working in the area, most on lands along the Smith River (Bledsoe 1881:20).

As a result of White settlement, the Tolowa now began to experience the pains and pressures which native groups to the south had already suffered for several years. As in the south, fear and paranoia on the part of Whites resulted in unprovoked attacks on

Indian settlements. The fear may have been stimulated by hearsay regarding the Chetco and Rouge River Indians of Oregon, who were supposedly much more hostile than native California groups towards White entrance onto their lands. Whatever its basis, a pattern of White over-reaction to real or anticipated Indian hostilities is evident in recorded Tolowa-White interactions of the 1850s.

In the spring of 1853 a prospector named California Jack was killed while working in the Smith River region. There is no record of the situation surrounding his death. Shortly afterwards, a Tolowa was seen in Crescent City with Jack's revolver. In retaliation, the citizens of Crescent City amassed and attacked the Indian settlement at Battery Point, killing the retainer of the revolver and several others (Bledsoe 1881:18). After this attack, the resident Tolowa moved to a town at the mouth of the Smith River, ya'daagad (Yontocket Ranch), which was soon attacked by the unsatiated Whites of the area (Bledsoe 1881:19). It is reported that nearly one hundred Tolowa were killed there (King 1972:7).

On June 10, 1854, the Crescent City Herald reported the theft of chickens by a Tolowa boy. His punishment, ordered by Judge Rosborough, was "ten well laid-on lashes" and the shaving of his entire head (Doris Chase 1959:43). The farmer who had captured the boy was killed in October of 1854, perhaps in retribution for his role, though this is unknown and evidently was not considered at the time. After the death, Rosborough and a number of vigilantes from Crescent City closely examined the Tolowa at their Mill Creek acorn gathering camps, and eventually the supposed killer and his two accomplices were captured at the mouth of the Klamath. A rather rushed trial with a one hour deliberation by the jury resulted in their conviction, and they were summarily hung at Battery Point. The supposed killer, "Black Mow", was a Yurok, and one of his accomplices was a Chetco from Oregon (Bearss 1969:69-71; Bledsoe 1881:28-31; King 1972:7; Doris Chase:44).

Vague rumors of planned Indian retaliation for the executions caused a major public meeting near the end of 1854 at Major Bradford's residence in the Smith River Valley. A four man committee was organized to examine the situation at the Tolowa settlement of Yontocket Ranch (Bearss 1969:71; Bledsoe 1881:31). The presence of Chetco, Rouge River, Yurok and Tolowa Indians together raised fears which eventually led to an attack on January 1, 1855, at Lake Earl by two companies of the Coast and Klamath Rangers, supported by volunteers from the Smith River area. Thirty Indians were killed (Bearss 1969:71-72). Warburton and Endert suggest that the battle occurred at or near the village of 'eetshuuled on Lake Earl (1966: 167-168).

Fear of Indian attacks was not the only stimulus for White hostilities in the northwest. Volunteer forces ravaging through the interior periodically returned with scalps (Hittell 1897:915).

Diaries of the era echo the need to eradicate all the "diggers", or speak of coming to the north to get a little "glory" in Indian killing (Murdock 1839-1921; Call 1854).

Aggressive acts arising from such attitudes included abuse of Indian women.

> The debauchery of Indian women not only on the coast but throughout northern California was carried on to an extreme which has often been described and which has merited much derogatory comment...in the most heavily affected areas, such as those of the Yurok, Hupa and Pomo, nearly one-half of the Indian women of reproductive age must have been impregnated by white men (Cook 1976b: 160).

Much of this was done by transients and "squawmen" who cared little about their actions. An article in the Sacramento Union, dated October 1, 1858, briefly discusses the "squawmen":

> ...the only depredations that have been committed have been provoked by a parcel of abandoned characters who live in the vicinity of the villages and who are in the constant habit of committing the grossest outrages upon the squaws. In a few instances these outrages have been avenged by the Indians, by shooting their aggressors or killing their stock. These acts of retribution are called Indian outbreaks, and are made the pretext for fresh outrages upon the poor redskins (Heizer 1974b:279-280).

Kidnapping of Indian children also occurred. For the period from 1855 to 1861, numerous reports exist which speak of the abduction of Indian children for sale in the agricultural counties to the south (Heizer 1974a:1; Coy 1929:166).

All of the above mentioned atrocities should have been dealt with by the military authorities. At times they were, but as often they were not (Heizer 1974b:91-92; Coy 1929:166). Indeed, the arrival of military forces in northern California was a response to pressure exerted by northern senators and editorial laments in newspapers reporting Indian "depredations". Fort Humboldt, on Humboldt Bay, was established in 1853 for such reasons (Bearss 1969:69; Bledsoe 1956:84).

Troops from Fort Humboldt were used to settle the "Red Cap war" which occurred in January of 1855 (Bledsoe 1956:78-91; 1881:32; Heizer and Almquist 1971:32; Bearss 1969:72-77; Coy 1929:143). Isaac Minor, a store owner in Orleans at the time, discussed his view of the start of the "war":

> The start of the whole thing was up at Orleans in 1854, while I had my store up there. An ox ate some poison weed and died. Some said right away that it was the work of the Indians, who must have shot it, and they demanded that the Indians pay $400 for it. The Indians maintained that it

> was not shot and were able to point out that there was not a hole in its hide. The Indians about this time had begun to get rifles, every packer would take along with him an old rifle or so that he bought for $15 and sell it to the Indians for $100. A meeting was held at my store for the purpose of collecting the guns. They fetched in about 75 old guns. These were all the guns except those belonging to a band called the Red Caps. Since these Indians refused to give up their weapons, a lot of the more worthless fellows from the camp went down there and burned their rancheria and destroyed their grub. The next day the Indians started out to get even, but instead of attacking the fellows that had done the trouble they killed the men who were at work in their ditches. This started the war (Minor 1914:87).

By January 22, the Crescent City Herald stated:

> From the Salmon down the whites are in arms, with determination, I believe, if possible, to destroy all grown up males,...I have no doubt there will be warm times on the Klamath for some weeks, as the Indians are numerous, well armed and determined to fight (Heizer 1974b:35).

These "warm times" impeded supply trains to the Klamath and Salmon River diggings, for travel on the trail from Trinidad through the Redwood Creek drainage was stopped at this time (Bearss 1969:133). Volunteer troops were used at first to end the conflict, but eventually Captain Judah from Fort Humboldt was brought in to aid in the establishment of a lasting peace (Bearss 1969:73-79).

The Klamath River Reservation was established in 1855 at the instigation of S. G. Whipple, Special Indian Agent for Klamath and Humboldt Counties. As a place for settling the Indian population following the "Red Cap war", he proposed an area extending from the mouth of the Klamath River upstream thirty miles, with a breadth of five miles on each side of the river. The area contained only one resident White settler in 1855, and the rugged terrain, which discouraged any form of land transport, would presumably prevent encroachment by Whites. Whipple's selected location was approved, but the proposed size was decreased to a twenty mile length and a one mile width on each side of the Klamath. An administrative building for the reservation was established near the Yurok village of wokel, and came to be called the Wau-kell Agency. A military post was added to the reservation in 1857, situated near the mouth of Terwer Creek and called Fort Terwaw. In 1858, a secondary military outpost, Fort Gaston, was founded about fourteen miles above Weitchpec on the Trinity River, in order to police the more remote areas. The history of the Klamath River Reservation, intertwined as it was with many events outside the scope of this work, is not presented in detail here. Bearss (1969) treatment is excellent; see also Bledsoe (1881; 1956), Doris Chase (1959), McBeth (1950).

Reservations in northwestern California served disparate functions. For Indians they were sometimes refuges from White depredations. They were also, sometimes simultaneously, concentration camps which relieved White fears by removing Indians from much of the countryside. Cultural differences were often ignored by Whites when procuring occupants for reservations, and sometimes antagonistic groups were brought together. Even where traditional hostility was not involved, moves to new territory were awkward for northwestern California groups, with their developed legal systems which recognized property rights and had specific rules for property transferral. Added to these difficulties was the fact that supplies and accomodations on reservations were often inadequate to meet the needs of new arrivals who had left behind their substantial houses and stores of food. Against this background, the numerous moves of Indian groups in the 1850s and 1860s can be better understood.

Late in 1855, when the Rouge River War in Oregon was causing unease in northwestern California among Whites and Indians alike, Special Agent Whipple made arrangements to have many of the Tolowa moved to the area of Wilson Creek, north of the Klamath River. He offered government subsistence, to be continued until the land could be adequately cultivated. He also promised to reimburse the Tolowa for their lands and fisheries. Reimbursement was to be in native currency, dentalia strings, to allow the purchase of new fisheries and land from the Yurok (Bearss 1969:82).

Not all Tolowa responded to Whipple's offer. Some remained in their villages, while others appealed to White landowners with whom they had previously established relationships. They sought refuge from renewed local White hostilities (Doris Chase 1959:45; Bradford 1891:48-51). With the aid of Major Bradford, a friend of the Yontocket Ranch residents, and other Whites, many Indians were safely transported to Lighthouse Island near Crescent City. According to Bledsoe (1881:40), these included 179 from Smith River, 58 from the "Lagoon" (Lake Earl), and 79 from "Ottegon", "Cacha", "Kohpay", and the Nickel Creek areas.

Meanwhile, shortly after those Tolowa who had accepted Whipple's offer began to move south, Whipple resigned as Indian Agent. He was replaced by a lush named A. Patterson, who frequented the saloons of Crescent City more than the reservation. Patterson proceeded to deny Whipple's agreement with the Tolowa, and they began to return to their villages, stimulating public outcry from the White community. In October of 1856, these Tolowa were concentrated on Smith Island, where they were provided for by the government until matters could be settled.

In 1857, the new Indian Agent, Major H. P. Heintzelman convinced many of the Tolowa to move to the Klamath River Reservation. An editorial in the Daily State Sentinel speculated:

> If an agent starves the Indians, after robbing them of their lands, I am in hopes no U.S. officer would lend himself to murder them, simply because they go back on their land to obtain food (Heizer 1974b:163).

Shortly after the move, there was a rebellion on the reservation. The attempted assassination of Heintzelman resulted in the death of 10 Tolowa and the wounding of several others. Many Tolowa escaped into the mountains. Against the wishes of reservation personnel, the Superintendent of Indian Affairs for California ordered that return of Tolowa to the Smith River area be allowed and that no force be used to keep them on the reservation. As they returned to their homelands, the Tolowa discovered that their lands had been legally purchased in the bargaining with Whipple and later agents. Their presence annoyed the White populace, who had presumed they were rid of the Indians. Landless, many of the Tolowa became vagrants in and about Crescent City, inspiring further public outrage by those now in possession of Tolowa lands (Bearss 1969:87-91; Bledsoe 1956: 120). Without land, village, or viable social networks, these Tolowa were at the mercy of a White society which cared little or nothing for them.

Constant movements of native groups continued into the next decade. White hatred, expressed in events such as the 1860 massacre of about fifty women and children in an Indian settlement on Gunther Island in Humboldt Bay, caused some groups to move voluntarily. For example, in 1861, more than four hundred and fifty Indians from the Mad and Eel Rivers were brought to the Klamath River Reservation because their safety was no longer assured in their homelands. A number of these fired their homes and destroyed all non-portable goods before leaving for the reservation (Bearss 1969:111). Other Indians came to the reservation under compulsion. More than three hundred captives from the Mad and Van Duzen Rivers and Redwood Creek drainages were forced onto the reservation in 1860, though most escaped during the summer of that year (Coy 1929:159, 161).

In 1862, a great flood swept away most buildings on the Klamath River Reservation and damaged many traditional Yurok villages. Most Yurok remained along the Klamath, but other refugees moved to a new reservation which was established near the mouth of the Smith River on land purchased from Major Bradford and other settlers (Bearss 1969:102, 112-114). However, those groups which did move onto the new reservation were soon moved again. In 1867, the Smith River Reservation was discontinued, and the inhabitants were escorted to the newly formed Hoopa Valley Reservation.

This new reservation had been established after the amelioration of extensive hostilities between the Hupa, their allies, and White inhabitants of the region. Treaties signed in 1864 ended much of the strife, and Congress appropriated $60,000 to remunerate Whites settled in the Hoopa Valley at the time (Goddard 1903-04a:9; Bearss

1969:114). Shortly afterwards, the remaining Chilula moved onto this reservation, followed by some of the Yurok (Goddard 1914b:270).

The transferral of the occupants of the Smith River Reservation constituted a caravan which covered many miles of trails and water routes:

> The entire distance from there to Hoopa was but a serpentine trail through the mountain fastnesses, deep gorges, and over rocky cliffs. It was found no easy task to move Indians, cattle, horses, colts, and a pack mule train, all at the same time, over a narrow mountain trail.
>
> The sick and blind Indians (38 in number), besides a portion of the baggage, were hauled from the Smith River to the foot of the mountains in wagons. This was about twenty miles, and as far as wagons would go; from thence to the Klamath River (a distance of 24 miles) the sick were carried in boxes, packed on each side of a mule, as Californians carry smoked bacon or salmon (Elliot 1882:155).

At the Klamath, they were ferried up the river in canoes. The rest of the people and belongings continued by land, arriving after a total walk of 134 miles. John Chapman, an experienced mountaineer who was well acquainted with the route, the crossings, and the natives through whose country the caravan would pass, was appointed to carry out the transfer (Elliot 1882:155; Bledsoe 1881:75). Most Tolowa fled the reservation after arrival, refusing to live with the Yurok (Bearss 1969:114).

During the years discussed here as the "Early American Era", native responses to White intervention varied, but two results can be seen. One was a degree of assimilation to White culture, achieved through reservation living or working in the employ of settlers. The other was near total extinction of some native groups, a consequence of refusal to adopt White roles or enter reservation lands.

Assimilation proceeded in a variety of ways. On the reservations, natives came to accept forms of cultivation which they had not used earlier. In 1859, nearly one hundred and sixty acres were under cultivation around the Waukell Agency, with about seventy five acres more under the plow at three nearby Yurok villages. Crops included potatoes, peas, oats, beans, turnips, carrots, pumpkins and wheat (McBeth 1950:39, Bearss 1969:105-106). It may be that the shift in food resources indicated by these activities came to have some effect on a later shift to White occupations by former reservation dwellers.

Off the reservation, Indian laborers participated in the White economy. This sometimes occurred in the context of a longstanding relationship between a particular group and a certain White landowner, like that already mentioned between Yontocket Ranch and Major Bradford. Similar relationships are described for the Trinidad area (e.g., Loeffelholz in Heizer and Mills 1952). In such cases, some

education of Whites occurred, as well as acculturation of Indians. Although this happened rarely, some products still survive; notable are several journals from the 1850s which contain immense quantities of data on Yurok culture (see York, in Cook 1956:85-92, La Motte, de Massey, Meyer, Bruff, Loeffelholz, all in Heizer and Mills 1952).

Outside of these established group relationships, Indians also worked individually as migrant laborers. The diary of William Carey Bailey, a White ranch laborer around Crescent City in the 1860s, contains references which indicate that Tolowa and other Indians in the area were doing similar work at that time. They participated with White laborers in jobs such as fence building and repair, road maintenance, land clearing and harrowing, orchard work, rail splitting, and seasonal work with potatoes, peas, corn, carrots, wheat and oats. Bailey received a monthly wage of $11 for ranch work in 1865; he gives no indication whether Indian wages were the same (Bailey 1850-1866:68, 79). With the continued usurpation of native lands, many of the Indians of the northwest coast came to work as migrant laborers in order to subsist.

In contrast to these were groups who never compromised by participating in a White economy, or entering reservation lands. The Chilula were such a group, and near extinction was a consequence of their actions. Chilula lands were early invaded by packers on the trail to the mining regions and, by 1854, farming and ranching settlements extended into the Redwood Creek drainage (Coy 1929:100). For example, the ranch and pack station of Isaac Minor, on the main trail to Hoopa Valley, consisted of some 500 head of cattle, which were used to supply meat and dairy products to the mines (Bledsoe 1956:224; Minor 1914:87). Chilula hunting, gathering and fishing areas were all probably damaged or reduced by pack trail use and operations such as Minor's. The response to White incursion was hostile. As early as 1851, these "Bald Hills Indians" were said to "have a very bad reputation among the packers, and several lives, as well as much property, have been lost through their means" (Heizer 1972a:36). Chilula attacks inspired White retaliation, often overzealous and misdirected (see, e.g., Coy 1929:152; Heizer 1974b:132-137; Heizer and Almquist 1971:33).

Further compounding the plight of the Chilula, a fraudulent peace council was held in 1859 on Redwood Creek, and a large number of Chilula were forcibly removed to the Mendocino Reservation near Fort Bragg. By December, they had escaped, but on the long trek home they were attacked by Lassik Indians and only two lived to reach their homelands. There followed a series of vengeance raids against the Lassik, and also against the Whites on Redwood Creek. This resulted in cessation of travel along the pack trail for some time (Coy 1929:150, 157; Goddard 1914a:351-352; 1914b:268-269).

In preparation for the inevitable conflict with White troops, the Chilula began to construct log forts in various places along

Redwood Creek, from which to repel invaders. In April, 1863, Chilula and Hupa warriors attacked the village of hrgwr on Stone Lagoon, killing 30 inhabitants, apparently because these Yurok had refused to aid them in their defense against the Whites (Bledsoe 1956:232-233; Coy 1929:180; Kroeber 1970:52). Several engagements with White troops took place later that year, ending with a major battle near Bald Mountain, where troops from Fort Gaston blasted four of the Chilula log forts with a howitzer while the Chilula and their allies slipped away (Coy 1929:186; Bledsoe 1856:247-249). This was the last major conflict to occur in the Redwood Creek drainage. In 1864, a treaty was finally made with the Hupa and allied tribes (Coy 1929: 192-193). Chilula are not named specifically in accounts of this event, presumably because their numbers had dwindled so. As already mentioned, most of the remaining Chilula moved to the Hoopa Valley Reservation at this time.

In summary, the advent of White American occupation in northwestern California greatly affected the Indian populations living there. The native occupants were displaced from their traditional lands and many were murdered outright. Most of the invaders shared an attitude of superiority and a greed exemplified in the statement that "It is a shame and a disgrace...that some of the best sections of our country must be placed beyond the reach of the hardy frontiersman by a few bands of miserable diggers" (Humboldt Times, Feb. 4, 1860; quoted in Palmquist 1976:130). Although some Indians attempted a peaceful coexistence through reservation living or special agreements with particular settlers, such compromise at best led to deculturation. In these cases, the mixing of different, occasionally antagonistic, native groups and the imposition of White land use practices and White economic attitudes required the sacrifice of traditional ways. For those groups who would not compromise, White occupation meant years of unsettled living, during which fighting whittled away their numbers until they suffered deculturation in its severest form, virtual extinction. Thus in a little more than twenty years was accomplished the disintegration of lifeways which had developed and held sway in the region for hundreds, perhaps thousands, of years.

Later American Era (1870 - 1900)

As overt violence disappeared from Indian-White relations in northwestern California, many of the Tolowa and Yurok, and the few Chilula left, attempted to maintain a continuity with their past. However, the advent of logging, fisheries and other commercial pursuits offered options which led these groups to assimilate more elements of White culture into their lives. Yurok-run businesses became important during this period. Very little is known of the process by which Indian integration into the White economy proceeded, for available historical documents do not address this issue. A familiar White activity, the usurpation of native lands, continued during this time, resulting in further loss of Yurok property.

The late 19th century offered numerous occupational options to the Yurok, Tolowa and Chilula who became active in the White labor market. When Stephen Powers began his journalistic endeavor to record the disposition of native groups in California, he noticed that many Yurok men worked in sawmills as far away as Crescent City, Trinidad, and Arcata, or on farms as far off as Scotts Valley (Powers 1877:46). Men hired out to mining camps such as those at Gold Bluffs of, later, the chromium diggings in the Smith River region (Baldwin 1916). Closer to home they whip-sawed for miners, drove pack trains, transported people and goods on the Klamath River, made and sold canoes to the Karok (as had been done traditionally [Kroeber 1970: 82]), and sold cargoes of fish to buyers in Crescent City (Powers 1877:46-48). Many Yurok worked summers on farms and then moved to migrant labor camps around Arcata for the fall potato harvest, where often family units worked as a team, the men digging while women and children sacked potatoes (Bearss 1969:126).

A sign of the earning power of these activities was a trading post on Klamath Bluffs which carried on a booming business, mainly with Yurok customers. In 1871, more than three thousand dollars worth of merchandise was sold there, and only six of the customers were miners. Annually the store sold more than seven hundred pounds of soap to the Yurok, possibly used in laundering services as well as for home consumption (Powers 1877:46; Doris Chase 1959:49).

Local stock ranches and a number of salmon fisheries also employed Yurok and Tolowa labor (Bearss 1969:126). In 1876, August Ulrich opened a fishery on the Smith River, hiring Tolowa and resident Indians to work the business. A 600 foot long seine was used, and the salmon were salted and packed in barrels for shipment to San Francisco (Hight 1948). In 1886 or 1887, the Indian Agent for the Hoopa Valley Reservation allowed a saltery to be built near the mouth of the Klamath, with the stipulation that only Indians be employed as fishermen and unskilled laborers (Bowie 1894:120-121; Roberts 1934:4).

In 1877, Louis DeMartin moved into the area around Wilson Creek and began to operate a large dairy which provided Crescent City with much of its dairy products. A pack trail and ocean-going dug-out canoes were the only means of transport to and from the ranch. Because of this, DeMartin hired Yurok men to transport his products to Crescent City (Bearss 1969:136).

> The canoes would be loaded with barrels of butter, wool from the sheep that were still on the ranch, hides, sacks of potatoes and cured meats, and then it would be paddled up to Crescent City and the supplies put on the beach. Much of the butter and some of the cured meats were bought by merchants who shipped them to San Francisco on the steamer. On the return trip the canoe would carry back flour, clothing, boots, sugar, coffee and other things that the family would need for the coming year. The

Indians received $75 for five trips (Doris Chase 1959:48).

Beginning as early as 1857, efforts were made by Whites to purloin the lands which had been set aside as the Klamath River Reservation. In that year, a number of Whites attempted to claim the three small islands at the mouth of the Klamath. Buell, the agent of the reservation at that time, was able to make them disperse, but they warned that they would file a law suit in order to have their "rights" (Bearss 1969:107). They did not return to press their claim, but after the reservation was shifted to the Smith River area, greedy eyes turned to the Klamath. According to Bledsoe, who seems to have sided with those interested in taking the Klamath River Reservation lands from the Yurok, there were only about eighty two Indians left there in 1880 (1881:101). However, a census in 1875 by Lt. Wilson of Fort Gaston showed an estimated 1,125 Yurok on lands of the old reservation (Bearss 1969:117). Since there are no records of war, migration or disease in the intervening five years, it seems certain that the Klamath River Reservation was far from abandoned in 1880. For a time, this fact sufficed to prevent the government from ceding any of the land to non-Indians.

In 1876, Martin Van Buren Jones established a fishery at the mouth of the Klamath River. Jones had been one of the earliest residents of the Crescent City area, arriving there in 1853. It was the establishment of his salting and fishing business which initiated land-grabbing operations eventually culminating in the removal of the Klamath River Reservation from the hands of the Yurok (McBeth 1950:48-49). Shortly after Jones' fishery began operation, Morgan G. Tucker constructed a tavern for travelers and a ferry near rek'woy. Accounts in the Crescent City Courier repeatedly refer to the anger which the White establishments were causing the Yurok at the mouth of the Klamath (McBeth 1950:52; Bearss 1969:115). In 1886, shortly after the Yurok-run fishery had begun operations, R. D. Hume of Gold Beach, Oregon, took a steamboat over the bar at the mouth of the Klamath and proceeded to operate a floating fishery. After the run, Hume returned to Oregon. The next year, as the salmon run began, Hume returned and was seized by the U.S. Marshal of the area. A long court case followed with Hume as the victor, and he built his fishery onshore. By 1894, the reservation lands were open to the public and individual allotments were given to all applicants. (This is an extremely abbreviated account of factors leading to the removal of land from the Yurok trust. For more detail, see Bledsoe 1881:152-161; 1956:271-274; McBeth 1950:44-48; Doris Chase 1959:47; Bearss 1969:115-129).

The situation of natives on the Hoopa Valley Reservation during this period was not good. H. L. Knight, an attorney from Eureka who visited Hoopa shortly after the abandonment of the Smith River Reservation, noted:

> If the reservation was a plantation, the Indians were the most degraded slaves. I found them poor, miserable,

> vicious, degraded, dirty, naked, diseased and ill-fed. The oldest men, or stout middle-aged fathers of families were spoken to just as children or slaves. They know no law but the will of the Agent...(Goddard 1903-04a:10-11).

By 1877, the Hoopa Valley Reservation had been considered a failure by the agent in charge, and attempts to maintain it were momentarily abandoned. The livestock were driven to the Round Valley Reservation in Mendocino County, all moveable property was sold at auction or taken away, and the inhabitants of the reservation were preparing for yet another move when Washington decided to maintain the land. The slow recovery was placed in the hands of Army officers (Goddard 1903-04a:11).

Some native groups were able to maintain themselves and their social networks even in the face of continued degradation by White actions and governmental decisions. Yurok Narratives, compiled by Robert Spott and Alfred Kroeber (1942), contains numerous accounts of Yurok culture during the last quarter of the 19th century. Evidence from the narratives suggests that much of Yurok social life remained intact during this period, and many of the major settlements were still inhabited. For example, in about 1870, a Yurok named "Ha'agonors-otsin" wished to marry a Yurok woman of rek'woy. In customary fashion, he received contributions from relatives to use to purchase his wife:

> When he looked into the otterskin, there was a red obsidian reaching to within four inches of his elbow. Also there were ninety dollars in gold; two elkhorn purses, each containing four strings of good shell money; forty strands of carved dentalium beads wrapped together with mink strips; thirty strings of clean beads of broken money; and forty scalps of redheaded woodpecker ready for mounting (Spott and Kroeber 1942:145).

This list includes many traditional wealth items, as well as American coinage, which had evidently been integrated into Yurok payment practices. Other information from the narratives supplements this in showing that many traditional items of Yurok material culture remained in use.

"Ha'agonors-otsin", later known by the name "Captain Spott", organized a large group of Yurok men from rek'woy and began to operate a thriving business using canoes for the transport of merchandise to and from Crescent City. By the 1880s, Spott had also taken over the ferry crossing at the mouth of the Klamath River (Smith 1953:70; McBeth 1950:52-63; Gould 1968:11-42).

For this period, Kroeber and Gifford infer a general decline in ceremonial activities, particularly in the coastal regions. They state that the World Renewal dances had been abandoned by 1880 or 1890 at 'orekw at the mouth of Redwood Creek, and 'oket'ey, on Big Lagoon (Kroeber and Gifford 1949:101). Evidence suggests that some ceremonial dances continued around the area of Big Lagoon and wechpus

as late as 1907 or 1908, but apparently the World Renewal dances were gone from these areas (M. Johnson 1907-08). Spott and Kroeber's Narratives indicate that people traveled as far as Crescent City or Arcata to observe those ceremonials which were still performed, among them a curing ceremony known as the Brush Dance (1942:145, 179). Traditional procedures by which Yurok "doctors" acquired their powers also continued to be followed (Spott and Kroeber 1942:158-164).

It is known that in 1870 the Ghost Dance religion, a set of beliefs spreading swiftly among Indians in western North America during this time, was introduced to the Tolowa at ya'daagad by the Siletz of Oregon. A Siletz man informed the Tolowa that "he had died for 10 days; received message that people must dance to bring dead back. They were to wear valuables, carry elkhorn purses and money so 'the money they had spent on the dead' (put in graves) would be brought back" (Drucker 1937:268). Drucker suggests that the Ghost Dance lasted among the Tolowa for five to six years before people began to lose interest and abandon it. Attempts to introduce this set of beliefs to the Yurok failed (Drucker 1937:268). Cessation dates of both the Tolowa Ghost Dance and the Yurok World Renewal rites remain uncertain. Such ceremonial activities may disappear in history prematurely, simply as a result of a lack of documentation of their existence.

In summary, this period can be seen as a further development of trends begun in the preceding years. Poor governmental management of reservations and the persistent encroachment of non-Indians resulted in increasing White control of lands. With the cessation of violent and coordinated native resistance, assimilation to a White labor economy continued. Some natives, like Captain Spott of rek'woy, began to exercise entrepeneurial skills within the White economy. In spite of economic changes, it appears that traditional religious beliefs and practices persisted during this period, although with some reduction. Likewise, accounts in Yurok Narratives indicate that many traditional Yurok social networks remained, continuing to provide ties of obligation and privilege among descendants of families which had long been so linked.

Documentary sources examined concerning late 19th century Tolowa, Yurok and Chilula cultures are extremely vague. Apparently the role of northwestern California Indians in the writing of White history was to supply aesthetic elegance to the heroic actions of early pioneers forging new worlds out of chaos. White attitudes toward these groups in this period can be summarized by the phrase, "slowly emerging from their state of savagery", and by the "noble savage" photographs of Emma B. Freeman (Humboldt Times 1902:192; Palmquist 1976). In documents of this period, Indians are treated as a natural resource, to be sandwiched between discussions of lumbering, dairying, mining, stock raising, and White sporting activities (Humboldt Times 1902:88, 96, 108-109). Their actual history during this period receives little treatment.

V. NORTHERN CALIFORNIA ARCHAEOLOGY; BACKGROUND FOR STUDIES IN REDWOOD NATIONAL PARK

Previous Work

An account of previous archaeological investigations in northwestern California through 1973 is provided in Moratto's archaeological overview of Redwood National Park (1973:49-64). To summarize, a number of site locations had been recorded (about two hundred and fifty in Humboldt and Del Norte Counties according to Fredrickson in this report, Appendix 1). Most of these were on or near the coast or large rivers and streams, not surprisingly, since archaeological survey work had been concentrated in those areas. Test pits had been placed in about a dozen sites, while only four sites, all coastal, had been intensively investigated. These were Hum-67, the Gunther Island site, in historic Wiyot territory; Hum-118, the Patrick's Point site, in historic Yurok territory; Hum-169, the historic Yurok village of churey; and DNo-11, the Point St. George site in historic Tolowa territory. Radiocarbon determinations suggest approximate initial occupation times of A.D. 900 at Hum-67, A.D. 1350 at Hum-118, and 300 B.C. for the deeper component at DNo-11; it was estimated that Hum-169 was first occupied about 1620 A.D. Aside from the deeper component at DNo-11 (a flint-chipping workshop area), at all four sites there was evidence of a developed marine adaptation, and there were sufficient artifactual similarities within each site and among all four that no great degree of cultural change or population shift was indicated. To be weighed against this apparent lack of change were linguistic studies suggesting recent population shifts (see Chapter III). Furthermore, as Moratto pointed out (1973:64), the existence of radiocarbon evidence for the presence of humans in the upper Klamath River drainage more than 5000 years ago raised questions about the absence of indications of similar antiquity in known sites in the coastal region.

An account of archaeological work in northwestern California since 1973, especially in areas near Redwood National Park, is to be found in Appendices 1, 2 and 3, authored by archaeologists who have recently been active in the area. They summarize current work and consider its implications for future research.

Recent archaeology in northwestern California has consisted primarily of surveys conducted prior to various land-altering actions in response to legislation for environmental protection and historic preservation. One result of these surveys has been the discovery that a large number of previously recorded sites no longer exist, having

been destroyed in the course of increasing urbanization along the coast (Fredrickson in this report, Appendix 1:150). Some new sites have been recorded as well, notably in previously unsurveyed inland areas, but many of these also show damage from activities such as logging, farming, and roadbuilding. In the context of this ongoing destruction known to be affecting recorded sites in northwestern California and surely affecting sites still unrecorded, the archaeological resources of Redwood National Park have added value as protected sources of information regarding the prehistory and history of the region.

Archaeological Models for Northern California

Recent work includes two surveys (Roberts 1975; Flynn and Roop 1976) near Park lands, in the upper Redwood Creek drainage, part of historic Chilula territory. In both cases, sites were discovered in the uplands, away from the creeks. Based on these finds, it was predicted that upland sites would be found on Park lands within the Redwood Creek drainage (Flynn and Hampson in this report, Appendices 2 and 3), a prediction borne out by the results of survey in 1978 (see Chapter VI). Study of artifacts from surface collections and excavations at two sites in the upper Redwood Creek drainage, Hum-245 and -246, has produced differing interpretations of the age and function of these sites and has contributed to ongoing discussion of the nature of prehistoric occupation and use of high altitude lands in the North Coast Ranges of California (King 1973, 1974; Flynn and Roop 1975; Flynn in this report, Appendix 2; Fredrickson in this report, Appendix 1; Jackson 1976, 1977).

This discussion is one aspect of a current effort to direct and interpret the results of archaeological research in northern California toward the formulation and testing of models of prehistoric settlement patterns, models which predict archaeological site types and locations. Jackson (1976) has offered the most explicit model, based on the results of archaeological survey in the Middle Eel Planning Unit of the Mendocino National Forest. Evaluation of survey results in Hoopa Valley and the upper Redwood Creek watershed shows site distribution in these areas of northwestern California to be consistent with the predictions of Jackson's model for the Middle Eel Planning Unit (Fredrickson in this report, Appendix 1: 151 ; Flynn in this report, Appendix 2, Tables II, III). Jackson presents his model by defining site types, and then relating the occurrence of each type to attributes of topography, vegetation, and water resources. Of interest here are four site types defined by Jackson (1976:149-150):

> Seasonal Occupation Sites: This variety of occupation site is located within the summer range, that is, at elevations above 3500 feet. These are the "base camps" for the population as it occupies the summer range and are the locus for a great variety of economic and social activities.

Principal Occupation Sites: This site type is the "winter village," or main village, within the winter range (below 3500 feet in elevation). These sites are those which are most likely to be named or recognized with the name of the tribelet or village community.

Temporary Seasonal Camps: Such sites are represented at both the summer and winter level exploitative areas. While temporary in nature like the procurement sites, these sites are not necessarily task-specific and exist simply as an expression of the need for the population to gather resources in a diversified and dispersed work effort.

Procurement Sites: These sites are represented by such occurrences as isolate mortars, hopper slabs, metates or caches of milling tools. There may be a very limited flake scatter associated with these tools but, generally, these sites represent a very task-specific orientation. They also include fishing stations and ambush or kill sites.

Jackson's data base allows him to predict the location of seasonal occupation sites with most confidence. These are found "in association with good water supplies (generally large spring systems) and areas of abundant vegetable foods (oak groves and adjacent broad open grassy glades)" (1976:155), on the crests and upper slopes of "trending" and "adjoining" ridges.

> Trending ridges are major ridgelines which extend for considerable distances...These ridges form natural transportation routes and are exceptional routes when they also happen to conform with the general physiographic "grain" of the Coast Ranges...Adjoining ridges are those smaller ridgelines which serve to facilitate travel between areas of economic importance not served by the trending ridges...The distinguishing feature between the trending and the adjoining ridge is principally one of length and that the trending ridges separate major drainages in the region (1976:154-155).

