

TECHNICAL PROPOSAL

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Schedule for Completion: Archaeology Field Research:

June 12 - September 30, 1978

Data Analysis and Draft Report Preparation: October 1 - December 31, 1978

Draft Report Revision and Final Report Preparation/Submission:

January 1 - 31, 1979

Data concerning labor hours and categories, materials, subcontracts, travel, facilities and equipment (described at length in methodology section).

a) Labor hours and categories

Phase 1 of archaeological survey:	338 -418	man-days labor
Phase 2 of archaeological survey:	294	man-days labor
Phase 3 of archaeological survey:	245	man-days labor
	877 -957	man-days labor

Project initiation, camp establishment: conducted simultaneously with Phase 1 of archaeological survey - no additional time estimates.

Field work phases: June 12 - September 30, 1978

Field crew: 10 archaeologists, providing up to 95 man-days labor each.

Report Preparation: October 1 - December 31, 1978

Labor: K. Chartkoff, Assistant Director, half time, 13 weeks
R. Donahue, Assistant Director, 3/4 time, 13 weeks
Principal Investigator, half time 13 weeks (no compensation)

Report revision and final manuscript preparation - January 10-31, 1979

Labor: Principal Investigator, half time, 3 weeks (no compensation)
K. Chartkoff, Assistant Director, half time, 3 weeks
R. Donahue, Assistant Director, half time, 3 weeks

b) Materials (Planned purchases are itemized in business proposal)

1. Rental of 2 pickup trucks, 22,000 miles travel
2. 3 Brunton pocket transits on tripods
3. 3 metal detectors
4. 6 35mm cameras
5. pH testing set
6. Field site mapping instruments and materials
7. Miscellaneous disposable materials for staking study areas, soil collection, site recording
8. Water containers for field work
9. First aid materials
10. Portable fire extinguishing tools

11. Field camp set up - tents with floors, portable sanitation, cots, tables, chairs and benches, power generator, refrigerator, field kitchen, field and water pump and storage system, field shower, field laboratory, electric lights, trash disposal.

c) Subcontracts - none

d) Travel - Air Travel of following

J. Chartkoff: Orange County - Arcata - Michigan

K. Chartkoff: " " " "

R. Donahue: Michigan - Arcata - Michigan

S. Dunlap " " "

J. Davis " " "

V. Davis " " "

C. Lukaszewski " " "

S. Heipel " " "

B. Johnson " " "

L. Kona Orange County - Arcata - Orange County

e) Facilities and equipment: field facilities and equipment outlined above. Post field work done at Michigan State University Museum and Phenice Laboratory of Anthropology. Michigan State University's Computer Center has a CDC 6500 for its main computer, as well as several small computers. The Computer Institute for Social Science Research (CISSR) owns an extensive library of programs for anthropology. The Departments of Physics and Geology own complete equipment for neutron activation analysis and obsidian hydration measurement.

Technical Proposal

Schedule for Completion: Ethnography

- Phase I - Preliminary Preparation - Theodoratus
Phase II - Archival Research - June 12 - July 31, 1978
Phase III - Field Research - August 15 - November 10, 1978
Phase IV - Report Preparation, Write Up Phase - November 12 -
December 31, 1978
Phase V - Final Copy Preparation - January 1 - 31, 1979

Data concerning labor hours and categories, materials, subcontracts, travel facilities and equipment.

Labor Hours and Categories

Total estimated labor hours 700 person days
(to involve project initiation, archival and literature research, field interviewing, report writing, editing and final report preparation)

Materials

Notebook, camera, tape recorder

Subcontracts

There will be no subcontracts

Travel

To various museums, libraries as stated in scope. This includes travel to major out of state archival sources.

Facilities

Base of operations will be established in the area during the fieldwork. Post fieldwork will be accomplished in Sacramento.

Equipment

No heavy equipment needed.

STATEMENT OF WORK

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Introduction

The archaeological and ethnographic investigation of the project area shall be entered into by Theodoratus Cultural Research (TRC) as a unified research project. While archeological and ethnographic data collection will be conducted largely independently as specified in the enclosed research designs they will be coordinated in the following ways:

1. The goals of the project have been specified by the Forest Service but TCR has had the freedom to design research methods that will allow the maximum amount of interaction between the archaeological and ethnographic components. This approach will facilitate the following:
 - a. The ethnographic collection of data illuminates archaeological sites, especially subsistence data for the project area, of which there is a paucity, but also regarding the material manifestation of rituals. Particular reference will be made to the seventeen named archaeological sites (RFP).
 - b. The archaeologist will test ethnographic and historical archival models for verification of implications for material evidence.
 - c. The archeologist will make an independent check on change over time in the material record.
 - d. The ethnographer will test the archaeological hypotheses developed from existing literature.
2. During fieldwork there will be regular interaction between the archaeological and ethnographic teams on a weekly basis to apprise each other of research progress including data, problems, and questions. This will allow the research designs to be modified as needed and take advantage of new discoveries and questions.
3. This interaction will continue through the data analysis and report preparation phases of research. This will permit the development of unified evaluations of the impact of G-O Road completion on

traditional cultural values in the community and specific properties of cultural significance in the project area. Both archaeological and ethnographic researchers will contribute to this evaluation of each cultural property on a site by site basis to determine:

- a. cultural significance
- b. the potential for adverse impact
- c. the potential for the nomination to the National Register of Historic Places
- d. appropriate measures of mitigation with cost estimates
- e. detailed recommendation for long-ranged cultural resource management

SCOPE OF THE ARCHAEOLOGICAL SURVEY PROJECT

A. Purpose of the project:

The purpose of the proposed research is to conduct an archaeological environmental impact study of the Chimney Rock Section of the Gasquet-Orleans (G-O) Road in the Six Rivers National Forest, northwest California. The study will determine whether any material remains of cultural resources exist in the area of the former Eightmile-Blue Creek Study Units, especially within or around any of the nine proposed alternate routes of the Chimney Rock Section of the G-O Road, but also in the surrounding vicinity. Reliable information about any such sites is needed in order to allow the USFS to evaluate the impact of proposed road completion on cultural resources, in accordance with 36 CFR 800.

The archaeological study is part of a larger anthropological study to evaluate the impact of the proposed G-O Road completion on cultural resources. The archaeological research will focus on the potential for impact on material remains, while an ethnographic study will focus on the potential for impact to contemporary cultural values and practices. The two studies will be integrated in terms of general problems, interrelationships during investigation, and unified evaluations of known and discovered cultural resources. The two studies will each seek and develop information to illuminate the research of the other.

B. Need for the study:

The Chimney Rock Section of the proposed G-O Road has already been studied in terms of the potential for impact to cultural

resources (see Buckley 1976; Miller 1975, 1977; Wylie 1976; Wylie and Heffner 1976). All studies to date have been questioned because of alleged serious defects in research methods. These problems have been discussed by Chartkoff and Chartkoff (1977). The ethnographic problems are discussed in the present context elsewhere in this proposal, but the archaeological problems are especially relevant here, so they will be outlined briefly:

1. Most of the actual field surveying was done by people who were not trained archaeologists, so the quality of the results is uncertain.
2. The field studies were not done with any attention to sampling problems and methods. Nevertheless, the area of potential impact was sampled rather than covered completely, and the results were used to make generalizations about the whole. As a result, the representativeness of the sample and the reliability of the findings are unknown.
3. The techniques used in surface survey did not include examination of the ground under brush or beneath surface litter. There is no way to know whether the reported absence of sites on any of the nine alternate routes was due to data being overlooked rather than their absence. This is an example of field methods not being appropriate to the task.
4. Another example of inappropriate field methods concerns the span of survey coverage. For example, when the nine alternate Chimney Rock Section routes were surveyed, the surveyors examined only the centerlines of each route. Since the r/w varied in with from 40 to over 120 feet, the r/w may have crossed any number of sites that would not have been discovered with a centerline survey.
5. Almost all attention to known and potential sites in the project area has been given to ritual sites from the recent past. However, there are strong reasons to believe that other kinds of sites should also be considered: historic Non-Indian sites, Native American historic sites devoted to non-ritual purposes, and prehistoric sites of many sorts.
6. The project area has not yet been studied by appropriately trained ethnographers and ethnohistorians for the full range of potential impact to cultural resources, so most of the benefits that could result from an integration of archae-

ology and ethnography have not been gained.

Because of these defects, the impact evaluations of cultural resources in the Chimney Rock area have been open to challenge, and the Forest Service has not been able to arrive at a well-informed decision about the future of the G-O Road. The G-O Road has already been in litigation, and very likely will be the subject of more litigation regardless of the Forest Service's final decision. It is especially important that the information used by the USFS to reach a decision should be as free as possible of methodological defects, so that the decision can be as well-informed as possible and as free as possible from discredit. A new study is needed to provide results that are not hampered by these problems.

C. Problems to be addressed:

A new cultural resource impact study needs to address both archaeological and ethnographic problems. This part of the proposal deals with questions that can be approached through archaeology. The archaeological research proposed here will deal with the following problems:

1. It needs to be determined whether any material cultural remains (sites) lie along any of the nine alternate proposed routes of the Chimney Rock Section, or any of the adjacent lands that could be modified by G-O Road completion construction work, so that an adequate physical impact analysis can be made.
2. Three sites lying near the nine proposed alternate routes have been judged eligible for inclusion in the National Register of Historic Places: Chimney Rock (05-10-52-7), Doctor Rock (05-10-52-8) and Peak Eight (05-10-52-6). Each site needs to be thoroughly surveyed to provide enough data for an adequate assessment of the potential for impact from G-O Road construction.

3. Fourteen other sites (five known and nine potential) have been identified in the vicinity of Chimney Rock. Each has a potential of cultural significance, but not enough is known about any of them to determine its cultural significance, its eligibility for inclusion in the National Register of Historic Places, or the potential for impact of G-O Road completion. The 14 sites include:

"Bad Place"

"The Golden Stairs"

Malul

Little Medicine Mountain (05-05-58-16)

Red Mountain (Oka)

Sawtooth Mountain

Turtle Rock (05-10-52-5)

"lakes"

"Serpentine Ridge"

Elk Valley (05-10-12-4)

Meadow between Doctor Rock and Peak 8 (05-10-52-1)

Meadow between Chimney Rock and Peak 8 (05-10-51-3)

Outcrop along "serpentine ridge"

Elk Valley USFS Guard Station site

Each of these 14 sites needs to be thoroughly surveyed to provide sufficient data to permit impact assessment, cultural significance evaluation and eligibility for inclusion in the National Register of Historic Places.

4. There is a large area adjacent to the proposed construction area that might also suffer impact from construction of the Chimney Rock Section. Archaeological, historic and ethnographic evidence indicates that an unknown but significant number of other sites of cultural significance may lie in this area of potential impact. The area has not yet been surveyed in any systematic way to determine what kinds of sites might occur there, in what numbers, in what circumstances, so an adequate environmental impact analysis cannot yet be made. An appropriate survey needs to be done to gain some data and understandings about whether any more sites occur in the area and what they might be like. Only then can determinations be made about the potential for impact, cultural significance, and eligibility for inclusion in the National Register.
5. One of the central problems concerning the proposed completion of the G-O Road involves reported use of the project area by members of Yurok communities, and possibly Karok and Tolowa communities, for religious ritual activities derived from traditional cultures. Archaeology cannot determine what the contemporary values, beliefs and ritual activities are in the present-day Yurok, Karok and Tolowa communities, but it can help illuminate aspects of the subject. For example, archaeology can help show whether there are kinds of physical remains occurring in the area that correspond to cultural descriptions. It can help determine whether such structures are only modern, or whether they have been used over many

decades or even centuries. It can help measure the physical variability among such sites, which might be related to such factors as the differences between male and female ritual activities. It can help determine what changes have taken place over time in such sites, which will illuminate the question of how traditional the practices may be. It will help to measure the extent of ritual activities by determining the numbers, frequencies and locations of such sites. Archaeological studies can be used to validate models of ritual behavior that are based on evidence from ethnographic literature and the contributions of Native American consultants, just as such evidence can be used separately to illuminate aspects of the archaeological record.

6. Henry G. Wylie (1976), past Forest Archaeologist for the Six Rivers National Forest, has proposed that the known and suspected cultural sites in the project area be regarded as a historic district, the "Helkau District." Miller (1977) has objected that Wylie's data did not demonstrate that a district exists under guidelines and practices of the Advisory Council. It remains possible that the area could qualify as such a district, and further study needs to be done to determine so.
7. Regardless of the outcome of the G-O Road project, the Forest Service is faced with the need for the management of the cultural resources discovered in the project area. Some have already been identified, and further study may well lead to the discovery of more. Enough information needs to be collected about each site of cultural significance so that appropriate plans for management can be developed. Both the necessary data and the management recommendations are needed.
8. The potential for the G-O Road to have effects on cultural resources of the project area cannot be fully understood until the relationships between the project area and the larger environment are more fully understood. This task is not just archaeological in nature, but archaeology can contribute to such an understanding. For example, what role the project area played in traditional Yurok, Tolowa and Karok subsistence practices is scarcely known, and an exploration of this subject requires an understanding of the ecological potentials of their entire territories, not just the project area, so that adaptive strategy decisions can be understood in terms of potential alternatives. Even less is known about prehistoric subsistence in the area. The western part of the project area is only ten miles from the ocean. When that part of the coast began to be settled at least 4500 years ago, subsistence practices must have been considerably different than they were only 200 years ago, and the economic use of the project area may also have been different. Similarly, little is known about the use of the project area by non-Native Americans during the past

120 years or more. Such information is badly needed in order to understand the significance of cultural resources within the study area.

D. Tasks to be performed in an archaeological study:

The archaeological reconnaissance program to be conducted in the project area will have three phases, each with a largely different goal. The three phases will be conducted largely in sequence. They are as follows:

Phase 1: route alternative survey

There are nine alternate routes suggested for the Chimney Rock Section of the G-O Road. They vary in length from 5.9 to 9.5 miles, and total 27 miles of potential r/w in all. They vary in width from 40 to over 120 feet, and include some additional areas where brush is to be cleared, cutting and filling may take place, machinery may be moved and parked, intersections may be constructed, borrow pits may be established and pull-offs may be built. A minimum of 160 surface acres of land is involved. In this proposed study, each alternative route will be surveyed completely over its entire length and breadth in order to determine whether any cultural remains exist there.

Phase 2: survey of known cultural resources

We have already mentioned the three sites determined to be eligible for inclusion in the National Register of Historic Places, and the fourteen other sites in the project area of known or suspected cultural significance. Each of these 17 sites will be visited and surveyed completely in order to provide enough information to allow adequate assessment of impact, cultural significance, and management needs.

Phase 3: controlled survey of the study area

The total project study area, which covers about 120 sections, will be surveyed through an appropriate controlled sampling method to determine whether other cultural resources exist that could potentially be affected by G-O Road completion. The sampling procedure will be designed so that all areas that potentially could hold cultural resources will have equal opportunities to be represented in the study. Selected study areas will be completely surveyed, and any discovered resources will be recorded appropriately. Design of the sampling strategy and the survey methods will be based on predictions about the nature, frequency and distribution of resources likely to be encountered in the project area. The predictions will be based on testable hypothetical models derived from available archaeological, ethnographic and historic data, both published and unpublished. These testable hypotheses in turn can be verified through field work to determine their ability to imply the structure of the previously unexplored archaeological record.

E. Expected results of the study program:

The archaeological reconnaissance program will provide the following results:

1. All discovered and visited material cultural resources (sites) will be fully and consistently recorded as described below. The recorded data will be provided to the USFS as part of the project's progress and final reports.
2. The cultural significance of each site will be assessed. Sites determined to be significant will be nominated for inclusion in the National Register of Historic Places according to USFS and Advisory Council guidelines and procedures.
3. All discovered and recorded sites will be evaluated as

to the potential for adverse or positive effects from completion of the G-O Road through construction of any of the route alternatives of the Chimney Rock Section.

