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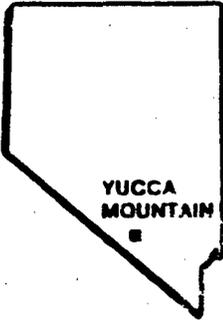
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YUCCA MOUNTAIN PROJECT

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NATIVE AMERICAN INTERPRETATION OF CULTURAL RESOURCES IN THE AREA OF YUCCA MOUNTAIN, NEVADA

INTERIM REPORT

MARCH 1989

WORK PERFORMED UNDER CONTRACT NO. DE-AC08-87NV10576

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YUCCA MOUNTAIN PROJECT
NATIVE AMERICAN INTERPRETATION OF
CULTURAL RESOURCES IN THE AREA OF
YUCCA MOUNTAIN, NEVADA

Interim Report
March 1989

By

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CHAPTER ONE

CHAPTER ONE: EXECUTIVE SUMMARY

This report presents the location and interpretation of Native American cultural resources on or near Yucca Mountain, Nevada. This work builds on the archaeological reconnaissance and identifications of cultural resources by the Desert Research Institute (for a summary, see Pippin and Zerga, 1983; Pippin, 1984). Interpretations provided by Native American Indian people are not intended to refute other scientific studies, such as botanical, wildlife, and archaeological studies. Rather, they provide additional hypotheses for future studies, and they provide a more complete cultural understanding of the Yucca Mountain area. Representatives of sixteen American Indian tribes identified the cultural value of these resources as part of a consultation relationship with the U.S. Department of Energy (DOE). This interim report is to be used to review research procedures and findings regarding (1) initial consultation with the sixteen tribes, (2) in-depth interviews with tribal elders, and (3) findings from the first on-site visit with representatives of the sixteen tribes. As additional information is collected, it will be reviewed separately. An annual report will integrate all findings.

REPOSITORY SITE CHARACTERIZATION

The Nuclear Waste Policy Act (NWPA) of 1982 proposed a plan to safely dispose of commercial power plant wastes, to conduct environmental investigations, and to involve Native Americans in site selection proceedings. A national search for a site where a high-level radioactive waste facility could be located culminated in the environmental assessment studies recommending three candidate sites for further consideration: Hanford, Washington; Deaf Smith County, Texas; and Yucca Mountain, Nevada. When the present study was initiated (July 7, 1987), the DOE was beginning site characterization activities at all three sites. The Nuclear Waste Policy Amendments Act of 1987 specifies that Yucca Mountain, Nevada, will be the only candidate site to be characterized.

The DOE will begin site characterization activities at Yucca Mountain during 1989. The two phases of site characterization include (1) environmental impact studies assessing how site characterization activities may affect the land and (2) field and laboratory testing of geology, hydrology, and weather conditions at Yucca Mountain. The current study is part of the environmental research.

Science Applications International Corporation (SAIC), Las Vegas, Nevada, is conducting site characterization research for the DOE at Yucca Mountain. SAIC subcontracted the Native American cultural resources study to anthropologists from the Institute for Social Research at the University of Michigan.

INVOLVED INDIAN TRIBES

As outlined in the preliminary research design (Stoffle, 1987), this Native American study pertains to the cultural resources of three ethnic groups — Owens Valley Paiute, Southern Paiute, and Western Shoshone — that are found in the Yucca Mountain region. Ethnographic experiences in the southern Nevada area and an extensive literature review (Stoffle, Olmsted, and Evans, 1987) led to the selection of sixteen Indian tribes that potentially would be involved in the Native American cultural resources project. After meeting with each of the sixteen tribes, all requested that they be included in the Native American cultural

resources project. Their involvement includes participating in in-depth ethnographic interviews, tribal council presentations, reviews of cultural resources project reports, and visits to the Yucca Mountain study area.

The location of contemporary reservations for the sixteen Indian tribes and the approximate boundary of the Owens Valley Paiutes, Southern Paiutes, and Western Shoshone ethnic groups in the late 1800s is presented in Map 1. Each of the sixteen tribes has been consulted on a regular basis since July 1986. Details of the continuing involvement of these sixteen tribes are presented in this report.

CULTURAL RESOURCES STUDY AREA

The Yucca Mountain cultural resources study area is more than 70,000 acres in size (see Map 2). By necessity, then, the cultural resources project has to be conducted in phases because it is impossible for Indian people to make meaningful comments on such a large area in a short period of time. The first visit concentrated on the eastern flank of Yucca Mountain, Yucca Wash, Fortymile Wash, and Fortymile Canyon. It was decided to concentrate on this area because most site characterization activities would occur here. This interim report presents findings from the first visit.