Principal occupation sites "will generally be located on terraces along the river courses and occasionally on the lower slopes of the mountainsides, taking their source of water from annual streams or from large springs" (1976:156-157). Aside from their location at lower elevations, principal occupation sites may be tentatively distinguished from seasonal occupation sites in the course of archaeological survey by the presence of house pits (1976:171).

Jackson makes no specific predictions for temporary seasonal camps, which may occur in both the winter and summer ranges. Procurement sites, likewise, may be found in a variety of settings. They will most often be recorded as isolated finds of vegetal processing tools (groundstone slabs, mortars, pestles) or small scatters of chipping debris or tools presumed to be associated with fishing or hunting activities. They

may sometimes be found close to a seasonal or permanent occupation site or nearby a temporary seasonal camp.

Jackson's model does not include the dimension of time; it predicts site occurrence over all prehistoric periods, regardless of any changes in settlement patterns. This reflects Jackson's perceptions of the limitations of his data base and the "state-of-the-art" of archaeological research in the North Coast Ranges (1976:149). Another approach was taken by King, who postulated a change in settlement pattern for the North Coast Ranges from an early prehistoric period when social groups were small and relatively nomadic, to the late prehistoric and protohistoric periods when social groups were larger and more sedentary, with relatively permanent villages in the lowlands "from which small task groups might issue periodically to exploit specific resources," but with "the need for seasonal movement of whole populations" no longer present (King 1973, quoted in Jackson 1976:159-160). "If this were the case, then we might expect archaeological sites representative of early manifestations like the Borax Lake Pattern [see Fredrickson 1973, 1974] in the higher elevations to include assemblages indicative of the activities of a complete social group, while later sites would contain much more limited, specialized tool-kits..." (King 1974, quoted in Jackson 1976:160).

As Jackson points out (1976:161-163) part of King's hypothesis is insupportable because it proposes a late prehistoric subsistence regime which is contradicted by ethnographic information for a number of groups in the North Coast Ranges, including the Chilula. There is abundant evidence for the regular seasonal movement of whole populations from winter range settlements to summer range settlements. Likewise, it is known that so-called "temporary" settlements in the summer range were re-occupied year after year by particular groups, just as "permanent" winter range settlements were. Jackson (1976:163) notes that the distinction between "permanent" and "temporary" in the ethnography refers to the longevity of the house structures, not to the occupation span of settlements. In view of the ethnographic information, then, King's hypothesis would have to be recast for the late prehistoric period. His postulation of small nomadic social groups for an earlier period remains to be tested archaeologically, a difficult proposition until temporal controls and a means of distinguishing small group site usage from large group site usage are available.

Whistler (in this report, p. 25) offers another model, specific to the Redwood National Park area, based on linguistic studies. He postulates an early occupation (not necessarily equivalent to King's early period) by people using the area seasonally, then subsequent arrival (ca. 1000 B.P.) of ancestral Wiyot, bringing or developing a marine orientation. This should be followed (ca. 850 B.P.) by the appearance of the Yurok on the Klamath River, possibly with archaeological indications of Yurok succession to Wiyot sites in the Coast Yurok area. Finally (ca. 650 B.P.), Tolowa occupation in the north and Chilula presence in the Redwood Creek drainage should be seen.

The prospect of testing Whistler's model archaeologically is attractive, but must proceed piecemeal, as data become available. Rather precise temporal control is required, and descriptive analysis must be sufficiently refined to distinguish between occupations of different ethnic groups. New excavation data would seem crucial to this effort, but some collections already in existence can be usefully studied with reference to the model. Material from the stabilization work at Stone Lagoon (Fredrickson in this report, Appendix 1) should be examined for evidence of Whistler's proposed possible Wiyot-to-Yurok succession in the Coast Yurok area. Study of material from sites in the Redwood Creek drainage, including Hum-245 and -246 (Jackson 1977), the Double B Ranch sites (Flynn in this report, Appendix 2), and sites within Park lands may contribute to definition of Chilula and pre-Chilula complexes. Likewise, there is excavated material from DNo-5 (Hampson in this report, Appendix 3), Point St. George, Patrick's Point and Gunther Island which can be examined in an attempt to identify archaeological characteristics which distinguish Tolowa, Yurok, and Wiyot occupations. Surface survey work would seem to have little to contribute to the testing of Whistler's model at present, except to increase the inventory of known sites preparatory to an effort to define time markers and ethnic markers.

For the moment, it appears that Jackson's model is the one most readily tested and refined in its application to different areas within northern California, particularly where work is restricted to surface survey. In one such application, Fredrickson (in this report, Appendix 1:151) presents the combined results of Jackson's findings and his own work in Sonoma and Lake Counties as a sensitivity model predicting relative likelihood of archaeological site discovery with respect to attributes of topography, vegetation and water resources. A similar model was developed by Roop and Flynn (1976; see Flynn in this report, Appendix 2: Table III) for part of the upper Redwood Creek drainage.

Applying Archaeological Models to Redwood National Park

Data from archaeological survey in Redwood National Park do not permit the formulation of a sensitivity model because of bias in coverage. It is possible to delineate some areas of high sensitivity, but there remain large areas of unknown sensitivity, where there has been little or no archaeological survey. In historic Tolowa and Yurok territory within Park lands, survey has been limited almost exclusively to coastal frontage and major rivers and streams as noted in Chapter II. The 1978 survey of traditional Chilula lands within the Park did include inland slopes and ridges away from major streams, but there was still bias in coverage and in the methods used (see pp. 73, 82ff.). Of the sites discovered in this survey, most were located on or near trending or adjoining ridges, in or near prairie areas and oak stands (see pp. 80-101 for detailed presentation of survey results). In other words, sites were found where they were to be expected on the basis of predictions from Jackson's, Fredrickson's and Flynn's models. The survey

findings were thus no great surprise. Their interest lies in the modification of Jackson's model which can be suggested for its application to this particular locale.

The area considered, most of the northern section of historic Chilula territory, extends along Redwood Creek and the adjacent slopes and ridgelines between the mouths of Tom McDonald and Coyote Creeks (see Maps II and IV). Within this area, Goddard recorded five "villages", three "temporary camps" or "summer camps" (see p. 8, 85 and Moratto 1973:19-22). The ethnographic "villages" and "temporary camps" probably correspond to Jackson's archaeological "permanent occupation" and "seasonal occupation" sites, defined above.

The modification to the model comes from consideration of particular site types located. (To follow this discussion, the reader may wish to review Jackson's site type definitions, p. 56-57 and the site typology devised in the course of this study, p. 81-82.) Comparing our provisional site types with Jackson's definitions, there is some correspondence between our "isolated finds" and "flake scatters" and his "procurement" sites; between our "concentration" sites and his "temporary seasonal camps." He seems to offer no equivalent to our "trail use" sites from the Middle Eel Planning Unit data, but his own work on Pine Ridge, an extension of the same trending ridge which comprises the Bald Hills ridgeline, suggests that a similar manifestation of prehistoric use may be seen there, where ground conditions permit (Jackson 1977:3-5). Our "village or seasonal camp" sites share some attributes of both his "permanent occupation" and "seasonal occupation" sites. The issue of whether they represent "permanent" (i.e., winter) occupation or "seasonal" occupation is of interest to the understanding of Chilula settlement and subsistence patterns.

As discussed in the presentation of survey results (pp. 85 ff.), one of the four "village or seasonal camp" sites can be definitely identified as kyingkyohlay', an ethnographic settlement recorded as a "village" by Goddard (his description is quoted above on p. 8). Notable archaeological attributes visible on the surface include midden soil, fire-cracked rock, a varied artifact inventory including both chipped and ground stone, and faint depressions presumed to be remnant housepits (Goddard observed 17 pits at this location in 1906). Three other sites share the same attributes, with the exception of housepits (pits may have been removed by plowing and other surface alteration). All four sites are relatively distant from Redwood Creek (2 km to 3.5 km) and situated at altitudes from 2160 ft. to 2670 ft. The situations of all four of these sites are well described by Jackson's predicted locations for "seasonal occupation" sites (see the quote above, p. 57); in short, they are up near the ridgecrests, not down near the major stream, where "permanent occupation" sites would be expected.

Were these all "villages" in Goddard's terms, or were they "temporary camps," with kyingkyohlay' coming to be used as a village relatively late, as Goddard suggests (see the note under kyingyikya wmingwah in the

quote above, p. 8)? Regardless of presence or absence of permanent housing, which is mainly what the "village"-"camp" distinction refers to (Goddard 1914b:271), the more important question about these sites is the kind of use represented by them. We speculate that each may have been a community settlement used for much of the year as a base from which the resources of the upper (bald) slopes of the Bald Hills were exploited. The usage proposed is the same as that for Jackson's "seasonal occupation" sites, except we speculate that, in contrast to the Yuki, from which Jackson drew his ethnographic analogy and who spent over half the year at winter villages (Jackson 1976:9, 171), the Chilula, at least those in northern Chilula territory, spent more than half the year at summer settlements; in some cases, kyingkyohlay'being one, usage may have been year round.

The contrast with the Yuki, if it holds, simply reflects an altitude difference. Chilula territory was virtually all below 3000 feet in the northern portion, and substantially so in the southern portion; Yuki territory included relatively more high altitude land. The inference is that the winter-summer seasonal distinction was not as important for the Chilula as it was for the Yuki. More pertinent to the Redwood National Park area is the same contrast in settlement pattern (i.e., more time spent in upland sites) which is presumed to have existed between the Chilula and the Yurok, Tolowa, and Hupa, although for a different reason. In this case the contrast lies in the fish resources available to the different groups.

Redwood Creek is smaller than the Smith, Klamath and Trinity Rivers, and it lacked the spring or early summer run of king salmon (Oncorhynchus tschawytscha) which was so important to the subsistence of the Tolowa,Yurok, Karok and Hupa who used those rivers (Swezey and Heizer 1977:9-10 and passim). Presumably, there were fall runs of king and silver salmon (O. kisutch) and a winter steelhead (Salmo gairdnerii) run on Redwood Creek, as there were on the rivers to the north. The ethnographic information depicts the Chilula as lesser fishermen than groups to the north. Goddard (1914b:270) notes that fish weirs on Redwood Creek were "small and insignificant" compared to Hupa weirs on the Trinity (cf. Frontispiece with Wallace 1978:Fig. 2), and that they were used to take eels and trout instead of salmon. Salmon were speared in side streams or netted at the base of falls in Redwood Creek.

Goddard's account suggests that fishing was a "village" activity. Three villages are described with reference to fishing conditions: tlh'o'jimi, where a weir for lamprey eels used to be built; xowana quid near a creek which "would have furnished excellent salmon fishing,"; and nolihding, named for a waterfall where eels and salmon were netted (Goddard 1914b:273). No other "village" subsistence activity is named. Goddard's "temporary camp" descriptions mention hunting and the collection of acorns, seeds and bulbs. Each camp was located "in the neighborhood of some special vegetable food for the gathering of which the camp was maintained" (1914b:271).

These data support the notion that Chilula "villages" were located with regard to fish resources (among other things), and that, except for certain fall and winter periods of the salmon and steelhead runs, location near fish resources was less important than location near other resources. Thus, without the prospect of a spring or summer salmon run like their northern neighbors (and with a need for spring food supplies) and with earlier availability of upland resources than in higher altitude Yuki territory, the Chilula perhaps moved out of their winter settlements earlier than these other groups. The presumption is that they moved to upland settlements like those represented by the four archaeological "village or seasonal camp" sites located in the 1978 survey, and that these were bases for the operations which left the other archaeological traces seen as "concentration," "trail use," and "flake scatter" sites in our terminology, "temporary seasonal camps" and "procurement" sites in Jackson's.

Future Directions for Redwood National Park Archaeology

Obviously there is much presumed in the above discussion, but it does suggest the utility of a model like Jackson's as an initial framework for the analysis of data. One result of the effort to compare our survey results with the model has been the identification of a significant topic for future archaeological research in Redwood National Park, namely, a comparative study of the prehistoric use of uplands in historic Chilula, Yurok and Tolowa territories. The hypothesized contrast in upland use between the Chilula and their northern neighbors can serve as a basic question around which to build a research design. For example, the hypothesis implies that the archaeological record to the north should reflect longer use of coastal and riverside settlements as bases during each year. This might be expected to produce relatively fewer "village or seasonal camp" or "seasonal occupation" sites in the uplands and relatively more "concentration" sites or "temporary seasonal camps" in the Klamath and Smith River drainages when the archaeological settlement patterns are compared with that for the Redwood Creek drainage. Trending and adjoining ridges may be found to be less important location factors in the northern settlement pattern, reflecting the use of the rivers as major transportation routes for much of each year, a use to which Redwood Creek was not suited (Goddard 1914b:270).

While excavation data would have much to contribute to this proposed comparative study of upland use, the topic can be investigated in the course of ongoing inventory survey which is mandated by Executive Order 11593, and it directs attention precisely to those Park lands which have not yet been examined for archaeological resources.

VI. ARCHAEOLOGICAL FIELDWORK IN 1978

A portion of the archaeological fieldwork accomplished in 1978 consisted of very specific tasks: relocation and assessment of the condition of previously identified sites, inspection of certain areas mentioned by Native Americans during consultations, examination of Special Study Sites designated by the planning team, and search for archaeological evidence to supplement written records regarding several historical structures on park lands. For these tasks no theoretical rationale was required. A total of 28 person-days was devoted to this work. Findings are reported in the discussion of fieldwork results later in this chapter.

Survey of New Lands

The major focus of archaeological fieldwork, occupying 80 person-days, was a survey of new lands added to the park by federal legislation in 1978. The purpose of the survey, according to the contract, was to implement National Park Service compliance with Executive Order 11593, the National Environmental Policy Act of 1969, and the National Historic Preservation Act of 1966. The Principal Investigator's understanding of what was meant by this contractual specification is set forth here.

Much of the language of the cited legislation and associated regulations (36 CFR 60, 63, 64, 66, 800) addresses situations where a particular undertaking ("project") is planned which may affect a certain place ("project area"). With regard to Federal preservation responsibilities, these laws require that historic properties within the project area be identified and located, and evaluated for historic significance. Federal agencies must consider the impacts of planned projects on the environment, specifically to include consideration of impacts on historic properties which are in or eligible for the National Register of Historic Places. In cases where action is being considered on specific projects, surveys for compliance with historic preservation legislation are usually designed to cover an entire project area, identifying and evaluating all historic properties within the area, so that project impacts on significant properties may be assessed.

The survey of the new lands was undertaken in different circumstances. With the exception of a few small developments, no specific projects were planned or in progress on park lands at the time the

survey was undertaken; hence there were no particular project areas to be covered, nor specific impacts to be considered. Fieldwork was to be directed at fulfilling the general requirement of Executive Order 11593, that Federal agencies should "initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people," (Sec. 1.2), by proceeding to "locate, inventory, and nominate to the Secretary of the Interior all sites, buildings, districts, and objects under their jurisdiction or control that appear to qualify for listing on the National Register of Historic Places" (Sec. 2,a).

The "policies, plans and programs" to be directed by findings of this particular survey are those to be embodied in the General Management Plan for Redwood National Park. The archaeological survey of new lands, in addition to other elements of the present archaeological project and previous archaeological work, was one of many special studies commissioned to provide background information toward formulation of the General Management Plan. Discussions with the planning team made it clear that general inventory and evaluation information was sought, to permit planners to anticipate impacts of possible actions while alternatives to any possible action were still being considered. Furthermore, sufficient information was to be obtained from the survey to permit the archaeologist to formulate an Archaeological Resources Management Plan, and to comment meaningfully on particular land use alternatives which would eventually be put forward as part of the proposed General Management Plan.

Research Design and Sampling Strategies

To provide the necessary information, a survey was required which would provide good data on where historic resources are to be found on the new lands, and where they do not occur. In addition, areas likely to suffer "managerial effects," the regular results of ongoing maintenance activities (King, Hickman and Berg 1977:58), needed to be represented in the acreage surveyed. Such actions as road and trail maintenance are examples of predictable managerial effects, while others remain unknown in the absence of a General Management Plan. It was necessary to be able to inform planners of the possibility that regular maintenance might adversely affect cultural resources, so that the National Park Service could fulfill its responsibilities as specified in the Archaeological and Historic Preservation Act (P.L. 93-291).

Beyond these legal and managerial concerns for historic preservation, it was important that the survey be guided by a research design which reflected concerns of ongoing archaeology in northern California. These include specific questions about culture history (Elsasser and Heizer 1966) and a broader concern with human demography and ecology in the region (Jackson 1976). These issues are presently being

addressed through formulation of archaeological models of prehistoric human settlement and land use in northern California, and researchers are being asked to address these models in their work (see Chapter V and Appendices 1 and 2). Basic to the formulation and testing of these models are inventory data which can be reduced to statements about kinds of archaeological sites to be found, and where they do and do not occur.

Accordingly, two broad goals were set for the archaeological survey of the newly acquired lands of Redwood National Park: to supply information for the long range planning and management decisions, and to test and refine proposed models for prehistoric occupation of this area of northern California.

These goals would have been most completely met by intensive survey of 100% of the new lands. However, dictates of time and budget permitted that only a portion of the entire area be examined; the contract originally specified that at least 10% of the new lands should be surveyed, according to probability sampling procedures. Thus it was necessary to devise a strategy for selecting a portion of the new lands to be surveyed, that is, a sampling strategy.

The distinction between "research design" and "sampling strategy" should be kept clear. A research design sets forth the questions to be answered through proposed research, the information needed to answer the questions, and the methods to be used to obtain the information. If one of the methods set forth in the research design is to be a survey of a portion of a study area, as in the case of the present survey, part of the methodology of the research design includes the development of a sampling strategy. A sampling strategy sets forth the procedures to be used to select a sample of the total population for study. Consideration of the questions to be answered and information needed, as set forth in the research design, is part of the process by which an appropriate sampling strategy is selected; once selected, the sampling strategy itself becomes part of the overall research design.

The questions to be answered and information desired from this particular survey were briefly discussed above, as the basis for the two goals set for the survey. A consideration of sampling theory, drawn from a review of archaeological sampling practices, may help to explain the way in which the sampling strategies were devised.

> When we know almost nothing about the populations of interest, the most economical strategy may be some form of <u>probing</u>, a sort of preliminary exploration to get some notion of the characteristics of the population. [In the case of this survey, "characteristics" are presence or absence of archaeological evidence of prehistoric and historic cultural resources, and "the population" is the total acreage of new lands.] Probing can...include such things as exploratory surface reconnaissance of a region. Probing may well be a useful strategy in the early stages of research, but the

possibilities of deriving trustworthy generalizations from it are very limited and it needs to be followed by different strategies as research continues...

In contrast to probing are all strategies where the population we wish to study can be fairly well defined, and we already have some information, or at least some good hunches, about its structure and variability. These in turn can be divided into selection and sampling strategies. In all cases, a governing consideration is that we neglect no observations likely to be important. "Importance," of course, must be defined with respect to explicit goals, which do not necessarily have to be scientific...

Sometimes our resources, the nature of the data, and the nature of the critical test implications derived from competing hypotheses are all such that we can define obvious criteria of relevance, and use these criteria as a basis for picking a manageable number of intrinsically important observations. In these cases, there are other observations we might make but do not make because we are satisfied that they are relatively unimportant for our purposes (always with the ethical proviso that we do not destroy data which may be important for other purposes). This strategy I propose to call purposive selection...

There is little question that purposive selection is preferable to sampling whenever selection is feasible, sufficient for one's research objectives, and not wasteful...

In contrast to selection, some form of sampling is preferable in situations (1) where there are more potential observations than our resources permit us to make, or we have reason to think that we do not need to make all possible observations in order to obtain convincing tests of competing hypotheses or acceptable estimates of important parameters, and (2) where there are no indications that tell us which of the possible observations are unimportant or unnecessary. In these cases, we can call the set of all possible relevant observations the population, and the set of observations actually picked the sample.

In the case of selection, in a scientific context, the aim is to select observations sufficient for decisive tests of nomothetic hypotheses--lawlike generalizations of some sort. In the case of sampling, an additional stage intervenes: we attempt to pick observations in a way which enables us to make idiographic, essentially descriptive and phenomenological, inferences about the sampled population which are sufficiently precise, unbiased, and accurate that they can in turn be used for decisive tests of nomothetic hypotheses.

...simple random sampling is only one form of probability sampling. Often specific research goals, prior knowledge or strong hunches about the population, or considerations of data-collecting efficiency will argue for some form of

> cluster sampling, stratified sampling, systematic sampling with random elements, or other variants of probability sampling. Also, research designs that include probability sampling are completely compatible with purposive selection, so long as one keeps good track of when one is selecting and when one is sampling (Cowgill 1975:259-261; emphases in original; statement in brackets added).

As mentioned, the original contract specified that probability sampling procedures were to be used in the survey. Presumably, this specification was intended to remedy the sampling deficiencies of previous archaeological surveys on park lands, which had focused almost exclusively on coastal lands and the margins of inland rivers and streams, a purposive selection strategy based on intuition and ethnographic information about site location (see Moratto 1973).

Stratified random sampling was considered first as a strategy for the present survey. Such a scheme involves subdividing the population universe into separate sections, or strata (these may be arbitrary divisions or may be based on particular attributes such as topography or vegetation); and then investigating a certain proportion of each stratum, randomly selecting the units to be studied within each stratum. To correctly draw a stratified random sample, each potential sample unit must be assigned to one and only one stratum (Mueller 1974:32), for example, units which contain both grassland and forest must be treated as either grassland or forest in a vegetational stratification.

Stratified random sampling ensures that the total sample investigated will include units from diverse strata. This was attractive in the present case because the research design could be best served if a number of environmentally different areas were surveyed. The archaeological models to be tested predicted the locations of different site types with regard to diverse environmental features; for example, one model predicts that seasonal occupation sites will occur along the crests of trending ridges (ridges which separate major drainages) in association with springs and areas of oak woodland and broad open grassy glades (Jackson 1976:155). Ethnographic information suggested that prairie areas on the Bald Hills and certain spots on the lower slopes and terraces near Redwood Creek were locations of traditional village sites (Goddard 1914b; Kroeber 1925). To test the archaeological models and predictions from ethnography, it was important to select a sample which included lands with environmental attributes where sites were predicted to occur, and lands with environmental attributes where sites were not predicted to occur; e.g., slopes as well as ridge crests, areas of conifer forest as well as glades and oak woodland. In addition, to supply information for long range park planning and park management decisions, it was important to sample diverse areas including, for example, areas affected by logging and other recent alterations as well as undisturbed areas.

An attempt was made to stratify the new lands according to a variety of factors, such as slope angle, dominant vegetation, extent of logging, nearness to perennial streams. However, the statistical requirement that each sampling unit be assigned to only one stratum was a stumbling block. It seemed that the chopped up nature of the terrain would have required units so small that much time in the field would have been spent simply in locating sample units, rather than in actual survey. Therefore a stratified random sampling strategy was rejected.

As an alternative to stratification, the need to ensure selection of a sample which would include lands with diverse environmental attributes was met by establishing a grid system of sample units running perpendicular to the major trending ridgeline, Bald Hills. A long and narrow shape for the units was selected, in the hope that elongated quadrats (or foreshortened transects) would combine some advantages of both quadrat and transect (see Judge, Ebert and Hitchcock 1975:91, 93; Plog 1976) while crosscutting various natural and cultural features of the land. The desired area of the sample unit was 240 acres, based on an estimate that 60 acres per person per day is a maximum average rate for mixed strategy survey (where intensity of coverage varies) in mixed forest and grassland environments. (This was a consensual figure reached at an informal meeting of archaeologists with survey experience in northern California.) Two alternate unit sizes were considered, 2500 m. by 400 m., and 2000 m. by 500 m. The former was selected because its greater length cut across more topographic variability and its lesser width seemed more amenable to lengthwise sweeps of four surveyors spaced across a swath of 100 m.

The sampling grid was superimposed on a map of the new lands, and any units more than half inside old lands or more than a tenth inside private land were eliminated from the sampling universe, leaving a total of 161 units. It was decided to select a simple random sample of units to be surveyed. A systematic sampling technique theoretically offers better dispersal of units, but because of the internal heterogeneity of the elongate units, dispersal was not a prime concern. There is no consensus among geographers and archaeologists regarding the most appropriate sampling strategy for inventory survey in an unknown area. For lack of any clear advantage to other schemes once stratified sampling had been rejected, it was decided to follow Plog's tentative suggestion that, "for surveying unknown areas the simplest sampling designs may well be the most practical" (1976:158). Accordingly, units in the sampling universe were numbered consecutively and 20 units (or a total of 4850 acres, slightly more than 10% of the new lands) were selected by use of a table of random numbers.

The resultant sample (see Figure 3) did appear to be representative of the new lands, as a simple random sample is supposed to be (see Cowgill 1975:261 for a discussion of the meaning of "representativeness"). By chance, all units selected for survey fell within the Redwood Creek drainage, none in the small segments of new lands to the

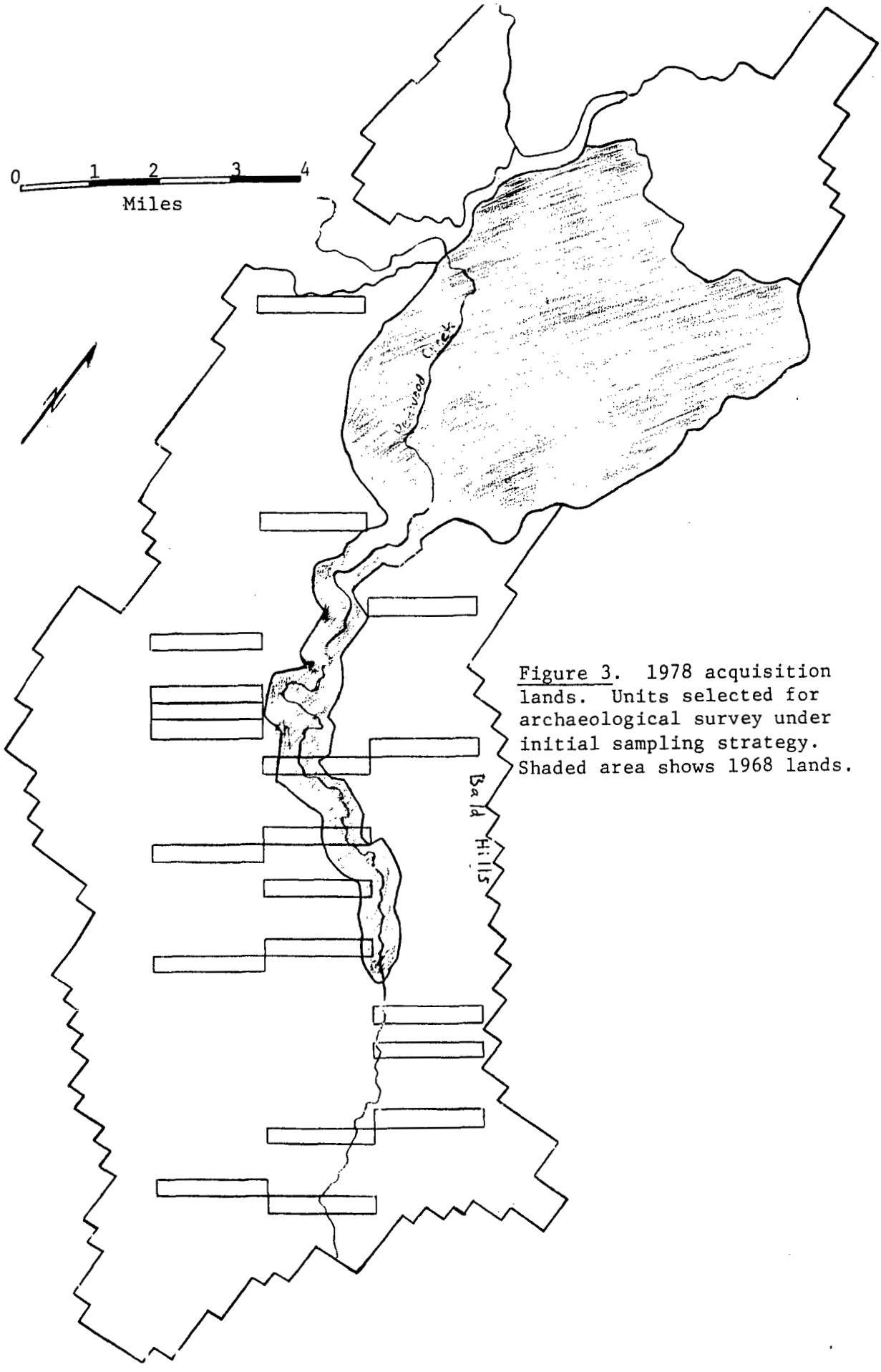

Figure 3. 1978 acquisition lands. Units selected for archaeological survey under initial sampling strategy. Shaded area shows 1968 lands.

north. The survey units were composed mostly of areas of steep slopes (greater than 20°), with both logged and heavily forested areas well represented. Prairie areas, creekside spots, and oak woodland were present in only a fraction of the units to be surveyed. Because of the alignment of the grid, only small sections of Bald Hills ridge and adjoining ridgelines were to be surveyed.

A few days of fieldwork, deliberately conducted in units with diverse topography and vegetation to permit evaluation of the range of field conditions, led to a reassessment of the sampling strategy. We came to question whether survey of an unstratified random sample in these conditions could best meet the goals of the survey. It seemed that purposive selection of areas to be surveyed might be more appropriate than probability sampling in this situation (see the quotation above from Cowgill 1975).

Field conditions on the steep forested or logged slopes which made up the bulk of the simple random sample were such that, if sites were present in these areas, the likelihood of finding them was very low, primarily because there was virtually no ground visibility. Duff build-up and logging debris obscured ground surface in many places. A plan to carry rakes to expose ground surface for observation was abandoned; they would have been useless in the areas of heavy duff or slash cover, and they hampered movement in the dense vegetation. Where ground surface could be seen, it was often altered by active slumping on the slopes (see Nolan, Harden and Colman 1976). This alteration was compounded in logged areas; logged areas of steepness greater than 20° seemed to lack even a few centimeters of undisturbed topsoil among the skid roads, loading decks and logging debris.

Poor visibility slowed the pace of survey in these conditions, as did the difficulty of running compass lines and keeping even spacing between surveyors to maintain locational control in this rugged terrain. Based on the rate of survey accomplished in the first few days of fieldwork, it appeared that a maximum of one quarter of the units in the selected sample could be surveyed in the time allotted, if the original strategy were adhered to.

Given the unexpectedly poor ground visibility and slow pace of survey in the areas which made up the bulk of the unstratified random sample, it seemed unlikely that survey results using this sampling strategy would be adequate to provide necessary information for park planning and management, though they might test some archaeological models for site occurrence. A relatively small area of the new lands would be surveyed, a few sites recorded, and little or no information would be provided for areas both likely to contain observable sites and likely to be impacted by park managerial effects and visitor use.

As an alternative, it appeared that a purposive selection strategy would be more appropriate in this initial inventory phase than the original strategy designed to survey a statistically representative sample of the new lands. In reviewing the goals of the

survey, we concluded that predominantly negative data on archaeological site location would not be of as much use in designing the park management plan as would positive data. It appeared that positive data might be obtained through purposive selection, while our original probability sample would not yield them. We proposed this change and explained the reason for making it to the Contracting Officer, and were given permission to abandon the original sampling strategy and the original contractual constraint to probability sampling procedures.

Accordingly, a new sampling design was formulated, which directed the bulk of survey effort to major ridgelines and adjoining ridgelines, prairie areas and surrounding oak woodland, especially where these topographic and vegetational features combined, as along much of Bald Hills ridge and Schoolhouse Ridge. These were areas chosen for several reasons: greater ground visibility and consequent greater ease of survey and greater likelihood of observing sites than on forested or logged slopes, greater likelihood of impacts from managerial effects, and greater likelihood of occurrence of sites, as discussed below. Some time was still to be devoted to logged and forested areas in various topographic and geographic situations, so that we would gain sufficient familiarity with the variety of environmental settings and ground conditions in the new lands to treat the full range adequately in the Archaeological Resources Management Plan and in evaluations of potential impacts of alternative actions proposed for the General Management Plan.

In effect, the new design was a stratified sampling scheme, where vegetational and topographic attributes were used to define areas as likely or unlikely to contain sites which could be located by our survey methods, likelihood being predicted on the basis of information from archaeological, ethnographic, and oral history sources, combined with our knowledge of field conditions. The design called for complete coverage of "likely" areas and fractional coverage of "unlikely" areas. Ideally, probability sampling should have been used to select the particular "unlikely" areas, but it was impractical to attempt the necessary mechanical operations under field conditions. In the end, the acreage of "unlikely" areas actually surveyed was so small that representativeness would not have been achieved by probability sampling procedures anyway (see Cowgill 1975:263). Instead, selection was based on the desire to sample a variety of settings, including those more and less likely, within the "unlikely" category, to contain observable sites. Potential impacts arising from park management were also a consideration; for example, we surveyed a portion of roadway slated to be upgraded for use in rehabilitation work. Justification for each area selected is provided in the discussion of fieldwork results in a later section.

Survey Methods

Survey efforts were directed at discovering cultural resources in the project area and, at least in a preliminary way, defining and

characterizing them with regard to location and surface evidence. As part of this process, some artifacts were collected, to provide a study collection for characterization of the resources and for comparison with materials from other areas.

Maps. Maps used in fieldwork included the following USGS quadrangles:

Coyote Peak NW Calif. (7.5')
Compiled by photogrammetry from 1975 photography, not field checked; no color or names on map. Purchased 1978.

Coyote Peak SW Calif. (7.5')
Compiled by photogrammetry from 1975 photography, not field checked; no color or names on map. Purchased 1978.

Coyote Peak NW Orthophotoquad
N4107.5-W12352.5/7.5
1975 Advance Print

Coyote Peak SW Orthophotoquad
B4k00-W12352.5/7.5
1975 Advance Print

Coyote Peak, Calif.
N4100-W12345/15
1952

Rodgers Peak, Calif.
N4107.5-W12400/7.5
1966

Tectah Creek, Calif.
N4115-W12345/15
1952

Orick, Calif.
SE/4 Orick 15' Quadrangle
N4115-W12400/7.5
1966

Hiouchi, Calif.
SE/4 Crescent City 15' Quadrangle
N4145-W12400/7.5
1966

Fern Canyon, Calif.
NE/4 Orick 15' Quadrangle
N4122.5-W12400/7.5
1966

Sister Rocks, Calif.
NW/4 Klamath 15' Quadrangle
N4137.5-W12407.5/7.5
1966

Childs Hill, Calif.
NE/4 Klamath 15" Quadrangle
N4137.5-W12400/7.5 1966

Requa, Calif.
SE/4 Klamath 15' Quadrangle
N4130-W12400/7.5
1966

Crescent City, Calif.
SW/4 Crescent City 15' Quadrangle
N4145-W12407.5/7.5
1966

In addition, a set of 1:24000 maps from the Division of Land Acquisition of the National Park Service, mapped by the Denver Service Center, provided park boundary lines and section lines for some areas not gridded on the USGS maps.