4. If adverse impact is predicted for any site, appropriate mitigation measures will be recommended. Assessment will consider both the possibility of physical impact to material sites and the issue of adverse impact to traditional cultural practices.
5. Detailed recommendations will be given for management practices to conserve, protect and enhance the cultural resources of the project area.
6. Evaluation will be given from archaeological and ethnographic perspectives as to whether the cultural resources of the project area constitute a historic district according to Advisory Council guidelines and practices.
7. The cultural significance of the project area in relation to the surrounding area will be analyzed within the limits imposed by the project's scope, funding and duration.
8. All research findings of the project will be presented in the project's final report. In addition to the items already mentioned, this will include:
 - (a) Field methods and sampling strategies used, and their rationales.
 - (b) The pre-field work literature surveyed and the hypotheses and test implications derives from them.
 - (c) An analysis of recovered or recorded artifacts and features.
 - (d) Previous known survey data.
 - (e) The results of the tests of hypotheses.
 - (f) An overview of the known cultural resources of the project area.

METHODOLOGY

A. General survey methods:

This project calls for complete surveys to be made during Phases 1 and 2 of the study, and for controlled sample surveys to be made during Phase 3. These activities will now be defined.

As stated in the solicitation for bids for this project, p. 25, a complete survey is defined as follows:

An investigation of the entire project area that will result, to the extent practical, in the discovery of all locatable cultural resources. Coverage will normally consist of survey transects spaced no more than 20 meters apart. Coverage of an area may be limited by factors of vegetation, terrain, and other obstacles. In such cases, the report will indicate those areas not investigated and the reasons they were bypassed.

Data provided by a complete survey will meet 36 CFR 800 inventory requirements.

The different goals of the proposed study call for different methods of survey. At the same time, the fact that the project area is one of the most rugged terrains in the U.S. imposes limits on the kinds of survey methods that can be used. The following discussion presents the general survey approaches to be used in this study.

1. An area to be completely surveyed will be defined by geographical limits, and the survey will cover all terrain within those limits. Complete surveys for Phases 1 and 2 will cover the entirety of the chosen locations. The surveys to be done in Phase 3 will involve the selection of survey areas through appropriate sampling techniques. The selected areas will then be surveyed completely as in Phases 1 and 2.
2. Each area selected for survey will be covered by a team of trained archaeological surveyors, not by solitary individuals, by untrained personnel or beginning students. All field work will be under the direct supervision of a Ph.D. archaeologist or doctoral candidates

in archaeology at all times. The use of fully trained crews in which each member has had personal, extensive experience in the execution of systematic sampling programs in archaeological survey will insure the highest degree of competence and consistency in the results.

3. Much of the ground surface will not be readily visible due either to dense brush cover or the accumulation of vegetable litter on the ground. We will explore systematically beneath brush cover and surface litter as part of the execution of each transect survey. Brush will not be removed or cut due to the adverse impact on the environment of such removal, but we will use mechanical, non-destructive aids to help in the exploration of the ground surface.

4. Ground coverage will involve the establishment of transects across each selected study area. The USFS requirements are that transects be no more than 20 meters apart, but in most cases this limit is too wide. Along the route r/w, for example, the entire r/w is only 20 meters wide, on the average, and a survey at 20 meter intervals would be inadequate. We propose to use transect intervals of 5 or 10 meters as much as possible, especially on the alternate route survey of Phase 1. A surveyor will walk each transect to conduct a complete surface collection with a minimum transect width of 1-2 meters. As conditions permit, we will bring the transects close enough so that surface collection coverage is as total as possible.

5. Survey teams will each use metal detectors in all phases of survey coverage. Metal detectors will be useful in the location of historic metal artifacts. The discovery of the whereabouts of metal artifacts will provide important information about historic cultural activities in the project area, such as mining, camping, hunting and fishing.

6. Survey teams will carry cameras for photography of sites and

artifacts in color and b/w. Appropriate mapping, surveying and recording instruments and equipment will be carried by each team.

7. Artifacts found at sites that may be of Native American ritual significance will not be removed. They will be sketched and photographed in place, and their locations will be mapped. This practice will help protect such sites against desecration.

8. Rock features will be photographed, measured and mapped without disturbance to help protect them from desecration. Each feature will be scanned by metal detector. This will help to identify those features that were made by non-Indians, such as miners, without the need to take the features apart.

9. Sampling strategy will not be otherwise employed in Phases 1 and 2 of the study, because the areas to be surveyed will have been previously defined. Sampling strategy is defined below in the discussion of the methodology for Phase 3 of this study.

B. Recording of discovered and visited material cultural resources:

All sites of material cultural resources that are discovered or revisited during this study will be recorded systematically and consistently according to the following procedures:

1. Each site will be recorded on appropriate USFS Region 5 forms.
2. Each site's location will be potted on base maps.
3. Each site will have its location diagrammed as part of the site record.
4. Each site will be photographed in color and b/w.
5. Visible surface features of any site will be reproduced in scale diagrams as part of the site record.
6. Clean copies of all such data will be provided the USFS Region 5 as part of this project's reporting.

C. Disposition of artifacts:

This projects expects to collect few artifacts. We suspect that

relatively few artifacts should occur because the area apparently has never had permanent settlement. In addition, no artifacts are to be removed from sites of possible ritual significance in order to protect them from desecration. However, our experience has been that some artifacts are otherwise likely to be found, and the disposition of those artifacts becomes a question.

Under current law, artifacts belong to the owner of the land on which they were found. This study will be made entirely on USFS land, so the Department of Agriculture is the technical owner of any recovered artifacts. In practice, the USFS has usually been willing to let research institutions have permanent custody of artifact collections for scholarly purposes, when the institutions have appropriate curatorial facilities.

Many Native Americans have become distressed that the material remains of their cultures are gradually being transferred to the bowels of university storage facilities, beyond the practical reach of the people for whom these artifacts are culturally meaningful. The G-O Road project deals in part with Yurok ritual life, and we feel it is especially important for the disposition issue to be raised about this project.

We request that the USFS be willing to assign trusteeship of Native American artifacts from the G-O Road study to an appropriate Native American group that can provide appropriate curatorship. We also request that the USFS begin discussions with the Yurok Tribal Council and other appropriate Native American groups to determine whether any groups want to have trusteeship over these artifacts. If so, it should be determined by the discussants who the appropriate

curator should be.

The contractors request that they be allowed to study the artifacts that may be collected for one year at their academic institutions. In addition to normal measurement, illustration and classification, some testing may be performed. We hope to be able to do neutron activation analysis to trace prehistoric trade routes, for example, and obsidian hydration dating to help date the occupations of hunting camps. At the end of the study period, the artifacts will be appropriately packed and shipped to the recipient designated by the USFS.

D. Excavation:

There will be no excavation or test excavation as part of this project.

E. Reporting:

The contractor will furnish the Contracting Officer or her designated representative monthly progress reports on the activities and accomplishments of the project. As specified in the solicitation of bids, the contractor will provide the Government with three copies of the draft version of the final report. The Government will have 2 weeks to review the report and make recommendations for revision. The contractor then requests 2 weeks to make the recommended revisions and prepare the final report. The final report and five copies, along with all relevant photographs, maps, diagrams and illustrations, will be submitted to the Government.

While the draft version of the report is being reviewed by the Government, the contractors will submit copies to the Native American

Heritage Commission and other interested Native American organizations. The contractors will request that these organizations review the draft report and provide the contractors with their reactions and recommendations for the shaping of the final report.

F. The issue of the desecration of ritual sites:

This proposed research differs from most archaeological surveys in that the lands to be studied are reported to be regarded as extremely sacred by a number of Native American people in the region (see, for example, Buckley 1976; Bright 1977; Pilling 1975; Spott and Kroeber 1942). Many Native Americans in this (and other) area regard the investigation of any sacred lands by archaeologists as offensive (M. Moratto, personal communication). Archaeologists have traditionally not shown much, if any, sensitivity to the religious feelings of Native Americans. Existing archaeological field manuals do not discuss the problems of research in lands regarded as sacred by their traditional occupants. Even the newest professional works on culture resource management anthropology do not address this issue in any useful way (see, for example, Schiffer and Gumerman 1977; McGimsey and Davis 1977).

This problem is especially important to the proposed research in the Chimney Rock area. Bright (1977) has already criticised previous research there for having been done by archaeologists who were not sufficiently sensitive to Yurok beliefs and sentiments. We feel that this issue of religious feelings must be discussed before field research begins, and appropriate steps must be taken to prevent the desecration of places regarded as sacred.

At this time the entire project area is part of the Six Rivers

National Forest. The Forest Service has the right under law to authorize any research there that it deems necessary. Adequate archaeological research is needed in order to allow the Forest Service to make a well-informed decision about completion of the G-O Road. It also is needed to allow the Forest Service to develop adequate programs for the management of the known and to-be-discovered cultural resources in the study area, including places of ritual significance.

As anthropologists, we are aware that many Yurok people will feel that the intrusion of non-believing archaeologists into their sacred places is offensive, and that more than enough intrusions have already taken place. Yet at the same time, we feel that the best chance for the most adequate protection and preservation of such sites can only come from Forest Service cultural resource management plans. Existing studies have not given the Forest Service nearly enough information to let definitive management plans to be developed. The chances for protection, and the amount of protection, we believe, will be improved if a thorough study is done. We cannot predict what the outcome of this study will be, because we do not know what will be found. However, we point to the Blue Lake decision in New Mexico as evidence that the Government has been willing to take adequate steps to protect Native American religious rights when the evidence has required. We feel that this proposed study can help the interests of Native Americans, and we ask for the help and understanding of Native Americans to insure that the study is the least offensive and the most productive one possible.

We propose certain conditions of study that we feel will help make the study as inoffensive and still as productive as possible.

These conditions are the following:

1. No excavation or test excavation will be done as part of this project, so no sacred places will be dug up.
2. No pipes, projectile points, quartz crystals, beads, or any other kind of possibly sacred artifacts will be removed from any possibly sacred place.
3. The project's budget has funds for a Native American observer to join the project, to be present at the study of all possibly sacred places, to help insure that no desecration of these places takes place.
4. No possibly sacred structures at any possibly sacred sites will be disturbed or taken apart, even temporarily. We are especially aware that rock structures, walls, circles and cairns may be the remains of past or present ritual places.
5. Any evidence of contemporary use of these sites, such as bundles of herbs, will be left absolutely untouched.

We feel that these conditions will make the proposed study as inoffensive as possible. We are prepared and agreeable to similar kinds of restrictions suggested by Native Americans that will help protect these sites from desecration while allowing us to collect the kinds of information to allow for long-range protection plans to be developed.

G. Methods of the three survey phases:

In addition to the general survey methods, there are methodological considerations for each of the three phases of study. Different kinds of terrain are involved, different research problems are involved and different sampling problems are involved. Although general ethnographic and archaeological models are discussed later, some specific models will be discussed for specific sites. What follows is a discussion of the three phases of the survey.

1. Phase 1: the G-O Road Survey

The Chimney Rock Section is the last uncompleted part of the Gasquet-Orleans Road. The Forest Service is presently considering from among nine alternative routes to complete this link. One route would follow the existing low-grade dirt road from Peak 8 to Elk Valley. The other eight alternative routes are variations of high, middle and low elevation corridors. Phase 1 of this study involves the archaeological survey of each of the nine alternative routes in order to determine whether the construction of any of them would cause any effect on material cultural resources. The following discussion deals with the features of the routes as they affect the methods of archaeological study.

- (a) Sampling: the study areas are all determined by the USFS, and are to be surveyed completely, so there are no sampling considerations to Phase 1 in terms of where to survey. Some sampling considerations will affect some forms of surface collection, and they will be discussed below.

- (b) Route attributes: The nine alternate routes vary in length from 5.9 to 9.5 miles for a total of about 27 miles of r/w to be surveyed. The road to be built would have an average pavement width of 24 feet. It would be a hard-surfaced, all-weather road that would allow traffic to move at top speeds of 25-45 mph, depending on gradient and curvature. The surface that would be prepared for the roadbed would seldom be narrower than 60 feet, and would be up to 120 feet wide or wider in some places due to turnouts, passing zones, intersections, cuts, fills, borrow places, dump places, machinery parks and movement areas, construction park sites,

brush removal zones and surface stabilization and landscape zones (see DES, Appendix V, figs 2-4, for example). The USFS estimates that 160 acres of land would be affected directly by construction, but when landscape and stabilization are considered, the total is larger than 200 acres. The first phase of this study must include all such areas.

- (c) Off-r/w effects: effects to cultural resources could occur even when the resources are located off the r/w and are not affected by construction itself. Timber harvesting, hiking, hunting, fishing and vandalism are examples of agents that could bring adverse impact. Post-construction land slippage could have effects on down-slope sites, and the possibility that out-of-control vehicles could leave the road and damage sites must also be considered. There also is a question in this case as to whether road completion would cause disruption to traditional religious activities, but that question cannot be answered through archaeology and is discussed in the ethnographic section of this proposal. The determination of impact possibility to sites off the r/w is discussed in Phase 3 of the archaeological survey, below.
- (d) A 3-stage survey for Phase 1: we propose to do a three-stage survey of the 27 miles of proposed alternative routes. The first stage would be a surface examination on foot. The second would be a stratified random sample surface collection. The third would be a stage of testing of predictions based on the findings of the first two stages.
- (e) The survey on foot: The foot survey would begin by staking

the centerline of each route (on the existing road, markers would be placed off the road). Each r/w would be walked by four trained surveyors in parallel transects on each side of the centerline. The transects would extend to the route's outer limits. At least eight transects would be made along each route, and in most cases the intervals between transects would be 10 feet or less.

The surveyors would surface-collect each transect and search for other evidence of cultural remains along and adjacent to the r/w for its entire length and width. The use of multiple surveyors will help insure consistent, thorough coverage. It will allow for ready coverage of erosion cuts, trail sidewalls and other available natural cross-sections for evidence of buried remains. It will also allow for sufficient manpower to cover adjacent areas that might be affected, such as potential landscape areas and downhill terraces.

- (f) The stratified random sample surface collection: in spite of the coverage of the first stage, some cultural remains might go unnoticed due to gaps in coverage. Therefore an alternate surface collection method is proposed to help insure that all present cultural remains get discovered.

The stratified random sample surface collection would be done as follows. Each route would be divided into segments 1/4 mile long, so that every part of every route would be represented. Each segment would be divided into blocks 10 feet on a side. For example, a segment 40 feet wide by 1/4

mile long would contain 528 blocks. A standardized system would be used to number the blocks in each segment. Three percent of the blocks would be chosen in each segment for intensive study, using random numbers.

Each chosen square would be located from map coordinates and would be defined by corner stakes. The square's surface would be cleared of all surface litter and would be examined intensively by a surveyor on hands and knees as well as by metal detector survey and pH testing. Any cultural remains found would be recorded. If sites were found, they would be recorded as described previously.

This sampling approach has several advantages. It would provide a good check on the coverage limits and less intensive surface collection of the first stage. It would be independent of the first stage because it would be based on random unit selection rather than linear transect alignment. It would provide greater transverse coverage and would be unbiased by terrain variability. Every square foot of each proposed route would have an equal statistical chance of being represented in the sample.

A 3% sample would provide a minimum of 1620 studied squares, or 162,000 square feet of intensively studied surface. The square size (10 X 10) is small enough for one person to survey in a modest amount of time, yet large enough so that if a site is present, encounter with even thinly scattered flakes is probable. (see Chartkoff 1976, 1978; Lovis 1976).

(g) Testing the results: The products of these two stages will be evaluated both independently and together. If neither survey produces any cultural remains, it will remain possible that sampling error was responsible. In that case, an additional 1% random sample will be drawn from the remaining 97% of unsampled squares.

If any cultural remains are discovered by either survey, a different kind of testing will be done. In the first two stages, no assumptions were made about the kinds of terrains on which sites were likely to occur. If sites are found, models will be developed from the results about site distribution in the construction area. The construction area will then be stratified into terrain types, and a different kind of stratified random sample survey will be designed to sample the predicted locations, and non-predicted areas to test the null hypothesis. This sampling procedure cannot be designed until the first two stages are completed.