FUTURE STUDIES

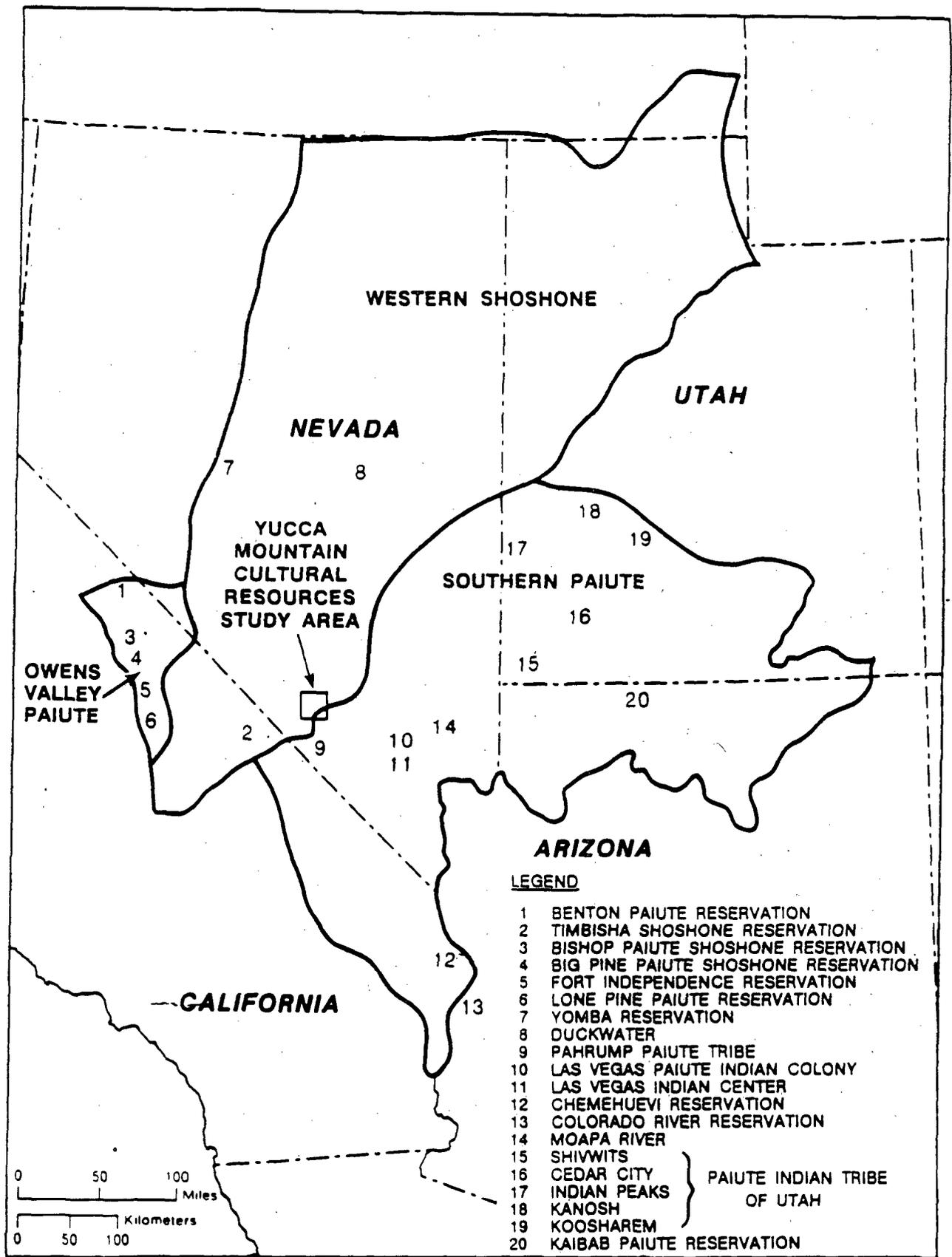
As more information becomes available on the exact location of various site characterization activities, short-in-time and focused-in-purpose visits will be made by representatives from the involved Indian tribes and the ethnographic study team. These specialized visits will be designed to accurately record cultural resource concerns for areas of perhaps only a few acres.

An extensive two-week-long visit was conducted in the spring of 1988. The purpose of this visit was to assess the location and use of traditional plants that are located in the Yucca Mountain Project cultural resources studies areas. The findings from this study will be presented for review as its own interim report.