Air photos, except for the orthophotoquads listed above, were not used in the field work. Air photos in the park collection were consulted to resolve locational problems in areas not covered by orthophotoquads. As it happened, our time spent in such areas was limited.

For future work, we would recommend the use of up-to-date air photos in the field as supplements to the topographic maps in areas where recent orthophotoquads are unavailable. Furthermore, we suggest that the National Park Service maintain its records of archaeological site locations on air photos as well as on topographic maps. Results of this survey, for example, might easily be recorded on a set of the air photos on file at Redwood National Park, provided that access to the mapped information can be adequately controlled.

Personnel. The field crew consisted of four people: the field director (same as the principal investigator of this project), with a Ph.D. in anthropology, and three advanced graduate students, all working toward the M.A. in anthropology. All four had concentrated in California archaeology in academic training and previous fieldwork. Two of the crew had prior experience in nearby areas of northern California, and also had some expertise and special interest in historical archaeology.

Procedures. Survey was conducted on foot by teams of two, three or four people. Teams walked transects across areas to be surveyed, with average spacing between individuals varying from 5 m. to 30 m. Zigzag paths were followed to provide coverage of intervening ground. Whistles were used to maintain contact and spacing when vegetation, topography or weather conditions separated surveyors. Intensity of coverage varied according to field conditions, especially factors of slope angle and ground cover. Maximum spacing occurred on steep slopes (greater than 20°) and in areas of heavy ground cover (thick duff, dense slash, high close grass). In forested and logged areas, spacing averaged 20 m. In prairie and woodland vegetation, areas with average slope angle of 20° or less and some ground visibility received "intensive" coverage, where maximum distance between surveyors was 10 m. or less. The presumption was that zigzagging surveyors at 10 m. intervals could locate and inspect all areas of open ground between them. In practice, intensity of coverage increased even further as slope angle decreased or ground visibility increased. Always, areas of open ground such as roadbeds or vehicle tracks, animal trails and rodent burrows were carefully examined. Trowels and boot heels were used to periodically expose ground surface where grass or duff cover was dense.

The bias of these methods was clearly against coverage of steep slopes and areas where ground surface was obscured. However, all finds on steep slopes appeared to be related to sites on flatter areas above, probably a result of slumping or erosion. Likewise, finds in dense grass or trowelled duff were all near other more readily observed artifacts. In some cases, flakes on a steep slope were located before a transect crossed the associated site above; in no case did the discovery of artifacts on obscured ground precede a find of associated artifacts on already-exposed ground surface. This suggests that closer spacing on slopes might have located more artifacts (though perhaps no more sites), but closer spacing in heavy ground

cover probably would not have resulted in more finds, unless accompanied by extensive stripping of ground cover. This prediction holds only for inland areas like the new park lands, not for coastal areas, where shell flecks indicating midden may show up in small openings created by a surveyor's trowel or boot.

It should be noted that 1978 was a year of exceptionally high and dense grass growth on the prairies, according to a local rancher. This factor may have resulted in the discovery of fewer sites in the prairie areas than would have been found in a drier year.

Surveyors looked for chipped and ground stone artifacts, lithic debitage (by-product flakes and chunks resulting from human stoneworking activities), manuports (unmodified rocks foreign to the setting in which they are found), variations in soil color and texture, unnatural depressions in ground surface, and unnatural topographic features as indicators of prehistoric sites. In almost every case, a chert flake was the first site indication to be discovered. Such a find was announced vocally, and occasioned intensification of survey in the immediate area, with crew members leaving their transects to join in a search for more evidence. If a search of ten minutes produced fewer than three flakes or other artifacts, the find was treated as an "isolated find." A minimum of three flakes or other artifacts defined a "site," the presumption being that where three flakes were observable, there were others obscured by ground conditions. Once a site was recognized as such, a standard site form was filled out by one or two crew members, while others present assisted by determining apparent site boundaries, collecting soil samples,and performing other necessary tasks. Isolated finds were recorded on site forms of nearby sites, if any were known; otherwise, they were written up separately on standard site forms.

Historic cultural remains were also sought, although they were not recorded formally unless they appeared to be possibly older than fifty years. In effect, this was a preliminary screening for significance, as that quality is measured by National Register criteria (36 CFR 60.6). The crew relied on a general background knowledge of the history of the area (see Chapter IV), previous survey and research experience with historical remains in northern California, plus information derived from interviews with local residents and from consultations with National Park Service historians to make these preliminary judgements. Historic structures and remains located in the course of survey were brought to the attention of the architectural historian working with the Redwood National Park planning team. She was able to visit three of the four historic features recorded during our survey of new lands. In turn, we conducted some archaeological work at her request elsewhere; this is discussed with fieldwork results, in a later section. It was understood that final evaluations of non-Indian historic resources and any resultant nominations to the National Register were not the responsibility of the Archaeological Project, but were to be accomplished by the NPS historians working with the planning team.

Each formally recorded find was given a field number. Numbers were assigned sequentially, prefixed by "RNP" to indicate Redwood National Park and "S," site, "IF," isolated find, or "F," feature (single structures were recorded as features). A total of 36 numbers were assigned during fieldwork conducted in the course of this project; 27 of these applied to finds in the new lands. Field numbers will be replaced by state trinomial numbers, to be assigned by the Sonoma State College Anthropology Laboratory, acting as the Northwest Regional Center on behalf of the State Department of Parks and Recreation.

Collecting. A contractual stipulation limited collecting to that required to evaluate the significance of the archaeological resources located. To evaluate significance, it was necessary to characterize the resources sufficiently to compare them with one another and with archaeological materials from elsewhere in northern California. Comparisons could only be qualitative in this inventory phase. For this reason, controlled surface collecting was not attempted.

Characterizing a site with regard to artifact assemblage was accomplished initially by collection of a sample of artifacts from the surface of the site, representative of the range of types observed; notation regarding distance between artifacts; and, if possible and appropriate, estimation of relative frequency of different types. As the survey progressed, an informal site typology emerged; collections were no longer needed, as later finds could be characterized by reference to earlier ones. Consequently, collections from most sites located in the later part of the survey were confined to artifacts of types deemed useful for comparisons with sites outside the project area, particularly projectile points and other chipped stone forms which showed bifacial working or secondary retouch.

In a few instances, more extensive collections were made, to protect endangered resources. The bulk of the project collection came from a large midden site (RNP-S-4) where piles of collectors' rejects were an open invitation to further disturbance of the site. The artifacts recovered from this site provide a great quantity of chipped stone forms and a wider range of core tools and ground stone artifacts than surface collecting produced from other sites. This is not surprising, given the extra time and the subsurface exploration which contributed to the collectors' efforts. It would be of interest to know what forms are unrepresented because they were removed by the earlier collectors. Figures 4-6 illustrate some collected specimens.

Fieldwork Results

Fieldwork by the Redwood National Park Archaeological Project was conducted in two phases. One focused primarily on relocation and assessment of the condition of known sites within park lands; in addition, it accomplished preliminary inspection of 13 Special Study Sites designated by planners, areas which might figure in alternative

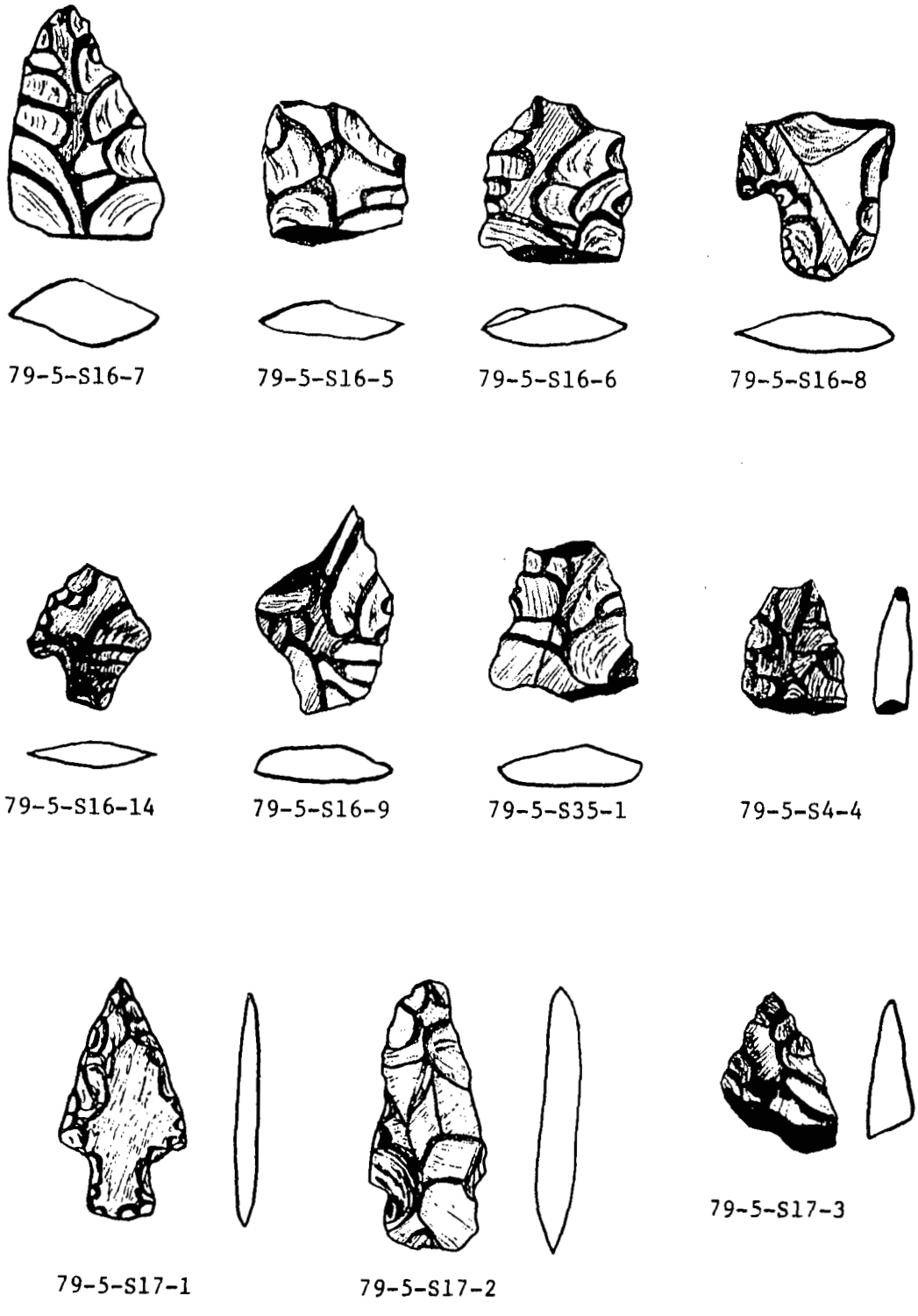

Figure 4. Chert projectile points and point fragments from sites in Redwood National Park. Actual size.

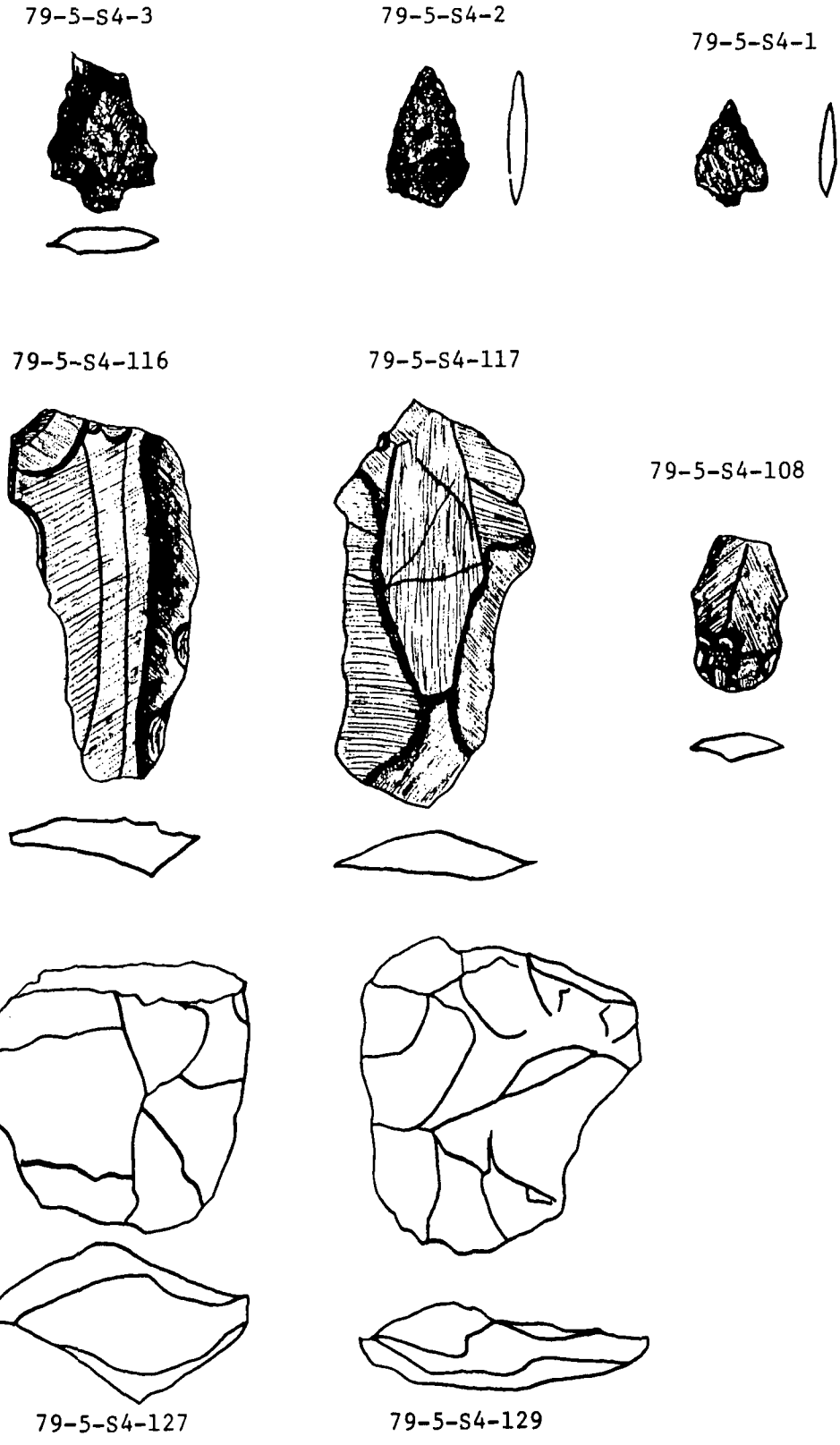

Figure 5. Obsidian projectile points (top row) and chert artifacts from site RNP-S-4. Actual size.

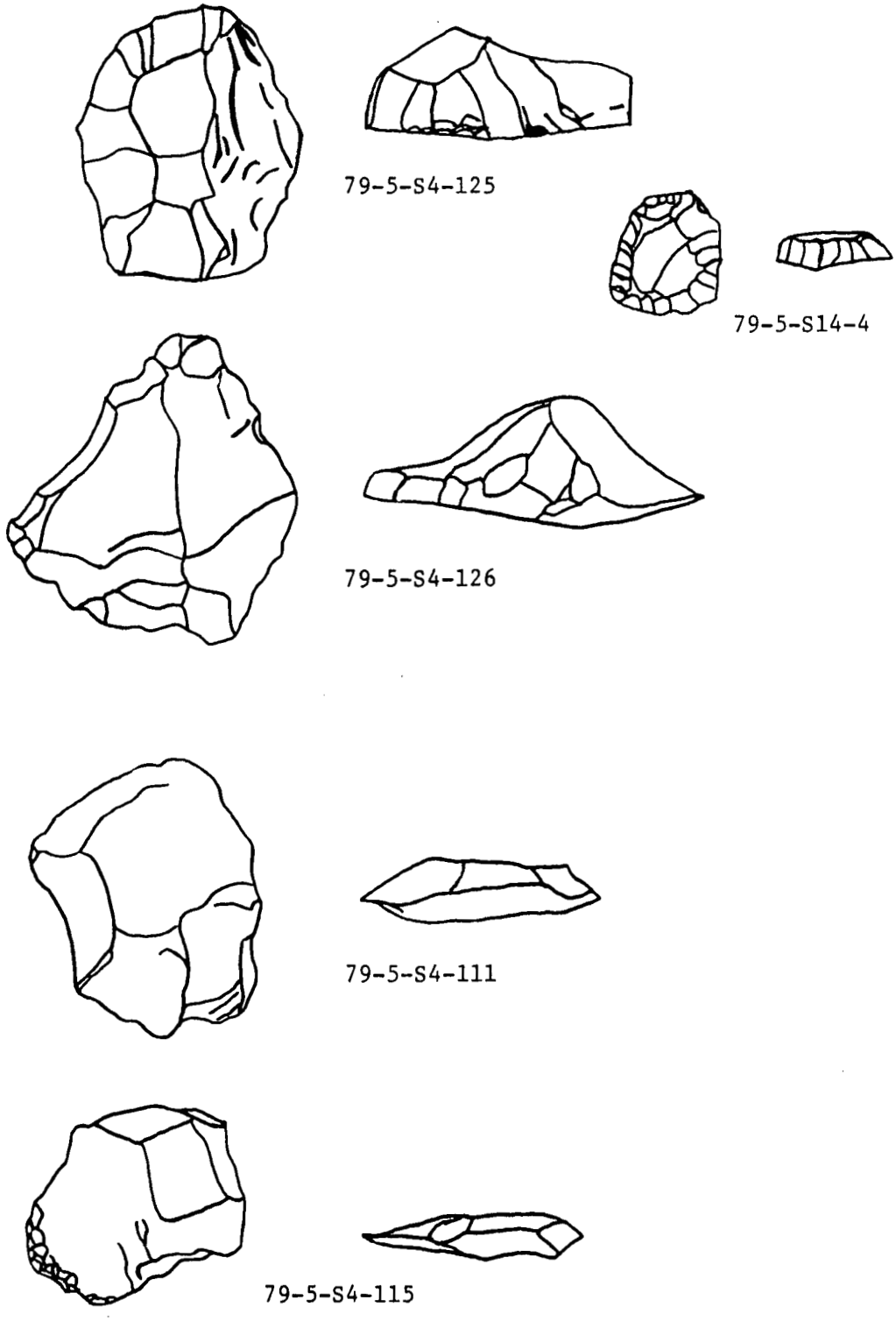

Figure 6. Chert artifacts ("scrapers") from sites in Redwood National Park. Actual size.

proposals for action in the General Management Plan. This fieldwork was conducted in October 1977 and April of 1978. The second phase of fieldwork, conducted in August and September of 1978, focused on the inventory survey of new lands discussed in previous sections of this chapter. In addition, pursuant to Change Order Number 2 to the project contract, it accomplished inspection of certain culturally sensitive areas within State Park lands as indicated by Native American consultants, and it included search for archaeological evidence to supplement written records regarding several historical localities under study by the NPS historian working with the planning team. An Emergency Stabilization Plan, based on results of both phases of fieldwork, was submitted in September of 1978; it is reproduced here as Appendix 6. Fieldwork results are presented here in a summary listing designed to provide an inventory of known cultural resources within Redwood National Park, with an evaluation of their significance. Comments regarding significance are also included on site inventory records (Appendix 8) and detailed statements of significance are provided on draft nomination forms for sites evaluated as potentially eligible for the National Register of Historic Places (Appendix 7).

Evaluations of significance were based primarily on legal criteria set forth for determining eligibility of archaeological resources for the National Register (36 CFR 60.6):

> National Register criteria for evaluation. The quality of significance in American history, architecture, archaeology, 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 represent the work of a master, or that possess high artistic values, 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.

Application of these criteria was guided by a memorandum issued by the National Register in 1976, "The National Register and Archaeology, Suggestions to Archaeologists Nominating Properties to the National Register of Historic Places," drawing particularly on the following steps suggested for making statements of significance:

> A. Consider all known and/or expected data categories and cultural features of the property in terms of the information they may yield. Does the site contain many strata that might yield information on cultural change? Does it consist of a single stratum or surface assemblage that might

provide data on activity patterns during a short time span: Does the building contain papers, artifacts, or patterns of material that could yield information on social interaction, use of space, or economic activities? Does the district represent a settlement pattern that could be studied to learn about land use or social organization? Is the object a petroglyph rock that might yield information on concepts of space and symbolism?

B. Consider any research topics that might form a basis for study of the property, including topics currently addressed in the area and topics suggested by one's professional training as future possibilities.

C. Discuss how study of the data categories and features represented by the property may (or may not) contribute to study of the research topics (National Register 1976; cited in King, Hickman and Berg 1977:232-233).

Using these criteria and suggestions as guidelines, the integrity (of location, setting and association, in particular) and research potential of each resource was assessed. Where appropriate, as in the case of Native American village sites containing known burials, the contemporary significance of sites, as well as their historic significance, was considered in the evaluation. Assessments were limited somewhat by the fact that knowledge of most of the resources is confined to surface observations, and by the difficulty of anticipating future directions of research, given the present rather basic level of archaeological knowledge of northern California prehistory. Significance evaluations for the historic resources are not complete; more definitive evaluations are the responsibility of historians working with the planning team.

Fieldwork results are summarized in two separate sections below, one devoted to the results of the 1978 survey of new lands, and one listing sites examined in the course of the various special purpose inspections referred to above. Maps I through IV and site inventory records (Appendix 8) should be referred to if more specific locational and descriptive information is desired. Recommended protection and preservation measures for these cultural resources are presented in the Archaeological Resources Management Plan, Chapter VII of this report.

Results of 1978 Survey of New Lands

The inventory survey of new lands resulted in the examination of 2050 acres. Except for a short stretch of ridgeline west of Surpur Creek where the new park boundary runs northwest of Holter Ridge, all surveyed land fell within the Redwood Creek drainage (see Maps II and IV). A total of 27 sites, features and isolated finds were separately recorded in the field. Subsequent analysis resulted in consolidation of five sites into one, leaving a total of 23 resources; of these, two have been previously assigned state numbers. Two additional locations

which had been previously assigned state numbers were surveyed, but no cultural remains were observed.

Recorded historic resources, all classified as features, include a standing barn, a fallen barn, a hand-dug well, and a crude lean-to structure in a hollow redwood tree.

The prehistoric resources are not all amenable to site type classification, but two site types and an intermediate category were constructed: village sites, trail use sites, and "concentrations." Several unclassifiable resources remain uninformatively labelled as flake scatters or isolated finds. In addition, one feature, a roughly built rock ring lacking associated artifacts, was identifiable as an ethnographically recorded dancing place for shaman candidates.

Four sites appear to be intensively used villages or seasonal camps; one of these is identified with certainty as a village site recorded by Goddard in 1906. These sites are characterized by midden soil and a great variety of stone artifacts, including pecked and ground stone as well as chipped stone; fire-cracked rock is also present. Artifacts here are densely concentrated (within centimeters of one another), and site soil contains tiny flakes of stone and bits of bone. Bifacially worked stone artifacts are more frequent on these sites than on sites of other types. Nine shallow depressions, possibly housepits, were observed on one of these sites. All four sites lie within 200 m. of the crest of a prominent ridge. Two are located along Bald Hills ridge, the major trending ridgeline separating the Klamath River and Redwood Creek drainages. Two are located along Schoolhouse Peak, connecting Bald Hills ridge to Redwood Creek.

Two sites, one a consolidation of five loci recorded separately in the field, appear to be trail use sites. They are elongate narrow flake scatters which follow the two ridgelines just mentioned. Distance between artifacts averages between 2 m. and 10 m. occasionally ranging to 30 m. or more. Debitage flakes predominate; there are also occasional utilized flakes, some retouched unifacially, and rare bifacially worked pieces. While Goddard did not record specific trail routes, his work indicates that there were regular trails in the Chilula area, as elsewhere in northern California (1914b:278; 1913). We believe that these sites indicate such trails.

Four sites, loosely termed "concentrations," fall into an intermediate category between the village or camp sites and trail use sites. Like the sites just described, they are on or very near the crests of prominent ridges; two lie within the boundaries of a trail use site. They lack midden and fire-cracked rock, but show a greater density and variety of lithic remains than is found on the trail use sites, including ground stone at two of the four concentrations. The surface of the ground is visible over much of the area of all four sites, due to past grading. It is possible that the apparent differences of these sites from trail use sites are only due to more extensive ground

exposure, which makes it possible to observe more of the remains; however, there are graded areas on parts of the trail use sites which do not show such concentrated and varied assemblages. The possibility that these concentrations reflect some different use cannot be dismissed without further investigation.

Eight prehistoric resource sites which were located in the new lands inventory cannot be categorized as either village or camp, concentration, or trail use site on present evidence. All are small flake scatters, three classified as isolated finds because fewer than three flakes were observed at a given locale. Four flakes were observed at the location previously recorded as Hum-234, purported to be the village site nolihding recorded by Goddard (1914b:273). The lack of midden and other artifactual remains at this location contrasts markedly with the characteristics of the four presumed village or camp sites discussed above, raising doubts about the identification of the place as nolihding.

Two places previously recorded as Hum-348 and Hum-349, purported to be the village sites of xowana qid and tlh'o'jimi', respectably, were surveyed with negative findings. The state numbers were assigned to locales which appeared to correspond to places described by Goddard (1914b:272-273), but the presence of sites at these locales has not been confirmed by archaeological evidence. As discussed below, many of Goddard's locations are ambiguous, because of the poor quality, small scale map with which he worked.

Distribution of Prehistoric Sites and Negative Findings. Two small flake scatters and one isolated find were recorded on the west side of Redwood Creek. The other finds of this survey were all on the east side of the creek. Of these, one flake scatter and one isolated find were on the lower slopes near the creek, while all others were on or near the crest of the major trending ridge, Bald Hills, or along Schoolhouse Ridge, a prominent adjoining ridge descending to Redwood Creek. Three finds were in the logged remains of a redwood forest area, two were under trees within fifty meters of a prairie, and the remainder were on open prairie, some extending into adjacent woodland.

The distribution of resources located reflects the bias of the sample toward major ridgelines and prairie areas. However, this does not necessarily mean that more extensive examination of other areas would have located more resources elsewhere. It is worth reviewing the conditions of localities which were surveyed but where remains were not located. These include areas of logged and unlogged forest in several different topographic settings, and areas of prairie and oak woodland on the slopes below major ridges.

Survey in unlogged forest was undertaken in portions of the Weir Creek drainage and along a ridge separating Bridge and Redwood Creeks (see Map IV). The Weir Creek transect included a possible location of xowana qid (Goddard 1914b:272-273), and the ridge was considered likely

to contain sites because of finds on other ridges. The negative findings may reflect survey conditions rather than absence of resources. Movement through the forest is slow, particularly on slopes, and ground surface cannot be observed without extensive clearing. Although composition of the forest differs somewhat on the two sides of Redwood Creek, most notably in a relative abundance of Lithocarpus densiflora on the west side, conditions for survey seemed equally difficult. Based on our experience, survey in unlogged forest should probably be confined to situations of impact assessment for planned projects. While predictive surveys are desireable for long range planning and for regional archaeological studies, they will be very expensive and extremely time-consuming in this setting, if done with sufficient intensity to be meaningful.

A number of logged forest areas, including ridgetop areas above Surpur, Bond, Tom McDonald and Tom Creeks, steep slopes in the Weir Creek drainage, and the mouth of Tom McDonald Creek, were surveyed with negative findings. However, flake scatters were discovered in logged areas on Rodgers Peak and Bald Hills. Our experience suggests that logged areas can be usefully included in predictive surveys where ground surface has not been severely modified by logging procedures (as on slopes less than 20° in the Redwood Creek area), or where regrowth has not yet advanced to the stage where ground conditions are like those of unlogged forest. We found that regrowth was too great along Tom McDonald Creek to justify our planned search for evidence of a traditional trail in the area, and logging around Weir Creek was so destructive to ground surface that our negative results may simply be a factor of ground conditions. In contrast, most of the ridges surveyed offered some ground visibility, and ground alteration was only moderate. In particular, we found that the bulldozed trails above Tom McDonald and Tom Creeks could be usefully surveyed. These trails are slated to be improved for road use in rehabilitation work, and we have recommended that intensive survey precede the improvements along the route, since improvements are likely to impact resources which may be visible along the trails at present.

Much of the acreage surveyed consisted of slopes below Bald Hills Ridge with prairie and oak woodland vegetation; an effort was made to include all creekside prairies and other small pockets of prairie vegetation visible on the orthophotoquad as well. Finds below the ridgecrest were limited to two sites and four isolated finds within 500 m. of ridgetop, and one site and an isolated find within 500 m. of Redwood Creek. Several factors probably contribute to the apparent absence of sites on the slopes. One is the slope angle, often 20° or greater, sufficiently steep so that most of the slopes were probably not used for occupation or as regular work or rest spots. If sites did exist on these slopes, erosion over time would undoubtedly have impacted them severely. One lithic scatter was found on a 25° slope, but the flakes may have been washed to their present location; all other finds in the entire survey area were on flats or slopes of less than 20°. Grass cover was often dense and high on the slopes, and less frequently

interrupted by roads and trails than on the ridgecrest; visibility was therefore more limited.

Most of the unforested slopes are compound earthflow areas, where soil and rock move downslope by a combination of slumping, sliding and flowing, at rates varying from less than a few feet to several tens of feet per year. The more active areas "display prominent hummocky and lobate microtopography, unvegetated or partially vegetated scarps, open tension cracks, ponded drainage, closed depressions, and disrupted surface vegetation" (Nolan, Harden and Colman 1976). The processes which produce these surficial characteristics of earthflows may also destroy or obscure cultural resources on ground surface. On some of the creekside prairies where the flows have been recently active, survey seemed pointless because the only exposed earth was gravelly subsoil revealed on the faces of newly formed scarps and in tension cracks. Buried sites might have been revealed by relatively minor erosion, but such major erosion seemed more likely to have destroyed sites. Yet it was adjacent to such areas that the lower slope resources were found in the course of survey. The implication here is that these prairies may have been culturally utilized in the past, but that traces of such use are not likely to be found.

In spite of the conditions which impede survey on the slopes, our results have shown that some archaeological resources are present on them, hard to find and ill-defined, but important to our understanding of prehistoric land use of the area. Predictive surveys should continue to include the prairie and oak-covered slopes, with focus on areas of lesser slope angle than 20° where severe earthflow alteration is not evident. Some method of clearing grass must be developed for adequate survey on these slopes. If fire is considered by the park as a tool for prairie management, controlled survey in an area should take place before and after a trial burn, to determine whether burning might increase ground visibility and the number of survey finds; possible impacts of fire fighting machinery would need to be considered in this case, as well.

It is questionable whether continued survey along lower slopes and adjacent to Redwood Creek will result in the discovery of village areas recorded by Goddard in 1906. Several probable village locations were visited in the course of this inventory survey, and in each case ground conditions reflected such alteration (i.e., severe erosion) that it seemed unlikely that evidence would have remained visible. Some of these changes can perhaps be blamed on effects of recent logging in the Redwood Creek drainage, but the geology shows a longer history of slope instability (Nolan, Harden and Colman 1976), and some of Goddard's remarks in his descriptions of site locations suggest that changes were well underway in the early 1900s.

Ethnographic Site Locations. The locations recorded by Goddard in 1906 and 1907 are the only available link between present remains and an operating settlement system of the past (though it had not

operated for half a century before Goddard made his notes), so it is tempting to try to fit some of the sites located during the present survey into his record. Of interest to this study are Goddard's locations of the villages xowana qid, nolihding, tlh'o'jimi', kyingkyohlay', and kyingyikya wmingwah; temporary camps yitsi'ne q'idch'ing', tlh'o'dzoda wilindin, and tse na lma ts'ding; an unnamed dancing place, and a fortification (Goddard 1914b:272-274, 277-278, Plate 38; spellings are nontechnical equivalents of Golla's transcriptions of Goddard's names, as published in Wallace 1978).

The limitations of Goddard's locational work need to be understood. He lacked a topographic map, and so could not accurately locate himself in the field. He probably used Lentell's 1901 map of Humboldt County, at a scale of four miles to the inch (compare his Plate 38 with the Frontispiece in Lewis 1943). His published map is at a still smaller scale, about eight miles to the inch. His locations cannot be pinpointed on a modern map, nor could they have been precisely plotted on the map with which he worked, given these limitations, especially for those sites Goddard did not visit. Of the sites listed above, Goddard actually visited only the first four villages, the dancing place, and the fortification. His verbal section locations must be used with care even as approximations because section lines on today's maps reflect changes of as much as half a mile when compared with the 1901 map.

Goddard's textual descriptions eliminate uncertainty in some cases, as when they refer to landmarks which can be located today. The village kyingkyohlay' and the dancing place are located with respect to Jonathon Lyons' ranch; this ranch location can be identified with the help of an old topographic map (USGS Coyote Peak 15' Quadrangle, 1945). Goddard also published a photograph showing the locations of kyingkyohlay' and the dancing place, and left another view on file; these two spots can be positively identified on the ground as a result.

Goddard's other sites are more ambiguously described in the text. The one most closely matched by a site found in this survey is tse na lma ts'ding, said to be in "a glade on the south side of the main ridge east of Kinkyolai" (Goddard 1914b:277). RNP-S-22 fits the map location and this description, although it is essentially on the ridge crest, which Goddard's words do not suggest. The name tse na lma ts'ding is translated by Goddard as "stone round place" (1914b:282), and by Golla as "stones in a circle-place" (Wallace 1978:170). This is interesting because RNP-S-22 lies less than 1000 m. from the dancing place, a rock ring feature.

nolihding is reported to lie at the foot of a long glade, about half a mile above Redwood Creek. The base of Counts Hill Prairie best fits this specification, although Dolason Hill Prairie is also a possibility. Since several other sites (tlh'o'jimi' and a nearby fortification, tlh'o'dzoda wilindin, yitsi'ne q'idch'ing) are located with reference to nolihding, their locations are also uncertain. The

location of tlh'o'dzoda wilindin, said to be "about a mile and a half east of Noledin and a half mile west of the crest of the ridge" (Goddard 1914b:277), can be plausibly identified with three different sites recorded in this survey, depending upon where one assumes nolihding was located, just what is meant by "the crest of the ridge", and how long the estimated distances really are. xowana qid is located with reference to the historic Trinidad Trail, but not with enough precision to pinpoint the site. So we cannot positively identify any of these sites as among those located in our survey.

While Goddard's work is helpful for general predictions about site locations, the unavoidable ambiguity and imprecision of his record must be recognized. It is more appropriately used in interpreting survey results than in determining specific places to be surveyed. It should be noted that this survey has located a number of sites which have no place in Goddard's list. Some may be temporary camps, to be added to his admittedly incomplete list (1914b:276). Others, such as the trail use scatters, are site types which he did not attempt to record. Some may be villages which had been so long abandoned that they were not known to his informants, or they may have been used by Yurok groups, rather than Chilula. It is clear that there is a role for archaeological investigation in filling out the sparse ethnographic record which Goddard was able to obtain.