(h) Estimated labor needs for Phase 1: Stage 1 of the phase, which involves the walking transect survey, will take an estimated 48 man-days of labor. Stage 2, the stratified random sample surface collection, will take $2\frac{1}{2}$ man-days per 1/4 mile segment, or 270 man-days. Stage 3 depends on the results of stages 1 and 2, but will take at least 20 man-days and up to 100, for a total of 338-418 man-days.

2. Phase 2: the survey of 17 sites

The second phase of this study calls for the complete survey of

17 sites of known or suspected cultural significance in the project area. Three have already been determined eligible for inclusion in the National Register of Historic Places: Chimney Rock (05-10-52-7), Doctor Rock (05-10-52-8), and Peak 8 (05-10-52-6). Six others are places at which material remains have been found, though their cultural significance is still uncertain. They include:

Little Medicine Mountain (05-05-58-16)
Turtle Rock (05-10-52-5)
Elk Valley (05-10-12-4)
Meadow between Doctor Rock and Peak 8 (05-10-52-1)
Meadow between Chimney Rock and Peak 8 (05-10-52-3)
Outcrop along "serpentine ridge" (05-10-52-11)

Eight more sites are places for which there are ethnographic reports of cultural activities, but which have not yet been surveyed to determine whether any physical evidence exists. They include:

Bad Place	Sawtooth Mountain
Golden Stairs	"lakes"
<u>Malul</u>	"serpentine ridge"
Red Mountain (<u>Oka</u>)	Elk Valley Guard Station

Each of these sites is to be visited and completely surveyed by reconnaissance teams using the basic survey methods described above. Because the study areas have already been selected, sampling strategies play no role in survey methods. However, each of the 17 sites has ethnographic and physical traits which make it somewhat unique, and which present special things for the survey teams to be aware of. We discuss general ethnographic hypotheses later in the proposal as sources for test implications, and the general survey methods are designed in part to collect appropriate data to test those hypotheses. In addition, though, methods will be adjusted for the special conditions and ethnographic details of each of these 17 sites. It is therefore necessary to review each of the 17 sites briefly to outline what these details are.

(1) "Bad Place" (A-cah)

"Bad Place is located on the west side of the ridgeline between Peak 8 and Doctor Rock. It is reported as a palce where extremely potent rituals were held (Wylie and Heffner 1976:3). The site is associated particularly with the practice of professional sorcery ('uma'a) by male practitioners of high social status or who aspire to high social status (Miller 1976:10). 'Uma'a paraphernalia is poorly described in ethnographic literature, so it is difficult to make predictions as to what sorts of artifacts might be found to indicate its practice. This is a subject that will be explored in the ethnographic component of our project. We would expect, however, that sorcery artifacts would differ from those associated with other kinds of rituals such as healing. Miller (ibid.) refers to 'arrow bundles' of 10-12 arrows or spears as a part of some forms of sorcery. If this is literally true, the discovery of projectile point caches might support this interpretation.

"Bad Place" has not been visited and recorded as a site. It covers about 20 acres at an elevation of about 4500 feet. It is a fairly flat ridge surrounded on three sides by steep slopes. To the ESE it connects with the ridge complex associated with Doctor Rock, so that would be the obvious avenue of approach. Historic mining remains may lie around this ridge, and ritual rock features could occur on its crest or upper slopes.

(2) Chimney Rock (05-10-52-7)

Chimney Rock, on the west side of Elk Valley, has an elevation of 5727 feet, making it one of the most prominent peaks in the region. Yuroks reportedly believed that physical, social and spiritual stature were related, making Chimney Rock one of the most sacred places to

the Yurok people. Reportedly, it still is (cf. Bright 1977; Buckley 1976; Spott and Kroeber 1942).

Chimney Rock reportedly was sacred to Karok people as well as Yurok (Wylie and Heffner 1976:3-4), and there is a reference to the use of the peak by Tolowa people for ritual purposes (ibid.). In addition to this ethnographic diversity, the peak served a variety of ritual functions as well. Both male and female practitioners are reported to have used the peak for purposes as diverse as healing rituals, the training of new doctors, the receipt of powers, and prayers for fortune in gambling and hunting.

In view of this reported ethnographic and functional diversity, it would be expected that the peak would have larger numbers of remains and greater varieties of remains than other ritually important peaks. Preliminary evidence is that it does. Wylie (1976) surveyed the peak and found remains of several kinds of rock features, including stone wall enclosures, rock cairns, an apparent firepit, and an apparent curved stone wall. Wylie and Heffner (op. cit.) describe perishable features for which remains probably cannot be found. So-called 'prayer-seats' were made by laying boards across wooden stakes driven horizontally into fissures in vertical rock faces.

These ethnographic details suggest that the entire peak will have to be combed for scattered artifacts as well as for rock features, since hints of ethnographic affinity and different functions may be revealed. The whole peak covers about 500 acres, though only about 30 acres of fairly flattish land forms its peak. Furthermore, the surrounding country will have to be examined below. Buckley (1976:9) reports that Blue Creek, which arises partly on Chimney Rock, was

regarded as all sacred ground. Some of the nearby areas, such as Elk Valley and the glacial cirque, are scheduled to be surveyed anyway.

(3) Doctor Rock (05-10-52-8)

Doctor Rock is mentioned by Yurok ethnographic sources as being as important as Chimney Rock in traditional spiritual life (Bright 1977; Buckley 1976; Miller 1975; Spott and Kroeber 1942; Wylie and Heffner 1976). It is located about six miles WSW of Chimney Rock at the head of the "Golden Stairs" trail. Unlike Chimney Rock, it is reported to have been used only by the Yurok, and only by female ritual practitioners for healing. Doctor Rock was supposed to have been extremely potent ritually (see Bean 1975), so that only the most famous and powerful doctors were supposed to have practiced there.

The peak itself is 4924 feet high. It is a promontory on a local ridge system that forms the head of the "Golden Stairs." The immediate complex is made up of five peaks over 4600 feet high, and the ridges and saddles that connect them. The entire complex covers over 600 acres, though the peak of Doctor Rock alone covers less than 40. The complex is flanked on most sides by steep défiles over 2000 feet deep, on which no remains could be expected to occur due to gradient. It is the peaks, their connecting saddles and ridges, and immediate upper slopes that must be surveyed.

Given the limited and special functions supposed to have been carried out at Doctor Rock, we would expect to find only a narrow range of ethnohistoric sites in the area. Any subsistence sites should be considerably older, dating to a time when the peak was

not so ritually important. We would expect to find ethnohistoric rock features there, comparable to the descriptions of tsektseles, the three-sided rock wall enclosures used in healing rituals. Spott and Kroeber (1942) also mention that female rituals lasted up to 10 days and often involved attendance by assistants and novitiates. They indicate that both domestic and ritual fires may have been built, even if considerable fasting was being done. We therefore would search for firepits and ash lenses.

Doctor Rock also reportedly was the locale for some mining operations beginning in 1903. A miner's cabin is reported to have been built within a half mile of the peak. Remains of a cabin, especially discarded nails, may be found near the peak. Such cabins invariably had trash dumps for tin cans and bottles nearby. Our proposed metal detector use should be especially useful in the search for these remains. In addition, remnant mining works and discarded equipment may be encountered.

Wylie surveyed the peak in 1975 (Wylie 1976) and found several rock features, at least some of which resembled tsektseles. He also identified a large rock outcrop with inscriptions on it. The inscriptions may be local manifestations of 'baby rocks' (Heizer and Clewlow 1973:29-31), discussed later. Our survey will be alerted to the possibility that more such inscriptions may occur, so that rock outcrops and exposed bedrock masses will be checked.

(4) The Golden Stairs

The Golden Stairs is the name given to a ridgetop trail that runs from Doctor Rock (T13N/R3E, sec. 1) roughly SSW to the confluence of Blue Creek with the Crescent City Fork (T13N/R3E, sec. 34)

and on toward the Klamath River. Due to the ruggedness of the country, the ridgecrest trail is the **easiest** means of access to the peaks from the river. Several ethnographic sources indicate that the Golden Stairs was the principal route used by ritualists to travel to and from the peaks, especially to Doctor Rock and Peak 8. The trail has been maintained by the Forest Service, so older traces of use may have been obliterated. It has not been surveyed archaeologically, so what remains could be found is not known. Some ethnographic sources give hints, however, that both recent and older remains may be found.

Sheri Scott, one of John McArthur's consultants, reported that practitioners would stop along the trail at 'crescent-shaped rocks' to sit and pray (Wylie and Heffner 1976:7). Such prayer places may still be identifiable. Her description is similar to that of Robert Spott for a jump dance ritual at Weitspus (Weitchpec) (Kroeber and Gifford 1949:72). In Spott's description of the October 1, 1901, ritual, dancers left the settlement at Weitchpec and filed up the ridge toward Rivet or Burrill Mountain (Kewet), a peak 4336 feet high some three air miles north of Weitchpec and 4030 feet higher than the town. Along the ridge were rock cairns every few hundred feet. The dancers would proceed to a clearing at one of these cairns and stop to dance, then proceed to the next. Such rock cairns may be found along the "Golden Stairs" trail, especially in view of Buckley's reports (op. cit.) that occasional jump dances were held in highland valleys.

Kroeber and Gifford go on to describe Spott's report that after the dancers of Weitchpec had reached the ridgetop and danced,

they would be joined by men, women and children from the gathering at Weitchpec who ascended by more direct routes. A large spring lies near the peak to the SW. The gathering would pitch camp there after the mountaintop dancing was concluded, and purely domestic activities would take place, such as the erecting of shelters, the building of cookfires, the preparing of food and the playing of games. Whether similar events occurred at Doctor Rock is unknown, but it is a reason why the many ridgetop flats along the Golden Stairs trail and around Doctor Rock need to be completely surveyed in addition to the trail itself.

More non-ritual activities may also be represented along the Golden Stairs. As a major avenue for recent non-Indian hunters, it may be expected to produce evidence such as discarded cartridge shells, bottle tops and tabs from cans. Prehistoric and ethnohistoric evidence for subsistence activities may also occur, such as small flake scatters from weapon preparation and carcass butchering.

(5) Malul

Malul is identified as a site of important ritual activities. Spott and Kroeber (1942:168-9) reported it as a mountain similar to Doctor Rock and Peak 8 in that female doctors went there to practice and males visited it to conduct rituals for good fortune. It is described as being 1½ days' travel north from the Yurok village of Sregon (about a mile south of Pecwan Union School on the Klamath). A stone tsektse is supposed to be on the peak of Malul (ibid.).

Although Malul is supposed to be completely surveyed, its precise location has never been determined. It can be assumed that it is not any other named peak, such as Doctor Rock, Red Mountain or

Chimney Rock, because explicit discussions are given separately about them. However, a few clues suggest its general location.

There are at least two reasons to assume that Malul lies close to Doctor Rock and Peak 8. The first is that Doctor Rock and Peak 8 lie north of Sregon and could have taken 1½ days to reach by direct ascent. The other is because the kinds of rituals supposed to have been carried on at Malul were carried on at Doctor Rock and Peak 8, but they were not supposedly carried on closer to the river.

It seems probable, then, that Malul is the name given to a peak not far from Doctor Rock. We hope this question will be resolved by ethnographic inquiry. There are too few known clues about the peak to make identification certain through archaeology alone. What we propose instead is to survey all the prominent peaks close to Doctor Rock. In doing so, the peak of Malul will probably get surveyed.

(6) Little Medicine Mountain (05-05-58-16)

Little Medicine Mountain (called "Medicine Mountain" on the USGS Dillon Creek Quad) is a peak that reportedly was as important to Karok people as Doctor Rock was to the Yurok. The peak lies in traditional Karok territory, and most of the ethnographic notes on its use mention the Karok as the people who used it. (Wylie and Heffner 1976:12). Its use reportedly dealt with ritual activities, though we could find no explicit descriptions of rituals carried on there.

Because of the difference in ethnographic territory, there may be differences in the kinds of physical remains associated with the peak. Existing data suggests that this is so. The peak was visited by James Rock, Forest Archaeologist for the Klamath N.F., who found there a circular rock feature and a stone cairn. The stone circle

was 4'2" in inside diameter and averaged 18" in height. It was made of three large stones connected by a roughly circular wall of smaller stones. Wylie and Heffner (1976:12) identify it as a possible tsektsel, although its description is different from any described for the Yurok. The differences may or may not be due to the fact that the peak is in Yurok territory.

If appropriate artifacts are found on the peak, they may indicate ethnographic differences from Peak 8 and Doctor Rock. Unfortunately, not a great deal is known about differences between Karok and Yurok artifacts, and most of what is known refers to perishable materials such as basketry, which are not likely to be found in our study. We will search for possible indicators, such as distinctive styles of projectile points and beads, but it may be that rock feature styles will prove useful in distinguishing ritual areas.

The peak itself is a major local promontory, 4999 feet high and only six linear miles from the Klamath around Cottage Grove. It is bounded on three sides by very steep slopes that rise up to 3200 feet in little more than a linear mile. The western approach is slightly less hazardous, in that a ridge connects the peak to the boundary trail, but the ridge has elevation changes of 1000 feet. The top of the peak covers only a few acres, leaving little room for remains, while the steep slopes are so precipitous that it is unlikely any remains will be found on them. The survey will therefore concentrate on the top of the peak and its surrounding shoulders and the ridge approaching it from the west.

(7) Red Mountain (Oka)

Red Mountain has not been recorded as an archaeological site, but

several ethnographic sources describe it as the location for several kinds of ritual activities (Buckley 1976; Miller 1975; Spott and Kroeber 1942; Wiley and Heffner 1976). These descriptions suggest kinds of archaeological remains to be sought there.

According to Robert Spott, the mountain was used by female doctors who had tsektseks. He described one visit by a doctor who saw seven tsektseks, all facing different directions. At one tsektseks she (the doctor) saw the stone bowls of two pipes that had been left behind by earlier practitioners. These reports indicate there are a number of rock features and ritually significant artifacts to be found on Red Mountain.

Indications from Wylie and Heffner (1976) and Miller (1975), using data collected by John McArthur, are that the Red Mountain area was regarded as less sacred than Doctor Rock and was visited by lay people as well as doctors. Both lay sorcery and professional sorcery were said to have been practiced there, which may be indicated by different kinds of remains than doctors left. Spott and Kroeber (1942) and Buckley (1976) indicate that men used to go up to Red Mountain from river villages to collect wood for use in sweathouses. Wood-cutting may be indicated by small collections of core tools, hammerstones and waste flakes. Harry K. Roberts reported having seen "...literally hundreds of personal prayer-circles, rings of stone, and several large medicine altars" (Wylie and Heffner 1976:13).

Red Mountain, an imposing peak, is part of a much larger highland structure. The peak itself lies only 10 miles from the sea, and three miles from the Klamath. It is at the NW end of a three-mile-long ridge, at the other end of which is South Red Mountain. Between this ridge and the parallel Klamath River runs Starwein Ridge which

rises to 2600 feet. The valley between drops back to nearly sea level, and rises to a ridge level of 3500 feet. Red Mountain at the NW end is 4265 feet while South Red Mountain rises to 3950 feet. The ridge between, Red Mountain Meadows, forms a large mesa of about 1000 acres, three miles long and up to 1½ miles wide. It is the largest single piece of flat land in the highlands, and as such must have had considerable importance since prehistoric times.

Though not mentioned ethnographically, this mesa should have been an important summer hunting area, especially in prehistoric times when river and coastal fishing had not become so important. It may have remained significant up to the present, for we expect to find both prehistoric and historic hunting/butchering sites and the debris of modern deer hunters there. It is located close to several coastal villages as well as the Klamath villages. Pilling (1975) mentions that the area was "...the main medicine making area for the ceremonial leaders of the Requa area. Here emergency Jump Dances to end disasters among the lower Klamath River Yurok were formerly held." The trails leading up to Red Mountain from the south and west may be lined with rock cairns similar to those described for the Weitchpec Jump Dance in Kroeber and Gifford (1949:79). Rock outcrops on the mesa would also be good places to look for "baby rocks."

This unique area will have to be completely surveyed, including the trail approaches to the mesa, the entire mesa, and both named peaks, not just Red Mountain alone.

(8) Peak 8 (05-10-52-6)

Peak 8 is mentioned in several ethnographic sources as a ritual location of almost as much importance as Doctor Rock and Chimney Rock. It lies a mile north of Doctor Rock at the terminus of the

Golden Stairs trail. If the Golden Stairs was the main route of access to Peak 8, its users would have had to have passed along the SE flank of Doctor Rock. Its ritual function reportedly was quite different than Doctor Rock's. Doctor Rock was reportedly used by female doctors and their students, while Peak 8 reportedly was used exclusively by males for both medical and non-medical purposes. Buckley (1976) and Wylie and Heffner (1976) particularly note that males visited Peak 8 to use the prayer seats for prayers about fortune in hunting, fishing, gambling, bravery and wealth, although reknowned male medical practitioners also used it as a retreat for their solitary vigils and medical meditations. The kind of powerful aura that kept laypeople from Doctor Rock apparently was not felt for Peak 8, and some laypeople apparently went there (Peak 8) expressly to take advantage of the power for good fortune attributed to the prayer altars of some reknowned practitioners.

We expect to find some significant differences between the female ritual sites on Doctor Rock and the male ritual sites on Peak 8, although we cannot predict what those differences would be due to the absence of ethnographic indicators. There are some hints that male rituals were short in duration, and although campfires were made before altars, the evidence for fires should be scant compared to Doctor Rock sites. We would expect to find male-associated artifacts on Peak 8 associated with good fortune prayers, such as projectile points, charmstones and fishing gear. Modern equivalents found at altar sites might indicate the persistence of fortune praying into modern times.

Peak 8 lies only a mile north of Doctor Rock. It is more remote than Doctor Rock from Yurok settlements, and also is higher by 250

feet. The association of higher elevation with male rituals is unclear; it could be simply coincidental, but such questions will be explored ethnographically. Peak 8 raises some interesting questions. For example, it seems that the prayer altars used by famous practitioners also were used by laymen. What effects this practice had on the ritual purity of the altars is unclear. Also, there is no indication of the apparent implications of contamination that should have occurred when male pilgrims crossed the ritually potent Doctor Rock, a female enclave, to reach Peak 8. To avoid Doctor Rock, a male would have had to have made a detour of more than 10 miles. These questions cannot be answered directly through archaeology, but archaeology can reflect on the comparative similarities and differences between the two peaks after a complete survey and artifact surface collection is done.

(9) Sawtooth Mountain

Sawtooth Mountain is the highest peak in the study area (5781 feet) and also the most remote from the Yurok settlements on the Klamath. It lies on the ridge separating the Karok, Yurok and Tolowa territories, so it may be assumed to have held an important role in the cosmologies of these peoples. It is frequently mentioned as a place where "high medicine" was made (cf. Wylie and Heffner 1976: 14; Miller 1975:59-63; Buckley 1976:8), though Tolowa and Karok consultants all denied that their ritual practitioners went there. Sheri Scott refers to Sawtooth Mountain as the "spirit center of the world" (Wylie and Heffner 1976:14). Harry K. Roberts knew some prominent makers of "high medicine" who trained there (ibid.). According to Buckley (1976:8), the teacher of the last fully trained maker of

traditional "high medicine" was trained at Sawtooth Mountain. In the last several decades, however, the use of this peak for traditional practices by the Yurok seems to have fallen away.

Sawtooth Mountain is a sharp north-south trending ridge, a mile long but very narrow on top, so the peak area is very small. The two major slopes, east and west, are very steep and drop more than 1000 feet. Interestingly, there are flat areas around the bases on each side which contain high mountain lakes. One of them is called "Elk Hole". We have no ethnographic evidence that hunting was done there, but the probability of prehistoric hunting, and modern, non-Indian, hunting, must be examined by survey.

We would expect that ritual sites will be found along the ridge crest trail and peaks, while hunting evidence would be found on the flats and around the small lakes at the base of the mountain. We expect the ritual sites to be few in number and of little variability, in view of the intense training that should have been given their makers. We also expect to find them mostly torn down, since they would not have been used by laymen. We further expect that artifacts of Tolowa and Karok origin should not be found there.

(10) Turtle Rock (05-10-52-5)

Turtle Rock is a feature lying next to Elk Valley in the eastern part of the project area. It is not as prominent as the nearby Chimney Rock, but still is a center of sites. Wylie surveyed it in 1975 and found two small flaking stations there. Why the flake scatters may be of ritual significance is not clear. Since Elk Valley is a known camping and hunting area, we infer the flake scatters might also be of subsistence significance. However, there are

several reports of ritual uses of the area. Harry K. Roberts indicates it as an important place for the making of "high medicine" and the training of practitioners (Wylie and Heffner 1976:17). Buckley notes that stone tsektseks were built there, and that some were torn down by their makers at the ends of their careers (Buckley 1976:5). He also indicates that Turtle Rock was a place where wooden scaffolding prayer seats were made (op. cit.: 10).

Turtle Rock (also called Frog Rock) is a modest peak compared to Chimney Rock, so it will be easier to survey completely. We expect to find ritual structures standing and in ruins at the peak. The base should also reveal rock piles where old prayer altars were cast down. The flake scatters reported by Wylie must be re-studied to gain some clue as to their history and function.. Obsidian hydration measurements may reveal whether the flake scatters are historic or prehistoric.

(11) "lakes"

This term refers to a pair of lakes near Chimney Rock. One lies in a glacial cirque northeast of the peak, while the other lies to the north of the peak 3/4 of a mile. The lakes are said to be very sacred places--one is reputed to be the home of the Inland Whale, a central figure in Yurok mythology (A. Kroeber 1976; T. Kroeber 1959). Both ritual and subsistence evidence is supposed to lie around these lakes, although they have not been surveyed. The relatively dense vegetation around the lakes will make surveying more difficult, but attention to close surface collection should allow us to discover and map the locations of the kinds of artifacts and features to be found there.

(12) "serpentine ridge"

This term refers to a geological formation that lies along the ridge trail between Elk Valley and Flint Valley in the eastern part of the study area. It is mentioned in Wylie and Heffner (1976:15). They record Harry K. Roberts' observation that this ridge "...marked the border of the 'Spirit Land; which extended to Little Medicine Mountain. This ridge was a place for making a very particular kind of medicine." Henry Wylie found an apparent tsektsel at an outcrop along this ridge, which would tend to confirm Roberts' comment. Paranthetically, Roberts gives some insight into the avoidance of Little Medicine Mountain by the Yurok.

With so little information, it is difficult to predict what may be found along this ridge. There may be more rock features there, and rock cairns may be found along the ridge trail. The setting of the ridge makes it the probable route between two important valleys, so there may be prehistoric and historic debris along the trail, such as waste flakes, discarded cartridge casings, and dropped tools. Wylie and Heffner (1976:6) suggest that sugar pine nuts were collected along the ridge. A possibility exists that a quarry exists at some outcrop along the ridge. The ridge will have to be closely surveyed along both sides for its entire length to discover more about its function.

(13) Elk Valley (05-10-12-4)

Elk Valley is one of the most frequently mentioned ethnographic places in the project area. It has produced both Indian and non-Indian remains and is reported to have both sacred and secular significance. It is a large highland valley in the midst of several important ritual places: Chimney Rock, Turtle Rock and the lakes.

It is known as an important location for summer hunting camps, and probably has been for a long time (Wylie and Heffner 1976:6). Wes Hotelling of Orleans related to Joseph Winter, Forest Archaeologist for Six Rivers National Forest, that he had visited Elk Valley about 1907 and had seen there more meat drying racks than he had ever seen in one place (Joseph Winter, personal communication). This indicates that the remains of seasonal campsites, meat processing areas and tool preparation areas should be found in the valley. Chipping debris, discarded tools, ash areas, carbonized bone and fireplaces are examples of the kinds of data to be expected.

Elk Valley also reportedly was a place where assemblies were sometimes held of representatives of different groups: "...intertribal councils, usually those concerning the keeping of religious laws..." (Roberts, in Wylie and Heffner 1976:6). Since the Karok and Yurok participated jointly in the world renewal ceremonial cycle, and makers of "high medicine" from both groups visited Chimney Rock, the possibility of such meetings must be considered. The evidence that could distinguish between such meetings and seasonal hunting campsites probably cannot be gathered by survey, however.

Elk Valley also may contain indications of ritual activities, since all the nearby areas are reported to contain such evidence.

Historic use of the valley is recorded. The Forest Service built a guard station there, which will be discussed below. A low-grade recreation campsite is in the valley, and it is used yearly by hunters, fishermen, hikers and other outdoor parties, mainly non-Indian. Both the physical campsite and the normal debris of wandering campers are to be expected in the valley.

The valley has already been surveyed by Wylie (1976), who found an obsidian flake scatter there which included two projectile points

and a possible chert scraper. The obsidian will be useful for hydration dating, which may determine whether the flake scatter is contemporary with ethnohistoric ritual use.

(14) Meadow between Doctor Rock and Peak 8 (05-10-52-1)

This site is a rock feature recorded by Henry G. Wylie in 1975 (Wylie 1976). It consists of a three-sided enclosure made of dry-laid masonry. Wylie interpreted it as possible tsektse. It is located in the SE 1/4 of Sec. 1, T13N/R3E, about 2/3 mile south of Peak 8 and to the northeast of Doctor Rock. It lies close to a ridgecrest trail that connects the two peaks in a mountain-top meadow or flat, east of the trail. This location should be significant because the Doctor Rock - Peak 8 area is reportedly one of the most sacred areas in Yurok territory. If this feature is associated with ritual activities, it may represent the kind of female-related doctoring associated with Doctor Rock, or it may represent the male-associated rituals identified with Peak 8. The feature will have to be surveyed intensively in order to try to locate any artifacts or other remains that might help identify its function.

(15) Meadow between Chimney Rock and Peak 8 (05-10-51-3)

This site is a rock feature like the previous one. It includes a three-sided rock enclosure of dry-laid masonry. The structure may be associated with ritual activities. It is located on the SW 1/4 of Sec. 28, T14N/R4E, along the ridge that links Chimney Rock and Peak 8. This ridge is a portion of the "Boundary Trail" which is now partly a dirt road. A small high-land lake lies nearby. The site is particularly interesting because it

is not associated with a peak, even though its ridgetop location affords it a good visual panorama. We will be concerned to learn whether there are any significant differences in construction and associated artifacts between this structure and those associated with peaks, as well as to learn what sorts of activities were performed there.

The site also is of concern because it lies so close to one of the proposed alternate routes for the Chimney Rock Section of the G-O Road. It therefore has been exposed to some public scrutiny, and it is especially important to determine what physical effects could occur to it if the route were built. It will be important to learn whether the site was built or used after 1920, because the dirt boundary road came into use by then, and one of the important questions in this case concerns the tolerance of Yurok rituals for outside intrusions.

(16) Outcrop along "serpentine ridge" (05-10-52-11)

This site is a feature of the "serpentine ridge" discussed above. It was recorded by Henry Wylie in 1975 (Wylie 1976). He described a "classic tsektsel", a U-shaped rock wall enclosure, with two similar structures nearby, located at a rock outcrop. The location of this set of features along a reported trail is similar to that of the two previously discussed sites, and suggests that peaks alone are not the only suitable locations for such structures and their attendant activities. It remains to be learned whether trailside structures have similar or different artifacts in

association. Harry K. Roberts told John McArthur that, "This ridge was a place for making a very particular kind of medicine" (Wylie and Heffner 1976:15). This raises the possibility that different kinds of rituals were practiced here than on peaks such as Chimney Rock. This site will be completely surveyed as part of the survey of the serpentine ridge as a whole. It will be especially important to see what other sites and features might occur along this ridge as opposed to the nearby peaks.

(17). Elk Valley Guard Station

The Six Rivers National Forest established a guard station in Elk Valley in the 1930's (Wylie 1976). It was used into the 1950's, and was abandoned and removed in 1963. While the structure is gone, its location is preserved on the USGS Dillon Mountain Quad Map. The station is significant because it is one of the few pieces of material evidence known for use of the project area by non-Indians. It also was in use for at least 20 years, so the activities carried on there should have left some impression in the valley.

The station site will be completely surveyed as part of the survey of Elk Valley. All surviving structural remains will be recorded and mapped. A metal detector survey of the area will indicate the locations of metal debris from the structure and associated USFS activities. Such details should help to illuminate the historic uses of the valley beyond what can be gleaned from historical sources. We expect, for example, to find the remains of pathways, plumbing traces, indications of outbuildings, and evidence for the relationship between the guard station and the campground. An important factor will be the relationship between this semi-permanent valley occupation

and contemporary Native American uses of the valley and surrounding high places. This will be the kinds of interference that traditional observances can tolerate without being eliminated.

This review indicates the kinds of special circumstances to be faced at each site in addition to general survey requirements. The kinds of surface study techniques used at each site will vary somewhat so that we can pay particular attention to the kinds of data expected to be encountered at each site. The total labor needs estimated for Phase 2 of the survey is 294 man-days.

3. Phase 3: controlled sample of the project area:

Apart from the alternate road routes and 17 identified sites to be surveyed in Phases 1 and 2 of this study, the project calls for the survey of the surrounding 120 square miles through a controlled sample. This survey is needed because the available ethnographic, historic and archaeological evidence makes it very clear that a large though unknown number of other sites of potential cultural significance may occur in the study area. These sites may face some effect from completion of the G-O Road, if not from actual construction, then from new land-use activities that would follow if the road were completed. Therefore it is important that such sites be identified so that the potential for impact upon them can be assessed and appropriate management recommendations can be developed.

An area of 120 square miles is far too vast to be completely

surveyed during a study of this scope, nor is it appropriate to do so. A much more realistic use of resources would be to conduct a sample survey to determine the kinds of sites to be found and the kinds of locations in which they occur. From such a survey, hypotheses could be developed to suggest site types and frequencies per unit of land in each kind of terrain. Such a sample could be executed in a fraction of the time needed for a complete survey, with the potential of virtually as good data recovery and powers of prediction (Chartkoff 1976). This part of the study therefore is a sample survey using appropriate sampling controls to insure the representativeness of the survey.

(a) Meaning of a sample survey:

According to the Solicitation for bids, p. 25,

This is a statistically controlled sampling of an area designed to provide predictive information. The design of the sample must be professionally sound and the work carried out to design standards. This approach is useful to:

- a. Estimate cultural resource potential in an area.
 - b. Estimate inventory and mitigation costs.
 - c. Provide a basis for project design and land management planning.
 - d. Provide estimates of the potential impacts upon cultural resources by proposed projects or plans.
- It will not provide sufficient data to:
- a. Locate all cultural resources in the project area.
 - b. Meet 36 CFR 800 requirements in every case.

The goals of Phase 3 are to be translated into operational field survey and sampling methods.

(b) Sampling strategy and stratification:

The study area contains roughly 76,800 acres, of which 10,000 acres or less are expected to contain cultural remains, according to the solicitation for bids (p. p. 15. The reason why the remaining 66-67,000 acres is being excluded is that it is made up of steeply sloped hillsides on which there is no reason in

theory, ethnographic evidence or archaeological discovery to indicate that any remains should exist. Of the remaining 10,000 acres, roughly 2000 acres will be covered during Phases 1 and 2 of this study. The remaining 8000 acres or so is what is to be covered in Phase 3.

This 8000 acres is divided into about 200 lots, each separated from the others by steep slopes. The lots range in size from a few acres to several hundred. The simplest sampling strategy would be to select lots from this total by the use of random numbers tables, and to survey each selected lot completely. We have rejected this approach, however.

A simple random sample would have at least two important disadvantages. First, it would very probably offer large gaps in spatial coverage, with serious under-representation of units central to the study area, since simple random samples almost invariably do this. Second, it would ignore existing evidence that indicates there are important differences among terrain types and site distributions, so that our ability to make initial predictions and test them through field work would be lost.