Bald Hills Archaeological District. The significance of the archaeological resources located in the course of this survey varies when each is considered individually. It can be argued that a number of them should be considered as a unit. Grouped as components of a proposed Bald Hills Archaeological District, the sites located along Bald Hills Ridge, Schoolhouse Ridge, and on the slopes descending from these ridges to Redwood Creek comprise a unit which is valuable as a source of information about the prehistory of the area.

A variety of data are contained within this proposed district. It includes several apparently distinct site types, presumably functionally different. Some of the sites are sufficiently intact so that comparisons of artifacts assemblages can be made between sites; others, though more disturbed or less well-defined, have sufficient locational integrity so that their placement with regard to other sites and environmental features can be studied. The sites with midden probably contain dietary information and are potential sources of indicators of seasonality of occupation. The apparent depth of midden in several sites promises a diachronic record of cultural stability or change. Location of at least one of the sites suggests possible Yurok usage, hence ethnic markers of some sort may be discerned in comparisons of artifact attributes within the district. Obsidian, a traceable trade item, is present in a number of the sites of the district.

These data may be brought to bear on a number of research topics; some are alluded to in the above listing, and a few will be mentioned here. At present, delineation of settlement pattern is a prime concern

in the archaeology of northern California as a whole, and the regional chronology is still known only in outline; in the subarea of the new park lands, the most basic chronological information is lacking. Investigation of the several site types evidently present in the district and of their interrelationships will provide settlement pattern data and should contribute to the formulation of a local chronology. In the process, current questions regarding the nature of occupation indicated by archaeological remains in higher elevations (see Jackson 1976:159ff.) may be addressed by examining the fit of existing models to this area. For example, we may learn whether the distinctions made between "seasonal" and "permanent" occupation sites in current models are valid in the Bald Hills District. It will be of interest to see how the provisional site types constructed as a result of this survey fit into such categories, and into Goddard's distinction between village and temporary camp.

As proposed, the Bald Hills Archaeological District includes all 16 of the prehistoric sites, features and isolated finds which were located on the east side of Redwood Creek in the course of this survey.

Site Descriptions. Descriptions of the 16 prehistoric sites of the proposed Bald Hills Archaeological District are presented first, ordered by type: village or camp site, dancing place, trail use site, concentration, flake scatter, isolated find. The remaining prehistoric resources follow. The historic features are described last.

RNP-S-4. A large midden site situated on a flat shelf below the crest of Bald Hills ridge, on the edge of open prairie. Collectors' piles of artifacts, a probable looter's pit, a lean-to structure and associated latrine, and an unimproved road have all affected parts of the site; local consultants reported some bulldozer work as well. The site is extensive, however, and appears to contain undisturbed portions.

The presence of midden and its apparent depth (shown in the looter's pit) suggest long term or regularly repeated occupation; investigation might clarify whether this should be considered a permanent or seasonal occupation site, or whether the application of such categories is useful at all. The location fits none of Goddard's recorded villages, but might be the temporary camp tlh'o'dzoda wilindin (1914b:277).

RNP-S-17. A midden site on a 10° slope along a prominent ridgeline connecting Bald Hills with Redwood Creek, situated in open prairie and oak woodland. This is the village kyingkyohlay' (Kinkyolai) recorded by Goddard, identified on the basis of his description in the text and a published photograph (1914b:273-273; Pl. 39, Fig. 1), as well as a previously unpublished photograph very similar to one taken from the site in 1978 (see Plate 1). Goddard observed 17 housepits and a sweathouse site in 1906; two obvious shallow pits and seven more vague depressions could be seen in 1978. Site surface may have been plowed, but other damage appears minimal.

RNP-S-31. A midden site on a flat just below the crest of a prominent ridgeline connecting Bald Hills with Redwood Creek. The site lies in a old orchard and has been plowed. A rock feature is observable in one area, indicated by a concentration of ground stone fragments, fire-cracked rock and angular fieldstone. RNP-S-31 lies along the same ridge as kyingkyohlay' (RNP-S-17), about 500 ft. lower in altitude and 1.5 km. distant, midway between that site and Redwood Creek. It seems unlikely that two villages in such proximity were simultaneously occupied. RNP-S-31 may be the village kyingyikya wmingwah (Kinyukkyomuna) recorded but not visited by Goddard; he was told that "this was the village where the people who lived at Kinkyolai spent the colder months of the winter" (1914b:274). Goddard suggested that kyingkyohlay' was originally a summer camping place of kyingyikya wmingwah residents, eventually occupied more permanently. This suggestion and alternative hypotheses could be tested in joint investigations of the two sites, which would contribute to settlement pattern studies, probably adding a temporal dimension. As an aside, we speculate that Goddard was not taken to visit this site because it was a place from which the Indian residents had been driven when a non-Indian rancher decided to settle on the spot. Goddard notes that a village site further upstream where many Indians had been killed by Whites was not mentioned to him by some informants (1914b:276);perhaps a similar circumstance obtained here.

RNP-S-32. A midden site on a knoll along the crest of Bald Hills ridge, where it is joined by a ridgeline leading down to the Klamath River. Midden and artifacts presently extend across an open graded knoll top and down fir-covered adjacent slopes; presumably the knoll top was also unforested prehistorically. Grading has dislocated the upper 20 cm. of portions of the site, and structures on or very near the site can be seen on the 1952 USGS Coyote Peak quadrangle. In spite of these disturbances, the site can potentially provide information to prehistory. Its location on the divide between Redwood Creek and Klamath River drainages makes Yurok and Chilula affinities equally likely; the artifact assemblage may contain some elements which can be interpreted as ethnic markers. RNP-S-32 is only 1000 m distant from midden site RNP-S-4. As with RNP-S-17 and -31, the relationship between these two sites merits investigation, and results should be pertinent to settlement pattern studies and perhaps to a regional chronology as well.

RNP-F-20. A ring of rocks piled two to three rocks high atop a bedrock outcropping on the crest of a prominent ridge which overlooks Bald Hills ridge at this point. The feature is the dancing place for shaman candidates recorded by Goddard, securely identified on the basis of his textual description and published photographs (1914b:278, Pl. 39, Figs. 1 and 2), as well as a previously unpublished 1906 view of the location from a distance (see Plate 1A). Its integrity as a place of Native American worship may now be lacking, but the feature itself is essentially intact. As a place associated with a religious activity integral to the Chilula lifeway, study of the feature in the context

of the proposed Bald Hills Archaeological District can contribute to a multifaceted documentation of the cultural pattern of the people who occupied the district prehistorically. In a wider context, the feature can be compared to other sacred spots in northwestern California which were used for shaman training by different ethnic groups. The comparison may be helpful in the context of current discussions regarding the degree of protection required for such places (see, e.g., USDA 1977: Appendices K-T; Bright 1977; Chartkoff and Chartkoff 1977). Such comparison may also be relevant to considerations of the nature and extent of cultural interchange among different ethnic groups within the region.

RNP-S-35. A trail use site, consisting of a series of flake scatters extending intermittently along more than six kilometers of the crest of Bald Hills ridge. The activities represented by the lithic remains need to be investigated. The site was originally recorded as a number of separate flake scatters (shown as gray, shaded areas on Map III), and consolidated into one site in our records when their continuity became apparent. Two areas within the site boundaries are treated separately as concentration sites because they contain greater variety and density of lithic artifacts than the rest of the site. The site presumably continues along the ridgeline beyond the limits of the area surveyed. We were told by a local rancher that flakes can be observed virtually the length of the Bald Hills, and that the scatter continues along the same ridge system all the way to Lake County.

RNP-S-18. A trail use site, comprised of an uninterrupted scatter of flakes along the crest of a prominent ridge connecting Bald Hills with Redwood Creek. One village site lies within the trail site boundaries and another is a few hundred meters away from the trail use site. Because the entire length of the ridgeline was not surveyed, it is unknown whether the scatter extends all the way to the creek.

RNP-S-7. A concentration of lithic artifacts within trail use site RNP-S-35, on a flat at the foot of a knoll along the ridgecrest, in prairie grasses. A variety of flakes and flake tools and numerous sandstone manuports were observed at distances ranging from 50 cm. to 5 m. apart. This may be Goddard's tlh'o'dzoda wilindin (Lotsxotda-willindin), a temporary camp (1914b:277).

RNP-S-14. The smallest and sparsest of the concentration sites, about 30 m. by 30 m. with distances between flakes and cores ranging from 1 m. to 10 m. The site is on a flat just below the crest of Bald Hills ridge along the prairie margin, amongst grasses and a few firs and oaks. This is another possible location of the temporary camp tlh'o'dzoda wilindin (Goddard 1914b:277). A subsidiary ridge continues down toward Redwood Creek, below the site; a few isolated flakes found along its crests and adjacent slopes may have been washed down from the concentration area. Possibly a trail ran down the ridge; grass cover was greater on the lower portion surveyed, however, and no flakes

were observed. The site may be associated with another concentration (RNP-S-16) less than 500 m. above, on the crest of Bald Hills ridge.

RNP-S-16. A concentration within trail use site RNP-S-35 and above concentration RNP-S-14, along the crest of Bald Hills ridge, in prairie grasses. Abundant flakes and flake tools are visible in two adjacent but discontinuous areas, on an old roadbed and a currently used road. Within these areas, minimum density exceeds one flake per square meter. In the intervening area, a large sandstone grinding slab was found. A number of projectile points and bifacially worked tools were present on this site.

RNP-S-22. A concentration along the crest of Bald Hills ridge, at the base of slopes descending from Schoolhouse Peak, in prairie grasses. The site is notable for the great number of ground stone artifacts observed, including bowl mortar fragments and grinding slabs. Chert flakes and cores were also present; as many as seven flakes per square meter in some spots. Site surface has been considerably disturbed by grading and two buildings formerly stood on parts of it; however, recovery of a varied artifact assemblage still seems possible, and might be useful for descriptive and comparative work aimed at placing this site and others in a functional typology. This may be the temporary camp tse na lma ts'ding (Senalmatsdin) (Goddard 1914b:277). Located within one kilometer of this site are the dancing place, RNP-F-20, and trail use site RNP-S-18; the village site kyingkyohlay', RNP-S-17, is within two kilometers.

RNP-S-21. A scatter of about 25 chert debitage flakes on the grassy spine of a ridge descending into the Klamath River drainage from Schoolhouse Peak. This was the easternmost site recorded on the new lands, and marks the eastward extent of survey in the Bald Hills area.

RNP-S-36 (Hum-234). A flake scatter of three chert flakes found within five meters of one another, and a fourth flake found within 20 m. of the three, all under trees at the margin of a prairie. The finds were on a waterwashed slope, presumably not their original resting place. This site is within the area thought to be the location of nolihding (Noledin), a Chilula village recorded by Goddard (1914b:273). No midden, housepits, manuports, or other artifacts were found during intensive survey in the forest around the observed flakes and in the adjacent prairie. Four flakes are insufficient to indicate a village site (compare, for example, the density and variety of archaeological evidence at RNP-S-17, securely identified as Goddard's kyingkyohlay'). Moratto "positively identified" nolihding on the basis of nearby hollow redwood trees, and considered the archaeological remains to consist of two fallen chimneys and two or three associated housepits, on the presumption that "Noledin was occupied by acculturated Chilula during the historic period" who had adopted non-traditional house forms (1973:96-97). Hollow trees may be found with some frequency in redwood forest, and three housepits (if one accepts the slight depressions seen by

Moratto beside the chimneys as housepits) are insufficient to meet Goddard's record of "this former large village" (emphasis added) and the recollections of a consultant at Hoopa that lots of people used to live at nolihding. We agree with Fredrickson (this paper, Appendix 1) that the circumstantial evidence so far mustered does indicate that nolihding may be in this general vicinity, but the exact location of the village has yet to be documented. Unless more remains can be located, in context, this site by itself cannot provide information useful to prehistory, nor can it be sufficiently identified with the ethnographic nolihding to possess significance as a location. However, together with an isolated find in a similar setting (RNP-IF-33), the site provides the only archaeological evidence known so far of indigenous use of the lower slopes of the Bald Hills, and for this reason it is included in the proposed Bald Hills Archaeological District.

RNP-S-23. A scatter of three chert flakes observed in a prairie opening surrounded by oaks, about 500 m. downslope from the top of Bald Hills ridge. A single isolated flake (RNP-IF-34) was found in a similar setting about 200 m. away. These two ill-defined resources, along with RNP-S-14 and associated isolated finds, are the only ones known so far from the upper slopes of the Bald Hills below the ridgecrest.

RNP-IF-33. Two chert flakes, found within 3 m. of one another under oak cover at the margin of a creekside prairie along Redwood Creek.

RNP-IF-34. A single chert flake discovered in a small clearing among oaks about 350 m. downslope from the crest of Bald Hills ridge.

Rodgers Peak Sites. The sites listed above are all included in the proposed Bald Hills Archaeological District because of their significance as sources of information for the understanding of prehistoric land use and settlement patterns in territory known ethnographically to be Chilula. The three sites described below are located on the opposite side of the Redwood Creek drainage, in territory not clearly assigned to one ethnic group in the ethnographic literature. All three sites were recovered from disturbed ground. So little is known at present of the archaeological context to which they belong that their significance cannot be adequately evaluated. Future work in the area intervening between them and the Bald Hills Archaeological District, or in the area between them and known coastal sites might eventually provide a context in which their significance can be evaluated.

RNP-S-29. A scatter of seven chert flakes found in two small clusters within 15 m. of one another. This site is located atop Rodgers Peak, amongst the logged remains of a redwood forest. It may be related to finds at RNP-S-30 and -IF-28, located along the same ridge, perhaps as part of a scatter along the route of a trail which once crossed the top of Rodgers Peak. However, this is pure speculation, extrapolated from the series of flake scatters observed along Bald Hills ridge.

RNP-S-30. A scatter comprised of a chert debitage flake and two cobble manuports, one possibly ground. Found in the same setting as RNP-S-29 and -IF-28, and perhaps related (see RNP-S-29).

RNP-IF-28. Two debitage flakes found 5 m. apart. Found in the same setting as RNP-S-29 and -S-30, and perhaps related (see RNP-S-29).

RNP-F-2 (Hum-347). Remains of a crude lean-to of ax-cut and saw-cut planks and poles in a hollow redwood tree. This feature was reported to the Departments of Parks and Recreation in 1977 as part of a possible prehistoric-ethnographic-historic site (see also Appendix 4 of this paper). The ax and saw scars show it to be historic in construction. Local consultants suggested that it might have been used by a timber cruiser (someone who surveys lumber resources to evaluate them and designate trees for cutting). Intensive survey in the entire area delineated on the DPR form failed to identify any traces of prehistoric use of the vicinity. The possible housepits reported on the same form were judged to be natural in origin. The lean-to is a potential source of information regarding one aspect of human use of the redwood forest environment but without more knowledge of its origin and function, its significance according to National Register criteria cannot be evaluated.

RNP-F-3. A standing barn, probably part of the old Sherman Lyons place (several members of the Lyons family were early ranchers on the Bald Hills). Although this barn has been altered since original construction, it still shows construction details and materials from the early 1900s. While lacking structural integrity, it may have significance as part of an historic district illustrating the early ranching pattern in the Bald Hills area.

RNP-F-15. A collapsed barn, associated with the old Tomlinson place. Like RNP-F-3, the barn shows alterations, but also illustrates some details of early construction methods. Extensive notes describing these remains have been filed with the site inventory form. By itself, the feature lacks the structural integrity to qualify for the National Register, but it would be a significant part of an historic district which included the Tomlinson place, and old stage stop on the road to Martins Ferry.

RNP-F-19. A hand-dug well lined with uncut local rock with mud mortar. Age of construction is presently unknown; the well may be associated with the old Tomlinson place. If this association can be confirmed, the well should be considered as part of an historic district including the old road house at Tomlinson's, the associated collapsed barn (RNP-F-15), and related structures identified in further research. Tomlinson's, however, is not on park lands.

Results of 1978 Special Purpose Inspections

Sites visited are listed in approximate north to south order. Places which were inspected with negative findings (i.e., which evidently are not locations of cultural resources) are listed after the known sites. More detail on the extent of survey of Special Study Sites is provided in Bickel (1978).

Camp Lincoln. The area was visited at the request of the National Park Service architectural historian, to assist in determining the original elements remaining in the only building still standing, and to see if traces could be found of other buildings or of the turnpike which was supposed to have passed south of the site. Before visiting the area, the article "Early military posts of Del Norte County" (Fred B. Rogers, 1947, California Historical Society Quarterly 26(1):1-11), which includes a plan map and sketch of the camp, was examined thoroughly.

Fieldwork was limited to inspection of the purported Commanding Officer's Quarters and to examination of old roads to the east of the structure. We also consulted with several Crescent City residents knowledgeable about the area.

Little remains of the original construction in the building; possibly the chimney, foundation for the fireplace, and framing are original. We learned the name of a former resident of the building who should be able to provide information regarding some of the remodelling. An old building said to be associated with Camp Lincoln stood across the road west of the present structure until the early 1970s, when it was destroyed to make way for a new building. Rogers' article contains several bits of information which suggest that the purported Commanding Officer's Quarters building now standing is incorrectly identified. In his footnote 24, he refers to "a drawing showing the elevations and cross sections of the principal buildings" on file in the National Archives. This should be consulted as part of the identification and evaluation of the existing structure.

Survey east of the present structure was confined to old roadways; no historic structural remains were noted in the course of this work. The road system examined has been used for logging, and several of the roads may have been constructed specifically for that purpose, but it includes two branches which may follow the old turnpike route. A local informant reported that survey records of "the old road" (whether county road or turnpike is unclear) are in the hands of an employee at the Del Norte Title Company; these should be examined.

Archaeological fieldwork at Camp Lincoln has resolved nothing; it serves only to emphasize the need for further archival work to document what, if anything, remains of the original structures and roadways associated with the military occupation at Camp Lincoln. A search for dumps or other archaeological deposits originating from that occupation might be the object of future survey in the area.

DNo-26. A Tolowa village site (Tcunsultun) recorded ethnographically (Drucker 1937) and previously reported as a park resource (Moratto 1973:88-89); visited in 1978 to assess its condition. Because of its inland location, the site is a potential source of important comparisons with coastal sites, with regard to dietary remains, seasonality of site use, and other factors. It probably is eligible for the National Register of Historic Places, but before it can be nominated, some determination must be made of the degree to which the site has been disturbed. Defining its boundaries will require augering and possible test excavations. Present use of the site is adversely affecting its scientific potential. It is known to present day Tolowa as a former village, and the site vicinity was suggested as a location for a park interpretive exhibit centering on a reconstructed Tolowa house.

RNP-IF-1. An isolated chert flake was recovered in the bed of a dirt road within the area designated Special Study Site 1 by park planners. Brief survey in the vicinity turned up no other artifacts, but this is inconclusive because of grass and duff cover. The find was made as the crew was returning from a day's work further up the road. It is of interest because it is located on the route of the historic Kelsey Trail, which presumably followed an older Native California route. There has been virtually no survey for prehistoric resources in this inland, upland area of the northern portion of Redwood National Park. The find of this isolated flake signifies that such resources surely exist here, and their likely presence must be considered in Park management and planning.

RNP-S-5, RNP-S-6. These sites were located during casual inspection of Special Study Site 1 in April. They consist of historic structural debris and associated remains located adjacent to the route of the historic Kelsey Trail. They were revisited in August at the request of the National Park Service architectural historian in order to assist in setting the boundaries of an historic site to be nominated to the National Register of Historic Places, and to search for material remains which might help to date the period(s) of use.

RNP-S-6 as presently known consists of the remains of a house, a corral or barn outbuilding, an improved spring, and a dump area, all presumed to be associated. Cut nails and glass fragments among house remains indicate a date earlier than 1910. Materials on the surface of the dump area date from 1880 to 1969. The earlier material presumably came from "Murphy's House," which is shown on an 1884 G.L.O. map and can be followed through property transfer records to the late 1930s. The house evidently burned; present remains are insufficient to reconstruct its form, except for plan outline.

Survey in the open prairie and wooded margin around Murphy's House revealed no other structural remains within the area examined, approximately 75 m. on all sides. Further to the east lies RNP-S-5, discussed below. The 1884 map shows "Jos. Evans House" south of Murphy's House; any remains probably lie south of the area surveyed. To the east of

Murphy's House, there are traces of several roads roughly paralleling the one in current use. Which of them, if any, pertains to the exact route of the original Kelsey Trail is indeterminable without more detail than is shown on the G.L.O. map.

The surficial archaeological remains are mute as to the activities associated with Murphy's House. The possibility that it was a way station on the pack trail might be investigated by study of journals of residents or travelers in Del Norte County in the latter half of the 19th century. The county records of property transfers might also contain some useful information.

About 300 m. east of Murphy's House and 100 m. south of the road lie the remains of another domestic structure, RNP-S-5, probably associated with a nearby improved spring. Evidence for a date earlier than World War I is lacking, and the structure may have been built much later than that. Association with the Kelsey Trail can be ruled out because the structure is not old enough; a connection with Murphy's House (in its later periods of use) may or may not exist.

Archaeological investigations of RNP-S-5 and -S-6, if adequately combined with archival research and, if possible, oral history, could yield information about changing land use and occupations in this area of the park. Further evaluation of the significance of these sites should be made by an historian.

RNP-S-9. Information gathered from consultations with Native Americans indicated that a traditional Tolowa fish camp lies in the vicinity of the former Nickerson Ranch, now within Jedediah Smith Redwoods State Park. Because the National Park will be managing these State Park lands, it was recommended by the Archaeological Project that an attempt be made to locate the traditional site; the planning team concurred.

The area lies in redwood forest and ground visibility is poor except on foot trails and along the banks of Mill Creek. Survey procedure consisted of intensive examination of ground surface on trails; two people covered slightly more than 300 m. of trail per hour. The Nickerson Ranch Trail was surveyed from about 200 m. west of Mill Creek eastward to a point where it becomes ill-defined, near the State Park boundary. A loop leaving the trail at an old orchard was followed to the Y intersection where it rejoins the main trail. A creekside trail on the west bank of Mill Creek was surveyed for about 450 m. downstream from the footbridge. Both creek banks upstream and downstream from the bridge were inspected for about 100 m.; heavy brush cover hampered adequate survey inland from the banks.

Results were the find of an isolated pecked sandstone slab (possibly a hopper mortar base), and the discovery of a number of pieces of chert and two obsidian flakes scattered along three segments of trail branching out from a junction. Very few of the chert pieces show

certain human modification, but their localization near the few definite flakes and their absence from other areas of the trail suggest that they delineate an area of human activity. Boundaries of the area were noted and the chert pieces and flakes were collected, to protect against their being lost through continued trail use. If these are remains of a Tolowa fish camp site, they form part of an archaeological resource of a type never investigated in northwestern California. As such, the site is potentially eligible for the National Register of Historic Places, but further study of its extent and degree of integrity is needed before a determination of eligibility can be made.

DNo-15. A Tolowa occupation site (talhme') inhabited in the 19th century; how much earlier its occupation extends is unknown. The site, previously reported as a park resource (Moratto 1973:90), was revisited by Moratto in 1977 for purposes of mapping. At that time, he observed a burial eroding from the site; this was subsequently reinterred according to the wishes of Tolowa who have ties to the village (see Benson 1978). Some rusted metal in the midden was noted by Moratto, who suggested that it might reflect explorer-era use of the site worthy of investigation, since Jedediah Smith is thought to have camped at or near this spot (see Chapter IV). Condition of the site was reassessed when Special Study Site 2 was inspected. Erosion is continuing, but DNo-15 appears to be sufficiently intact to provide information which could be used for comparative archaeological studies among Tolowa and Yurok coastal and inland sites. Investigation of the nature of the occupation at DNo-15 (was it a seasonally occupied "suburb" as has been suggested for DNo-14?) and study of its relationship with nearby DNo-14 would be of interest. The site has been placed on the National Register of Historic Places. Aside from its significance for history and prehistory, the site is important to the present day Tolowa community as the birthplace of some still living members, and a burial place of relatives. Its protection from disturbance is urged by them.

DNo-14. A Tolowa habitation site (shinyatshii) recorded ethnographically (Waterman 1925) and previously reported as a park resource (Moratto 1973:90). Information from archaeological testing and consultations with knowledgeable Tolowa indicate that the site was abandoned in the 1870s and occupied for the previous three or four centuries at most (Moratto 1972; 1973:71). Site condition was reassessed in 1978, when Special Study Site 3 was inspected. Active coastal erosion is removing midden, and camping and picnicking uses have adversely affected the site's scientific potential. However, sufficient undisturbed areas remain so that the site contains information which can address questions like those mentioned for DNo-15 above; it has been placed on the National Register of Historic Places. The present day Tolowa community is aware of the site as an archaeological Tolowa site, but there are fewer personal ties to this place than to DNo-15.

DNo-2, DNo-7. Site of a village (Omenhipur) occupied by both Tolowa and Yurok, recorded ethnographically (Waterman 1920) and

previously recorded as a park resource (Moratto 1973:91). Multiple state numbers have been assigned to what were probably portions of one site. The village location is contained in Special Study Site 6. The archaeological remains of the village have been extremely disturbed by highway construction; as a result, the site is not eligible for the National Register of Historic Places. Some burial places known to a Yurok consultant remain undisturbed, and these require protection.

DNo-1. Site of a Yurok village (Omen) recorded ethnographically (Waterman 1920) and previously reported as a Park resource (Moratto 1973:91). Omen is listed on the National Register of Historic Places. Its condition was assessed during inspection of Special Study Site 5. At present, the only evident ongoing damage comes from a park trail which crosses the site; its direct impact is slight, but increased visitor traffic in the area might have adverse indirect impacts on the site. Omen is known to the local Yurok community, but it did not figure in any specific recommendations made by Native Americans during consultations. There was interest expressed in gathering basketry materials from lands adjacent to the nearby Yurok Loop Trail.

DNo-6. Site of a permanent Yurok village (welhkwew) from before 1850 to present (Pilling 1978:139); a Yurok still owns and lives upon portions of the site. The name "Tsekwel" and state number DNo-32 have been applied to an adjacent location, formerly either a separate village or a house site affiliated with welhkwew (Waterman 1920:227, 232; Pilling 1978:139). Both locations fall within Special Study Site 7. No archaeological remains were noted when the site was inspected, but heavy brush cover prevented intensive survey of the areas which contain burials and housepits, according to knowledgeable Yurok. Several cemetary locations have been indicated by Yurok consultants, who express certainty that there are others, now forgotten because families moved away or died off. A determination of eligibility of the location for the National Register of Historic Places would require intensive survey, probably including some subsurface probing. This is probably the most sensitive area of the park with regard to Native American feelings, both because of the traditional sacred and secular importance of the mouth of the Klamath River, and because land along the Klamath was once (and perhaps still is) reservation land.

RNP-S-25 (Hum-136). This site consists of remains of an ethnographically and historically known Yurok village (Osegon) abandoned before 1920. It was recorded from Native American informant testimony by Waterman (1920:Map 9, 234, 261). An initial visit in April 1978 did not locate any archaeological remains. When it was learned that the National Park would assume management of State Park lands (on which the site presently lies), the Archaeological Project recommended that the area be revisited, since Native American consultants had expressed concern about the area of the village site, which was home to grandparents or great grandparents of some of them, and which contains known burial areas. While respecting the consultants' wishes not to specify burial locations, it was hoped that some individuals would accompany

the archaeologists in the field, to indicate general areas of sensitivity, so that planners might be informed.

In August, we were accompanied in the field by an individual who had never been shown the village site, but had learned about it through reminiscences of his mother and others of her generation. With his assistance, we located midden in several different spots, and we noted four possible housepits. Some of the midden has sloughed down steep slopes, but elsewhere the site appears intact, except for two small holes evidently dug by curious visitors. Our consultant remarked that the extent of the midden indicates much greater use of the area than was remembered by his mother. The extent of the midden also indicates the probable former presence of more than the three houses and two sweathouses remembered by Waterman's informants (1920:234); thus, the site may have been larger prehistorically than historically, or the location of house areas may have shifted over time.

The site is sufficiently intact to be a potential source of information important to history and prehistory. In particular, the changes in site size or location of areas used might be followed from the prehistoric component(s) to historic component(s), and the sequence brought up to the present with information recorded ethnographically and through oral history. The site should be nominated to the National Register and actively protected from destruction by visitors or natural forces. Because of the significance of the site location to living Native Americans, its protection is especially important.

In the course of surveying for prehistoric remains, remains of several historic structures were located in the vicinity of RNP-S-25. Most notable were remains of a house and associated structures situated along a creek north of Ossagon Creek. Construction details and building materials suggest a building date of 1940s or later. Some local consultants suggested that these remains pertain to the old Schubert place; Schubert was an old timer famed for the sauerkraut he made from cabbage he raised around his place. Rotting beams and timbers from several structures were located elsewhere, but the remains were decayed and overgrown with vegetation, so casual inspection did not permit speculation about their original forms; milled lumber and wire nails were observable in most cases, suggesting that the structures were of relatively recent origin.

RNP-S-26. The Fern Canyon area was visited by the Archaeological Project crew to assist the National Park Service architectural historian in determining the extent and nature of historic structural remains to be found in the vicinity of the canyon mouth and adjacent Alexander Lincoln prairie. Intensive survey was conducted around the prairie and its margins, up adjacent slopes and along the slopes and benches below the beachfront bluffs. Results were negative except in the prairie and along its margins. The beachward slopes are clearly products of recent bluff collapse, and remains may have been buried under them. Vegetation and duff cover may have obscured remains elsewhere. It also is possible

that State Park management resulted in some cleanup activities which affected historic remains.

Numerous wooden planks and beams, cast iron stove pieces and glass fragments were found in and around the prairie, all within roughly 20 m. of prairie margins. Most of the material was without association or decayed to such a degree that reconstruction of original form or function or dating was impossible. Exceptions were a fallen structure (possibly a house), a roadbed and a bottle fragment; none of these was necessarily related to any other. The fallen structure can be dated post-1900, probably 1930s or 1940s, on the basis of materials and construction techniques. The roadbed can be followed several hundred meters before it becomes poorly defined. Wooden debris in the roadcut and on the adjacent slopes appears to be remains of a sluice or similar structure associated with mining activity. It is possible that the road once led up to the bluff top; it was perhaps used for transporting beach sand to the top of a sluice. One glass bottle fragment can be dated to 1880 or earlier, on the basis of manufacturing technique.

Results of the survey suggest that the visible archaeological remains in the area cannot be meaningfully interpreted without much historical research, perhaps to include interviews with former mining employees and early visitors to the area. Except for the old roadway and debris on adjacent slopes, visible remains are confined to the open prairie and its margins, where firs are encroaching. Subsurface probing might locate some trash dumps, but it is quite possible that Fern Canyon itself was used as a dump; if so, much information has been washed down Home Creek.

RNP-S-24 (Hum-133). Like RNP-S-25 just discussed, this site consists of remains of a Yurok village (espew) abandoned before it was recorded by Waterman (1920:Map 29, 261). It, too, was initially visited in April of 1978, with negative findings, and was revisited in August because of the concern expressed by Native American consultants regarding the protection of this place which had been a home to their parents and which contains known burial areas. Through the cooperation of several consultants, the general area of sensitivity was delineated; some remnant areas of midden were also located. The site has been almost totally destroyed, but may have National Register significance as a location important in local Yurok history. In any case, the site area should be protected because of Native American concerns about burials still in situ and, hence, the sacredness of the locale.

Hum-135. Site of a former Yurok village (Otmekwor) which had probably been abandoned for "a number of generations" before it was recorded ethnographically (Waterman 1920:262). Although previously described as "virtually undisturbed" (Moratto 1973:93), Native American consultants report that the site has been subject to relatively frequent vandalism by tourists who learn of its existence from early maps and references in park literature which designate the area as an Indian village. In addition, it is said that a former resident on the site

excavated extensively in the midden. Inspection in 1978 did not show any signs of recent disturbance. In spite of the reported damage to the site, it may still contain information useful for some archaeological studies, and on this basis may be eligible for the National Register of Historic Places. Comparisons between this site and Hum-129 (see below) would be of interest, since both were lagoon-side villages; Otmekwor was abandoned earlier and may have been initially occupied earlier, which makes it of especial interest. The contemporary Yurok community is insistent that the site, known to contain burials, be afforded protection against any further desecration. No park trails should be established near it, and regular patrols should keep it under surveillance.

Hum-131. A Yurok village ('orekw) recorded ethnographically (Waterman 1920); an associated "suburb", Sikwets, has been given a separate state number, Hum-132. Both sites have been destroyed or severely disturbed, by highway construction and the operation of a lumber mill, respectively. In 1949, the State Department of Transportation removed and reinterred approximately forty burials from 'orekw, in the course of work on Highway 101. Some observations on burial modes and location of the reinterments are contained in a DOT memorandum (Thorne 1978). Special Study Site 13 includes the locations of Hum-131 and Hum-132. No archaeological remains were found in these locations in 1973 (Moratto 1973:94), and no further survey was done in 1978. However, a known cemetery within the Special Study Site was identified and located by Yurok consultants, who requested that the park provide maintenance and protection for it. An isolated reburial in the area of the county beach park was also reported. While it is doubtful that any remains of sufficient historical integrity to qualify for the National Register of Historic Places will be found, it seems likely that subsurface midden deposits and burial areas may have survived in parts of the Special Study Site. Any subsurface disturbance in the area should be preceded by consultations with knowledgeable Yurok, and intensive archaeological survey, including auger boring.

Hum-180. A flake scatter site recorded in 1948; now evidently destroyed (for this reason it is not shown on Map I). The site was located in the vicinity of Prairie Creek Redwoods State Park headquarters. Not one flake was found during intensive survey on two occasions. There has been a good deal of surface disturbance in the area of the headquarters, and the flake scatter may have been covered in the course of paving or landscaping activities.

Hum-129. A former Yurok village, recorded ethnographically (Waterman 1920), sampled archaeologically (Moratto 1972; Fredrickson in this report, Appendix 1), and a home and burial place of relatives of Yurok still living in the vicinity. The site lies outside the boundaries of Redwood National Park. It was visited because it has been the subject of a stabilization program (see Fredrickson's discussion in Appendix 1 of this report). A similar program is recommended for sites DNo-14 and -15 within the park.

Negative Findings

Two fish camp areas mentioned by Yurok consultants were intensively surveyed with no indications of prehistoric use noted. These were along Prairie Creek in the vicinity of Elk Prairie, south and west of the reported location of Hum-180 (see above), and along lower Lost Man and Little Lost Man Creeks (see Map II). Prairie grass cover and forest duff impeded survey in the Prairie Creek area, as did duff and dense alder cover in the Lost Man Creek area. It should be noted that the only fish camp evidence located in 1978 fieldwork was found on well-traveled trails (see RNP-S-9).