We therefore propose to stratify the Phase 3 study lots into natural units that are presumed to have cultural significance. The relevant ethnographic evidence will be presented during discussion. The kinds of natural units we propose include:

- (1) Mountain peaks and outcrops
- (2) Highland meadows and valleys
- (3) Highland lakes, ponds and springs
- (4) Ridgecrests, ridgecrest trails and saddles
- (5) Stream channels and adjacent terraces

This list includes virtually all lands in the project area on which cultural remains could occur. Each class of land presents

different sampling problems to the surveyor, because of differences in numbers of units to sample, differences in terrain, in area to be covered, in kinds of remains expected, and in presumed cultural significance. Rather than design one sampling strategy for all five groups, we propose to design a separate sampling strategy for each. The designs proposed for the five groups and the reasons for our choices are described below.

Mountain peaks and outcrops:

We have identified the 109 most prominent peaks, outcrops and promontories in the project area (see Table 1). Of them, eight have already been singled out for complete coverage in Phase 2, and it appears that at least 20 more will be covered in the process of completing Phases 1 and 2. We propose to make a sampling design that will include all peaks except the eight ones named in Phase 2. In that way, every high place in the project area will have an opportunity to be represented in our sample.

Peaks are especially important because of their association with religious rituals and the rock structures associated with them, and to a lesser extent because of the occasional occurrence of flake scatters on them. The methods for surveying already described are appropriate for the survey of peaks. What is needed is an appropriate selection method.

We propose to divide the project area into four quarters. We will make the division in rough quadrants so that about 25-26 peaks are in each. Even though peaks are not uniformly distributed, the resulting quadrants will be about the same size, we have determined. The advantage of this kind of stratification is

that peaks in all parts of the project area will get sampled. The project area is about 17 by eight miles across. Parts are close to coastal villages, while others are close to the villages on the middle Klamath. We do not know what this means in terms of the relative importance of different peaks to different Yurok communities. Failure to sample peaks in all parts of the study area may obscure this issue. There are 25 peaks on our list that are higher than Doctor Rock, and since elevation seems to be related to ritual significance, it may be that some of these peaks also were ritually important. The locations of ritually sacred places may have changed over time, and architectural differences among rock features may reveal this change.

In each of the four quadrants, the peaks will be numbered sequentially, and random numbers tables will be used to select five peaks for complete survey. This will produce a sample of 20 peaks, or 18.52%. It is a large enough sample to permit the use of statistical tests, while it is small enough to be achievable.

By our estimate, an additional 30-35 peaks will be covered during the other aspects of the Phase 3 survey, so that in fact the sample will be much larger. However, those peaks will be ones that lie along ridges and around larger peaks. While they may prove to be important for that reason, we feel that our stratified random sampling method will give peaks not located on ridgelines an equal opportunity to appear in the sample. And in fact, each of the 101 peaks and outcrops will have an equal probability of appearing in the sample, and all selected peaks will be surveyed with the complete survey techniques used

in Phases 1 and 2 for the sake of data comparability.

Highland meadows and Valleys:

There are only five principal valleys and meadows in the project area (see Table 2): Elk Valley, Red Mountain Meadow, the glacial cirque near Chimney Rock, Flint Valley and Summit Valley. There are a large number of small meadows, ridgetop flats and saddles in the study area, but they are discussed below. Of the five, the first three are to be surveyed completely as part of Phase 2 of this study. That leaves only two valleys: Flint Valley and Summit Valley. Each of these five valleys is unique in many respects, both physical and ethnographic, so it is not possible to select a few representative examples to generalize about the whole. At the same time, the small number of valleys involved means that statistically meaningful samples would not be generated. We therefore propose that the two valleys not accounted for be surveyed completely as part of Phase 3.

It will be useful to consider briefly the features of these two valleys that will be important to consider in a survey. We will consider Flint Valley and Summit Valley in turn.

Flint Valley is a hanging valley at the head of the East Fork of Blue Creek. Technically it lies outside the project area by a mile, but its relationship to areas of known cultural significance is apparent, and it should be surveyed in this study. It lies at the south end of the 'serpentine ridge' that links it with Elk Valley. Elk Valley, the serpentine ridge, and a complex of rock features on the ridge all are to be surveyed in Phase 2. Flint Valley is mentioned ethnographically together with Elk Valley (Wylie and Heffner 1976:6),

so the archaeological relationship between them should be explored.

The valley lies at 4600 feet elevation, overlooked on the west by a peak at 5231 feet. It covers about 250 acres and a small lake lies in its center. The new G-O Road from Orleans passes on the west margin of the valley, giving easy access and raising questions about adverse impact. The Dillon-Flint Section of the G-O Road was surveyed by archaeologists Jill Newins and Henry Wylie in 1973 and 1974, but their surveys did not extend to Flint Valley proper (Chartkoff and Chartkoff 1977:14-21). There are several reasons to believe that the valley may contain significant cultural resources, however, and the completion of the G-O Road even to Elk Valley raises the threat of new adverse impacts from increased land uses.

According to statements collected by John McArthur from Orville Allen, Francis Davis, Harry K. Roberts and Florence Shaughnessy (Yurok and Karok consultants), Flint Valley was an important summer hunting camp location. Sugar pine nuts were gathered along the adjacent ridges, so seasonal gathering also took place there. Elk and deer were hunted around the vicinity, so meat processing probably took place in the valley. Since these conditions of ecological advantage have existed for many centuries, remains of prehistoric seasonal exploitation sites should be found in Flint Valley as well as remains from the ethnohistoric period. Roberts reported that when intertribal councils were held in Elk Valley, people camped in Flint Valley. Evidence of modern hunting should also be found. A modern building stands SW of the lake in Flint Valley, so other kinds of modern use evidence should be found as well (Wylie and Heffner 1976:6).

Flint Valley also may have ritual significance. According to Buckley (1976), the Woge ascended into the "Spirit World" above the sky-bowl from Flint Valley. Beyond Flint Valley toward Little Medicine

Mountain was a spirit world where the Yurok apparently did not go to follow ritual activities. Some rituals, as yet undescribed, may have been conducted in and around Flint Valley, however, and they may have left physical remains. If so, we would expect to find significant differences in form between them and the kinds of remains found on nearby peaks and ridges, reflecting differences in religious purposes.

Finally, the name "Flint Valley" evokes images of quarry sites at which raw materials were gathered to make stone tools. Whether there are, in fact, any useful outcrops of crypto-crystalline silicates in Flint Valley remains to be seen (no true flint occurs near there), but it is an important point. If good outcrops do exist there, they would provide important evidence for a local industry and a local trade resource.

Summit Valley lies across the project area from Flint Valley on the watershed between the Smith River and Klamath River drainages. That watershed separated Tolowa and Yurok territories, according to Kroeber (1925: Chapter 2). The valley is really a mountaintop tableland covering about 300 acres that is bounded on almost all sides by steep ravines. It is crossed by a north-south ridge trail that leads from the South Fork of the Smith River to the Boundary Trail near Cedar Camp Spring. It would have been an especially significant location for seasonal hunting and foraging in prehistoric times, and scattered remains of temporary campsites are expected to be found across the mesa.

Summit Valley is also apparently a place of ritual importance. According to Harry K. Roberts, "...Summit Valley was used for intertribal councils. Practically every peak and prominent rock on this ridge at one time had a prayer-circle or stone altar (Wylie and Heffner

1976:16)." Thus, ritual rock features are expected to be found on high points around Sumkit Valley, while campsites of both seasonal foraging and periodic inter-group assemblages are expected to be found on the mesa floor. Inter-group campsites would be expected to differ from seasonal hunting and gathering camps by being much larger, much thinner, by lacking many technological and subsistence-related artifacts, and by having ethnically specific artifacts from both the Yurok and the Tolowa areas.

Highland lakes, ponds and springs:

There are 15 lakes, ponds and springs of interest in the study area (see Table 3). Of the 15, the one in Flint Valley and the two near Chimney Rock have already been accounted for, leaving 12 to be considered.

The importance of lakes, ponds and springs to culture in the project area is unknown, but should be significant. Water sources normally prove important for prehistoric and historic settlement. The fact that they draw important game animals makes them important for hunting and butchering activities. They often support unique microhabitats of plants and animals that make them useful centers for seasonal foraging by people. They also are known to figure into Yurok cosmology, as is evident by the legend of the Inland Whale (T. Kroeber 1959).

The 12 water sources considered here are concentrated mainly in the eastern 1/3 of the project area, often near peaks known or suspected to be of ritual importance. They are varied in setting and properties. Their small total makes it inappropriate to conduct a statistically rigorous sampling in order to select some for study,

especially since some of the classes would have only one member. We therefore propose to visit each one, to make complete surveys of their margins, and surrounding basins. Particular attention will be given to benches, terraces, local promontories, and other probable locations of cultural activities.

Surveys around small lakes cannot be done very readily by parallel transects or grid lines, because of the nature of the terrain. We therefore propose to use circular, concentric transects to provide complete survey coverage of the chosen areas.

Ridgecrests, ridgecrest trails and saddles:

As Table 4 indicates, there are eight major ridgelines and ridgeline trails in the project area. These ridgelines provide the only easy means of access to the major peaks of the area and are the routes of the important trails across the area. They are the significant roadways today, they were in the historic period, and may be presumed to have been so in prehistory since humans first entered the region.

As routes of access, these trails should yield evidence of the passage of people in prehistoric times, the historic period and in modern times. In addition, the ridges are important animal movement routes, so evidence of hunting should be found along them. Some of the trails have economically useful plants such as sugar pine growing along them, so seasonal gathering stations should be found on adjacent flats and saddles. Some ridges provide outcrops of useful rock, so quarrying and processing sites at these outcrops are expected. We expect to find debris from modern hunters, such as cartridge cases, pull tabs, bottles and bottle caps, and cigarette butts, along with

stone tool debris and discarded stone artifacts from earlier periods.

The trails have been mentioned as routes of ritual significance. Not only were they used as access ways to peaks where rituals were performed, there is evidence that some kinds of rituals were performed along the ridges themselves. Wylie found four tsektse-like rock features along high ridges, suggesting that some kinds of rituals performed on peaks were also performed on appropriate ridge sides. Kroeber and Gifford (1949:72) report rock cairns along a trail to Burrill Mountain, at which jump dance processionists stopped to dance. Wylie and Heffner (1976:7) report that individual formulists would stop to give prayers at crescent-shaped rocks along the Golden Stairs. These 'passageway shrines' should be distinct in form and features from the tsektse-like features at higher elevations and should be located in places with less dramatic views.

Survey of ridges and trails provides some new problems not yet discussed. First, we must exclude the Golden Stairs Trail from further consideration, since it will be surveyed as part of Phase 2. Next, several of the other trails and ridges are presently partly covered by new or rough roads, so some potential evidence will not be available. However, much of the expected evidence would occur next to the trail or on adjacent flats and saddles, so these areas must be surveyed as well as the trails proper. In addition, some of the routes must be traversed in order to survey other places, so the ridge survey is mandated anyway. Finally, in order to sample the ridges, unsampled portions must be traversed, so in effect all the trails must be surveyed in order to survey parts of them.

Nevertheless, we propose to conduct a stratified random sample survey of the seven major ridgelines (excluding the Golden Stairs). The purpose of the design is to establish coverage minimums that

will give each part of each ridge an equal opportunity to be represented in the sample.

Our proposed stratification method is as follows. First, we will define each ridge as a separate sampling universe. This will prevent samples from clustering on a few ridges. The few long ridges in the study area would probably be oversampled while the several short segments would probably go unrepresented in a simple random sample.

Next, we will divide each ridge within the study area into segments $1/4$ mile long. This size is large enough to permit a high quantity of area in which cultural remains could occur, yet small enough to survey readily. There are 41 miles of ridgeline in the project area discounting the Golden Stairs but including the other seven major ridges. This will create 164 units suitable for selection.

Next, we propose to sample 25% or 41 of these units. This will be done by numbering the segments on each ridge sequentially, and selecting 25% of the segments on each ridge using random numbers tables. This will insure that at least one segment is chosen on each ridge.

Since some ridges are long (the Boundary Trail is 18 miles long), a simple random selection of segments on long ridges might produce unfortunate clustering. We therefore propose to divide the ridges into sampling strata of 1 mile lengths, within which one $1/4$ mile segment would be chosen randomly. This will help insure coverage of all parts of all ridges, while giving each $1/4$ mile segment an equal statistical chance to be represented in the sample.

Once a segment is selected for surveying, it will be located by map coordinates. A survey team of 3-4 surveyors will survey along

the ridge in parallel transects down one side of the ridge and back the other. The survey will include all the flats, saddles and small meadows connected to the ridge, because they are probable locations for certain kinds of cultural remains such as flake concentrations and campsites. This will provide sample coverage of almost all the small meadows, flats and saddles not included in the valley/meadow sample already discussed, without the need to constitute another sampling stratum with a great deal of replication.

As previously indicated, it will be necessary to cover essentially a whole ridge in order to sample part of it. However, when the surveyors are passing from one sample unit to another, they will be following direct parallel transects rather than survey all adjacent flats and meadows, so the effect of probability sampling will be retained.

This sampling approach will allow us to determine what kinds of topographic features tend to be associated with what kinds of cultural remains. It will be possible in turn to test certain propositions based on ethnographic and archaeological evidence. We will be able to determine, for example, whether the tsektse type of rock feature is associated significantly with high ridges and open vistas. We will be able to learn to some extent whether modern hunters prefer certain terrain types over others, which will be useful information for resource management planning in the future.

Stream Channels and adjacent terraces:

The entire project area is heavily dissected by stream channels that flow through steep defiles. Streams of three drainages have their

headwaters in these mountains. Goose, Eightmile and Buck Creek flow northward into the Smith River drainage. Dillon Creek has some of its headwaters on the east side of the range, from where it flows into the middle Klamath. Blue Creek and its branches flow south into the lower Klamath. These three drainages belong to three different ethnographic groups: the Tolowa, Karok and Yurok, respectively. Thus the project area is a frontier zone as well as a special-use region. The streams themselves provide particular resources and some flat lands, so they deserve to be surveyed as part of Phase 3 of this study.

Less is known about stream use in the project area than is known about the uses of the high mountain areas, but we do not know if the lack of knowledge is due to lack of information or the non-use of the streams. Since streams have proved to be ecologically important to many past and present cultures, we must begin by assuming that these streams might provide some cultural remains. Since the streams are far lower in elevation than the other terrain types discussed above, they should be expected to provide possible contrasts in remains.

There are no reports about ritual activities being conducted on these streams, though some rituals may have been done on terraces along the main stream courses precisely because access to them is so difficult. We would expect any remains there of ritual activities would be considerably different from those on high ground, particularly since the view in the canyons would be far different.

There are hints that economic or subsistence activities may have been conducted along some of these streams, and they may have left some remains on streamside terraces. The streams provide unique microhabitats because of their low elevations, protected canyons

and moisture. They may have drawn people in prehistoric or historic times for the exploitation of their specialized resources. For example, Spott and Kroeber (1942) mention that there was a favored acorn-collecting place along Blue Creek about six miles east of the Golden Stairs. Acorns were used in historic times, though they may not have been terribly important to the total subsistence of riverine Yurok communities. However, in prehistoric times, before riverine fishing was so fully developed, acorn harvests may have been more crucial to survival, even though the total supply of acorns may never have been very great. We would expect to find evidence of autumn exploitation sites along the terraces of Blue Creek. They should contain remains of firecracked rocks, ashy soil, grease in the soil, cores and core hammerstones, broken pestles, mortar slab fragments, large flakes and flake tools, and chipping waste. Historically the Yurok used basket-topped hopper mortars to mash acorns and pine nuts, but prehistorically they may also have used bedrock mortars as did many prehistoric Californians. Alexander (1976), in her survey of prehistoric bedrock mortars in California, found no examples among the 207 known sites for Humboldt County or the 12 known sites in Del Norte County. However, all the sites known at U.C. Berkeley are on the coast and along the major rivers. The interior creek terraces, where oak trees grow, have never been surveyed systematically in northwest California, and there are where bedrock mortars will be found if they occur at all.

Blue Creek today hosts brown trout on its upper 14 miles, and the two miles below Elk Valley are used for sports fishing. The brown trout is an import, but prehistorically the non-anadromous rainbow trout filled that niche. Thus we may expect to find some

evidence for small-scale fishing both in the past and at the present time along the terraces of Blue Creek, and possibly the Crescent City and East Forks as well. Past evidence might include the remains of temporary fishing and meat drying camps: small campsites with large quantities of discoid flake scrapers with marginal edge retouch, the traditional salmon-butchering tool in much of California, plus waste flakes, core cobbles, hammerstones, fire-cracked rocks, ash lenses and dark greasy soil. Present evidence would include the debris left by solitary anglers along the streams: lost fishing lines, weights, artificial flies, food containers and tobacco waste.

Plant collection along streams should have been important. Though plant food staples were relatively few, many plants were collected for medicinal and ritual reasons, and streamsides were important collection areas due to their unique flora and variety of species. We should expect to find occasional discarded stone knives and sharp-edged scrapers, plant pounding rocks and similar paraphernalia.

These factors illustrate why streamcourses and terraces should be investigated in this study. We therefore propose a sampling method appropriate to the nature of these streams.

First, we would stratify the streams into two groups: main channels and tributaries. In the study area, almost all the stream terraces are along the main channels because the tributaries are almost all rapidly falling streams, while the main channels fall rapidly only at their heads. The two kinds of channels thus should be expected to have had different kinds of significance. It happens that there are only two streams with significant amounts of main channel course in the study area: Blue Creek (6 miles) and the Crescent City Fork (5 miles). The other 78-79 miles of stream channel in the project area are small segments of rapidly falling headwaters. If all stream

channels were lumped and samples drawn from the group, the main channels might go unsampled at all due to the large amount of tributaries. Therefore, this division is appropriate.

Next, we would divide stream channels in the two strata into segments 1/4 mile long. We want to do a 25% sample of each of the main stream channels where we expect the significant streamside data to occur. We would divide the tributary group according to streamchannel, and then conduct a survey of 10% of the units on a stream channel, or a minimum of one segment per stream channel if the channel is less than 2½ miles long. There are at least 310 such segments on the tributaries, so at least 31 units would get sampled. Though we do not expect to find much if any data along these tributaries, a sample of 31 should be large enough that if these rapidly falling waters were used and remains were left behind, some evidence should be found.

Since the sample survey units can be reached only by ascending the streams, virtually all of the streamcourses will be traversed, and any large sites will be found even if they are not in sample units: specialized ritual structures or streamside campsites are examples. The sample units will be surveyed completely for individual surface artifacts as well, however, and that data can be used to develop propositions about highland stream use as a whole.

Summary and labor needs:

These five different surveying approaches will fill the needs of the USFS for a controlled sample survey of the project area. They provide all possible areas where sites could occur the opportunity to be represented in the sample. They provide techniques to insure that in surveyed areas, cultural remains that are present will be discovered.

They provide the basis for predicting the kinds of sites that occur in the project area as a whole, their numbers, and the kinds of locations in which they are likely to occur. This information in turn will permit valid estimates to be made of the potential impact of G-O Road completion on the project area, the development of cost estimates for inventory and mitigation, the development of informed plans for project design and cultural resource management program development.

We estimate that 245 man-days of labor will be needed for the execution of this Phase 3 sample survey.

Labor estimates for all phases of survey

Phase 1:	338-418 man-days
Phase 2:	294 man-days
Phase 3:	245 man-days
Total:	<hr/> 877-957 man-days

TABLE 1: Principal peaks and outcrops in the project area

#	Elevation	Township/Range	Section	Name
1	4265	T13N/R3E	SE $\frac{1}{4}$ Sec. 11	Red Mountain
2	4025	T13N/R4E	SE $\frac{1}{4}$ Sec. 19	South Red Mountain
3	4924	T13N/R4E	SW $\frac{1}{4}$ Sec. 1	Doctor Rock
4	5193	T13N/R4E	NE $\frac{1}{4}$ Sec. 1	Peak 8
5	5727	T14N/R5E	SW $\frac{1}{4}$ Sec. 22	Chimney Rock
6	5500	T14N/R5E	SE $\frac{1}{4}$ Sec. 22	Turtle (Frog) Rock
7	5781	T14N/R5E	NW $\frac{1}{4}$ Sec. 15	Sawtooth Mountain
8	4999	T14N/R5E	SE $\frac{1}{4}$ Sec. 18	Little Medicine Mountain
9	2858	T13N/R3E	NW $\frac{1}{4}$ Sec. 15	
10	4048	"	NE $\frac{1}{4}$ Sec. 13	
11	3000	"	Sec. 22, 27, 35	Starwein Ridge
12	2930	T14N/R3E	SW $\frac{1}{4}$ Sec. 25	
13	3100	"	SE $\frac{1}{4}$ Sec. 25	
14	3050	"	SE $\frac{1}{4}$ Sec. 26	
15	3356	"	SW $\frac{1}{4}$ Sec. 35	
16	3036	"	SW $\frac{1}{4}$ Sec. 36	
17	3100	"	SE $\frac{1}{4}$ Sec. 36	
18	4850	T13N/R4E	SW $\frac{1}{4}$ Sec. 1	
19	4580	"	NE $\frac{1}{4}$ Sec. 2	
20	2300	"	NW $\frac{1}{4}$ Sec. 3	
21	3500	"	NW $\frac{1}{4}$ Sec. 4	
22	3475	"	SW $\frac{1}{4}$ Sec. 6	
23	3489	"	NW $\frac{1}{4}$ Sec 7	
24	3500	"	SW $\frac{1}{4}$ Sec. 7	
25	3367	"	SE $\frac{1}{4}$ Sec. 8	
26	3420	"	NE $\frac{1}{4}$ Sec. 8	
27	4834	"	NE $\frac{1}{4}$ Sec. 11	
28	4750	"	SW $\frac{1}{4}$ Sec. 12	
29	4819	"	SE $\frac{1}{4}$ Sec. 12	
30	4900	"	NE $\frac{1}{4}$ Sec. 12	
31	4800	"	NE $\frac{1}{4}$ Sec. 12	
32	4520	"	NE $\frac{1}{4}$ Sec. 14	
33	3244	"	NE $\frac{1}{4}$ Sec. 15	
34	2860	"	SE $\frac{1}{4}$ Sec. 17	
35	3353	"	NW $\frac{1}{4}$ Sec. 17	
36	3750	"	NW $\frac{1}{4}$ Sec. 18	
37	2614	"	NW $\frac{1}{4}$ Sec. 22	
38	3050	"	NE $\frac{1}{4}$ Sec. 22	
39	3842	"	NW $\frac{1}{4}$ Sec. 32	
40	4076	T14N/R4E	NE $\frac{1}{4}$ Sec. 9	
41	3399	"	NW $\frac{1}{4}$ Sec. 11	
42	2965	"	NE $\frac{1}{4}$ Sec. 13	
43	4514	"	NW $\frac{1}{4}$ Sec. 14	
44	4954	"	SE $\frac{1}{4}$ Sec. 15	
45	3626	"	SE $\frac{1}{4}$ Sec. 17	
46	3600	"	SE $\frac{1}{4}$ Sec. 19	
47	4415	"	SW $\frac{1}{4}$ Sec. 21	
48	4908	"	NE $\frac{1}{4}$ Sec. 22	Summit Peak
49	4925	"	NE $\frac{1}{4}$ Sec. 22	
50	4939	"	SE $\frac{1}{4}$ Sec. 22	
51	3944	"	NW $\frac{1}{4}$ Sec. 24	
52	4803	"	SW $\frac{1}{4}$ Sec. 25	
53	4850	"	NE $\frac{1}{4}$ Sec. 26	
54	4950	"	NE $\frac{1}{4}$ Sec. 26	

Table 1 (continued)

#	Elevation	Township/Range	Section	Name
55	4000	T14N/R4E	SW $\frac{1}{4}$ Sec. 26	
56	4950	"	NE $\frac{1}{4}$ Sec. 27	
57	4100	"	NW $\frac{1}{4}$ Sec. 28	
58	3700	"	SW $\frac{1}{4}$ Sec. 28	
59	3650	"	NW $\frac{1}{4}$ Sec. 29	
60	3500	"	NW $\frac{1}{4}$ Sec. 32	
61	3420	"	NW $\frac{1}{4}$ Sec. 35	Upper Tree
62	4850	"	NW $\frac{1}{4}$ Sec. 36	
63	4950	"	NE $\frac{1}{4}$ Sec. 36	
64	4945	"	SE $\frac{1}{4}$ Sec. 36	
65	4646	T13N/R5E	NE $\frac{1}{4}$ Sec. 2	
66	5231	"	NW $\frac{1}{4}$ Sec. 2	
67	4180	"	SE $\frac{1}{4}$ Sec. 4	
68	3600	"	SW $\frac{1}{4}$ Sec. 5	
69	4550	"	SW $\frac{1}{4}$ Sec. 6	
70	4660	"	SW $\frac{1}{4}$ Sec. 6	
71	4550	"	NW $\frac{1}{4}$ Sec. 7	
72	4500	"	SW $\frac{1}{4}$ Sec. 7	
73	4250	"	SE $\frac{1}{4}$ Sec. 7	
74	4798	"	NE $\frac{1}{4}$ Sec. 16	
75	4759	"	SW $\frac{1}{4}$ Sec. 16	Forks of Blue
76	3620	"	SW $\frac{1}{4}$ Sec. 18	
77	5520	T14N/R5E	SE $\frac{1}{4}$ Sec. 8	
78	5659	"	NW $\frac{1}{4}$ Sec. 9	
79	5664	"	NE $\frac{1}{4}$ Sec. 10	
80	5360	"	SE $\frac{1}{4}$ Sec. 10	
81	4600	"	NW $\frac{1}{4}$ Sec. 13	
82	4962	"	SW $\frac{1}{4}$ Sec. 13	
83	4600	"	SE $\frac{1}{4}$ Sec. 13	
84	5700	"	SE $\frac{1}{4}$ Sec. 15	
85	5518	"	SE $\frac{1}{4}$ Sec. 16	
86	5320	"	NW $\frac{1}{4}$ Sec. 16	Buck Camp Ridge
87	3553	"	NW $\frac{1}{4}$ Sec. 18	
88	3957	"	SE $\frac{1}{4}$ Sec. 18	
89	4450	"	NE $\frac{1}{4}$ Sec. 19	
90	4830	"	NE $\frac{1}{4}$ Sec. 19	
91	5200	"	SE $\frac{1}{4}$ Sec. 21	
92	5040	"	NW $\frac{1}{4}$ Sec. 24	
93	4805	"	NE $\frac{1}{4}$ Sec. 25	
94	4962	"	SE $\frac{1}{4}$ Sec. 25	
95	5120	"	SW $\frac{1}{4}$ Sec. 25	
96	4620	"	NW $\frac{1}{4}$ Sec. 26	
97	5380	"	NW $\frac{1}{4}$ Sec. 27	
98	5125	"	NE $\frac{1}{4}$ Sec. 28	
99	5280	"	SW $\frac{1}{4}$ Sec. 29	
100	4818	"	SE $\frac{1}{4}$ Sec. 31	
101	5387	"	NW $\frac{1}{4}$ Sec. 32	
102	5122	"	NW $\frac{1}{4}$ Sec. 33	
103	4400	"	NW $\frac{1}{4}$ Sec. 35	
104	4929	"	NE $\frac{1}{4}$ Sec. 35	
105	4960	"	NE $\frac{1}{4}$ Sec. 35	
106	5120	"	SE $\frac{1}{4}$ Sec. 35	
107	4821	"	SW $\frac{1}{4}$ Sec. 35	
108	4725	"	NW $\frac{1}{4}$ Sec. 30	

TABLE 2: Principal Highland Valleys and Meadows

#	Name	Township/Range	Section
1	Elk Valley	T14N/R5E	SW $\frac{1}{4}$ Sec. 23
2	Flat Iron Lake (glacial cirque)	T14N/R5E	SE $\frac{1}{4}$ Sec. 22
3	Summit Valley	T14N/R4E	Sec. 14, 15, 22, 23
4	Red Mountain Meadows	T13N/R3E T13N/R4E	Secs. 11,12,13,14,24 Secs. 19,20,29,30,31,32
5	Flint Valley	T13N/R5E	NW $\frac{1}{4}$ Sec. 1

TABLE 3: Highland Lakes, Ponds and Springs

#	Township/Range	Section	Name
1	T14N/R4E	SW $\frac{1}{4}$ Sec. 2	
2	"	SE $\frac{1}{4}$ Sec. 10	
3	"	SE $\frac{1}{4}$ Sec. 9	
4	"	NE $\frac{1}{4}$ Sec. 16	
5	"	SE $\frac{1}{4}$ Sec. 16	
6	"	NE $\frac{1}{4}$ Sec. 15	Elk Hole
7	"	NE $\frac{1}{4}$ Sec. 22	
8	"	SE $\frac{1}{4}$ Sec. 22	Flat-Iron Lake (glacial cirque)
9	"	SW $\frac{1}{4}$ Sec. 28	
10	T13N/R4E	NW $\frac{1}{4}$ Sec. 1	Flint Valley
11	"	NE $\frac{1}{4}$ Sec. 21	
12	"	SW $\frac{1}{4}$ Sec. 21	
13	T14N/R3E	NE $\frac{1}{4}$ Sec. 28	Cedar Camp Spring
14	T13N/R3E	NE $\frac{1}{4}$ Sec. 11	
15	T14N/R3E	SW $\frac{1}{4}$ Sec. 19	Bear Spring

TABLE 4: PRINCIPAL HIGHLAND RIDGELINES AND RIDGELINE TRAILS

#	Name	Length/miles (study (overall) area)		Destination
1	Golden Stairs	8	8	Peak 8 to lower Blue Creek
2	Boundary Trail	18	18	Red Mountain to Elk Valley
3	Lem's Ridge	3	9	Cedar Camp Spring to Big Flat
4	Summit Valley	3	5	Summit Valley to Elkhorn Par
5	Sawtooth Mtn	8	8	Sawtooth Valley-Flint Valley
6	Forks of Blue	5	5	Forks of Blue lakes to Flint Valley
7	Williams Creek	3	3	Boundary Trail to mouth Williams Ck.
8	Red Mtn. Trail	1	6	Red Mountain to Klamath Glen

Table 5: Principal Streams in Study Area

Creek Name	Tributary of	Main channel miles in study area	Rapidly falling miles in study area
Blue Creek	Klamath River	5	1
Crescent City Fork	Blue Creek	4	1
West Fork	Blue Creek	0	4
East Fork		0	0
Dillon Creek	Klamath River	0	7
Medicine Ck.	Dillon Creek	0	3
Eightmile Ck.	So. Fork, Smith River	0	5½
Williams Ck.	Eightmile Creek	0	8
Buck Creek	So. Fork, Smith River	0	1
Goose Creek	So. Fork, Smith River	0	9

ETHNOGRAPHIC MODELS AND ARCHAEOLOGICAL PREDICTIONS

Although the study area has had little previous archaeological work, predictions can be made as to the kinds of cultural remains that are likely to be found there, what their properties should be, where their locations should most probably be, and what factors should be expected to regulate their distributions and frequencies. These predictions can be based on existing published and unpublished resources on archaeology, ethnography and history. They are derived from models of past behavior, and the predictions form test implications of these hypothesized models. The hypotheses can then be tested with the proposed field work for this study.

The advantages of developing these models and predictions are two. First, the models allow predictions to be made as to the kinds of data likely to be encountered, so the survey techniques, observation techniques and sampling techniques can be adjusted to make it highly probable that if those data are present, they will be encountered and recognized. Second, they permit the field work to result in the testing of hypotheses rather than just the accumulation of data. Because the data needed to test hypotheses are specified, they can be sought deliberately.

A number of specific hypotheses have already been discussed in the methodology section of this proposal. This section will not duplicate them. Instead, it will focus on more general models about past cultural activities that have implications for the distribution of data.

1. Prehistory:

The prehistory of the study area is unknown. The closest excavations have been along the coast in the Crescent City area.

Gould (1966) dated the lower levels of the Point St. George Site (4-DNo-11) to at least 2500 B.C., which makes it the earliest date for occupation in northwest California. Jerry Wylie has found some Borax Lake style projectile points at Pilot Ridge, some 60 miles south of the project area. Borax Lake points have been found in the Clear Lake area in sites dated to 10,000 B.C., but are most common around 4000-2000 B.C. (Fredrickson 1974). The few other dated sites along the nearby coast show that the coast (and probably the lower Klamath and Smith Rivers) was well settled by 500 B.C.