No prehistoric remains were noted in the course of visits to Special Study Sites 4, 8, 10, 11, and 12. No prehistoric sites had previously been reported for these localities, nor were they mentioned as specific use areas by Native American consultants.

The mouth of Johnson Creek, reported to be a traditional camping place for travelers along the coast, was visited briefly; no indication of prehistoric use was noted. However, survey was not intensive and it was apparent that historic use and natural erosion have affected the area so that any but the most obvious indicators would have been obscured. Given the difficulty of locating established village sites in similar settings (such as RNP-S-25), it would be unexpected to locate the comparatively lesser remains of a camping spot without intensive survey. This caution applies equally to the Special Study Sites just mentioned.

Intensive survey produced no evidence of prehistoric remains in the reported locations of DNo-31 and -32, at Footsteps Rocks and the mouth of Damnation Creek, respectably. These were originally recorded as DNo-S7 and DNo-S8 by Eric Ritter on a survey of State Park lands in 1969; Moratto (1973) lists them as park resources. Moratto did not visit the purported sites, and it is not clear whether Ritter did; he recorded a number of other sites on the basis of verbal accounts during his survey. We are confident that we did not miss seeing remains of the sites in our survey; they were reported to be shell-flecked midden deposits of fairly substantial size. In view of our negative findings, it seems best to strike DNo-31 and -32 from the list of known park cultural resources. Similarly, because purported sites DNo-28, -29, and -30 (Ritter's DNo-S4, -S5, and -S6) were not visited by Ritter and have not been confirmed in field checks by Moratto in 1973 and personnel of this project in 1978, they are not considered at present to be known park cultural resources.

VII. SUGGESTIONS FOR THE MANAGEMENT OF CULTURAL RESOURCES

> ...Congress finds and declares--
>
> (a) That the spirit and direction of the Nation are founded upon and reflected in its historic past.
>
> (b) That the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people;
>
> [National Historic Preservation Act of 1966 (P.L. 89-665)]

Redwood National Park, named for a spectacular natural resource, containes important cultural resources as well. These comprise a record of human use of the natural resources of the redwood forest and environs. Some uses still continue after a thousand years or more of habitation of the area; others lasted only a short time. There is social, scientific and cultural value in this record of persistence and change, and it is important to preserve it. A special kind of preservation is required, as indicated in the language of Congress cited above, which will make this record "a living part of our community life and development in order to give a sense of orientation to the American people."

Designed in an attempt to meet this requirement, the management actions proposed here embody an active preservation program, which includes protection, ongoing study, interpretation and, where appropriate, continuing use of the cultural and natural resources of Redwood National Park. In accordance with the scope of the Redwood National Park Archaeological Project contract, focus here is on prehistoric and historic resources associated with the Native American Indian people who lived upon and used lands which now fall within park boundaries. These include archaeological remains of former settlements and camping spots, trails, work areas, and places of religious activity as well as locations without visible archaeological remains which continue to have traditional significance as sacred or ceremonial places or as sources of materials used in the ongoing conduct of traditional activities. Some suggestions are made regarding non-Indian historic resources, but a full plan for their treatment must emerge from other studies which have been conducted by National Park Service historians (e.g., Bearss 1969, and Soulliere 1978).

Table 1, on the following two pages, summarizes the management recommendations discussed in this chapter.

Table 1. Proposed Management Actions - A Summary
(Recommendations are discussed in detail in the text of Chapter VII. Categories A-G are ordered arbitrarily, all requiring some immediate action; priorities are specified within categories where appropriate.)

A. Develop procedures to use Native American Heritage Advisory Committees (NAHACs). Appoint permanent liason person on staff (the staff archaeologist, when hired); he or she should review Bickel's reports of previous consultations to compile recommendations for action. Immediate action needed re ongoing use of park natural resources and a ceremonial site. NAHACs should review draft GMP, comment on proposed NRHP nominations, review maintenance or construction actions near traditional sites, advise on site stabilization programs, advise and participate in development of interpretive programs.

B. Review established procedures to ensure consultation with archaeologist before any land alteration or anticipated increased visitor use of particular areas. Add an archaeologist to park staff.

C. Design visitor use and interpretive programs, as well as ongoing and planned maintenance and construction activities, to protect known cemeteries, sacred places, and archaeological sites.

E.g., control road use and maintenance in area of Bald Hills Archaeological District (see recommendations for RNP-S-4, -16, -17, -18, -22, -31, -32, -35).

Implement protective actions recommended for Hum-133, -135, -136, Split Rock, Dno-1, -14, -26.

Ensure that maintenance, interpretation, and protection staff are aware of known sensitive areas.

Arrange for preparation of an Archaeological Resources Management Guide for use of park personnel who must work with archaeological resources on the ground.

D. Include Native American prehistory and history in park interpretive program. Involve Native Americans (recruited through NAHACs) in design, review, implementation. Undertake oral history collection as a source for interpretation and a cooperative program with local communities.

E. Update park Scope of Collections statement to include historical and anthropological reference books, photographs, oral history tapes and documents, archaeological specimens.

(continued)

Table 1 (continued).

F. Prepare programming forms for archaeological survey of park lands, following this priority order:

*project-specific surveys of areas of planned land alteration (e.g., rehabilitation units, facilities anticipated in GMP) or planned increased visitor use (e.g., environs of RNP-S-6 and access road to that area, where RNP-IF-1 was found);

*inventory survey of uplands in historic Tolowa and Yurok territories (e.g., Bald Hill in Del Norte County, environs of Gans Prairie, Holter Ridge);

*further inventory survey in Bald Hills area.

G. Proceed with other archaeological and historical work in consultation with NAHACs as appropriate, in this priority order:

*secure determinations of eligibility or National Register nominations for Bald Hills Archaeological District and other sites evaluated herein as potentially eligible for the NRHP;

*arrange for boundary definition of DNo-26, RNP-S-9, Hum-136, Hum-135 as part of above procedure;

*anticipate land alteration in NRHP-eligible areas, and proceed with consultations with ACHP to obtain MOAs (e.g., rerouting of trail on DNo-1; removal of facilities from DNo-14 and -26; stabilization work at DNo-14, -15, Hum-136; road closure and replanting in vicinity of Hum-133);

*let contract for description and comparative analysis of artifacts already collected;

*arrange for sourcing of obsidian specimens (include results in artifact description, above);

*design and implement stabilization programs at DNo-14, -15, Hum-136, if approved by NAHACs;

*proceed with historical work to document resources in area of Camp Lincoln, Kelsey Trail and Murphy's House (RNP-S-6), Nickerson's Ranch; evaluate possible Bald Hills Historic District;

*design and implement program of further survey, controlled collection and possible excavation within Bald Hills Archaeological District, in consultation with Chilula NAHAC.

Communication

Communication is of primary importance in the ongoing management of these resources: Native Americans and anthropologists must continue to be informed of deliberations, plans or actions which concern park cultural resources. As a result of the historic preservation legislation of the 1960s and 1970s, it is becoming customary to involve anthropologists (mostly archaeologists in the past, though more social anthropologists are now included) in federal agency planning and management activities which affect cultural resources. National Park Service Special Directive 78-1 mandates the involvement of Native Americans as well, wherever their traditions and cultural values will be affected by park programs. For Redwood National Park, a framework for this communication and involvement already exists, in the five Native American Heritage Advisory Committees which were formed as a result of this archaeological project, and the Anthropology Laboratory at Sonoma State College which, in conjunction with the Northwest Indian Cemetery Protective Association (NICPA), offers advisory and referral services with regard to archaeological and general anthropological questions for northwestern California (see Fredrickson in this report, Appendix 1:157. Park procedures should be developed to systematically and regularly use this network of advisory groups, so that the managers of the park will have the information they need to treat its cultural resources responsibly. Specifically, during the present planning stage, the Heritage Advisory Committee should review the draft General Management Plan; they should also comment on proposed National Register nominations. In the future, they should be consulted with regard to such things as park maintenance activities near traditional sites, stabilization programs planned for archaeological sites, the development of interpretive programs, and similar matters. Likewise, it should be a matter of regular procedure to consult archaeologists before land alteration of any sort takes place.

Protection

For Native Americans with ancestral ties to lands within the park, the greatest concern with regard to park management is that cemeteries and sacred places be protected from disturbance and desecration. The park should minimize visitor traffic in such areas by avoiding the construction of trails and other public use facilities as well as any other construction or maintenance activities which will disturb these places. Certain publicly known cemeteries should be fenced and maintained by the park; one in the Orick area has been specified and others may be named by the Heritage Advisory Committees. Aside from these specific places, it is preferred that attention not be drawn to burial sites or sacred places; if they are mentioned in interpretive programs, specific locations should not be indicated. [Note: since this report was drafted, the Orick area Advisory Committee has revised its request for cemetery fencing and now (as of February 1979) prefers that no attention be drawn to the spot.]

From the viewpoint of the archaeologist, protection of the sort just discussed should be extended to all of the archaeological sites known; suggested actions for particular sites are listed as site-specific recommendations below. Active measures should be taken to stabilize the coastal sites which are presently eroding; if approved by NICPA and the appropriate Heritage Advisory Committees, a program similar to that underway at Hum-129 might be used, accomplishing some data recovery while sites are stabilized. The active participation of Native Americans in stabilization programs should be encouraged in all phases of work (planning, excavation and observation, analysis, reporting).

Interpretation and Study

Interpretive Program. The cultural history of the park should be shared with visitors through interpretive signs and exhibits. An historical or topical theme of "land use" might serve to integrate information about the human presence on park lands with data from ecology and natural history. A well designed interpretive program will serve to familiarize the visitor with the history and prehistory of the area, and thus will add time depth and humanistic perspective to what is observed in passing briefly through the park. At the same time, in illustrating the lifeways of the native inhabitants of the park area with due respect to their cultural achievements, such a program can serve to acknowledge the contributions of Native American culture to broader American culture. With the active involvement of members of the local community in the interpretive program, in ways like those suggested below, it will be effective in interdigitating the local community, the park, and tourists.

The expertise of the professional historian and anthropologist must be used in developing an interpretive program, but the interest and knowledge of the local Native American community should also play a part. There is strong feeling among Native Americans consulted in the course of this project that their cultural history and traditions should be presented to park visitors, and equally strong feeling that local Native Americans should participate in the development and implementation of a program which interprets their heritage. This must not be token participation. The General Management Plan should provide for formal integration of Native Americans into the interpretive program. To accomplish this, planners should consider the following suggestions which emerged from Native American consultations. (1) To ensure accuracy and to lend an appropriate perspective to the interpretation of Native American traditions and cultural history in the program, consultants should be sought among the older Native Americans who participated in the tradition and early history of the area. These individuals would assist in developing signs and exhibits; perhaps they might also recount stories and reminiscences on tape which could figure in the interpretive program. (2) At the same time, younger Native Americans who are learning about their own heritage

might be hired on to the park interpretive staff, thereby giving them an opportunity to consolidate their knowledge and share it. (3) Cooperative programs with local schools and colleges should be arranged whereby students can receive academic credit for work in park interpretive programs. (4) As a specific programmatic suggestion, Native American consultants have recommended the construction of a Yurok-style house somewhere in the southern part of the park, and a Tolowa-style house near a village site in the northern part of the park. It was envisioned that the house sites would be focal points for interpretive lectures and possible demonstrations of traditional activities. Active participation by Native Americans in the design and execution of the house construction was assumed, and in its use.

The Native American presence in the park should not be timeless in interpretation. Archaeological and linguistic data can be presented in a simple way to suggest the complex history of population movements through the area, and current ethnographic data such as Pilling's (1978), perhaps supplemented with information from Native Americans participating in the interpretive program, can update the picture of traditional lifeways. For example, a photographic exhibit might show the continuity in importance of subsistence fishing on the rivers and along the coast, also illustrating changes in technology as evident in boat styles, equipment at the fish camp, and so forth.

Care must be taken to avoid separate interpretations of Native American and non-Indian history and culture where this ignores the reality of interactions which occurred. What were Native Americans doing during the mining boom, the early ranching days, the beginnings of the lumber industry? If they disappear from exhibits treating the time between the prehistoric and the present, the interpretation is misleading. A number of places within the park (such as Nickerson's Ranch, Gold Bluffs, and the old Trinidad Trail) were important sites for both Native American and non-Indians; the park visitor should be aware of this.

Repository. The park should maintain a repository for basic information pertaining to its cultural resources. This would not be intended to take the place of specialized facilities like the Humboldt State University historical collections or the museum of the Del Norte County Historical Society, but merely to provide a central, publicly known place where salient data and materials could be found and where their maintenance over time could be assumed. The facility would not serve the average visitor to the park, but would be useful in meeting the research needs of park staff and other interested people, including anthropologists, from the local area and farther away. It should include a reference library of basic anthropological and historical sources, tapes and documents acquired in the course of an ongoing oral history program, and a photographic archive of images of people and places within park lands.

Oral history program. An oral history program should be established to collect and preserve basic data on the cultural history of the park through recording of the first hand memories and perspectives of individuals, information which will otherwise be lost with the passage of time. Its creation will respond to two concerns expressed by Native American consultants and individuals familiar with local history: first, that they are repeatedly asked the same questions by new State Park and National Park staff members because there is evidently no public record kept of interviews by previous staff; and second, much of the traditional knowledge is being lost with the deaths of individuals who participated in the tradition and early history of the area. Insofar as it focuses on Native American informants, the oral history program should be a cooperative venture with the Native American community. Non-Indian history should not be ignored, however; local "old-timers" should be an additional focus for the program. The program should be structured to involve interested younger members of the local communities around the park in the gathering and study of the oral histories, in addition to involving their elders as contributors.

Photographs. In addition to books and oral histories, the park should develop and maintain a photographic archive. Particularly if land use is to be a theme of interpretation, old photographs will be a valuable source of knowledge and illustration. For example, in background research for this project, we located photographs taken in the early 1900s showing areas along False Klamath Cove, Freshwater and Stone Lagoons, and parts of Redwood Creek and the Bald Hills; these make interesting comparisons with photographs taken in the 1970s. Similar comparisons may be made of early and recent photographs of traditional Native American activities, as suggested above, or such things as old and new transportation routes and modes, changing procedures and technology in logging, and so forth. Peter Palmquist, Humboldt State University photographer, has suggested that an interesting cultural tale might be told in an historical study of images of the redwoods themselves, the choice of image reflecting the orientation of the society at the time.

Curatorial facility. The park should also undertake to maintain a curatorial facility, to care for archaeological specimens collected in the course of survey and excavation work on its lands. Because these specimens are important to local Native American culture heritage, to the study of local prehistory and history, and to the understanding of the Park itself as a study locale, they should be kept in a repository close to the park and to the local cultures which they represent. It is important that the park establish or use a local repository.

Archaeological investigations. The park should continue to inventory its lands, in accordance with its obligations under Executive Order 11593. The next reconnaissance survey should focus on inland areas in Yurok and Tolowa territories because these areas have largely been ignored in previous survey work. In addition to inventory, a

program of ongoing study of the known archaeological resources should begin.

The sites located in the course of survey work in 1978 are of especial interest because of their inland locations; relatively few inland sites have been discovered or tested archaeologically in this part of northwestern California. Some of the questions which might be addressed by investigation of these sites were mentioned in the preceding chapter. Before any further data collection is undertaken, the lithic artifacts collected from these sites should be described in detail and compared with materials from elsewhere in northern California; obsidian specimens in the collection should be sourced. The park should let a contract for this study.

More exacting survey will be needed within the area of the proposed Bald Hills Archaeological District, to define known sites more precisely and to locate other evidence of prehistoric use of the area. This may have to await a succession of dry years, for dense ground cover impedes survey in much of the area. Drought might serve to clear or at least inhibit the growth of annuals in the ground cover. Deliberate stripping of ground cover on some of the sites might be useful for their study, but such an operation can only be conducted on a small scale. Use of fire might accomplish the necessary clearing; however, it is not recommended that a burning program be initiated for purposes of archaeological survey. If fire comes to be used for land management, its effects on surveyed areas should be monitored to compare the results of pre-fire and post-fire surveys; associated impacts which might result from the use of heavy equipment for fire control would have to be considered also in evaluating burning as an archaeological resource management and study tool.

In addition to further survey, exploratory investigation of some of the sites in the proposed Bald Hills Archaeological District should be planned in order to increase our understanding of the prehistory of this area. The nature of the investigation will depend upon the sentiments of the Native American community with regard to such work. Proposed archaeological investigation has been opposed in the past in northwestern California in any case where human burials might be disturbed, and in other areas where the expected scientific research value of the project has not justified the disturbance of sites, in the view of concerned Native Americans. Conduct of any future investigations entails the agreement and cooperation of Native Americans. In regard to the Bald Hills sites, NICPA and the Chilula Heritage Advisory Committee should be consulted. The degree of Native American interest in learning more about the prehistory of the district will help to determine the extent of research undertaken. Minimally, controlled surface collection should take place on several different areas of the trail use sites, concentrations, and village or camp sites. If agreed to by the Native American community, the archaeological program would include boundary definition and depth testing of the village or camp sites through test excavation or augering, with removal of column samples

for constituent analysis. It would also be of interest to excavate in the village or camp sites to answer questions of chronology and inter-site relationships, as well as more site-specific questions.

Archaeological testing should also take place at RNP-S-9, presumed to be the remains of a Tolowa fish camp; the extent and nature of the site needs to be better defined. The Tolowa Heritage Advisory Committee should be consulted when the work is planned; since only surface exploration is required, it is anticipated that the committee will wish to participate in the work.

As noted above, some archaeological data-gathering and analysis should accompany stabilization activities at several coastal sites within the park, if this stabilization follows the pattern of similar work elsewhere.

Knowledge which is gained from all of these investigations should of course be incorporated into the interpretive program as it deals with park prehistory. This might be accomplished through publication of booklets or pamphlets expanding on aspects of Native American cultural history which are summarily treated in interpretive signs and exhibits.

Ongoing Use of Cultural and Natural Resources

The following portions of National Park Service Special Directive 78-1 bear directly on the park's responsibility to provide for ongoing traditional use of cultural and natural resources within the park:

> ...the Service...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. This policy includes developing means for reasonable access to and non-recreational use of sites with traditional, ceremonial or religious significance... and providing technical assistance or participation in cooperative activities or programs related to Native American culture history, cultural traditions,or cultural resources.

Consultations with Native Americans were conducted in the course of this project to provide information regarding the traditions and concerns which should be reflected in park planning and management activities. The resolution which emerged from the Native American Conference on Cultural Resources in Redwood National Park (see Appendix 5) should serve to inform planners and park staff of general concerns, and project reports of the consultations provide discussion of particulars. Several requests have been made by Native Americans regarding access to and non-recreational use of park lands. These pertain specifically to a ceremonial site, and to rights to gather natural resources needed for the conduct of traditional activities.

Ceremonial site. One Yurok ceremony known as the brush dance was performed customarily and has been performed in the recent past at a spot on the south side of the mouth of the Klamath River. The Native American community has asked that the park permit construction of a brush dance pit in this area which can be left open and used on a continuing basis for performances (which would be annual or less frequent). Previously, the park had required filling-in of the pit, an improper Yurok religious practice. The park has a responsibility to permit the construction and continued use of the brush dance pit, especially in light of the recent passage of the American Indian Religious Freedom resolution (P.L. 95-341). There is some flexibility about the exact location of the pit within the general area. Planners in consultation with the Yurok Heritage Advisory Committees should be able to select a spot which will permit access and parking room for those attending the ceremony, as well as providing for access of park safety vehicles or patrol vehicles if this is deemed necessary.

Traditional gathering practices. Native Americans should be assured the right to gather materials needed for traditional activities. Because general park policy prohibits the collecting of some of the materials needed (e.g., basket makers need ferns, spruce and redwood roots, and hazel shoots, among other materials) special procedures must be developed to provide for traditional gathering activities. The granting of special permits would be an acceptable way to regulate the gathering. Procedures in use at Yosemite National Park and at the Hawaiian National Parks should be reviewed in the process of developing procedures for Redwood National Park.

Provision must be made to assure access to areas with suitable materials. The park may wish to restrict gathering to pre-selected areas in order to be able to monitor the effects of gathering activities; if so, areas will have to be selected in consultation with potential users of the areas, and sufficient flexibility in selection will be needed to respond to changing availability of particular products over time. Regardless of whether gathering is restricted to certain areas or open to all park lands, it can take place only where suitable materials are available to harvest. In part this is a matter of chance, but Native Americans traditionally managed the land to assure the production of desired materials; for example, they burned particular areas to promote the growth of new grasses and shoots which could be harvested at the proper stage of pliability for basketry. The park should consider instituting some fire management of particular areas, in consultation with those Native Americans who know the characteristics of the desired products. Experimentation may be necessary to determine proper burning times and methods for particular products, since some of this traditional knowledge has been lost. If fire management is inconsistent with park policies of natural resource management, clearing and pruning by hand might accomplish the results traditionally effected with fire. Basket makers who are members of the Requa area Heritage Advisory Committee suggested that a trial pruning program of hazel could be instituted in the Lagoon Creek area.

In addition to meeting the needs of those Native Americans who are continuing the traditional activity of basketmaking, the park must also consider requests that Native Americans be permitted to do subsistence gathering, fishing and hunting on lands within the park. Recommended procedures with regard to fishing and gathering are straightforward. The desired fish and shellfish products are regulated by another agency; Native Americans must consult with that agency if special use permits are desired. Many of the vegetal products desired (such as various berries) are products which may be collected by any visitor to the park, according to present policy; gathering of other products can be regulated by special use permits or other special provisions, as discussed above. Thus, the park's primary responsibility with regard to traditional fishing and gathering for subsistence purposes is simply one of providing reasonable access to these resources. In a few cases, this may entail vehicle travel over roads closed to public traffic, to give access to elderly Native Americans. Also, the park has been asked to provide camping spots to those families who live inland but make an annual trip to the shore to gather subsistence resources. Traditional fish camp areas such as the beaches along False Klamath Cove were suggested as sites for such camping spots, but it was agreed that it would be sufficient for the park to provide space to Native Americans requesting it at already established campgrounds, such as those at Gold Bluffs and Elk Prairie; a campsite fee should be waived for families carrying out traditional subsistence activities.

Another matter for consideration is the request that hunting for subsistence and ceremonial purposes be permitted on park lands. In view of National Park policy that forbids hunting on park lands, it will be difficult for the park to acquiesce to Native American requests for hunting privileges for subsistence purposes. However, these requests should receive serious consideration in planning of local park policy. Specific response is needed to requests for limited hunting for ceremonial purposes, either to provide materials for religious costumes or paraphernalia, or to provide food which is traditionally distributed by the sponsors of ceremonies. Possibly the necessary raw materials can be obtained from animals which die natural or accidental deaths on park lands. Perhaps the park can assist ceremonial specialists in obtaining permission to hunt on adjacent National Forest lands in the event that ceremonial needs require hunting out of season. No resolution to the issue can be offered here. Consultations with ceremonial specialists should be arranged through Heritage Advisory Committees so that a course of action can be worked out and incorporated into park policy. It should be noted that the number of specialists is few, ceremonies are infrequent and, hence, the impact of ceremonial hunting on the park's natural resources would be slight.

Site-Specific Recommendations

Regardless of the site, the general recommendation holds that consultation with archaeologists should precede any land alteration activities. Additional consultation with the Advisory Council on Historic Preservation would be required for any action affecting National Register sites DNo-1, -14 and -15, and any other sites determined eligible

in the future, Of immediate concern is any land alteration proceeding during the planning period. Specifically, as mentioned in the Emergency Stablization Plan, a contract should immediately be let to provide for the survey of the roads in the Rodgers Peak area which are slated for improvement for rehabilitation work. (See endnote, page 116.)

The proposed Bald Hills Archaeological District should be nominated to the National Register of Historic Places, as should several other sites, discussed specifically below. The park should also explore the nomination of an historic district in the Bald Hills area, including the old road house at Tomlinson's, the fallen barn RNP-F-15, and possibly RNP-F-19 and -F-3. Since the old road house is privately owned, this would require cooperative work with the private owner. While National Park Service historians can better assess the significance of an historic district, it appears to us that a number of historic sites in this area are potentially eligible for the National Register under criteria (a) and (c) of 36 CFR 60.6.

Specific recommendations are offered for the sites listed below. Ordering follows that of the last chapter; sites of the proposed Bald Hills Archaeological District first, then other sites in rough north-to-south order. Two places (Split Rock and Gans Prairie) are discussed which were not mentioned in the last chapter. For sites not discussed below, no specific action is recommended.

RNP-S-4, -17, -31, -32. Further vehicle travel over sites -4 and -32 must be prevented; this may be accomplished by blocking the existing vehicle tracks with rocks or logs, and including surveillance of the sites as part of regular park patrolling procedures. The existing collection from -4 should be analysed; a contract should be let to accomplish this work, which was outside the scope of work for the present archaeological project. Further work should include controlled surface collection at the other three sites, with descriptive and comparative analysis of resulting collections; auger boring to determine extent and distribution of midden at the sites (is it continuous, or intermittent as it appears to be at some coastal sites?). If excavation is permitted, column samples should be taken for constituent analysis. Eventually, more extensive sampling by excavation should address some of the questions indicated in the previous chapter. As noted above, however, any investigation at a specific site should be preceded by Native American consultations.

RNP-S-35, -18. Occasional foot and vehicle travel on roads which cross these sites is permissible, but further grading or gravelling should be avoided. Similar precautions should apply to as yet unsurveyed ridgeline areas in the vicinity of these sites, as additional archaeological resources may exist here. After analysis of the collection from RNP-S-4, controlled surface collection from several loci within these two sites should take place. The resulting collections could be compared with collections from S-4 and other sites within the district which appear to represent different types from the presumed trail use sites, RNP-S-35 and -18.

RNP-S-16, -22. Occasional foot and vehicle travel on roads which cross these sites is permissible, but grading or gravelling should be avoided. The sites should be tested for possible depth of deposit, especially in areas where concentrations of artifacts have been noticed; augering and possibly test excavations will be required. Some small-scale stripping of ground cover may be necessary to define site boundaries more accurately.

Camp Lincoln. More archival work is needed to definitively identify the standing structure.

DNo-26. Public campsites situated on this spot should be immediately closed to use. Auger boring and, possibly, test excavations will be required to define site boundaries accurately, and some assessment of the extent of damage which the site has suffered must be made before it can be determined whether the site is eligible for the National Register of Historic Places. The area has been suggested by the Tolowa Heritage Advisory Committee as a possible location for construction of a Tolowa house, not on-site, but near this traditionally used place.

RNP-IF-1. Intensive survey in the vicinity of this find should take place as part of the next phase of inventory survey, or as a preliminary to any road maintenance activity in the area, whichever comes first.

RNP-S-6, -S-5, (Special Study Site 1). If the area of Murphy's House is to be nominated to the National Register, more archival work should be done to document uses of the site. The Kelsey Trail should figure in the interpretive program; e.g., a hiking trail might be named after it, with some explanation of the trail's earlier historic and presumed prehistoric use. The general location of the Evans House (shown near Murphy's on the 1884 map) should be inspected for structures or remains in the course of further inventory survey.

RNP-S-9. The history of Nickerson's Ranch, which once occupied the general area, should be researched and documented. Traditional Native American use of the area for fishing and gathering should be mentioned in interpretation, perhaps at the Nickerson Ranch Trailhead or in the area of the old orchard. More exploratory work is needed to define the nature and extent of the apparent prehistoric site. For this purpose, a series of test units should be placed in the forested areas in the vicinity of the observed chert scatter; duff and the upper few centimeters of soil should be removed and screened.

DNo-15 (Special Study Site 2). The original nomination of this site to the National Register of Historic Places might be updated (see a proposed draft nomination, Appendix 7). Foot traffic in the vicinity of the site should be discouraged; i.e., any "beach walk" or "nature trail" or other public use facility should not be situated near the site. A program should be undertaken to stabilize the eroding edges of the site. This could probably consist of procedures such as those used

at Hum-129, namely, excavation and screening of eroding slope material to create a shallower slope, which should then be covered with sterile sand.

DNo-14 (Special Study Site 3). The area of the site should be closed to camping and picnicking. Latrines, tables and fireplaces should be removed from the site, with as little disturbance to ground surface as possible; a permanent record of their locations should be made before the facilities are removed, for reference on the occasion of any future archaeological investigations. Use of the coastal trail passing the site may be continued. A program should be undertaken to stabilize the eroding edges of the site, as suggested for DNo-15 above.

DNo-2, -7 (Special Study Site 6). If any subsurface disturbance in the area of the beach parking lot is planned, archaeological testing should be undertaken to determine if any prehistoric remains are present. Any maintenance activities or excavations for construction in the area behind the DeMartin house should not take place until the location of the burial place in that area is ascertained, so that it may be protected from disturbance.

DNo-1 (Special Study Site 5). An increase in visitor use of the Lagoon Creek area would not be desirable, since it would bring more foot traffic over the surface of the prehistoric site. If possible, the existing trail which crosses the site should be rerouted. If a satisfactory alternative route cannot be found, controlled observation of visitor impact on the site surface might help to determine whether a low fence should be erected to discourage hikers from wandering elsewhere on the site surface. Since construction of the fence would itself negatively impact the site, it must be weighed against the extent of visitor-caused damage to be prevented; (consideration must also be given to the impact of curiosity which may be aroused by the fence). Any alteration of the site, including fence construction, would require prior consultation with the Advisory Council on Historic Preservation, because the site is listed on the National Register of Historic Places.

DNo-6 (Special Study Site 7). As requested by a group of Yuroks, a location for the construction of a brush dance pit should be established. No other action should be planned for the area until the issue of park title to former reservation land is settled.

Split Rock. This is a place of religious significance to Native Americans; recreational uses of the area are not appropriate. The present interpretive sign referring to the rock should be removed, because its message is considered disrespectful to their religion by local Native Americans. The overlook parking spot should be eliminated, perhaps by planting vegetation, because it encourages visitors to hike to the rock. Climbing on the rock should be expressly prohibited. [Note: the interpretive sign was removed in February 1979, but the other recommendations have yet to be acted upon.]

RNP-S-25 (Hum-136). This site should be nominated to the National Register if such action is approved by the Yurok who have ancestral ties to the place. To avoid disturbance of the site, because of its archaeological potential and its sacredness as a burial place, visitor use of the area should be discouraged. This can be accomplished by removing mention of the Ossagon Creek Trail from park maps and displays, and by eliminating trail signs from the beach and trailhead on Highway 101. As a stabilization measure and to salvage archaeological data, midden which has sloughed down the eroding slope should be screened by archaeologists; such action, however, will require approval by the Yurok.

RNP-S-24 (Hum-133). In response to the request by Yurok descendants of people buried at this former village, the site should be protected from any further disturbance and desecration. The overlook and access road should be closed, covered with topsoil and replanted. Climbing on the bluff in the vicinity should be expressly forbidden. A determination of National Register eligibility of this location should be sought.

Hum-135. With the approval of the Orick-area Heritage Advisory Committee, this site should be nominated to the National Register of Historic Places. Any trails or other visitor use facilities planned for the north side of the mouth of Redwood Creek should be designed so as to avoid bringing visitor traffic near the site.

Gans Prairie. Native American consultants report this as an area of traditional use for seasonal gathering; it was reached by a trail ascending from Redwood Creek. Some evidence of trail use and gathering activities may remain in the area, and should be sought in the course of further inventory survey of park lands through intensive survey of the prairie and bordering woods, and a transect extending to the creek.

Hum-131 (Special Study Site 13). The known Yurok cemetery on the slopes of Lookout Point should not be disturbed by the park. When the Cal-Pac mill site reverts to the park, it should be surveyed for archaeological remains which may have survived. Ongoing use of parking lot and beach facilities in the area can continue, but any subsurface disturbance required for maintenance or expansion of these facilities should be preceded by consultations with the Orick-area Heritage Advisory Committee and by intensive archaeological survey, including auger boring.

ENDNOTE

The rehabilitation road route in the Rodgers Peak area was examined in April 1979. See the report "Redwood National Park: Archaeological Survey of Proposed Rehabilitation Road Route and of Airstrip Creek Rehabilitation Unit, With Comments on Survey of Logged Land Areas" by Sally Salzman, on file at Redwood National Park, Crescent City and Arcata, and at the Anthropology Laboratory, Sonoma State University. (See page 113.)

Plate 1A. View photographed in 1906 by Goddard, identified as "Lyons, taken from village site showing place for doctors. Bald Hills, Hu. Co." Lowie Museum of Anthropology, University of California, Berkeley.

Plate 1B. Same view as Plate 1A, photographed in 1978 from site RNP-S-17 (village site kyingkyohlay') toward RNP-F-20 (dancing place for shaman candidates). RNP-S-22 is located at left margin of photo, at base of upper tree line; Plate 1A shows a structure on the site in 1906. Camera facing northeast.

Plate 2A. View in 1906 from south toward kyingkyohlay' (at left) and dancing place for shaman candidates [redacted]. Previously published as Plate 39, Figure 1, in Goddard 1914b. Lowie Museum of Anthropology, University of California, Berkeley.

Plate 2B. View in 1978 from south toward RNP-S-17 (left center). RNP-S-18 extends along the length of the ridgeline shown in this photograph.

Plate 3A. Rocky point once used by Chilula doctors (RNP-F-20). Camera facing north; clipboard for scale.

Plate 3B. Close-up of piled stones, RNP-F-20. Compare Plate 39, Figure 2 in Goddard 1914b. Camera facing west.

Plate 4A. RNP-S-17, kyingkyohlay' village site. Midden area is approximately bounded by oak on hilltop, fenceline near base of hill; midden extends under trees on hillside. Camera facing southwest.

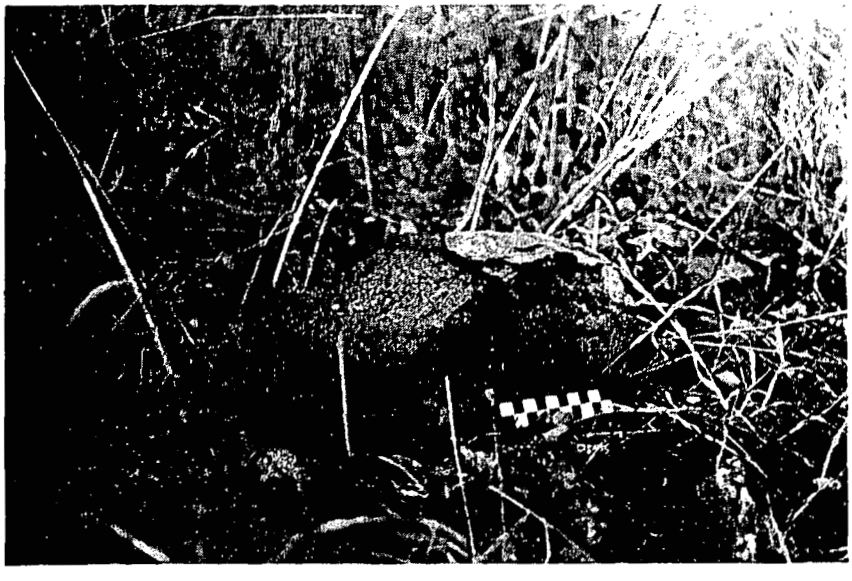

Plate 4B. Sandstone slab, possible hopper mortar base, RNP-S-17. Not collected. Scale in centimeters.