This evidence shows that occupation of the general area has been going on for at least 4500 years, and possibly for as long as 10,000-12,000 years. Since the study area lies only 10 miles from the coast and 3 miles from the lower Klamath, and since it is an established preserve for significant plants and animals, it is reasonable to suggest that prehistoric people may have begun to enter the project area several thousand years ago. If so, we predict such use would have continued down to historic times, though not necessarily without changes.

The project area is snowed in from October or November to May, and probably has been that way for thousands of years, so we can assume that any use of the area has been seasonal, restricted to the period of May to October. No permanent settlement sites should be found there. If we discount ritual behavior, about which we can infer very little for the prehistoric period, we can infer that people would have entered the study area to exploit plant and animal species that were available during restricted seasons. They either would have stayed for the entire summer in the highlands, returning to the lowlands for the winter, or would have foraged into the highlands on temporary expeditions. In either case, we would expect

to find only temporary campsites, suggesting patterns of relocation for the exploitation of specific microenvironments. Such campsites would have to be located in fairly flat areas, not far from permanent water sources, since surface water is restricted and the topography makes overland travel difficult. We expect such settlement to have been concentrated in the highland valleys and meadows, especially Red Mountain Meadow, Elk Valley, Summit Valley, Flint Valley, and Flat-iron Lake Valley, where land, water and species diversity are maximized. Around highland lakes, early settlement should have been higher up on the margins than more recent settlement, since many of the lakes are of glacial origin and have dwindled in size over the millennia.

Early settlements should reflect unspecialized stone tool technologies. The cores and waste flakes, utilized and retouched flakes, core tools and hammerstones widely found before A.D. 500 in California should be found here. The distinctive features of late prehistory in this area, such as Gunther Island Barbed projectile points, elaborate shell ornaments and beads should be absent. Stone tools should be made primarily on local materials, with very little made of Knoxville Chert and obsidian. We found in 1972 that the great bulk of Karok stone tools were made on obsidian, most of which was imported from eastern Siskiyou County and the rest was primarily of Clear Lake and southern Oregon. A small amount was made on "stream-float" obsidian pebbles picked up from local river gravels. We believe that the widespread trade networks that operated across aboriginal Northwest California were rather minor before A.D. 1000, so the place of obsidian should have been minor in earlier stone tool making.

We expect the economic use of the project area to have reached

its greatest development around A.D. 500, when the numbers of species exploited was at its maximum. During the next 1000 years, northwest Californian perfected their methods of exploiting anadromous fish and sealife, which should have decreased their dependency on highland resources and the need to follow seasonal rounds in the study area.

2. The Native American Ethnohistoric Period:

Compared to the archaeological literature, ethnographic literature for northwest California is rich. A.L. Kroeber is largely responsible for this fact, because he studied the Yurok more than any other group. He even pressed the Anthropology Museum guard at Berkeley, L.L. Loud, into service to collect artifacts and ethnographic data in the area (Loud 1918). Despite the dozens of published sources, anthropologists are still uninformed about many aspects of traditional culture in northwest California. Archaeologists can help remedy this fact by using the archaeological record to test ideas based on existing ethnographic data, and by the discovery of new facts about cultures of the historic period.

By the time anthropologists began to study traditional life around the project area, people living in the area were following ways of life that allowed them to maintain permanent settlements along the coastal margins and the major rivers. There was no permanent settlement in the project area, nor any known settlements occupied all summer by communities. Little was recorded about subsistence and economic uses of the project area, though some data were gathered about ritual activities. The existing data allows us to suggest kinds of activities that went on there and the kinds of physical remains they were likely to produce. We shall briefly outline the scope of activities, and then list kinds of sites and features we would expect

to encounter. Our data come mainly from the following sources: Baumhoff (1963); Bean and Lawton (1976); Buckley (1976); Driver (1939); Drucker (1937); DuBois (1939); Goddard (1913); Gould (1966a; 1976); Heizer and Clewlow (1973); Heizer and Mills (1952); Kroeber, A. (1925, 1976); Kroeber and Barrett (1960); Kroeber and Gifford (1949); Powers (1977); J. Sapir (1928); Spott and Kroeber (1942); Swezy and Heizer (1977); Waterman (1920; 1925); Waterman and Kroeber (1938); Wylie and Heffner (1976).

(a) Subsistence: Summer hunting of deer and elk in the project area is expected. Elk kills should have produced individual butchering sites in widely scattered places, due to the fact that few elk are small enough to have been carried whole to campsites. Deer kills were probably often butchered at campsites, and the meat of both was reportedly dried on racks. Elk Valley, Flint Valley and Summit Valley are highly probable places to find such camp remains. Kills on Red Mountain may or may not have been returned to riverine and coastal villages for processing. There should not be many meat processing summer campsites because few parts of the highlands are suitable for large encampments.

Highland fishing probably was never very important because few calories can be returned for the labor invested. A small number of temporary processing campsites may be found on the terraces along Blue Creek but not elsewhere.

Pine nut harvests are reported along ridges at elevations of about 4000 feet, which includes most of the eight major ridges in the project area. Harvesting would leave little or no physical remains because processing tools were perishable and because any camping would have been done in favorable areas such as Flint Valley.

Acorn harvesting is reported for Blue Creek. We would expect to find some acorn processing camps along stream terraces where oak groves occur naturally. A widespread practice in California was the grinding and leaching of much of the autumn crop at the groves from which they came, near flowing water that could be used in the leaching process. Such sites frequently exhibit dark, greasy midden soil and a large quantity of fire-cracked rocks from stone-boiling. Flake tools on large flakes are moderate in number. Few small, specialized flake tools are found. Cores and core tools such as scraper planes and core hammerstones are abundant. Broken pestles are common. In the project area, basket mortars were used traditionally rather than block mortars, and the mortar bases are frequently cracked by pounding, so mortar base fragments can be found. Subsurface features include ash lenses, firepits, leaching basins and the floors of temporary shelters. It is possible that bedrock mortars may be found, dating from earlier occupations. Alexander (1976) examined the site records at Berkeley, which included 207 sites in Humboldt County and 12 in Del Norte County, and found none had bedrock mortars in association. However, all the surveyed sites were along the coast and the lower rivers. If appropriate bedrocks occur along Blue Creek and the Crescent City Fork, bedrock mortars may be found, so they will be looked for.

According to Jepson (1963), the Klamath Mountains have the most diverse flora with the largest number of endemic species of any comparable area in North America. There may be physical remains associated with many plants in the project area, but they

cannot be predicted from existing data. What is needed is a study to determine what plant species were traditionally exploited, and what the distributions of each species are in the project area. Then predictions can be made as to the kinds and distributions of appropriate plant exploitation activities. We will begin this sort of work during our field work.

- (b) Trade: The project area was used as a traditional trade route from Tolowa country to the Yurok and Hupa. Gould (1966:96) indicates that the Tolowa exported large quantities of flint (sic), sea-lion meat and dried fish, and imported obsidian, red woodpecker scalps and red clay. Flint apparently occurred naturally at Point St. George and was traded along the coast as well as overland. We expect that valued coastal shells such as dentalium, olivella, clam and abalone were traded inland by the Tolowa. Our research indicates that most of the obsidian on the lower Klamath came from Glass Mountain in eastern Siskiyou County and was traded downriver from the Shasta through Karok territory to the Yurok and Hupa. Some of the smaller obsidian pieces were local pebbles that had washed downriver. Other sources include the Clear Lake glass mountain and southern Oregon. These materials would have been accumulated by the Hupa and Yurok for trade overland to the Tolowa. We also expect that white deerskins were traded, since it would have taken a large area to support enough albino deer to satisfy the market on the Klamath.

Physical evidence for trade should be difficult to find. Gould (1966:96) indicates that large trade meetings were held at Big Flat, and that the project area was crossed by Hupa and Yurok trade expeditions. However, we expect that trade gatherings may

have been held in more neutral places as well, such as Summit Valley. The trade route would have been up Lem's Ridge from the Tolowa side and up the Golden Stairs and Forks of Blue ridges from the Yurok side. The Karok may also have been involved in this trade relationship, since their country is closer than the Hupas'.

Trade gatherings also usually were accompanied by social events, such as gambling, family reunions and marriages, and were the occasions for elaborate feasting. If any trade gathering sites occur in the project area, they would have to have been situated in the few large, level, well-watered highland valleys. They would be indicated by a relative absence of subsistence-oriented tools and the relative abundance of evidence of firepits, firecracked rocks and temporary shelters. We would expect to find some lost trade items, and some lost wealth items, which should not occur in temporary subsistence-oriented sites. We may find indicators of membership in different ethnic groups, though most such evidence is perishable (basketry caps, for example), which also should not occur in temporary subsistence-oriented campsites.

(c) Ritual activities: the available literature is richest with regard to the practice of rituals in the project area, but the details of the material artifacts used in ritual activities are scant. Ritual activities were carried on in the project area mainly by the Yurok. The Karok reportedly visited the eastern part of the project area for ritual activities. All sources seem to agree that the Tolowa did not come up to the project area for their rituals. Several kinds of ritual activities can be identified:

(1) Medicine: healers were mostly female but some males also

were noted doctors. Yurok female doctors were associated particularly with Doctor Rock, while males who made "high medicine" were associated with Peak 8 and Chimney Rock. Sources agree that few practitioners survive today. Doctors apparently conducted fasts on their highland journeys. A doctor would have a particular power place, normally on a high ridge or peak that afforded a great vista. An altar of stones in the shape of a three-sided enclosure would be built, within which a practitioner would sit, facing outward, to pray and meditate. Some rituals called for fires to be built in front. Buckley indicates that each doctor had her own prayer-altar or tsektse, but the relation by Spott (Spott and Kroeber 1942) indicates that a doctor might use a tsektse she found. Buckley also indicates that many practitioners tore down their own tsektses at the conclusions of their careers, but comments in Wylie and Heffner (1976) indicate that some tsektses were left standing, because laymen would visit them for personal rituals in hopes that the power of the ritual master would give them good fortune. The descriptions of female doctors indicate that many of them had assistants and students or novitiates who would accompany them on their missions. Some rituals at the prayer altars were said to have lasted up to ten days, during which fires may have been built for rituals and some domestic purposes. However, domestic artifacts should not be associated with such locations. It is also reported that when students were in training, they would make pilgrimages to high places for final training and the receipt of their powers. Chimney

Rock, Doctor Rock, Peak 8, Turtle Rock and Sawtooth Mountain are mentioned as places for these activities. We cannot predict at this time how to distinguish between novitiate and master ritual places. Karok sources also mention Little Medicine Mountain as an important place for training and medicine. We would expect there to be some formal differences between Karok and Yurok ritual altars.

- (2) Good fortune: Yurok (and presumably Karok) males are reported to have made solitary vigils in the project area to pray for fortune in several kinds of endeavors: gambling, hunting, fishing, for wealth, for bravery. These trips were made by laymen, not just great practitioners. The trips were to high places with open vistas. An individual would stop along the ridge trails on the way to pray and meditate at noted prayer spots, outcrops and cairns which practitioners also used. Testimony is not clear, but it would appear that there once were hundreds of prayer-places on all the important prominences, and that males had their own prayer structures as well as using ones made by noted ritualists. However, descriptions are inadequate to tell us whether structures made by laymen differed in detail from those made by ritualists.
- (3) Public rituals: Spott and Kroeber (1942) say nothing about large-scale rituals held in the project area. However, Harry K. Roberts reported to John McArthur that jump dances were held occasionally at Red Mountain, Elk Valley and Summit Valley, as inter-tribal meetings, and especially to regulate ritual law and to mediate with the great natural forces when there were natural disasters on the land (Wylie and Heffner 1976).

The standard references on jump dances mention nothing about highland jump dances or intertribal highland rituals, but we found a few indicators to support Roberts. First, intertribal rituals are well-known, because the Yurok, Hupa and Karok all participate in the "world renewal" ceremonial cycle along the Klamath and Trinity Rivers. DuBois (1939) traced the distribution of the 1870 Ghost Dance through such mechanisms, linking the Yurok with the Tolowa and the Karok with the Shasta. Trade over the project area is documented by Gould (1966a), Davis (1960), Kroeber (1925) and others, showing that inland multi-ethnic meetings were held. Kroeber and Gifford (1949) describe a jump dance held at Weitspus (Weitchpec) that began at the river and ended on a mountain top. The dancers followed a ridgeline trail, along which were rock cairns placed at clearings, where the dancers stopped to dance. After the conclusion of the dance on the peak, laypeople from the gathering at the river joined the processionalists and built a temporary camp on the peak around a spring. The camp was secular--domestic activities and social interactions went on. These events are not described for the jump dances at Kepel and Requa, but it must be recalled how few jump dances at Yurok villages have ever been observed by anthropologists. The possibility that jump dances extended to the highlands in some cases during the 19th Century cannot be dismissed out of hand.

Kroeber and Gifford's account makes three relevant points. First, jump dances apparently were extended to the highlands in some cases. This makes more sense than the contrary idea,

that the great ritual cycles of the river were totally divorced from the great highland rituals, even when the same formulists were often involved. Second, it indicates that public gatherings sometimes took place in the highlands in conjunction with ritual observances. Third, it indicates that ritual places were not imbued with such power that laypeople could not be near them, at least those places not far from the river. This would correlate with evidence that laymen used important altars at the highest peaks, and it would also indicate that ritually important places would also be suitable for subsistence activities.

(4) Sorcery: the Yurok practiced both lay and professional sorcery, and sorcery rituals were said to have been practiced in the project area. It is extremely unclear what the material manifestations of sorcery are. Some building of solitary fires and burning of objects is indicated, but there are no indications that the practice of sorcery would be readily distinguishable. However, the apparent restriction of much sorcery to Starwein Ridge and Red Mountain Meadow may be indicated if we find an abnormal number of solitary, non-domestic fire pits there.

(5) Wood-gathering: river people apparently resorted to Red Mountain to collect firewood for use in sweathouses. The activity of wood-collecting and chopping would have been done using heavy core choppers, which would have had to have been retouched periodically. We therefore would expect to find small chipping stations and discarded core choppers on Red Mountain Meadows.

3. Non-Indian Historic Activities:

Current evidence indicates that all use of the project area by non-Indians has occurred only since 1900. We do not accept that date as being very probable. The Kelsey Trail, a supply route inland from Crescent City, passed along the South Fork of the Smith River as early as 1851, and we find it difficult to believe that some non-Indians did not enter the project area in the following half-century. Furthermore, Wes Hotelling, an Orleans resident (Anglo), relates that his father took him to Elk Valley in the early 1900's, which would indicate that his father had already become familiar with the area and with Yurok people who used the area. However, it seems unquestionable that no major efforts at mining, fur-trapping or overland trading were made by non-Indians in the project area during the 19th Century.

Three major kinds of non-Indian use of the project area can be considered. They include mining, recreation, and USFS use.

- (a) Mining: A small mining effort is known to have begun near Doctor Rock in 1903. A small cabin is supposed to have been built there. Some remains of the cabin, its dump, and mining activities are to be expected within a mile of Doctor Rock. Rock cairn claim markers may exist.
- (b) Recreation: hunting, fishing, hiking and camping have gone on in the project area for at least 50 years. A formal campground exists in Elk Valley, so the densest indications of non-Indian camping should be found there. They would range from pathways to scattered debris. Hunters, hikers and fishermen may also have left debris during their activities, particularly in the highland valleys and meadows and along the ridge trails. Food container debris and tobacco remains are expected to occur. Hunters in addition may have discarded various kinds of cartridge cases, and may have left butchered carcasses whose remains may be

recognizable. Fishermen may have left snagged or lost tackle along the edges of Blue Creek.

- (c) USFS Use: no commercial timbering has been conducted in the project area, but the USFS maintained a guard station in Elk Valley from the 1930's to the 1950's, and traces may remain of guard station activities, ranging from outbuilding debris to planted places. The USFS has built and maintained some roadways and trails in the project area, and evidence of those activities may survive along ridgelines. At least two USGS benchmarks exist in the project area, indicating related government activities have gone on under USFS jurisdiction. The G-O Road has been completed to the edges of the Chimney Rock Section, which will have produced marked effects.

PREDICTED CULTURAL REMAINS IN THE PROJECT AREA

The following list describes the kinds of material cultural remains to be expected in the project area based on existing evidence.

1. Three-sided rock features: stone structures made of dry-laid masonry, in a three-sided or U-shape, measuring roughly 3 X 4 feet across and 2 feet high. The ethnographic tsektse, a ritually significant structure used in prayer and meditation, has this form. Fire pits may be in association. Should be situated on high peaks and ridgelines with great vistas opening before the open side. Compass orientation should be varied.
2. Rock cairns: may be located in same place as three-sided rock features, and also along ridgeline trails leading up to highlands from Klamath River. Associated with prayer spots.
3. Rock circles: completed rings of dry-laid stone masonry up to several feet across and only a few courses high. Associated with prayer spots along ridges and on peaks.
4. Firepits: may be scooped out or with rock rings; locations should be highly varied; some associated with other rock features on ridges and peaks, others in valleys, flats and meadows as parts of camps or alone as sorcerer's sites.
5. Chipping stations: flake scatters may occur in high valleys, on peaks and saddles, where small temporary camps were made or butchering of elk carcasses took place.
6. Temporary campsites: should be found in high valleys and meadows where water sources exist, especially Red Mountain area, Flint Valley, Elk Valley, Summit Valley and Flat Iron Lake Valley. Could include seasonal exploitation sites for subsistence purposes, or

large, temporary campsites from gatherings such as highland jump dances, trade meetings and inter-group assemblages.

7. Pedrock mortars: should be found along Blue Creek near where oaks grow on exposed bedrock masses near the stream.
8. Acorn processing stations: should be found along Blue Creek on terraces where oak trees grow.
9. Quarry sites: should be found along ridges and in high valleys where outcrops of crypto-crystalline silicates and similarly-structured rocks occur naturally. Quarrying debris and rough shaping debris should surround the source. Flint Valley and the Serpentine Ridge are primary search areas.
10. Baby Rocks: bedrocks or outcrops where sets of parallel lines have been scribed; associated with female fertility rituals. Heizer and Clewlow (1973:29-30) indicate that the rock outcrops have to be soft, such as steatite or talc; it is unknown yet whether appropriate rocks occur in the project area, though they exist in the Karok territory at Amikiaram on the Klamath River.
11. Rain Rocks: bedrocks or outcrops where large numbers of small saucer-shaped depressions have been pecked into the rock by percussion and abrasion. Examples exist at Amikiaram. They are associated with rituals for the regulation of climate, especially the cessation of rain (ibid.).
12. Isolated artifact finds: individual or cached artifacts found along ridge trails, on peaks or in highland valleys, meadows, flats and saddles. Could occur for variety of reasons ranging from hunting to rituals.
13. Mining debris: cabins, dumps, mining tailing, mining equipment. Known for Doctor Rock area, could occur wherever potential for

precious mineral recovery exists.

14. Hunting debris: debris from modern hunting, ranging from butchering sites with surviving bone to discarded shells, food and beverage container parts. Expected where animals can be stalked, such as ridges, gentler slopes, small valleys, flats, meadows, saddles, around water sources.
15. Fishing debris: lost tackle and food container parts from modern times, around Blue Creek and its terraces.
16. Ritual artifacts: stone pipe bowls, quartz crystals, charmstones, shell ornaments are examples; should be found associated with three-sided rock features.
17. Enigmatic features: Buckley (1976:5) mentions "altars" and "ovens" as being associated with rituals in high places, but does not describe them. "Altar" may refer to tsektse, but we do not know.
18. Perishable remains: if recently made, examples may be found of wooden scaffold "prayer platforms" set into the faces of vertical rock outcrops; bundles of herbs laid near or on rock features on peaks and ridges; cached medicine bundles laid in same situations.
19. Inscribed outcrops: rock outcrops with names or designs carved into them may be found at Doctor Rock and other high peaks.

SCOPE OF THE ETHNOGRAPHIC COMPONENT

The existing low standard, Chimney Rock section of the Gasquet-Orleans road was completed in 1962-63. This road is passable by 2-wheel drive, high clearance vehicle from west to east only, and in both directions by 4-wheel drive vehicles from about June 15 to October 30th.

Improvement of this section of the G-O Road became a sensitive issue with the initiation of the Redwood National Park proposal and its potential economic impact on Del Norte and Humboldt Counties. The economies of these counties are primarily dependent upon natural resources, especially commercial timber. Twenty-five percent (3.25 billion board feet) of the Six Rivers National Forest commercial timber and 600 million board feet in Klamath National Forest are tributary to the G-O Road. A single connecting main road in this area is essential for efficient land management (commercial timber harvest). The length of the effected section of the G-O Road varies from 5.7 to 9.0 miles and covers from 41 to 163 acres depending on which route is chosen.

Archeological surveys of the Chimney-Rock section began in 1976 and have produced conflicting reports of the Native American interests in the area as well as the number and significance of cultural properties (districts, sites, buildings, structures or objects having scientific, historical or social value).

STATEMENT OF WORK

Ethnographic Section

The purpose of this work is to identify and evaluate the significance that Native Americans place on the cultural properties in the area of potential environmental effect by the G-O Road project and to describe various impacts which may be expected from changes in this area. This information should enable the Forest Service to respond to the major cultural issues related to development in the G-O Road project, including specifically, the significance of the area and the level of protection which needs to be provided. The investigation covered by this Statement of Work entails ethnological research within the G-O Road project area. Theodoratus Cultural Research (TCR) will perform that research and consequent reporting as set forth in this Statement of Work. TCR investigative and reporting activities will be primarily focused toward direct and/or indirect project effects on Native American values found pertinent to the G-O Road project area. TCR will address project-related activities external to the project area only as they may be found in potential relation to short or long term project functions. TCR will elucidate salient contemporary Native American concerns pertinent to planning, construction, maintenance and use of the G-O Road.

1.0 Needs of the Forest Service

- 1.1 Documented evidence of the existence, nature, location and use of culturally significant sites within the project area and the pertinence of these properties and their uses to the Native American community, specifically;
 - 1.1.1 The religious significance of the "high country" to contemporary Northwest California Native Americans,
 - 1.1.2 The presence of an on-going, shared, religious system in the project area, and the determination as to whether or not this contemporary system is traditional religious behavior or is ideosyncratic in nature,
 - 1.1.3 The number of Native Americans who currently use the "high country" for ritual/religious purposes and the nature and extent of such use,
 - 1.1.4 The extent that construction, maintenance and use of the G-O Road will effect traditional religious beliefs and/or contemporary ritual/religious use of the "high country",
 - 1.1.5 The existence of other types of traditionally derived, culturally significant practices which would be adversely effected by the G-O Road project.
 - 1.1.6 Contemporary attitudes which might affect perceptions of the construction of this road.
- 1.2 Definition of differing levels of significance that Native Americans may assign to geographical sites, zones or issues within the project area. Pertinent sites, zones or issues of significance will be ranked from highest to lowest in sensitivity.
- 1.3 Recommendations for mitigation of potential adverse impacts to sites, zones or issues of the G-O Road project.
- 1.4 Recommendations covering the eligibility of sites within the project area for National Register status, with specific discussion of the impact of the G-O Road on such status eligibility.

2.0 Research Questions and Research Problem Areas

2.1 A major issue of the controversy regarding the Chimney Rock portion of the G-O Road has been the potential impact on ritual and/or religious spiritual sites located at Doctor Rock, Chimney Rock, Peak Eight and other sites roughly within the area involved in or that may be construed to be impacted by construction of the road. A number of research questions arise from a study of the existing literature and the expressed and implicit needs of the Forest Service regarding these issues (RFP, p. 12). These are:

- 2.1.1 What are the locations of significant religious sites within the project area?
- 2.1.2 What are the general physical features of such sites which might make them recognizable?
- 2.1.3 Are there specific qualities or conditions necessary for a location to be considered a sacred area or site?
- 2.1.4 Are there discrete types of sites within the project area?
 - (1) If so, are the types of sites distinguished from each other, and what are the various qualities of the different types of sites?
 - (2) Are types of sites named or marked?
 - (3) How are physical features perceived by Native Americans and how are boundaries between them, if any, determined?
 - (4) Does the existence of different types of sites correlate with characteristics of specific individuals or groups (e.g., Do members of various sub-groups recognize or use different types of sites)?
- 2.1.5 What is the nature of the use of such sites?
 - (1) What happens at such sites? What physical acts occur in the creation of use of such sites and how does activity at such sites relate to other ritual or religious activity or systems within the community?

(2) Does site use vary? Is such variation related to some variable such as type of site, season of the year, ritual cycle, age or sex of the user, particular aim or goal of the user or the society, and so on?

2.1.6 Is there historical continuity of religious practices said to take place in the project area?

(1) What is the history of current practices associated with the sites in the project area?

(2) How do current uses relate to (differ or replicate) earlier practices, as evidenced in the oral, archeological, historic or ethnographic record?

(3) How have practices changed since the date of earliest knowledge about the practices, and what is the direction of that change?

(4) What factors can be considered agents of change?

(5) How has activity changed during the period since first contact with "European Man" (e.g., what specific role has contact with Non-Native Americans had on the rate or direction of change for the practices in question?)?

2.1.7 What actions would constitute disturbance? Is sound or the intrusive visual impact of the development the important aspect, or are other aspects equally or partially relevant? Historically, what has constituted an impact on the ritual sites? What things have been done in the past which have constituted impacts on these locations and what was the nature of the responses on the part of the Native Americans affected?

2.2 A second component of the problem facing the Forest Service during construction of the G-O Road is the identification of significant elements or sites of value to Native Americans in the area or which have intrinsic cultural value which are not the specific religious sites discussed above. The identification and evaluation of these

sites, should they be found to exist, will directly aid the Forest Service to meet its needs for the responsibility of management of the cultural resources in the project area. A number of research problems and questions arise from this and are the following:

2.2.1 What are the general (non-ritual) uses of the project area by contemporary Native Americans?

- (1) Is the area currently used for some activity such as collecting, hunting, camping, hiking by individuals or groups of Native Americans?
- (2) What is the history of this use (if any) back to the earliest accounts obtainable (archeological, ethnographic, historic or oral)? What is the relationship of past practices to contemporary practices within the project area? What are the directions, rates and agents of change in these practices?
- (3) How are these practices (if any) related to the ritual activities which may take place within the project area? Are such activities undertaken concurrently with ritual activities (perhaps by the same individuals or groups) or are they not associated with the ritual activities?
- (4) Historically and currently what individuals and groups use or used the project area? Is the group affiliation the same as ritual practitioners using the area?
- (5) Upon what variables is the use of the area broken down? Who uses the area? Age groups, various, occupations, members of identifiable sub-groups within the population such as kin groups, families, voluntary associations, etc.?
- (6) Are some of these uses mutually exclusive or contradictory?

2.2.2 What aspects of the G-O Road project would constitute impact on these uses of the project area?

- (1) Are any such areas eligible for protection by a regulatory body or agency such as the National Register of Historic Places or NEPA?

- (2) What effect would construction of any of the alternate routes of the G-O Road have on any of the uses identified for culturally significant sites?
- (3) What acts have occurred in the past that have constituted impacts on project area use or the sites in question?
- (4) How can any identified negative impacts associated with acts of the Forest Service be mitigated?

2.3 A third area of endeavor related to the construction of G-O Road is the identification of culturally significant sites of non-Native American origin. Since any such sites identified may be eligible for inclusion under various protection agencies, it is therefore the responsibility of the Forest Service to identify and mitigate the effects of road construction and concomitant area uses.

3.0 Archival and Field Research

3.1 Research shall be conducted in two phases. Archival research shall be initiated at the onset of the project.

3.1.1 The following local and state or national level archives shall be consulted:

- (1) Sources within Del Norte County including the Crescent City Lighthouse (museum); the Del Norte County Historical Society Museum; and the Trees of History Indian Museum in Crescent City,
- (2) Sources within Humboldt County including Humboldt State University, Arcata; Six Rivers National Forest Records; and numerous other museums throughout the area,
- (3) Presently unidentified or personal archives,
- (4) Non-local sources such as Lowie Museum of Anthropology and Bancroft Library (Standard Holdings and University archives) University of California, Berkeley; California Historical Society and Sutro Genealogical Library, San Francisco; Wells Fargo Archives, San Francisco; Federal

Archives and Records Center, San Bruno; Huntington Memorial Library, Pasadena. If necessary the following can be consulted: The National Anthropological Archives, Washington, D.C.; The Field Museum of Natural History and the Newberry Library, Chicago; The Museum of the American Indian, Heye Foundation, and The American Museum of Natural History, New York.

3.1.2 Field contact and interviews shall commence ~~slightly~~ after the initiation of the archival phase. This research is described below.

3.2 Archival Research shall be undertaken for the following reasons:

3.2.1 It will be necessary to create an historical background for the present study. An important component of the research objectives is the analysis of the time depth of the religious tradition of the area (RFP, p. 16). For this purpose, archival materials shall be used to create a base date for comparative purposes. Where data permits, other historic periods will be established for similar purposes. In addition, such information shall be used to formulate further research questions and topics. Such periods should indicate the flow of religious tradition, if in fact such tradition exists. Such factors as changes in type of activity, frequency of activity, location, changes in proportion of involved or effected people, agents of change or other variables.

3.2.2 It will be necessary to assess the historic record (3.2.1 above) to determine past impacts on the ritual tradition of the project area, if any. Of primary importance is the impact of various stages of non-Native American incursion into the project area including the impacts of variable intensities of non-Native American use such as casual recreational or gathering activities, mining or intensive logging.

- 3.2.3 Archival research may identify individuals, families or other groups likely to have knowledge of cultural traditions.
- 3.2.4 TCR will consult local historical sources such as Del Norte County newspaper letters to the editor to determine various local responses to recent environmental issues and Native American concerns in an effort to further define questions regarding the G-O Road.

3.3 Field Research.

- 3.3.1 The need to establish credibility is paramount in this effort. Due to the fact that several investigators have previously attempted ethnographic research with Native Americans in this area, and that this community is faced with yet another research effort, TCR will identify and contact influential individuals and/or groups to discuss project concerns. Every effort will be made to establish this study as important, definitive and likely to be precedent-setting with respect to Native American interests.
- 3.3.2 Because of the non-definitive nature of several previous research efforts, the existing controversy among interested parties, and the probability that the Native American population may include a wide range of intercommunity variation of opinions and/or depth of knowledge concerning the project area, an attempt will be made to contact members of all Native American families. A member or members of each family contacted will be questioned according to a standard format. To accomplish this task a number of Native American Research Assistants will be hired (college and university students) and trained to administer a verbal questionnaire of opinion, interest and knowledge of the G-O Road area. Hiring and working with local Native American Research Assistant's should improve TCR's range of contact, gain some credibility from the community and help legitimize our claim of concern for Native American interests.

- 3.3.3 Former residents of Del Norte County living in other northern California counties will be identified and contacted before TCR enters the project area to begin field research. Interviews will be undertaken to determine background information on regional societal structure and attitudes of residents toward the G-O Road, if any. Such data will provide pertinent political, economic and organizational data to further refine the research instruments.
- 3.3.4 Perceptions of area residents regarding Native American and non-Native American social groupings and alignments which could contribute input into the G-O Road project will be tapped. This information will be used to assist in determining the sample to be utilized in 3.3.5.
- 3.3.5 Based on the results of 3.3.3 and 3.3.4, TCR will identify those individuals (locally recognized leaders, organization officers and/or spokesmen, and other knowledgeable individuals) who are influential in the Native American community or who represent various typical concerns and points of view or who might have special knowledge of the historic or contemporary cultural significance of the impacted area (elders, traditional historians, and traditional medicinal, spiritual practitioners). These individuals will be interviewed through the use of the standard format as well as an open-end interview technique.

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JCA: Journal of California Anthropology, Riverside
UCAR: University of California Anthropological Records,
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UCARFR: University of California Archaeological Research
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