Plate 5A. RNP-S-32, a midden site suffering impacts of road use and grading. Camera facing northeast.

Plate 5B. RNP-S-31, a midden site underlying an historic orchard. Camera facing east.

Plate 6A. RNP-S-4. Midden and artifact scatter extends into the trees. Cattle shed at right and road in foreground are still used. Camera facing southeast.

Plate 6B. View west from RNP-S-4 into Redwood Creek basin.

Plate 6A. RNP-S-4. Midden and artifact scatter extends into the trees. Cattle shed at right and road in foreground are still used. Camera facing southeast.

Plate 6B. View west from RNP-S-4 into Redwood Creek basin.

Plate 7A. Sandstone slab (79-5-S4-178), other pecked and ground stone and manuports at RNP-S-4.

Plate 7B. Obsidian projectile point (79-5-S4-3) and obsidian flakes (79-5-S4-97 through -104), all from RNP-S-4.

Plate 8A. Upper part of concentration site RNP-S-14, Camera facing northeast.

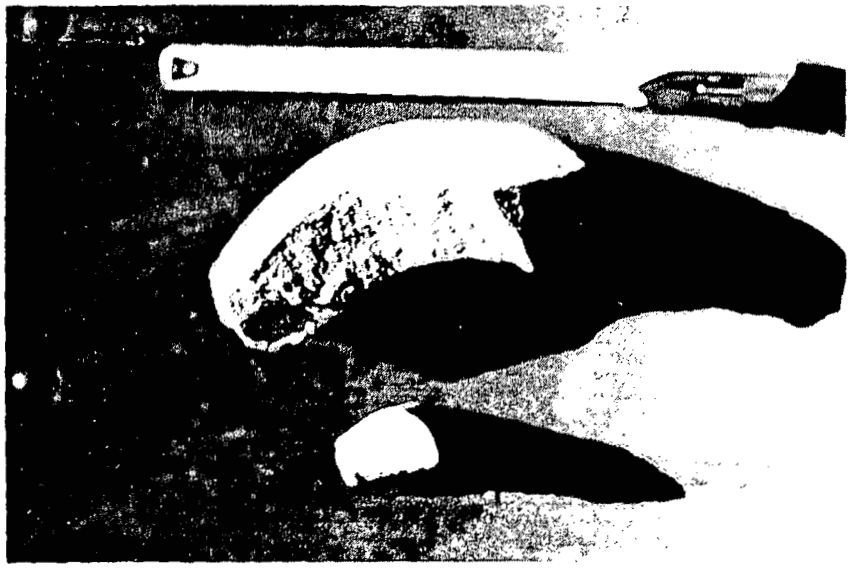

Plate 8B. Mortar fragments (79-5-S22-2, -4) from concentration site RNP-S-22.

Plate 9A. Concentration site RNP-S-7, viewed from south edge. RNP-S-35 extends up the hill in the background. Camera facing north.

Plate 9B. Chert biface (79-5-S7-2) from RNP-S-7.

Plate 10A. View south along a portion of RNP-S-35; Bald Hills Road at left.

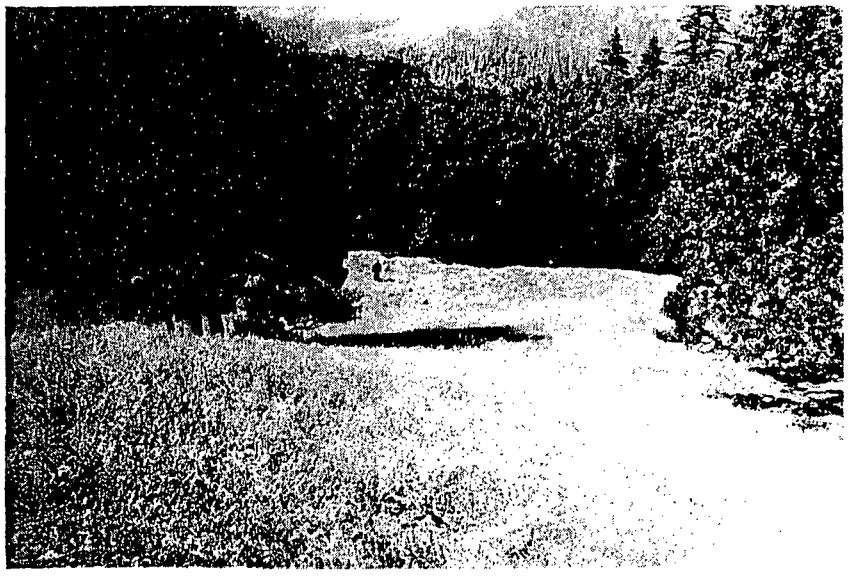

Plate 10B. Location of RNP-S-23, a flake scatter in prairie grasses among oaks. Camera facing south.

Plate 11A. Hum-136 (RNP-S-25), upper portion. Camera facing east.

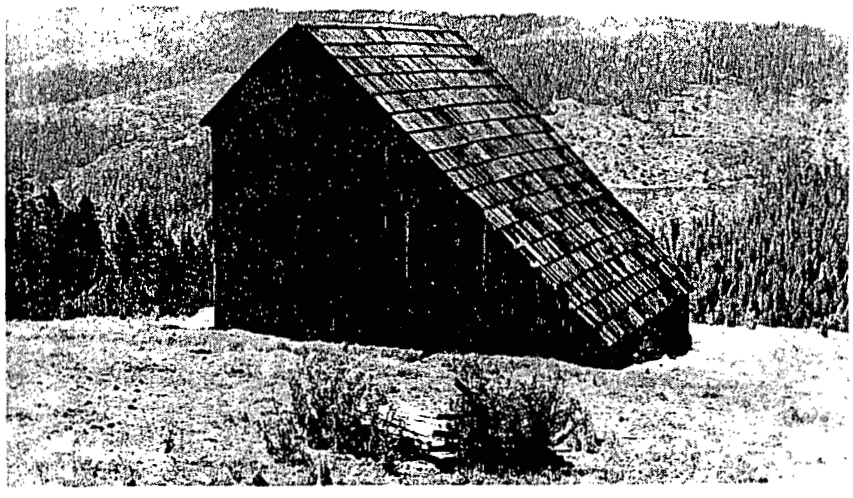

Plate 11B. RNP-F-3, an historic barn still in use. Camera facing southeast.

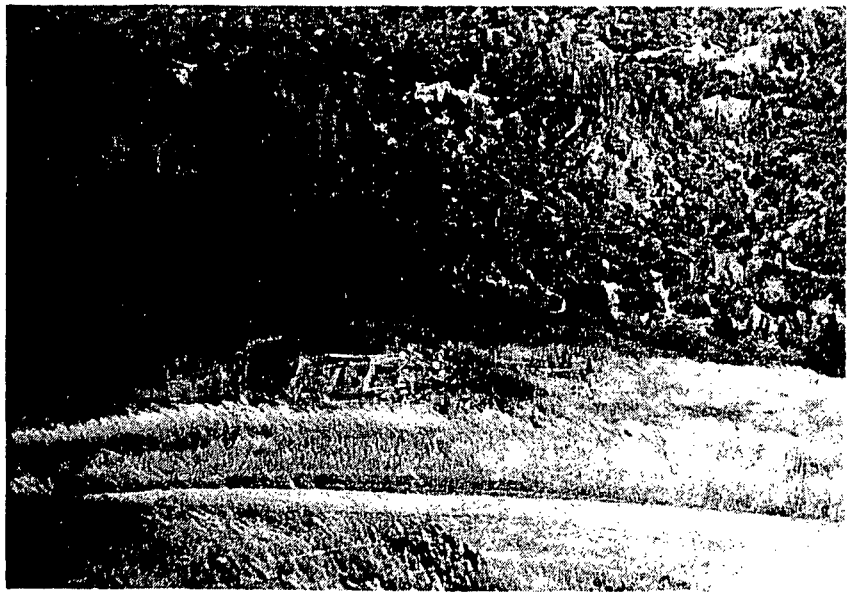

Plate 12A. RNP-F-15, a fallen barn. Camera facing south southeast.

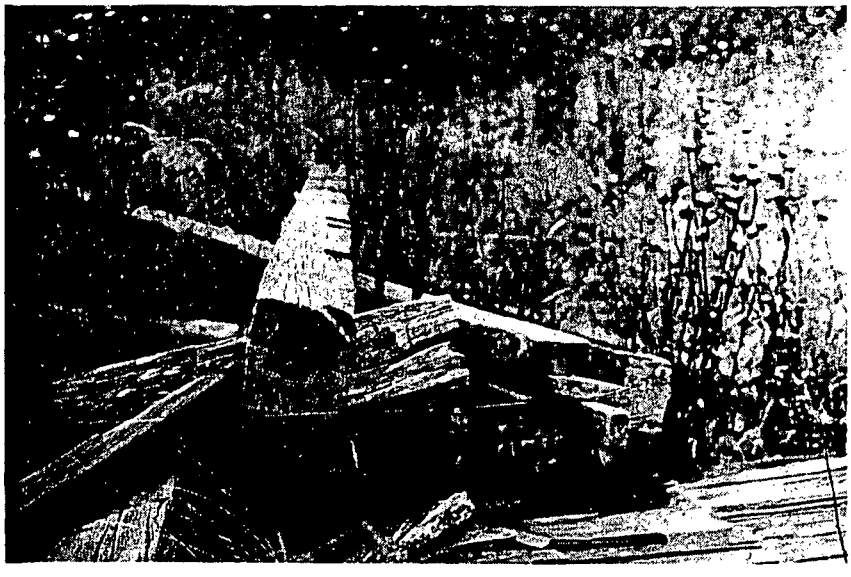

Plate 12B. Close-up of collapsed posts, RNP-F-15.

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36 CFR 63 (draft): Procedures for Requesting Determination of Eligibility
36 CFR 64 (draft): Criteria and Procedures for Identification of Historic Properties
36 CFR 66 (draft): Recovery of Scientific, Prehistoric, Historic and Archeological Data: Methods, Standards, and Reporting Requirements
36 CFR 800: Procedures for the Protection of Historic and Cultural Properties

APPENDIX 1

RECENT ARCHAEOLOGICAL STUDIES BY SONOMA STATE COLLEGE IN COASTAL NORTHERN CALIFORNIA

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Introduction

This summary of recent archaeological work conducted in the vicinity of Redwood National Park by personnel from Sonoma State College was prepared at the request of Dr. Michael J. Moratto pursuant to his study of the cultural resources within Redwood National Park. The survey of work was completed under terms of an agreement between the Frederic Burk Foundation for Education, San Francisco State University, and Sonoma State College Foundation for Educational Development, Inc. Specifically, it was agreed that the writer would "prepare a report, based on his past research as well as published and unpublished records, regarding cultural resources of coastal Del Norte and Humboldt Counties, California. The report will include: (1) a brief summary of recent archaeological work done in the project area (i.e., in the vicinity of Redwood National Park) by Sonoma State College, with an emphasis on substantive findings, and (2) professional recommendations for archaeological research and management of cultural resources in the project area."

The discussion below was based upon the following information sources: (1) archaeological surveys conducted in relation to environmental protection requirements by staff of the Anthropology Laboratory, Sonoma State College; (2) excavations by Sonoma State College at Tsahpek^{W}, a coastal Yurok village within present day Dry Lagoon State Park, designed to recover scientific data while stabilizing and protecting the site from forces of erosion and vandalism; (3) on-going laboratory analyses by Sonoma State College personnel of artifact collections from northwestern California; and (4) files of the California Archaeological Sites Survey housed at Sonoma State College pertinent to the project area. Published works, primarily papers in series of the University of California, were utilized only when necessary to provide background context, since they are readily available in research libraries.

Results of Recent Archaeological Surveys

In 1973, before state and federal environmental protection and historic preservation regulations ushered in a new era of archaeological survey, a total of 24 archaeological sites in Del Norte County and 223 sites in Humboldt County were on record in the files of the Archaeological Research Facility, University of California, Berkeley (Green et al. 1973). These files have since become the nucleus of the archaeological records maintained by the State Office of Historic Preservation, Sacramento, with responsibility for maintenance and updating delegated to a number of Regional Centers at widespread locations throughout the state. Files for Del Norte and Humboldt Counties are housed at the Anthropology Laboratory, Sonoma State College. As of the end of 1977, 68 archaeological sites were on record for Del Norte County and 356 for Humboldt County, increases of 183% and 60%, respectively. The overwhelming majority of the newly recorded sites were discovered as a result of cultural resource surveys initiated by various government agencies, most notably the U.S. Forest Service, the U.S. Bureau of Land Management, and the U.S. National Park Service. Several additional large scale projects involving surveys of private lands were required as conditions for receiving Federal funds to develop or improve wastewater disposal facilities.

Major findings of several large scale survey projects conducted under the auspices of Sonoma State College are discussed below. Pertinent information from surveys sponsored or conducted by other organizations is also discussed. All survey projects conducted by Sonoma State College were situated in Humboldt County. No comparable project has yet been conducted in Del Norte County. Major projects include: (1) Intensive field survey of more than 30,000 acres and controlled intuitive survey of about 30,000 additional acres in the greater Humboldt Bay area, conducted in conjunction with development of regional wastewater disposal facilities. (2) Intensive field survey of about 3,600 acres within the 92,000 acre Hoopa Valley Indian Reservation, conducted in conjunction with development plans for Hoopa Valley itself and timber harvest plans in adjoining mountainous portions of the Reservation. (3) Mixed strategy field survey of approximately 34,000 acres comprising the King Range National Conservation Area conducted in conjunction with development of a cultural resource management plan for the region.

Humboldt Bay Wastewater Survey. An intensive field survey was conducted in the greater Humboldt Bay area by Sonoma State College in cooperation with the Northwest Indian Cemetery Protective Association of approximately 30,000 acres to be affected by a proposed regional wastewater disposal system. Controlled intuitive reconnaissance was conducted of an additional 30,000 acres. The report of the survey (Benson 1977) has been completed but not yet catalogued by the Northwest Regional Archaeological Center at Sonoma State College. A total

of 117 archaeological sites had earlier been recorded within the survey area, many of them in the early portion of the 20th century by L. L. Loud (1918). A mere 13 of the previously recorded sites could be found during the wastewater survey, despite concerted effort to find them. Only one previously unrecorded site was discovered. Since a large majority of the previously recorded sites that could not be found were situated in heavily urbanized areas, it is a reasonable conclusion that most have been destroyed. It is also possible that some sites, or remnants of some sites, still exist but covered by structures, paving, sand, and/or landscaping.

These results are in keeping with findings of several smaller surveys conducted within portions of the same survey area as well as within adjacent areas. A survey of 11.25 lineal miles of proposed sewer pipeline in the Eureka area failed to yield evidence of three previously reported sites recorded within the pipeline right-of-way (Berg 1974b). A survey of about 700 acres and five lineal miles of pipeline associated with the Corps of Engineers Humboldt Bay and Harbor dredging project resulted in the discovery of only one of 13 previously reported sites recorded within the project area (Berg 1974a). A 300 acre survey of the Coast Guard facility at the south end of the Samoa Peninsula failed to reveal any trace of two archaeological sites reported by Loud (1918) and recorded as present within or near the project area (Fredrickson 1976).

In less intensely developed areas, more positive results were achieved. A mixed strategy survey of 3,600 acres and 25.5 lineal miles conducted in conjunction with a sewer project in the McKinleyville area north of Arcata resulted in discovery of five archaeological sites, at least three of which had been previously recorded (Fredrickson et al. 1975). Similarly, a survey of 1,210 acres associated with a sewer project in the Rohnerville area south of Eureka resulted in the recording of three previously unrecorded sites (Gorrell 1976).

The implications of these findings for the Redwood National Park study area are obvious: development and urbanization that proceeds without reference to the protection and preservation of cultural resources is highly destructive of those resources. In the greater Humboldt Bay area, centering on Eureka, urbanization has resulted in devastating loss of the major material remains of Wiyot culture. Scholarly knowledge regarding prehistory of the Wiyot, a significant northwestern California society, will be difficult to generate on the basis of the few remaining material evidences of their heritage. A similar loss of knowledge is implied for Redwood National Park and environs if cultural resources are not included at the initial planning stages.

Hoopa Valley Indian Reservation Survey. The Hoopa Valley Indian Reservation is situated on the Trinity River approximately 30 miles directly east of the Pacific Ocean and just a few miles due east of the eastern boundary of Redwood National Park. The main body of the

reservation contains approximately 92,000 acres and includes Hoopa Valley proper, a small interior valley about eight miles long and from one to two miles wide, as well as steep, rugged mountains to the east and west of the valley floor. During 1976, approximately 2,093 acres of valley floor and 1,446 acres of mountain lands, the latter divided among 37 separate parcels, were subject to intensive archaeological survey in connection with future development of the valley floor and proposed sale of timber in the mountains. A total of 18 cultural sites were identified on the valley floor (Offermann et al. 1976), while no sites were discovered in the timber sale areas (Origer et al. 1976).

Sites on the valley floor included nine archaeological sites, four marked cemeteries separate from archaeological sites, three ceremonial dance sites, and two historic sites. Five of the archaeological sites had been previously recorded by Goddard (1904) near the turn of the century. The remaining four archaeological sites were previously unrecorded. Goddard (1904) had recorded an additional six archaeological sites within the valley, but all were situated outside of the present study area. On the basis of information available to the study team, it appeared that three of these six sites had been destroyed as a result of highway construction, the building of a shopping center, schools, and a lumber mill, and other recent development.

It is important to note that the three ceremonial dance sites were identified in the field on the basis of information supplied by local Hoopa Valley residents. No materials identifiable as culturally significant could be found by the survey team. However, a modern sign at one of the three dance sites proclaimed the area to be of importance to Hoopa Valley residents. This finding has an important implication with respect to the Redwood National Park area. It is possible that within Park boundaries are important cultural sites that lack materials identifiable as significant by an archaeologist. It is therefore crucial that insofar as possible knowledgeable Native American Indians and other persons be consulted regarding the occurrence of such sites within the Park boundaries.

The 37 timber sale areas ranged in size from 25 to 220 acres, with a mode of 40 acres. Slope ranged from 15% to 75%, with more than half of the parcels characterized by slopes of 50% or more. Based upon work conducted in mountainous regions to the south of the Hoopa Valley Indian Reservation, in the Mendocino National Forest (Jackson 1976) and the geothermal region of northeastern Sonoma and southwestern Lake Counties (Fredrickson n.d.), a large majority of the Hoopa Valley timber sale areas were situated in areas of low archaeological sensitivity. In the two southern areas, biophysical features suggestive of high archaeological sensitivity include some combination of the following:

(a) level to gently sloping topography;
(b) nearby springs or flowing drainages;

(c) major trending ridges;
(d) glades or meadows.

Conversely, biophysical features suggestive of low archaeological sensitivity include:

(a) slopes with gradients greater than 50%;
(b) an absence of fresh water;
(c) no major ridges;
(d) slopes that lack flats or terraces;
(e) springs or flowing drainages that lack glades, meadows, or terraces in their vicinities.

Results of cultural resource surveys of timber sale and land exchange areas on government land within Humboldt and Del Norte Counties administered by the U.S. Forest Service and the U.S. Bureau of Land Management generally supported these criteria of sensitivity. More than 36 separate government surveys yielded data on more than 3,200 acres of mountainous lands in Humboldt County and more than 4,400 acres of similar terrain in Del Norte County (see Fredrickson et al. 1977; 1978). Twelve archaeological sites, all found on or near major trending ridges were recorded as a result of the Humboldt County work, while seven sites, also in this setting, were discovered in Del Norte County. None of the sites had been previously recorded.

Based on the personal knowledge of the writer, it is clear that only a fraction of government agency reports pertinent to the Northwest Regional Archaeological Center service area have found their way to the Regional Center files. It is desireable from a research perspective that copies of all reports be filed with a central depository. With hundreds of surveys performed in just a few years, it is easily possible for survey data to be lost without such central filing.

King Range National Conservation Area Survey. The King Range National Conservation Area is situated in the coastal belt of southwestern Humboldt County, with a small portion located in northwestern Mendocino County. The area is characterized by steep, rugged mountains that rise from the Pacific shore abruptly to elevations of more than 4,000 feet. During 1974, an intensive archaeological survey was conducted of the 26 mile stretch of beach and marine terraces between the mouth of the Mattole River and Shelter Cove (Fredrickson 1975). During 1975 and 1976, additional surveys were conducted, focusing primarily upon interior lands (Levulett 1976; 1977). Prior to these surveys, a total of nine archaeological sites had been recorded, four of them along the beach to the south of the Mattole River and five along the ocean bluff at Shelter Cove.

A total of 57 archaeological sites, including the nine previously recorded ones, were discovered along the coastal plain and adjacent slopes between the mouth of the Mattole and Shelter Cove. In addition, seven sites were found at the mouths of coastal drainages. A total of six sites were recorded within interior drainages, while mountain

ridges yielded three sites. Thus, a total of 72 archaeological sites were found within a surveyed area of approximately 34,000 acres. All interior sites had been damaged by past and current land use practices, such as logging road construction, bulldozing associated with logging, general road construction, and agricultural practices.

The occurrences of archaeological sites within the mountainous portions of the King Range were compatible with the models of archaeological sensitivity discussed above for the Hoopa Valley Indian Reservation. It thus seems relevant to the study of Redwood National Park to test the sensitivity models within the Park setting.

Counts Hill Prairie Survey. Counts Hill Prairie is situated near Redwood Creek near the Bald Hills, directly adjacent to Redwood National Park. According to Goddard (1914), the Chilula Indian settlement of Noledin was located in an area compatible with the characteristics of Counts Hill Prairie. The present writer was engaged by Arcata Redwood Company in 1977 to provide his opinion on three questions, discussed below. The responses of the author, after a record search, a field visit to the location, and interviews with a number of knowledgeable persons, were as follows, cited in full from his report (Fredrickson 1977):

(1) Was there a significant Indian village at that location? In the opinion of the writer, circumstantial evidence supports the hypothesis that Noledin, a significant Chilula village, was located in the general vicinity of the study area. While the author believes that it was likely that the goosepens [hollow redwood trees] near the stone fireplaces were used by the Chilula, there is no direct evidence to support this hypothesis. The origin of the stone fireplaces has not been demonstrated but the author believes them to be probably of recent sheepherder origin rather than of 19th century Chilula origin. In addition to the suggestions of origin discussed above, the clay mortar of the fireplaces appeared to the writer to be too susceptible to weathering to have allowed preservation of an intact fireplace for almost 100 years.

The grave found within Park land, presumably an Indian grave, supports the circumstantial evidence for the location of Noledin in the general vicinity. Unfortunately, the grave does not help pinpoint the village location. . . .

The goosepens are the strongest evidence on Arcata Redwood Company lands for the nearby presence of Noledin. No direct evidence of the village site was observed by the present writer. Thus, while it is highly probable that Noledin, a significant Chilula village, was situated somewhere in the vicinity, its precise location on Arcata Redwood Company lands cannot be defined.

(2) Do the remains justify listing in the National Register? In the opinion of the writer, the absence of a specific village

location that can be identified on Arcata Redwood Company lands militates against a National Register listing. James Benson, archaeologist for the Northwest Indian Cemetery Protective Association, who accompanied the writer in the field on April 16, agreed with the writer that nothing warranting National Register status was apparent. On the basis of observations, including examination of soil profiles exposed in eroding gullies, the writer concluded that it was unlikely that significant subsurface materials were present. These observations, of course, cannot rule out conclusively the presence of significant subsurface materials.

Additional comment is required, however. The village site of Noledin is very probably located nearby. The evidence found on Park land supports this opinion. In addition, the goosepens were probably used by the Chilula and have significance because of this as well as because of their subsequent uses. In the writer's opinion, however, the destruction of the large goosepen reduces its significance with respect to National Register criteria. The goosepen has not and is unlikely to provide information important to history or prehistory (cf. 36 CFR VII Part 800.10(d)). Finally, the writer believes that the stone fireplaces have significance, whatever their origin. However, the writer believes that available data do not warrant their listing on the National Register at this time. Additional documentation is needed.

(3) On the basis of field observations and the circumstantial evidence of the goosepens, as well as Goddard's description of Noledin, the author believes that a portion of the area surveyed must be defined as archaeologically sensitive. In the writer's opinion, however, the sensitive area is considerably smaller than the area designated on the National Register form as the Noledin Historic Village Site. The archaeologically sensitive portion of the Arcata Redwood property that was examined included a narrow strip with boundaries parallel to a line running through the burned out goosepen and the nearly intact fireplace. The north boundary should extend no more than 100 feet to the north of this line, while the south boundary should extend 500 feet into the prairie zone. The western boundary should be formed by the Park boundary, while the eastern boundary should be the goosepens, about 900 feet upslope of the Park boundary. In the opinion of the author, this strip would include all archaeologically sensitive Arcata Redwood Company areas that were visited during the present survey: the goosepen redwoods, the stone fireplaces, and the possible but undocumented location of Noledin as reconstructed from Goddard's description on the basis of circumstantial evidence.

Other Archaeological Work

Investigations at Tsahpek^{w}. In the summer of 1976, a team of workers from Sonoma State College under the direction of the present

writer, at the request of the Northwest Indian Cemetery Protective Association and under a permit from the California Department of Parks and Recreation, conducted archaeological work at Tsahpek^{W} on Stone Lagoon within Dry Lagoon State Park (see Moratto 1973). The major purposes of the archaeological work were (1) to recover data from portions of the site threatened by erosion; (2) to initiate site stabilization procedures to reduce erosion effects; (3) to assist in protecting the site from casual vandalism; (4) to recover human remains that were exposed or threatened by erosion.

During the four week field session, a strip about three meters wide along the northern edge of the bluff portion of the archaeological site was totally excavated by standard archaeological procedures. The vertical wall created at the newly formed edge of the site as a result of the excavation was cut back to form a two-to-one slope to eliminate the possibility of sidewall collapse and related erosion. A layer of beach sand was deposited on the newly created slope and a layer of back dirt was placed over the sand. The majority of back dirt from the excavation was spread over the central area of the bluff portion of the site to a depth averaging 40 to 50 cm to serve as a protective layer in the event casual vandals attempted to pot hole the site.

A portion of a human skeleton was recovered from a portion of the site that had slumped down from the bluff to near beach level. In addition, Native American Indians familiar with the site and its history addressed the field crew on several occasions providing data on Coast Yurok life ways. Although the analysis of materials recovered from the site has not yet been completed, several findings can be reported here. A paved area of flat stones was uncovered, apparently the remains of a traditional Yurok house. Numerous small, side-notched pebbles were recovered. According to local Yurok, the pebbles probably served as weights for nets that were used to catch water fowl that frequented adjacent Stone Lagoon. No historic materials of any sort were recovered from the portion of the site that was excavated. Analysis conducted to date failed to reveal any evidence of cultural change during the period the portion of the site excavated was utilized. Work at the site will continue in 1978 with the same goals, but with scholarly work focused upon delineation of activity areas.

The marked erosion of the bluff portion of Tsahpek^{W} has prompted the writer to develop the following explanatory hypothesis based upon a number of premises: (1) There has been extensive erosion during historic times. This is an empirical generalization based upon observations made by contemporary Native American Indians familiar with the site. (2) The site occupants who settled the bluff were familiar with the physical environment in which they lived and which provided them sustenance. (3) The site occupants would not have settled in an area where visible erosion was occurring.

The principal hypothesis is that bluff erosion is a recent and culturally induced phenomenon. The corollaries are: (1) sea action is the primary erosive force; (2) off-shore kelp beds mediate the effects of the sea; (3) the kelp population is held in balance at least in part by such predators such as sea urchin and abalone; (4) kelp predators such as sea urchin and abalone are held in balance at least in part by sea otters; (5) the sea otter population was drastically depleted by intensive hunting during the early 19th century.

Sample alternative explanations that need to be explored include, among others: (1) erosion is a function of shifting ocean currents; (2) other forms of cultural intervention, such as overgrazing and overcutting of wood, contributed to the increased rate of erosion; (3) erosion is not recent, but a long term continuous process.

There are several implications to the principle hypothesis. If erosion were a recent phenomenon, for example, it may have been a factor in the shift of occupation during historic times from the bluff area to the more protected region to the east. The principle hypothesis has implications that extend beyond the specific location of Tsahpek[v], since extensive coastal erosion is known many places elsewhere along the California shore.

North Coastal California Projectile Point Typology. As part of an undergraduate seminar project at Sonoma State College, Milburn and Van Dusen (1977) compiled data on the distribution of projectile point forms from Humboldt and Del Norte Counties. A total of 381 points from eleven archaeological sites or localities were divided into 19 forms and the spatial distribution of each form was plotted. Forms included points similar to the broad-stemmed Borax Lake points better known further south in Lake County. This point form was found on ridge sites at Hupa Mountain and Pilot Ridge in interior Humboldt County. Although Jackson (1977) estimated the age of the Hupa Mountain site which produced points of this form at 2300 to 2800 years before the present on the basis of obsidian hydration measurements, this dating is in doubt since all points of the broad-stemmed form from the site were of chert and are believed elsewhere to date as early as 5000 years before the present. Another point form from Pilot Ridge resembled the small, expanding stem projectile points recovered from the Sam Alley site in Lake County. In Lake County, this point form is now considered to be diagnostic of Phase 1 of the Clear Lake Pattern, dated ca. A.D. 1000 to 1300. Milburn and Van Dusen (1977) suggested that the appearance of this small point at Pilot Ridge may indicate occupation of the area by a non-Athabascan group at this time depth, a suggestion consistent with Baumhoff's (1958) suggested time of Athabascan entrance at A.D. 1300.

Archaeological Elements of E.I.R.'s. Archaeological surveys from Humboldt and Del Norte Counties required under the California

Environmental Quality Act are poorly represented in the files of the Northwest Regional Center at Sonoma State College. Totals in the file for each county are less than ten per year since 1974. While it may be that archaeologists failed to file reports with the Regional Center, it is more likely that archaeological surveys of sensitive areas are not being routinely conducted in either county.

Discussion

The preceding summary of recent archaeological work conducted in Humboldt and Del Norte Counties, especially work carried out under the auspices of Sonoma State College, prompts the following recommendations regarding procedures and research associated with cultural resources, primarily archaeological resources. The recommendations emphasize only those points brought up in the main body of this paper. Careful reading of each report housed with the Northwest Regional Center at Sonoma State College (see Fredrickson et al. 1977; 1978) could expand the listing considerably. The scope of this paper, because of time limitations, was restricted to relatively brief analyses of the more extensive projects. Additional analysis undoubtedly would prove productive.

(1) It is important that cultural sites be identified early in the planning process so that appropriate protective measures can be taken. The greater Humboldt Bay area serves as a tragic example of the loss of cultural heritage through urban development that ignored the values inherent in that heritage. The damage to interior sites in mountainous regions with low population density, as demonstrated by the findings in the King Range, highlights the danger to sites of logging, farming, and road construction.

(2) It is important that routine survey of archaeologically sensitive areas be required by all agencies, including counties and municipalities as well as Federal agencies, so that cultural sites may be identified and protected as early as possible in the planning process. Effort should be made whenever possible to encourage responsible agencies to initiate such surveys. On a local level, for example, an advisory group could be formed to recommend survey when appropriate. Both the Anthropology Laboratory, Sonoma State College, and the Northwest Indian Cemetery Protective Association have indicated willingness to cooperate in such a venture.

(3) All cultural resource reports, whether prepared by consultants, researchers, or agency personnel, should be filed with the appropriate Regional Center so that the data discussed or reported may contribute toward solution of research problems. When surveys are reported, a minimal amount of basic information should always be included: (a) appropriate maps of the study area showing boundaries of the areas surveyed and the kind of survey treatment given each subarea; (b) an estimate of acreage and/or lineal miles covered

by each survey method; (c) a description of survey methods employed complete enough to allow evaluation of their effectiveness; (d) completed site record forms for each cultural property encountered, including previously recorded ones. Responsible administrators in government agencies should, as policy, require that each inventory report be filed with the appropriate Regional Center.

(4) Native American Indians and other knowledgeable persons should be consulted with respect to the identification of cultural sites, especially those that lack characteristics that can be recognized by archaeologists and other cultural resource surveyors. The ceremonial dance sites within the Hoopa Valley Indian Reservation constitute one example of such sites. Plant gathering areas could provide another example.

(5) Native American Indians should be consulted with respect to the functions of artifacts recovered from archaeological sites. The notched stone pebbles from Tsahpek^{w}, for example, were assumed to be net weights used in fishing until information supplied by local Yurok suggested their use in the snaring of birds.

(6) The models of high and low archaeological sensitivity for mountainous areas, as outlined in the body of this paper, should be subject to further and more refined tests. Additional specific models for different kinds of sites should be developed and tested.

(7) To date only one early site, at Point St. George in Del Norte County, has been found in a coastal context in northwestern California. Can an explanation be provided to explain why early sites are more commonly found in the interior than on the coast? What role might Holocene sea level changes play in this situation?

(8) While recent archaeological survey has resulted in the recording of numerous sites, little is known regarding site function. What are the differences in function, if any, between coastal and interior sites, between riverine and mountain sites? Are there significant temporal differences? Are there differences in social organization implied by the different site locations and different functions?

(9) Since projectile points are the most frequent category of formed artifact found in interior sites, further work on the definition of point types could provide data useful for explaining population movement, directions of cultural influence, and cultural change. The suggestion of non-Athabascan use of the interior prior to A.D. 1300 is one implication of such study.

(10) Additional detailed historic research would be useful, especially in view of conflicting interpretations regarding the stone fireplaces in the vicinity of the Chilula village of Noledin. Are such fireplaces the product of sheepherders, as one suggestion has

it, or do they derive from earlier Chilula use of the area?

(11) The erosion observed at Tsahpek^{w} is worthy of further investigation regarding its causes and the length of time during which it has been occurring.

(12) Since the excavated coastal sites in northwestern California typically show no evidence of significant cultural change, can it be inferred that groups such as the Yurok and Wiyot entered the area with already well developed social status systems? Can tests be devised to deal with this question? What were the adaptations of earlier groups? Where are earlier coastal sites situated?

Appendix 2

A SUMMARY OF THE ARCHAEOLOGICAL RESOURCE SERVICE (ARS) PROJECTS IN THE HUMBOLDT SUBAREA

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edited by Polly McW. Bickel

Scope of Services

The author has been asked by Dr. Polly Bickel, Project Director for the Redwood National Park archaeological project, to provide a report of publishable quality based on Archaeological Resource Service's past research regarding the cultural resources of coastal Del Norte and Humboldt Counties. The following report will attempt to summarize the work accomplished by ARS principals Katherine Flynn, William Roop, and Gary Berg (no longer a principal since 1975) during the last four years in or near the Redwood National Park area. A total of 15 archaeological impact evaluations have been undertaken in the Humboldt subarea; of these nine reviewed project areas where no cultural resources were found within the direct impact area; two projects evaluated four previously known cultural resources, and four projects resulted in the recording of 24 previously unknown cultural resources. Three of the latter four impact evaluations are pertinent to archaeological research in Redwood National Park and, as such, will be described in greater detail in terms of the substantive data which may be provided towards a compilation of a regional research design. This report will also discuss our recommendations for future archaeological research and the management options available within the study area.

Archaeological Impact Evaluations without Observed Cultural Resources

Table I* is a listing of the nine reconnaissance projects undertaken by ARS which encountered no cultural resources in the direct impact zone. None of these nine projects involved either great distance or area. Five of these encompassed a very narrow section of streambank, which in many cases had undergone massive modification since the prehistoric era.

Two reconnaissance projects deserve somewhat greater mention here. They are:

* Tables may be found at the end of this appendix, pp. 172-176.

1. Berg 1975a (ARS 75-12) Timber Harvest Plans for Arcata Redwood Lumber Company, near Elk Prairie, above the east bank of Redwood Creek;

2. Roop 1975 (ARS 75-37) Orleans-Red Cap Bridge, on the Klamath River, bordering on the Six Rivers National Forest.

Berg evaluated three separate cutting units as a portion of one of the first timber harvest plans written for a local logging concern, Arcata Redwood Company. Berg did not encounter any previously recorded cultural sites, nor did he record definitive cultural materials. He did, however, denote several locations which appeared potentially "sensitive" to cultural resources. From a comparison of his map references with the suspected locations of named Chilula villages and camps (Goddard 1914b; Baumhoff 1958) in this section of Redwood Creek, it is apparent that Berg's evaluated areas were indeed highly "sensitive" to various forms of aboriginal habitation and land utilization. The lack of observed resources may be due to two inter-dependent factors: (1) the severe amount of previous modification to stream channels, and, (2) a lack of a clear understanding of where cultural utilization takes place within a given physical environment, caused in part by an over-reliance on ethnographic models of climatic homogeneity.

Moving far afield from the Redwood Creek study area, the Red Cap bridge project on the Klamath River in Orleans posed an interesting problem for archaeologists. Roop (1975) failed to find any evidence, either physical or inferred from discussions with a local Indian informant, of a cultural resource being present at the site of the proposed Red Cap Bridge. However, upon re-examination of the parcel and in-depth ethnohistorical interviews conducted by Gary Stumpf, archaeologist with the Six Rivers National Forest, two highly significant cultural sites were discovered to have existed within the direct impact zone of the bridge reconstruction. It should be noted that all surveyors failed to find any physical eivdence of any usage of the parcel, for various reasons. Stumpf draws these conclusions on the form of prehistoric land use:

> From work done by Chartkoff & Chartkoff (1975) and Baumhoff (1963), one would expect settlements of some kind on the flats beside the river north of Chimmekanee Creek and east of Crawford Creek. According to ethnographic literature (Drucker 1935; Kroeber 1925, 1936; Kroeber and Gifford 1949; Bright 1957; Curtis 1924), there were several Karok villages and ceremonial areas in the vicinity. In particular, the flat below the proposed southern bridge abutment and road alignment was a village and Deerskin Dance ground, and the area adjacent to the proposed northern bridge abutments was, according to informants Lou Wilder and Orville Allen Sr., a sacred medicine place visited by the priest during the World Renewal (1977:5).

This scenario points up the need for both pre- and post-field literature search as well as interviews with local natives. Sacred areas are often not represented by physical paraphernalia or signs which the archaeologist can observe and measure, though the signs may be easily identified by the Native American populace. Stumpf concludes that sites 05-10-52-12 and -13 need not be "confirmed archaeologically" to fulfill criteria for significance,

> ... the fact that they were not so confirmed by this reconnaissance does not disprove their presence or rule out the possibility of subsurface cultural material (a dance ground, for example, would not be expected to exhibit much cultural material on the surface) (1977:GCS3).

The foregoing shows that in the Redwood Creek and Klamath River areas, surface survey without in-depth ethnohistorical research may be insufficient to identify significant cultural resources. An additional problem is that local informants may be divided in their opinions regarding the utilization of particular loci, or may be so far removed from links with their tribal ritual patterns as to be unable to convey the intrinsic importance of certain loci to researchers.

Compounding the latter problem is that the riverine landscape has often been completely modified, either naturally by flooding or artifically by timber harvest, so that areas of spiritual value may no longer be recognizable as such, even by resident natives. The ethnographic record does describe cases where spiritual areas were abandoned during cataclysmic environmental conditions such as flooding, never to be re-used. This suggests that if the archaeologist is unable to identify a locus of cultural utilization due to lack of physical evidence, proper detailed description of the physical environment and any modification to its configuration should attempt to discern if the area could once have supported ritual utilization. For the Red Cap Bridge project, for example, the proximity of known Karok villages to the study area should have prompted researchers to consider the ethnographically recorded association of villages with sacred areas, where spiritual forms of behavior took place, at specific locations at specified times. The researcher should have attempted to identify the kinds of environmental change, either natural or artificial, which might have functioned to remove any trace of spiritual use.

Ethnohistoric research was successful in the case of the Red Cap Bridge project because there were informed native consultants available to verify or deny a proposed ritual use of the area. In many areas, traditional Native American spiritual practices are no longer followed, and there are no informants who might supply corroborative data regarding sacred areas. Furthermore, ethnographic data cannot always be taken as truth, given problems in the recording of data due to the idiosyncratic behavior of both informant and ethnographer.

For research into prehistory, if one relies too heavily on ethnographically derived models of Native American behavior without considering environmental change over time, certain highly sensitive spatial areas could be completely missed in sampling. This kind of thinking is common, as is discussed in greater detail below regarding the Double B Ranch subdivision project.

ARS Projects which Evaluated Previously Known Cultural Resources

In two cases, 1976-11 and 1975-33, ARS revisited cultural resources which had been previously recorded. The permanent designations for these resources are: 4-Hum-101 and 4-Hum-102 (the Johnson Quarry project), and 4-Hum-245 and 4-Hum-246 (the Hupa Mountain timber sale).

ARS 1976-11. Following a survey of Humboldt Bay in 1913, L. L. Loud (1918) recorded over 170 Wiyot villages and camps. Hum-102 was considered to be a village known to the ethnographic Wiyot; Hum-101 was not so mentioned. Hum-101 is identified by a "significant deposit of black earth with shell", not by any kind of lithic artifacts. ARS surveyed a 50 acre parcel 300 meters south of the alleged location of Hum-101. Neither discolored earth nor shellfish residues were observed, but several lithic implements were recovered: 2 fragmentary chert projectile points, probably of Gunther-barbed type, a possible mano, a massive chert core tool resembling a chopper, and some waste flakes. A complete reconnaissance of the entire parcel proved impossible due to an uncooperative landowner. Upon re-visitation by the Northwest Indian Cemetery Protective Association and county planning officials, our suspicions were confirmed that Hum-101 had undergone modification in several places, and the two roads on the subject parcel may have disturbed a highly significant area, that of a cemetery, which lies away from the main concentration of Hum-101. Arnold, representing NICPA states:

> [the project area] . . . is a high enough point to command a clear view of the surrounding area, including the coastline of Southern Humboldt Bay and Loud's 4-Hum-102. The elevated position, with a view of the site of the village of Tolel, would be a factor increasing the probability of its use as a graveyard or ceremonial site, since there are instances where graveyards were located in places with a view of the village, rather than in the center of the village (Arnold 1975:1).

The lack of midden may strengthen the proposition that the Johnson Quarry parcel, 300 meters south of the reputed location of Hum-101, may be an off-site cemetery complex. The notation of Loud's that Hum-101 had no Wiyot village name suggests that whatever its function, it is unlikely that it was contemporaneous with Tolel's (or Hum-102) utilization. Local residents of the Table Bluff rancheria had no knowledge of the presence of any kind of cultural site in the immediate

location, although there were several known neighboring properties which contained cultural sites. However, should Hum-101 and its quarry adjunct be representative of pre-Wiyot peoples, it would be understandable that even local Wiyot people still practicing traditional ways might be unfamiliar with the sensitivity of the area.

ARS 1975-33. Hum-245 and Hum-246 were recorded by Pamela Roberts, an archaeologist with the Bureau of Land Management/Ukiah, Mendocino County in 1975. The sites are situated on Pine Ridge, at approximately 3500 feet elevation. Roberts conducted a preliminary archaeological reconnaissance of three cutting units and associated access roads (4.6 miles overall length) approximately 20 miles northeast of the community of Blue Lake. These sites were located along the access roads; timber cutting and improvement of these access roads were thought to potentially impact the sites, and so a more detailed surface reconnaissance and test excavation was recommended. ARS was contacted by TerraScan, Inc. of Eureka, who were to write up the draft environmental assessment of the proposed timber sale, and requested to undertake the recommended test excavations. After much confusion about the nature of the resources to be tested, fieldwork was conducted during the week of September 13-20, 1975. Eight 1 x 2 meter units were excavated and 35 units were surface-collected within the two sites, as defined by the BLM. Due to some problems with BLM stakes being disturbed (and sometimes completely removed) by cattle grazing activities, several surface collection units were found to lie outside the BLM-defined area to be impacted by the proposed road. Over 3300 pieces of aboriginally modified stone (fully formed tools as well as debitage from manufacture or utilization) were recovered through excavation and surface sampling.

The research goals of the testing program hinged upon ARS's postulation that there was a definite similiarity in function between the Pine Ridge sites, Hum-245 and Hum-246, and the Buck Rock and Upper Government Flat sites sampled by Thomas F. King (1974). King considered that the Buck Rock and Upper Government Flat sites were representative of high altitude (6000 feet) seasonal activity in the North Coast Ranges. ARS attempted to define items of cultural manufacture (chipped and ground stone tools as well as features) which might be associated with high altitude settlement in a pre-ethnographic context. It was evident from research in the ethnographic record that the Athabascan speaking Chilula-Whilkut, residents of the Redwood Creek drainage, used the upper slopes of the Bald Hills (including Pine Ridge) as acorn and hard seed collection areas during the late summer and into the fall, prior to the projected heavy winter snowfalls which allegedly make this area impassable.

Hum-245 and -246 were considered to be the first recorded upland sites in the Bald Hills, and the test excavation sought to define the kinds of lithic and/or ecofactual constituents which might technologically define the exploitative system used to collect upland resources such as deer, elk, acorns, hard grass seeds, and raw materials

like Franciscan chert. Since there had not been any previous systematic evaluation of the ethnographically reported upland gathering camps of the Chilula, it was hoped that the preliminary evaluation of Hum-245 and -246 would provide sufficient data upon which to build hypotheses which in turn could be tested via future survey or excavation in similar locations within the Bald Hills. Toward this end a very sketchy environmental reconstruction was conducted. Much attention was drawn to the ecological advantages afforded by ecotonal situations, and how the physical situations of both Hum-245 and -246 might maximize the inhabitants' access to resource-rich ecotonal areas along the ridge.

Preliminary analysis of the artifactual yield suggested that each site represented a different kind of exploitation of the physical environment. The presumed difference in exploitative techniques is reflected in the different tool categories, such as projectile points, knives, scrapers, burin/reamers, chopping tools, manos, or metates recovered at each site. ARS concluded that Hum-246 was a vegetable food processing camp with attendant chert quarrying and tool manufacture taking place on the top of the ridge. Artifacts from Hum-245 included a relatively high percentage of bifacially retouched items such as projectile points and the associated residue from pressure retouch, as well as large primary flakes which had been retouched to function as butchering or wood-working implements. The proximity of Hum-245 to still-frequented game trails and the presence of projectile points suggest that the site was used by hunters for game procurement and primary butchering. The test excavations of these sites demonstrated that occupation, albeit seasonal, did occur in the uplands of the Bald Hills as was predicted from ethnographic accounts, and that different exploitation methods are identifiable in the archaeological record. One can now posit the presence of at least three different kinds of activity areas in the Bald Hills: quarry sites, vegetable food processing sites on or near ecotones, and potential hunting camps near water and game trails.

Dateable organic materials were not recovered from the excavated sites. Relative dating on typological grounds foundered on a lack of an adequate tool sample and the newness of the recording of such phenomena in the highlands. However, it is suggested by the artifact typology that the occupation of at least Hum-245 may far predate the ethnographic Chilula. ARS feels that the two sites were not simultaneously occupied. Each site represents a complement of a larger subsistence system where upland resources were exploited; first from an upland base camp, in pre-ethnographic times, then at a later date by new immigrants, possibly Athabascan speakers such as the Chilula-Whilkut, from a lowland base camp on Redwood Creek. In this later era, the uplands were seasonally exploited but not inhabited on a permanent basis.

ARS recommended that Hum-245 and Hum-246 be afforded protection through a re-alignment of the proposed access road. This recommendation was not followed, and during fall of 1976, salvage excavation

of 20% of each site was undertaken by Archaeological Consulting and Research Service, Inc. (1977).

ARS Projects Where Previously Unknown Cultural Resources Were Observed

There are four ARS projects where previously unknown cultural resources were discovered. ARS 77-32, the survey and test excavation of 4-Hum-316 on the South Fork of the Eel River upstream from Garberville, will not be discussed in this paper. The other projects are: (1) ARS 75-16 (survey) and 75-24 (test excavation) of 4-Hum-352, located at 7th and Union Streets, Arcata; (2) ARS 77-39, survey of 4-Hum-356, Old Arcata Road and Jacoby Creek Road, Bayside (near Eureka-Arcata); and (3) ARS 76-65, the Double B Ranch subdivision project (the old Chezem Ranch property) entailing a 60% sample of 2700 acres situated on or near Highway 299 at Berry Summit. ARS 76-65 recorded 21 loci of aboriginal activity which have not yet received permanent State trinomial designation. Each project will be summarized below.

ARS 75-16/24. The City of Arcata proposed to widen a section of 7th Street at Union Street. Berg (1975b) conducted first a preliminary archaeological survey of the proposed improvement area, and recovered several stone implements. Pre-field literature search revealed the presence of significant cultural resources, notably ethnographically named Wiyot villages (Loud 1918), in the vicinity of the proposed improvement area, but no resources were known to exist on the property. Berg's survey revealed that the existing road has already cut through a periphery of Hum-352, revealing a number of chert cores and flakes, particularly one specimen which is considered to be an atlatl dart. The remainder of the resources is situated outside the area proposed for modification, and was not surveyed or excavated.

During the week of May 12, 1975, Roop and Flynn of ARS conducted a program of systematic surface collection and minor sub-surface testing, to determine the areal dimensions of the resource within the direct impact zone, and to test for the depth of the deposit. A combination of augering (with 3 inch and 6 inch bits) and three 1x1 meter units were used to define the boundaries of the deposit. Excavation units were placed on the south side of the road to test for the presence of buried or obscured cultural deposits. Augering and unit excavation on the south side of the road failed to recover any evidence of sub-surface archaeological materials unmixed with recent historic materials such as pottery, bottle glass, and metal fragments (50 15 cm.).

Surface collection on the north side of the road revealed additional stone implements of Franciscan chert and obsidian. It was determined that the proposed road widening would not seriously impact the site, since the major portion of the resource lies to the north of the road, on private property. However, should development occur

on this private property, serious disturbance to a valuable cultural resource would definitely ensue.

Much scientific interest was generated by this project, due to the recovery of what appeared to be an atlatl spur (Berg 1975b:4). If the identification of the specimen is correct, there is a good possibility that the site is older than 2,000 years. Such antiquity would be significant, since most of the sites observed by Loud in 1913 could be associated with the historic Wiyot peoples of Humboldt Bay. Furthermore, this particular site was not known to present-day Wiyot peoples, or other groups of Native Americans, such as the Northwest Indian Protective Association. This suggests that there still may exist many cultural resources whose situation and antiquity are unknown to local Native American groups. If one follows only ethnographically defined sensitivity profiles, certain kinds of resources may be missed. This is particularly true in the Wiyot culture area, since there is a truism established which states that every known Wiyot settlement lies above a stream, river, or slough, or at the periphery of Humboldt Bay (Blucher 1975:H-2-3). Thus, some may generalize and examine only watercourse areas, and ignore areas where water is lacking. However, the climate and topography of Humboldt Bay may well have been quite different than it is today. Cultural resources may be obscured by natural agents such as wind and waves; stream channels may have moved, and with this movement, human groups may have shifted their situation. One must be particularly aware of climatic dynamism during the last five to ten thousand years, and consider its effects upon human groups.

ARS 77-39. During July of 1975, Darlena Blucher, archaeologist with Humboldt State University and consultant to the County of Humboldt, undertook an archaeological field survey of an 8.78 mile length of Old Arcata Road, a thoroughfare which links Eureka with Arcata, lying in the heart of Wiyot territory (Blucher 1975:H-2). Archaeological reconnaissance was undertaken to assess the impact of proposed widening operations on prehistoric and historic aboriginal cultural resources. While Blucher's survey did not record previously unknown resources, several portions of the road passed very near to former Wiyot villages and camps. Blucher defined several such sensitive areas.

Old Arcata Road is of importance both to Native American people and to present White inhabitants. It closely approximates the oldest known commercial trail circuiting Humboldt Bay (Blucher 1975:H-3), a trail which fostered a massive increase of settlement in this area. Some White settlers situated their homes over and atop known Wiyot villages. The road itself has apparently cut through several large shellmounds of known Wiyot inhabitation. Further alteration of the road was thought by both the scientific and local Native American community to pose serious threat to several known sites (4-Hum-45, -50 and -54, all noted by Loud) and possibly infringe on sites unrecorded or heretofore poorly understood. One particular section,

termed section B-2, Jacoby Creek, was considered to be highly sensitive. In April of 1977, ARS conducted a preliminary archaeological reconnaissance of a very limited section of Old Arcata Road, at its intersection with Jacoby Creek Road. A previously unknown cultural resource was located; Loud's 1918 map does show sites on Jacoby Creek, but none where Hum-356 was located by ARS.

CA-Hum-356 will not be directly affected by the proposed road widening. The resource is situated at least one hundred feet northeast of the area proposed to be altered, and is located on private property whereupon sits a designated historical resource, the Rowland "schoolhouse". Stone artifacts were viewed by Roop, allegedly brought up by the owner's gardening on the east side of the house. The property is situated on the westernmost tip of a small rise, approximately two hundred feet in elevation, located over one thousand feet from the present shoreline of Humboldt Bay. The site is located in an opportune situation to exploit tideland, riverine, and terrestrial food resources. The proposed road modifications will not remove any material from this area.

Discussions with the County suggest that at least twenty historic residences along Old Arcata Road and Jacoby Creek Road are being considered for nomination to the National Register of Historic Places as a historic district, to include the Rowland property. If this nomination should become a reality, not only would the historic residences along the road be afforded protection; so too would prehistoric sites, including Hum-356. The proposed road widening can then be seen as having a positive impact on both historic and prehistoric resources, at least in this one small portion. ARS only evaluated this section, and therefore cannot state that a positive impact will be felt at every locus of prehistoric occupation. It is readily apparent that serious disturbance is taking place at certain locations of Wiyot settlement; it is also apparent that the road is indirectly the cause.

Further evaluation of the significance or cultural affinity of Hum-356 has not been undertaken. It was recommended that, preparatory to the nomination of the area as a historical district, a complete inventory of all forms of cultural resources be undertaken. Since the Old Arcata Road was an important Native American thoroughfare before its use by White settlers, data collected on the behavior of both groups could be informative for describing the cultural interface between the new and old inhabitants of the Humboldt Bay region.

ARS 76-65. Of all the reconnaissance projects which ARS has conducted in the Humboldt sub-area, the Double B Ranch subdivision project is perhaps the most important, in its ability to recommend avenues of investigation which are open for regional model building in the prehistoric era. The results of this reconnaissance project are important to the Redwood National Park Archaeological Overview Project for two reasons. First, the area investigated is only approximately

fifteen miles form the southern boundary of the Park. Second, much of the environmental data collected for the Management Plan for the Park was consulted by ARS in conducting the Double B Ranch subdivision project.

From an archaeological perspective, another reason for the importance of this one project is the fact that a poorly understood geographical unit, the slopes and crests of the ridge areas comprising the eastern headwaters of Redwood Creek, has finally been investigated in the light of ethnographically-derived patterns of utilization. Early ethnographic accounts of the Chilula-Whilkut tribes identify ten temporary camps situated in the hills above the creek (Goddard 1914b). Previous archaeological survey has centered around the terraces on Redwood Creek, where the largest and best known Chilula villages existed. Moratto (1973) was the first to initiate investigation of the slopes above these riverine terraces, although he did not visit any temporary camp locations mentioned by Goddard. From Moratto's work in the area, particularly along the lower reaches of Redwood Creek, plus recent investigations of National Forest land (Wylie 1976) upslope from the Double B Ranch, a picture of potential zones of aboriginal utilization began to appear.

As a result of ARS work, 21 separate locations of aboriginal utilization were identified: 13 flake scatters and 8 clusters of boulders of either metamorphosed sandstone or chlorite schist, bearing evidence of several forms of ritual carving or abrasion. Table II is a listing of the various resources, according to elevation, environmental setting, and inferred site type. During a controlled sample reconnaissance of approximately 60% of the 2700 acre parcel, four elevation zones were intensively examined; two additional zones were investigated through literature. The number and kind of resources observed are as follows:

riverine terrace	0 to 1200 feet	36-38 resources (Goddard 1914b; Ostrovsky & Schneck 1966)
riverine benches	1200 to 1600 feet	2 resources (Flynn & Roop 1976)
benches on lower transverse ridges	1600 to 2800 feet	12 resources (Flynn & Roop 1976)
benches on transverse ridges	2800 to 3200 feet	
benches on transverse ridges or crests	3200 to 4000 feet	9 resources (Flynn & Roop 1976; Roberts 1975)

benches on transverse ridges or crests of main ridge systems	4000 to 6000 feet	55 resources (Wylie 1976)

An interesting internal patterning of resource location is apparent in the Double B Ranch sample: only flake scatters without ground stone tools occur below 1600 feet, while benches between 1600 feet and 2800 feet contain sites with both chipped and ground stone tools. One site, 76-65-11, produced chipped and ground stone tools, plus a petroglyph rock with two areas of cupule groupings. Any site above 3200 feet in the sample is not represented by artifacts, except boulders which bear either pecked cup-like forms or random-appearing pecked and incised lines. ARS feels that the reason for the paucity of sites in the zone of benches 1200-1600 feet in elevation is lack of adequate sampling: observed bench areas were accessible only in the northern half of the parcel.

The sample of artifacts recovered from the reconnaissance is insufficient to test hypotheses on site function or antiquity. ARS postulated three kinds of utilization zones for the sampled area: a lower habitational zone, 1200-1600 feet; an upper habitational zone, 2500-3000 feet; and a ritual utilization zone, 3200-4000 feet. Several different kinds of activities are potentially represented by the tool categories recovered, such as seed grinding (metate and mano), acorn processing (hopper mortar and pestle), hunting (wide-stemmed projectile points of chert and obsidian); big game processing (bifacial knives, scrappers, and choppers), ritual ceremonies (petroglyphs). Perhaps there was brush maintenance through periodic burning of the collecting areas for seeds and acorns.

ARS attempted to establish some preliminary criteria for the determination of archaeological sensitivity of particular areas. Sensitivity was graduated according to the kinds of ecological situations present for exploitation. Table III lists the criteria which were used to generate a map which depicted the zones of varying sensitivity to occupational or ritual activity within the surveyed areas. Specific recommendations for the further investigation of both flake scatters and petroglyph boulders were made with respect to these zones.

Limited time and finances prohibited detailed measurement of the dimensions of the observed resources. Certain categories of stone tools may have escaped notice. Certain environmental variables, such as aboriginal burn-offs or shifts in the major vegetational profiles through complex climatic changes, were perhaps poorly discussed as to their effect on the location and abundance of exploitable raw materials. One criticism, voiced by Moratto (1977 personal communication), was that ethnographic analogy was relied upon too heavily, without the realization that climatic change has been a part of the environmental profile for thousands of years, with an influential effect on the distribution of resources. Postulations that pre-Athabascan speaking peoples lived on the crests and upper slopes of

the northern ridge lands of the North Coast Ranges have recently increased in the literature (Flynn and Roop 1975; Kowta 1976). If such inhabitation did take place, what resources would these people be exploiting, what techniques would they depend upon, and why has this early form of inhabitation remained so poorly represented in the archaeological record? Moratto suggests that archaeologists too often base the criteria for judging an area potentially sensitive to cultural resources by old and invalid stereotypes, which tend to perpetuate our finding the kinds of sites we expect to find (1977 personal communication). Thus, the reason that older sites may be missed is that surveys are being conducted in the wrong place, or at least with an improper emphasis on certain situations. This poses a sticky problem particularly when dealing with a less-than-100% sample of the area to be modified.

The major contribution of the Double B Ranch subdivision reconnaissance appears to be the confirmation that sites do exist in the highlands, away from Redwood Creek. Certain sites are situated in areas where potable water is absent. The survey also demonstrated, as suggested by the ethnographic literature, that more than just raw material collection took place in the hills; important but poorly understood forms of ritual behavior are represented in the cupule/pecked petroglyphs found on benches and ridge crests above 2800 feet. Areas located outside the survey area, for instance the southern ridge crest of Old Titlow Hill and Horse Mountain, should also contain petroglyph clusters which were unrecorded (and perhaps unsuspected) by Forest Service archaeologists. It is strongly suggested that Redwood National Park property will contain similar rock clusters as well as flake scatters, hunting camps, acorn groves, bulb gathering locales, shamanic "chairs", and perhaps even evidence of permanent inhabitation of the ridgetops in a period of reduced climatic harshness.

TABLE I

ARS PROJECTS WHERE CULTURAL RESOURCES WERE NOT OBSERVED
IN DIRECT IMPACT AREA

ARS Project No.	Agency	Type of Evaluation
1975-10	U.S. Coast Guard	Evaluation/survey of the Arcata Air Station facility (now Arcata Airport)
75-12	ERC, Eureka- Timber Harvest Plan for Arcata Redwood Company	Reconnaissance of several cutting units in coastal forest district/Redwood Creek and Klamath River (approximately 210 acres)
75-37	TerraScan- EIS for County of Humboldt	Preliminary reconnaissance of Orleans-Red Cap Bridge right-of-way (3200 feet)
75-44	U.S. Coast Guard	Preliminary reconnaissance of Eureka Slough property (29 acres near Myrtletown)
1976-8	County of Humboldt/ City of Arcata	Reconnaissance of section of Alliance Road, from Foster Ave. to 27th Street (5-foot r-o-w)
76-	County of Humboldt	Reconnaissance of Humboldt Road from Skyline Circle Road to Donna Avenue
76-19	County of Humboldt	Reconnaissance of portion of Rohner Creek channelization project, near Fortuna
76-16	County of Humboldt	Reconnaissance of a 2.5 mile section of Central Ave., McKinleyville
76-14	County of Humboldt	Reconnaissance of the Howe Creek bridge reconstruction on Blue Slide Rd., northwest of Rio Dell

TABLE II

DESCRIPTION OF CULTURAL RESOURCES

Site ARS 76-65-	Elevation (ft.)	Site Typology	Natural Setting	Plant Community	Lithology	Remarks
1	1200-1300	flake scatter	promontory looking SE; ? water?	oak grove	angular gravels	
2	1600	flake scatter	small flat to ENE	oak grove	angular gravels	bisected by dirt road
3	2800	flake scatter, vegetal processing	small rise; water below	firs, *Q. kelloggii*, bracken fern	black loam	150 x 200 m
4	2700	isolated flake	SE sloping terrace; NW side of creek	grasses, ferns	sandstone gravels	50 m N of powerlines
5	2700	flake scatter	knoll; N to intermittent stream	grasses, ferns, oak, pine	sandstone gravel terrace	75 x 75 m- hunting emphasis
6	3000-3040	flake scatter vegetal processing	top of bench; water to W	grassland; fir, maple, oak nearby	angular gravel	75 x 300 m 1 hammerstone
7	2800	isolated find	see 4 & 5			1 quartz tool

TABLE II, continued

Site ARS 76-65-	Elevation (ft.)	Site Typology	Natural Setting	Plant Community	Lithology	Remarks
8	3000+	flake scatter	top of bench	low grasses	angular gravels	20 x 150 m
9	2800	isolated find	see 4 & 5			outside survey area
10	2800	isolated find	see 4 & 5			outside survey area
11	2600-2800	flake scatter, vegetal processing, cupule	NW slope; spring on bench, adjacent	Q. kelloggii	sandstone	1 hopper mortar; parallels creek 200+ m
12	2550	flake scatter, vegetal processing	see 11	Q. kelloggii grove	sandstone	mano & fire-cracked rock
13	2800	isolated biface	see 4 & 5			
Petroglyphs-						
P1	2800	cupule	faces NE; 25m W of creek	oak grove	greywacke	2 separate faces, 1 w/14, 1 w/9 cupules
P2	3700	cupule	base of old Doug.Fir; 500m SW to creek	oak grove	Franciscan melange	recent cabin near site

TABLE II, continued

Site Petroglyphs-	Elevation (ft.)	Site Typology	Natural Setting	Plant Community	Lithology	Remarks
P3	3900	cupule	off dirt road spring 30' S	oak, madrone	chlorite schist	slide area
P4	4000	1 cupule rock, 3 pecked rocks	spring 20' E	ferns,Doug. fir, tan oak	chlorite schist	bisected by dirt road
P5	3200	boulder cluster w/cupules	slope below bench	grasses, oaks	metagrey-wacke	
P6	3400	boulder cupule	faces NW, on slope		metagrey-wacke	
P7	3400	boulder complex w/cupules & grooves	50m to creek		metagrey-wacke & schist	
P8	3800	boulder cupule	spring 20' E	tan oaks, Doug.fir	chlorite schist	bulldozer scars on rock

TABLE III

CRITERIA FOR THE DETERMINATION OF SENSITIVITY
TO CULTURAL RESOURCES, DOUBLE B RANCH
SUBDIVISION PROJECT (ARS 1976-65)

High Sensitivity to occupation:
(1) flat fingers of land above watercourses;
(2) smaller, lower ridges off main ridge crest;
(3) proximity to a cold stream or spring;
(4) presence of grassland and/or oak groves.

High Sensitivity to ritualistic utilization:
(1) presence of carveable schistose or sandstone rocks;
(2) proximity to a cold spring or stream;
(3) grassland or oak grove association;
(4) edges of landslide areas within unstable soils.

Moderate Sensitivity to occupation:
(1) slopes 15-50% in vicinity of benches or relatively flat areas;
(2) water within .5 mile.

Low Sensitivity to occupation:
(1) recent landslide area;
(2) slopes over 50%;
(3) dense forest without glades or water, in stable areas;
(4) rock unsuitable for carving;
(5) major roadways in geologically unstable areas (see discussion).

APPENDIX 3

A SUMMARY OF ARCHAEOLOGICAL ACTIVITIES IN AND NEAR REDWOOD NATIONAL PARK

by R. Paul Hampson, 45 W. 9th St., Tracy CA
edited by M. J. Moratto

The nature of my experience in the north coast areas, particularly in Del Norte County, has been somewhat superficial. This is not due to a lack of care on my part so much as the nature of the projects with which I have been involved (see the annotated summary of activities which ends this paper). Few projects in this area have been large or a cause of major direct impacts. In addition, most of the projects have been located on the coastal plain near Crescent City, an area that was largely covered by redwood and spruce forest in prehistoric times. The area was logged during the late 19th and early 20th centuries. Thus, there was little likelihood of sites surviving, or having existed. [The editor does not concur on this point.] The ethnographically known sites have either fared well over recent years or were destroyed, in whole or part, during earlier years.

My work with Katherine Flynn and William Roop at Chezum Ranch (in the Redwood Creek drainage) and quick review of J. Wylie's Pine Ridge notes (U.S. Forest Service, Eureka), along with my recent work on the California Nickel project indicate strong likelihood of ridge-top sites throughout the Park area. These are most commonly chipping stations but may include midden with depth and grinding implements (see Flynn and Roop 1975; Jackson 1977). Six Rivers National Forest also has notes indicating chipping stations on the ridges in Del Norte County, including one on Rattlesnake Mountain.

One informant has indicated that there is a Chinese camp and corral on Hiouchi Hill, accessible from the Boy Scout Tree trail. There are a large number of mining camps in varying size and condition scattered all through the hills in Del Norte County; I presume that the same applies to Humboldt County. In the past these have often been overlooked; even more particularly homestead sites have been overlooked. While very little archaeological work has been done on the coast of Del Norte/Humboldt Counties (see Moratto 1973) virtually none has been done in the interior; the few remaining sites are potentially very important, especially to some of the research directions taken or suggested lately (King 1972; Gould 1975).

It appears that along the coastal plain and the Smith and Klamath Rivers the archaeological sites correspond well with the ethnographic sites; few sites are found that are not mentioned in the literature. [The editor feels that this is more an artifact of past survey methods than of archaeological reality.] However, ethnographic reference falls off in the interior, particularly for the ridges. It has been shown recently that a number of sites exist on the ridges. There is also the question of "religious" sites, most frequently found in mountainous places. Even when these sites are referenced ethnographically, their locations can be in question. I am currently facing just such a problem to the south of Big Flat, Del Norte County. An informant says he has heard a story about a doctor mountain which may be Rattlesnake Mountain, a part of my project. Fortunately, if the informant is correct, I should be able to find a circular depression (perhaps squared?) surrounded by a low rock wall, remaining from a sweathouse or dance house used by several doctors while training a neophyte. If I find such a feature then I will be reasonably certain of the mountain's significance and can deal with is responsibly.

The current, and long-standing, situation with the Gasquet-Orleans Road between the Forest Service, local loggers, and the Indians is a good example of the potential problems to be faced with "religious" sites. The most recent publication is the Draft EIS for the Gasquet-Orleans Road, Chimney Rock Section (USDA-FS-R5-DES(Adm)-78-02), November 7, 1977. This is available from Six Rivers National Forest, Eureka, and possibly from the Regional Office in San Francisco. Both Joseph Chartkoff and William Bright have reviewed the documents contained in the above and submitted quite interesting reports. These are currently only available at Joe Winter's or Don Miller's offices.

Recommendations

Preserve everything. Obviously that is not entirely practical. The Enderts Beach site is worthy of some sort of drastic action before it is swallowed by the sea or ground to dust by the tourists. Could that site be stabilized? If not, I would recommend as close to total excavation as possible, a delicate proposal politically, but I think it might be done. Local involvement, particularly with the Indian community, could help. The old DeMartin house at Wilson Creek could serve as an excellent interpretative center if it is still physically capable of such a use. The site needs work as well, though I'm not familiar enough with it to suggest anything. There ought to be some potential significance though, being on the line between cultures. Incidently, my local informants feel much more a part of the SW Oregon groups than with the Yurok. The feeling is that imposed state boundaries split what had been three linguistic groups of the same people into SW Oregon groups and the Tolowa. The relationship is barely acknowledged by Drucker (1937), and I don't remember Gould (1966) mentioning it at all. Two distinctions between the Tolowa and Yurok that I have had pointed out to me are that: The Tolowa allow marriage

to cousins (told by the Yurok); and that the Yurok bury their dead in the village instead of a separate cemetery (told by a Tolowa and not as true now; you have indicated also that it may not have been true of the Tolowa prehistorically).

Marking and stabilization of the trails could be helpful to the trails system as well as preserving the routes used for trade and exploration. Many of them are disappearing fast, some already have. It would be nice to have interpretive signs placed at all trail heads. Vandalism is a problem, I realize; perhaps several centers at Park stations could have such materials, combining the information from several trails. Certainly public education is very important regarding cultural resource values. If your study includes the potential area of Jedediah Smith Redwoods, then the Camp Lincoln site should be given some development attention. It is an historic site, at the edge of the original Cold Spring Mountain trail to Sailor's Diggings and provides a good interpretive location, as well as an access point that is otherwise lacking in that area of the park.

Also near Jedediah Smith Redwoods is Tom King's 'Two Tree' site (King 1972). I have been told that the two trees referred to have been cut, presumably placing the site in some danger from future development or construction. I don't believe that the site is in the Park but it is adjacent.

Interpretation is necessary to the public understanding of the resources they enjoy. Education is a necessary part of interpretation. The Park's good education programs need to be expanded and they need to include more on the cultural resources. Education programs directed at the surrounding community rather than just at the Park's users could be helpful. Currently there is a news magazine called the "Parklander" which appears periodically in the local Del Norte Triplicate. Several relatively worthwhile articles have appeared in that magazine but more wouldn't hurt. The Triplicate, and presumably others, also features old pictures with captions frequently. Contributions of that nature by the Park with better research and more complete captions/stories could help with community education. A concerted effort to educate local community leaders might also help. A good deal of local noise and opposition to the Park, and its expansion, is due to local leaders and company representatives who may or may not know what they are talking about. Frequently information and facts have little to do with the rumors and proclamations. This is true with the Indian community as well. And it is not one unified community, it is many people, with many opinions. As one Indian pointed out to me recently, we (Whites) often if not always decide our elections by 51% or close to it. Yet we are left in muddled confusion if the Indian community representing several "nations" cannot produce 100% agreement.

Annotated Summary of Activities

11/77 In progress. A survey of the cultural resources of Gasquet and Rattlesnake Mountains, for the Dames & Moore Environmental Impact Statement on proposed mining activities of California Nickel. Relevant notes were mentioned in the summary above.

7/77 Survey for Del Norte County Drainage Plan, under contract with the Del Norte Indian Welfare Association (DNIWA). Literature search; intensive survey of 3 proposed new drainage ditches, survey of existing drainage ditches. Project located on the coastal plain east of Lake Earl. No sites were discovered; most of the area was previously redwood and spruce forest.

4/77 Mitigative excavations at 4-DNo-5, under contract with Indian Health Services. Excavations for 2 septic tanks (one in sterile earth, the other in disturbed midden) by backhoe. The midden material was screened through 1/4 inch mesh. Materials recovered were substantially the same as reported from the test excavations below (7/75). Analysis and reporting await a purchase order from Indian Health Services.

1/77 Survey for tank farm expansion, Crescent City, in the SW 1/4 of Sec. 27, T6N, R1W, under contract with DNIWA. Literature search; a small area surveyed; no sites were discovered.

11/76 Survey of Chezum Ranch, Humboldt County, in the upper Redwood Creek drainage. See Flynn and Roop (1976).

8/76 Survey for lumber mill waste disposal site, Klamath, in the NW 1/4 of the SE 1/4 of Sec. 11, T13N, R1E, under contract with DNIWA. Literature search. A small area on a steep wooded slope; no sites were discovered.

8/76 Survey for concrete batch plant, Crescent City, NW 1/4 of Sec. 27, T16N, R1W, under contract with DNIWA. Literature search. A small area surveyed, previously redwood/spruce forest; no sites discovered.

6/76 Pappas Flat Motorcycle Track, in the SW 1/4 of Sec. 24, T17N, R1E, for Del Norte County. This was published in the EIR at a later date (summarized). A resurvey of Masye (now 4-DNo-45); Gould's (1972) survey sheets remain accurate. There are two occupation areas, each with at least 2 house pits; Gould suggests that this is "one of the best preserved acorn-collecting and salmon-fishing camps of the proto-historic and historic Tolowa Indians" (Gould, personal communication, 10/22/75).

2/76 Survey for Northcrest Services District, done by Del Norte County for Winzler & Kelly, Engineers. Included portions of Secs. 8, 9, 16, 17, 19, 20, and 30, T16N, R1W. Literature

search; overview; some intensive survey; no sites were discovered.

2/76 Survey for proposed access road to the Mattz residence (4-DNo-5), under contract with BIA. Literature search (see 7/75,4-DNo-5). The road was already under construction and had started into the site area adjacent to the marked cemetery. The bulldozer apparently cut into two trash pits dug by Mrs. Mattz' grandfather during the early part of the century. An alternate route was surveyed and no midden was found; the road was relocated.

2/76 Survey for addition to Loleta Sewage Treatment Facilities, in the NE 1/4 of the SW 1/4 of Sec. 18, T13N, R1W, under contract with Truman Vroman Engineer. Literature search; intensive survey of a small area adjacent to the existing plant; no sites were found.

10/75 Survey for College of the Redwoods addition in the SW 1/4 of Sec. 28, T4N, R1W, under contract with Winzler & Kelly, Engineers. This was a resurvey (at the SHPO's request) of a small area within the existing campus; no sites were discovered.

9/75 Cultural resources section of the Environmental Assessment for Project Independence, done by Del Norte County for Winzler & Kelly, Engineers. This was a literature search and overview of Del Norte County.

7/75 4-DNo-5, survey and subsequent test excavations under contract with Indian Health Services. Literature search. Survey of direct impacts by proposed water line and septic units. Survey indicated possible impacts to midden at Mattz & McKinnon residences. Test units (one each) put in at tentative septic tank/leach pit locations during 8/75. No midden was found at the proposed septic location on the McKinnon property. (Subsequent observation of excavations confirmed this.) Disturbed midden was found at proposed location on Mattz property. Entire area of property which was feasible for the septic unit consists of midden; it was decided that the proposed location was best for minimal impact to the site. Analysis of the material is not complete. The materials recovered correspond well to Patricks Point and Point St. George materials from the late period.

7/75 Survey of South Fork Road improvements, in the E 1/2 of Sec. 24, T16N, R1E, and the SW 1/4 of the SW 1/4 of Sec. 19, and the NW 1/4 of Sec. 30, T16N, R2E, under contract with Federal Highway Works Administration. Literature search. One possible site (see Drucker 1937) has apparently been either washed away or buried by the 1964 flood or 1972 Rattlesnake slide/

flood. Several historic (1900's) mining camps remain in a variety of conditions. Some remains and a rock wall dating to ca. 1865 belong to a homestead; these will not be disturbed or made more accessable by the project.

5/75 Survey of Bertsch-Oceanview Improvement District, portions of Secs. 22, 23, 26, and 27, T16N, R1W, done by Del Norte County for Winzler & Kelly, Engineers. Literature search. Area previously covered by redwood/spruce forest; no sites discovered.

5/75 Submission of Point St. George Archaeological District to the National Register (placed on the Register 5/76). A resurvey of the area; recent disking revealed greater extent of 4-DNo-13 than previously realized; the site extends across Radio Road to the east; one piece of human femur found in that area. A later attempt to sell the point to the County by BIA was blocked.

4/75 Sea Terrace Planned Community, DN:75,005 draft, portions of Sec. 4, 5, 8, and 9, T18N, R1W, prepared for Del Norte County. Literature search; survey of area; formerly timber production; no sites discovered.

4/75 Solot Division of Land, DN:74.021, portions of Sec. 28, 33, T18N, R1W, prepared for Del Norte County. Literature search. Headwaters of Savoy Creek, extremely steep, includes a small portion of the ridge (mostly disturbed). No sites were discovered.

1/75 Hess Lot-Split, DN:74.018, SE 1/4 of Sec. 5, T18N, R1W, prepared for Del Norte County. Agricultural land at the base of the foothills. No sites discovered.

11/74 Chanticleer Mobile Home Park, DN:74.013, SW 1/4 of Sec. 16, SE 1/4 of Sec. 17, T16N, R1W, prepared for Del Norte County. Former redwood forest. No sites discovered.

10/74 Bettencourt Bar Gravel Use Permit, DN:74.024, in the NW 1/4 of the SW 1/4 of Sec. 30, T17N, R1E, prepared by Darlena Blucher of Humboldt State University for CALTRANS in conjunction with Del Norte County. This was a resurvey of the area of 4-DNo-18(36). In 1964, Gould reported one sweathouse; no other remains visible.

According to the files of the University of California (Berkeley) Archaeological Research Facility, an aboriginal site known as 4-DNo-18 is located in the SW 1/4 of the NE 1/4 of Section 31, T17N/R1E. We found no evidence of such a site, however, and Mr. Peacock, who owns the property, assured us that no such site existed. Instead, he informed us, there was a site, which he had showed to

an archaeologist in the past (Ritter? DNo-S13), in the SE 1/4 of the NW 1/4 of the SW 1/4 of Section 32. This site included a cemetery and a sweathouse depression, but was covered by the construction of Route 197 a few years ago (King 1972).

Blucher did not find the site either, though it was obvious that it would not be impacted by the project in any case.

10/74 Bigham Mobile Home Park, DN:74:009, in the SE 1/4 of Sec. 17, T16N, R1W, prepared for Del Norte County. An area previously covered by redwood forest; no sites discovered.

9/74 Tsurai survey, prepared for Oscar Larson Associates, for Coastal Zone Appeal No. 173-74. Located in the SE 1/4 of Sec. 23 and the NE 1/4 of Sec. 26, T8N, R1W. This survey was directed toward the direct impacts of building a house on the property. The area in question had been graded to provide a building pad some years before. No archaeological materials were found at the house location although previous reports (Elsasser and Heizer 1966; Waterman 1920) indicated that an aboriginal house had existed at this same location. Ample midden and other materials were observed to the west of an adjacent creek. The property is currently being considered for acquisition by the State but continues to be embroiled in litigation.

9/74 County Rezoning, DN:74.006, all or part of Secs. 10, 11, 14, 15, and 16, T16N, R1W, prepared for Del Norte County. Entire area previously redwood-spruce forest. No sites discovered.

7/74 McMillan Gravel Use Permit, DN:74.011, in the NE 1/4 of Sec. 27, T14N, R1E, prepared for Del Norte County. The entire project lay within the active bed of Hunter Creek; no sites were discovered adjacent to the project.

6/74 Smith River Community Services District Annexation #2, DN:74.008, portions of Sec. 32, T19N, R1W, and Sec. 5, 8, 16, 17, 20-23, and 27, T18N, R1W, prepared for Del Norte County. Literature search and overview. Specific water-line locations were not available except for the Hwy. 101 right-of-way. No sites discovered.

6/74 Elliff Travel Trailer Park, DN:74.004, in the SE 1/4 of Sec. 28, T16N, R1W, prepared for Del Norte County. On built-out area of Harbor District property; no sites discovered.

5/74 McClendon Lot Split, DN:74.002, in the SE 1/4 of Sec. 24, T17N, R1E, prepared for Del Norte County. Literature search. Area surveyed; no sites discovered. This area is across the river from Pappas Flat.

3/74 Hamilton Realtors' Lot Split, DN:74.001, in the SW 1/4 of Sec. 12, T17N, R1W, prepared for Del Norte County. Literature search. Although physical evidence of a site was not found, informants (including Tolowa elder, Amelia Brown) indicated that this was the location of a small village residence and that known persons had been buried there. The lot split was allowed and building of residences has commenced. To date no remains have been encountered. Informants had indicated that existing buildings on the parcel had disturbed human remains.

NOTE: All items in report marked "DN:75.003" or similarly are filed with the Del Norte County Planning Department and the SCA Northwest Clearinghouse at Sonoma State College. All other reports for which I am responsible are filed with the SCA Northwest Clearinghouse.

APPENDIX 4

A REPORT ON VARIOUS FEATURES OF THE NORTHERN CHILULA TERRITORY

by Randall Paul Stemler, Box 823, Blue Lake CA
edited by Polly McW. Bickel

Editor's note: Mr. Stemler is not an archaeologist. He approached the directors of this project, reporting that he had observed features of archaeological interest in the Redwood Creek area. He was asked to describe the features and locate them on a map. This appendix has been edited to one half the length of the manuscript submitted; I deleted introductory material which duplicates other elements of the Redwood National Park Archaeological Overview.

Descriptions of Special Interest Areas

The ridge along Dolason Hill Prairie is an important feature of the designated archaeological site 4-Hum-348. It offers a natural linkage between the resources of Redwood Creek and prairie environment. Another aspect of this feature is the excellent overview of the valley afforded while hiking down the ridge toward the forest. Near the base of the prairie is a large flat with an excellent view of the southern portion of the valley.

Until recently, certain features were linked by a well-defined, undesignated cultural trail leaving the prairie at the point indicated on the map. Recent timber harvest activities have altered this particular area severely, but significant features remain. The trail once meandered across the slope and down through a grove of large redwoods to the north. It was well established with a moss embankment on the upper edge. Then it wound past several large hollow redwoods a few hundred meters after entering the forest. In one of these trees, an old seamless "whisky" bottle-neck was found slightly buried in charcoal debris.

After verging away from recent land alterations the trail continues, fading at times but heading in a northerly direction. Within another 70-100 meters the south fork of Emerald Creek converges with the path. Just below here the creek drops in a continuous series of waterfalls. Across the creek and up a small hill to the northwest is the top of a rock outcrop-cliff which breaks away into an expansive view of this portion of the forest. Excellent echoes are

easily produced from this cliff-top.

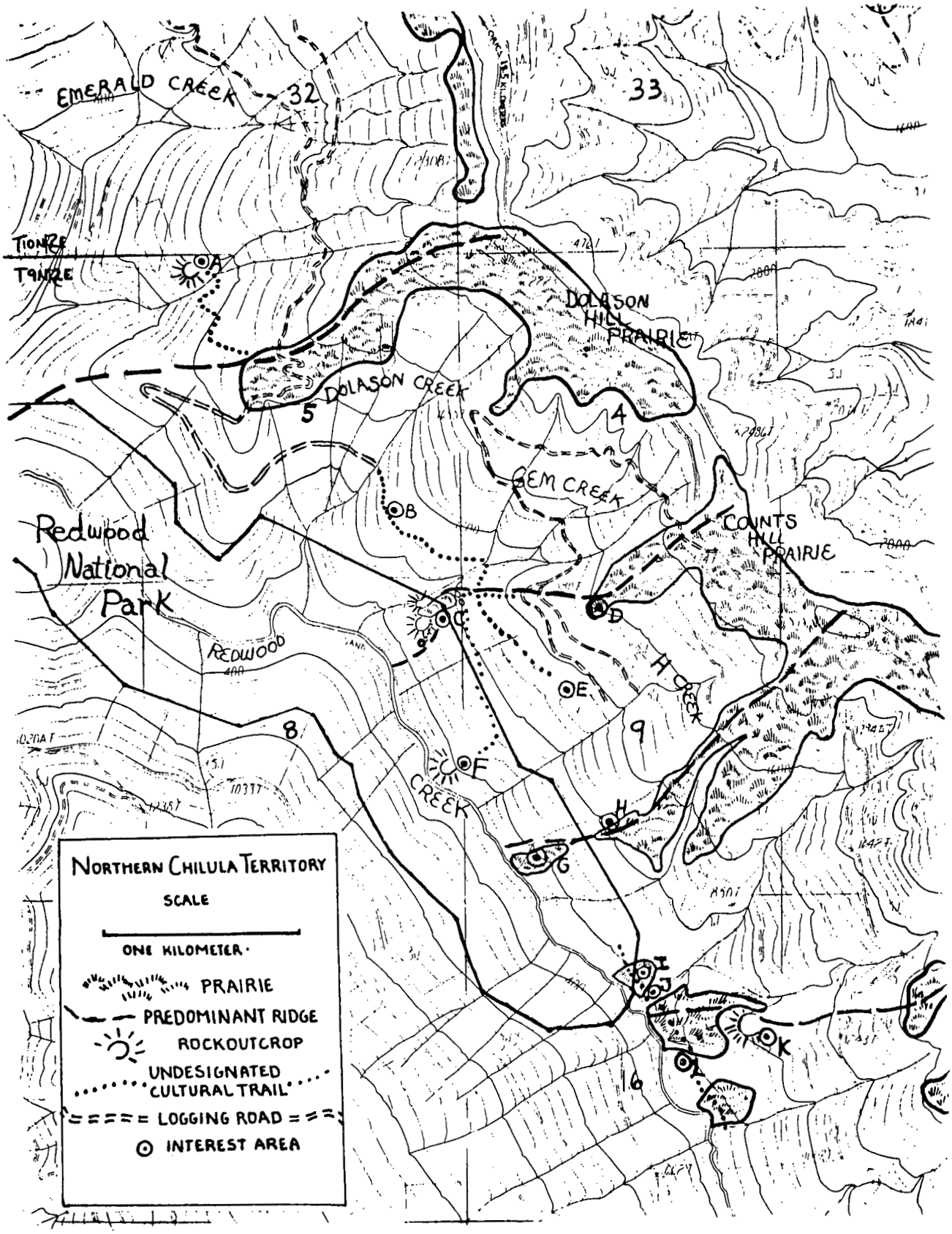
A pond area with excellent palynological potential can be found as depicted in Interest Area B on the map. The location is in the forest approximately 400 meters from Dolason Creek along the upper part of a contoured terrace on the face of the ridge separating Dolason and Gem Creeks. It is in a pocket with no distinct inlet or outlet. Moss is well established around the perimeter of the depression which is not simply where a tree has fallen over, but is a topographic pond. It is approximately six meters in diameter with about twenty-five centimeters of water in the deepest part after no rain for three days. Five centimeters of muck cover the bottom of the pool.

The contoured terrace described in Interest Area B continues in a southeasterly direction toward Gem Creek. Along this same terrace runs a trail with potential cultural significance. It is faint at times but prevails because it is the easiest route of travel along this midslope terrain. Perhaps it is ironic that this very terrace which provides for easy foot travel through the forest is the area selected for construction of a logging haul road. At the approximate location where this countoured terrace crosses the predominant ridge several trails diverge. One pathway heads south, often fading, but reconnecting again and again from one terrace to another until reaching the large midslope grove described at Interest Area E. Another trail runs along the ridge connecting the northern finger of Counts Hill Prairie, known locally as Airport Prairie, with Hidden Prairie: a small glade central to Interest Area C.

At the uppermost reaches of Hidden Prairie is a flat perched above the glade and to the south of the predominant ridge. A strong trail breaks off from the ridge and leads directly toward the center of the flat issuing between two dish-shaped depressions of possible house-pit origin. The larger depression is approximately four meters across and is on the north end of the flat. The smaller is approximately two and one half meters across and is on the southern end.

Prairie encroachment has occurred and is readily apparent with young fir trees taking hold in successive stages, shading what appears to have been in the recent past an open and sunny terrace. A few very old oak trees are being killed from intolerance to this newly enveloping shade.

Undesignated cultural trails leave from each end of the flat. One countours to the north toward the nearest source of water at Gem Creek; and the other leads down the south side of Hidden Prairie toward a very significant rock outcrop. The boundary for Redwood National Park cuts across the lower end of the prairie claiming the rock within the Park. Delicate mossy paths lead up this powerful monolith to a flat grassy area approximately four meters by nine


EMERALD CREEK
32
33
T10N R2E
T9N R2E
DOLASON HILL PRAIRIE
DOLASON CREEK
5
4
GEM CREEK
COUNTS HILL PRAIRIE
Redwood National Park
REDWOOD
8
9
H CREEK
F CREEK
16
A
B
C
D
E
F
G
H
I
J
K
NORTHERN CHILULA TERRITORY
SCALE
ONE KILOMETER
PRAIRIE
PREDOMINANT RIDGE
ROCKOUTCROP
UNDESIGNATED CULTURAL TRAIL
LOGGING ROAD
INTEREST AREA

meters. Along the western edge of the rock is a ridge leading to the apex. Seat-like areas are indented along the ridge with a larger indentation at the very tip. Tremendous vistas are given.

Below the rock and down the slope to the south approximately 120 meters is a hollow tree. A trail leads directly to it from the rock. Inside the tree are several hand-cut bark planks and beams. The materials have been left in place, untouched, awaiting qualified investigation.

On the northwest edge of Hidden Prairie is another rock outcrop with significant features. On the south and western edges are small cave openings of a curious nature. The apex of this rock also appears to have seat-like structures. A trail leads up the southern edge of the rock to an odd flat with two stone cleared patches each several meters wide. However, it is interesting to note that many stones are piled between the two plots. This is one of the first areas in the vicinity of Interest Area C to receive sunlight.

At the tip of the northernmost finger of Counts Hill Prairie (Airport Prairie) the elevation levels off, water gathers, and rush grasses grow. While not a senescent lake as such, there is potential for palynological significance. The immediate area appears to have not been disturbed and might provide important contrast between prairie and forest environment.

Interest Area E provides an opportunity for field study. Appropriate archaeological field techniques in this area may shed considerable light on cultural use. Here is a place that affords shelter for several people, perhaps a small family. It is a rather large fire hollowed redwood found along the same basic countoured terrace as Interest Area B. At the site of the hollow redwood, one can look down into a beautiful flat with a redwood grove that has been victim to a massive landslide with earth flow traveling down from the D-Line road above and entering H Creek to the south.

A unique area of potential mythical significance (Goddard 1914b: 279) is Split Rock located near Redwood Creek at Interest Area F as depicted. Access to the rock is much easier from Redwood Creek, but trails do lead toward it from Hidden Prairie. The rock is split east/west through the middle with a passage approximately eight meters wide where the air is quite still even at windy times. There are two cliff faces, both of a precarious nature. The cliff to the north has a view down the valley and of the lower reaches of Dolason Hill Prairie. The cliff to the south provides a view upstream. Lower Counts Hill and other southern prairies can be seen. The rocky waterfall stretch along Redwood Creek, after which Noledin (Interest Area H) received its name ("waterfall place") is within clear view just below.

Interest Area G is another area of possible importance for palynological work. Similar to Interest Area D, Area G is also not

a senescent lake, but some ponding does occur at places near the bottom of the prairie. Several spots are rather marshy with rush grasses growing.

This point marks the relative location of the village Noledin: archaeological site 4-Hum-234.

The features in this locality suggest cultural significance and pertain to the archaeological site designated 4-Hum-349. The southernmost Redwood National Park boundary bisects a small prairie/oak forested area as shown on the map. An undesignated cultural trail meanders through the prairie just above the boundary and down the forested ridge toward Interest Area J. On the prairie at about mid-slope level are pit-house like depressions under oak forest. The flats in this location are in a topographically sheltered area from strong wind and suggest prior habitation.

An undesignated cultural trail leads from Interest Area I down the ridge toward a large hollow redwood shown as Interest Area J. Similar to Interest Area E, this site could be carefully studied to determine its role as a cultural feature.

The occurrence of a spectacular rock outcropping at Interest Area K in conjunction with a predominant ridge and prairie leading to Redwood Creek contribute to the significance of the general area designated as 4-Hum-349. The striking view from this rock implicitly suggests that it is a cultural resource area. There is not enough room on top for dancing, nor are there stone "prayer seats", but it is a very powerful place for reflection. Interest Area L signifys a prairie/forest fringe area of significance to the designated site 4-Hum-349. Small pieces of chipped chert and quartz were found on the prairie nearby. Soap Plant (Chlorogalum) also grows here and is of ethno-botanical interest.

Within the forest near two small creeks are two faint depressions several meters across and are of possible cultural origin. Many areas appear suitable for village camps, but it is difficult to say for certain without archaeological reconnaissance.

Archaeological Site Survey Record 4-Hum-349 indicates a fortification present some distance to the south. Initial references to this feature were derived from Goddard (1914b:281), but further investigation has not disclosed the exact location. The likelihood of its earlier destruction in the nearby clearcut is very strong.

APPENDIX 5

CONSULTATIONS WITH NATIVE AMERICANS

by Polly McW. Bickel

Background

The major consultation effort was to gather inventory information and recommendations from local Native Californians, in accordance with the following contract specification (Section II, Item 3): "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 National Park Service and local Native Californians."

Contact with Native Americans in the project area began in December 1977, when Moratto (then project director) and Bickel attended a meeting of the California Native American Heritage Commission (NAHC) in McKinleyville, California. As observers at the meeting, we identified the Indian agencies which should be approached for assistance with our project. In January, Bickel (as new project director) corresponded with NAHC, the Northwest Indian Cemetery Protective Association (NICPA), and the Tri-County Indian Development Council. In February, Bickel met with board members of NICPA, which was deemed the appropriate agency to advise this project on suitable ways of obtaining information from the Native American community regarding interpretation, development, and preservation of ethnohistoric and archaeological resources of the park area. NICPA suggested that the most satisfactory procedure would be to conduct a conference at which knowledgeable members of the several local Indian groups who had traditional ties to lands now within the park could speak about traditional use areas and sacred places within park boundaries, and could make recommendations regarding their protection, preservation, and interpretation. Since conduct of such a conference would increase the scope and cost of project work beyond that anticipated in the original contract, Bickel conferred with National Park Service personnel to gain their approval of a change order expanding the project scope and budget. Bickel and Von der Lippe (then Redwood National Park Superintendent) met with NICPA in April to present alternative proposals of the National Park Service for arranging a conference, centering on whether NICPA or this project would conduct the conference. NICPA selected the latter alternative, and was then retained by this project as an independent contractor to perform the services of identifying, contacting, and inviting to a conference

appropriate Native Californians resident or once-resident in the area of Redwood National Park.

Conference

The Native American Conference on Cultural Resources in Redwood National Park was held at the Red Lion Motor Inn, Eureka, California, May 22-23, 1978. The conference was sponsored and paid for by this project. It was attended by more than forty registered Native American participants, who received consultants' fees for their participation. At that meeting, locations of traditional use areas, ceremonial and sacred places were recorded, along with information regarding the significance of these places, and recommendations for methods for their protection and preservation. In addition to the gathering of inventory information and recommendations for planners, five Native American Heritage Advisory Committees were formed as a by-product of the conference. Each committee is composed of members with traditional ties to a particular geographical area within the Park (Tolowa territory, Yurok territory north of the Klamath River, Yurok territory south of the Klamath River to Gold Bluffs, Yurok territory from Gold Bluffs to Freshwater Lagoon, Chilula territory). The committees were formed to serve as ongoing bodies with which the Park could consult to obtain specific recommendations regarding particular places within the geographical areas to which their members have traditional ties. It was also intended that these committees be consulted in the future by other public agencies who require information regarding cultural resources in the area. Another product of the conference was a resolution drawn up with the assistance of Stephen Rios (NAHC Executive Secretary) which was adopted by conference participants, to be submitted to Redwood National Park staff. Text of the resolution is given on pp. 194-195.

Following the conference, a draft summary of the proceedings was circulated to all participants, and comments were solicited; no comments were received, and the summary was considered final. Followup meetings with the Native American Heritage Advisory Committees were held in August and September 1978, to permit the gathering of any additional inventory information and recommendations forthcoming after committee members had taken the time to reflect and to consult with members of the local Native American community who had not attended the Eureka meeting.

Information Sought

The information elicited at the conference and at followup meetings was of a special kind. Our endeavor was to learn what areas now within Park boundaries have a continuing significance to living Native Americans who have traditional ties to lands within the boundaries. We were not soliciting archaeological or ethnographic information as it is usually sought - we were not asking people to tell us where sites of their ancestors (or unknown predecessors) lie, nor were they asked to tell us about traditional lifeways and places where traditional life

of the past had been lived. Rather, we were concerned about areas which had been important and which remained important to them, in their present lives, not just in stories of the old days. What were places they kept an awareness of and had concern for? What were places that they felt should be identified to Park planners so that no inappropriate actions were planned for them? What were places that they felt they needed access to for some reason, or that should be restricted from public access for some reason? Thus the "ethnographic present", the time period about which we were concerned in our questioning, was not the pre-White-contact period which ethnographers often focus upon. Instead, we were concerned about Native American land use in the present and recent past, and we wished to learn what kinds of continuing use was hoped for in the future. Moreover, for the purposes of this project, we were not seeking a general account of lifeways of these Native Americans today, like that being compiled by Pilling (1978), but rather the specifics of the interaction of today's lifeways as they involve places and things now within the boundaries of Redwood National Park.

Categories Imposed

In consultations in April, Bickel and Marks (chairman of NICPA and member of NAHC) had worked up a list of types of cultural resources which should be discussed at the meeting, based on Bickel's understanding of Park planners' needs and Marks' familiarity with cases brought to the attention of NICPA and NAHC. These included: gathering sites, artifacts, ceremonial buildings and sites, ceremonial dance sites, camp areas, burial grounds, sacred places, village sites, spiritual places. They were reflected in the letter sent to invited participants and in discussions held by Marks with prospective participants. Introductions to the meeting by Bickel and Marks also stressed these categories, and the discussion by Rios highlighted traditional gathering sites, ceremonial structures and sacred places as areas of concern. These are factors which structured the kinds of responses which were received.

Information Received: Summary

Information forthcoming at the Eureka conference and followup meetings showed that the most concern was for burial places, sacred training places, and resource areas where a variety of foods and raw materials had traditionally been obtained. Recommendations focused on protection of burial areas and sacred training places through restriction of public access, and continued usage of resource areas through guaranteed access and harvest rights for Native Americans.

Further Consultations

In February 1979, the National Park Service planning team began the procedure of impact assessment of the different alternatives being considered for the General Management Plan of Redwood National Park. They asked for assistance in assessing potential impacts on cultural resources, and Bickel suggested meetings with the five Native American

Heritage Advisory Committees, to ensure that impact assessment would reflect contemporary Native American concerns. The meetings were held at the end of February. Donnelly (a member of the NPS planning team) presented the possible actions which might impact resources which had been named in previous consultations, and committee members had an opportunity to comment. Generally, the proposed actions reflected the planners' awareness of Native American recommendations made previously; few potential negative impacts were discerned. The attention to proposed actions for specific areas did bring forth previously unreported information regarding possible burial places near some proposed developments, information more easily responded to by alterations in plans at this preliminary stage than it would have been at a later date.

Aside from the review of proposed General Management Plan alternatives, the committee meetings served as forums for discussion and dissemination of the Park's developing plans to permit traditional gathering activities through the issuance of collecting permits. The committees expressed an interest in future meetings to review the Park natural resources management plan and the Environmental Impact Statement for the General Management Plan, and to advise and participate in elements of the interpretive program which refer to Native American heritage.

Consultation Costs

The practice of this project has been to pay consultant fees and expenses when basic data are gathered, as at the Eureka conference. No fees are paid when the committees are convened to advise and comment about Park plans, although committee chairmen are offered reimbursement for expenses (mileage, phone) incurred in organizing meetings. Meetings have been held in members' homes or public halls at no cost; provision of refreshments has been shared by committee members and this project. Consultant fees would be appropriate if Native Americans are asked to participate in the design and implementation of interpretive programs.

Native American Conference on Cultural Resources
in Redwood National Park

RESOLUTION

Whereas Indians have deep cultural, religious, and ceremonial ties to all the Mother Earth, which includes lands now managed by the National Park Service and other federal and state agencies; and

Whereas the continuation of these cultural and religious ties depend on an unimpeded access to and use of the lands in question; and

Whereas these cultural and religious ties to the Mother Earth predate the establishment of the various national parks; and

Whereas the traditional Indian practices which include but are not limited to religious and ceremonial activities, the balanced gathering and taking of renewable resources such as foodstuffs, plants, wood material, and fish and game, would be taking place today but for the restrictions and prohibitions imposed by the National Park Service; and

Whereas up until February 6, 1978, these restrictive and prohibitive policies have generally reflected a lack of sensitivity and knowledge of the cultural, religious, and spiritual needs of the concerned Indian communities; and

Whereas the clear effect of these policies has been to deny the Indian his constitutionally protected right to freedom of religion and has also caused cultural deprivation for the various Indian communities; and

Whereas newly developed or developing federal and state laws and policies are clear signals that agencies shall no longer impede traditional Indian religious activities nor cause future cultural deprivation to Indian people; to wit:

1. Senate Joint Resolution 102
2. National Park Service Special Directive 78-1, February 6 1978
3. California Public Resources Code Section 5097.9 et seq.
4. California Department of Parks and Recreation's proposed Cultural Resources Management Plan
5. California Assembly Bill 3007
6. California Assembly Bill 3009
7. Senate Concurrent Resolution 87
8. Senate Bill 1817

Whereas the Redwood National Park administration has made a significant and positive attempt to stay abreast with these new policies and laws by convening the Native American Conference on Cultural Resources within the Redwood National Park, May 22 and 23, 1978, Eureka, California; and

Whereas the participants at that conference have provided the Park Service with valuable preliminary planning information concerning the Indian community's desires on matters touching upon traditional gathering sites, ceremonial structures and sites, sacred and spiritual sites, village sites, burial grounds, the handling and disposition of Indian artifacts, and the taking of fish and game; and

Whereas there is a need for more detailed and continuing input by the Indian community to the Redwood National Park planning functions: Therefore be it

Resolved, That

1. The Redwood National Park establish a permanent Indian Advisory Committee
2. That such Advisory Committee be representative of the various Indian groups which are affected by Redwood National Park policies and activities
3. That Redwood National Park provide funds which will cover the reasonable, actual, and necessary expenses associated with such an Advisory Committee
4. The Redwood National Park will request and utilize the advice of the Indian Advisory Committee
5. The Indian Advisory Committee will forward to the Redwood National Park its draft recommendations on the following subjects by _____, 1978:
   a. Paid Indian consultant(s) to work with the park planners on a daily basis for a specified period of time
   b. Preservation of and access to certain land sites in accordance with First Amendment rights
   c. The need to resolve questions of land ownership within the park system
   d. The right for Indians to use at no cost traditional gathering site areas within the park to obtain materials necessary for the continuation of religious activities and other cultural needs
   e. Reasonable restrictions placed on the general public to sites which are shown to be religiously significant to local Indian people, i.e., split rock
   f. The need for limited hunting and fishing within the park in relation to established religious and cultural activities
   g. The right of Indians to hunt and fish within the park who were property owners within the park prior to 1968
   h. The right of other Indians to hunt and fish within the park
   i. An appropriate management plan for Indian burials within the park system.

The General Assembly gathering here approves this resolution.

May 23, 1978
Eureka, California