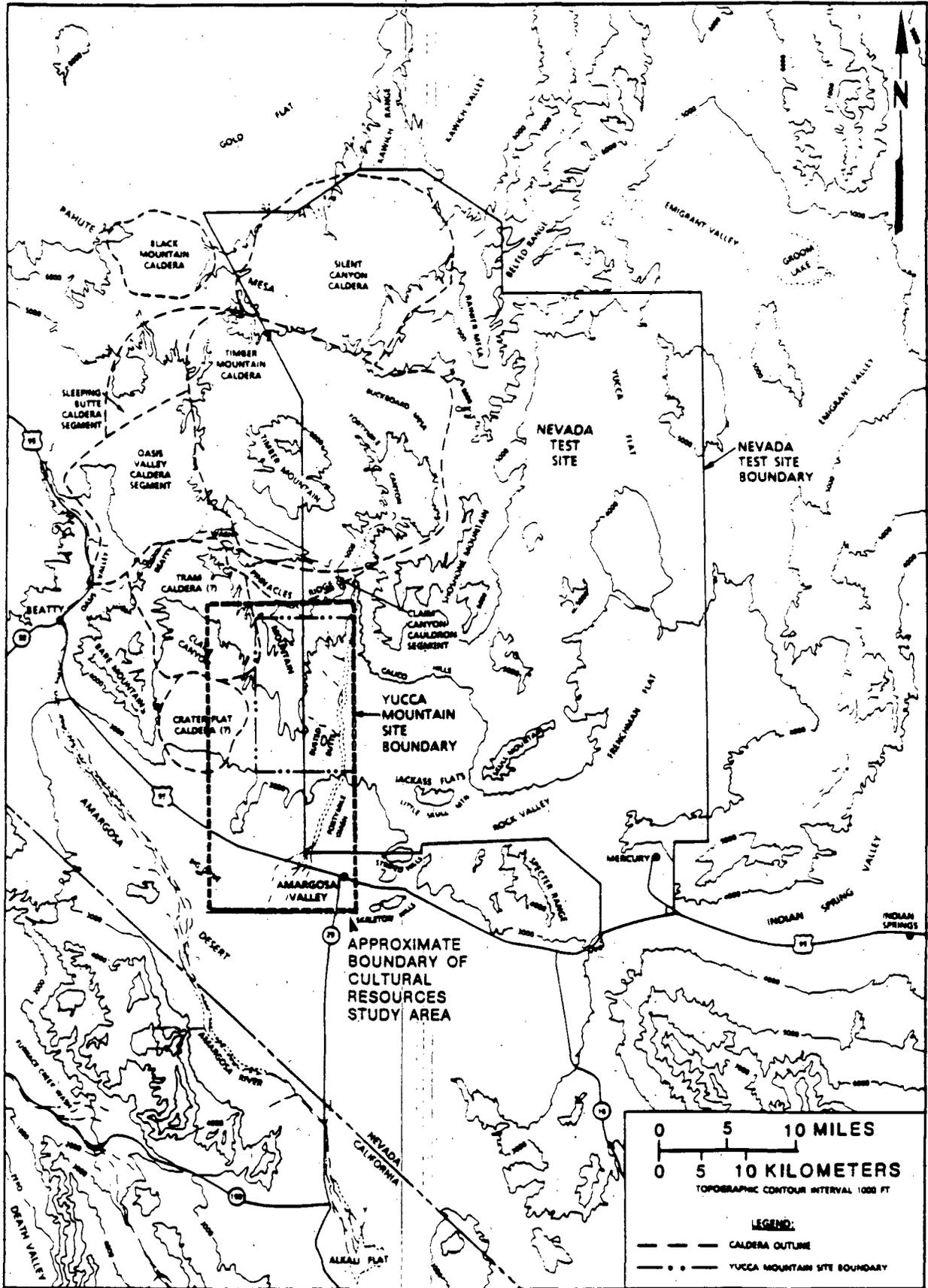
Following the ethnobotany study, most of the major categories of cultural resources located in the Yucca Mountain study area will have been identified. While the location of all these cultural resources will not be known at that time, knowing the types of resources will permit a study focused on the relationship of these cultural resources to site characterization activities. This study will involve tribal governments and elders, who will provide mitigation recommendations to the DOE regarding the disposition of cultural resources. Those recommendations will be presented for review in their own interim report.

MAJOR FINDINGS

The major findings of the first period of cultural resource interpretation can be briefly summarized here. The Yucca Mountain region was used by Owens Valley Paiute, Western Shoshone, and Southern Paiute people for several hundred years. The area contains numerous plants, animals, and sacred resources traditionally used by these people. Over forty-five years ago, portions of the Nevada Test Site and the Nellis Air Force Bombing



Map 1. Traditional Ethnic Boundaries and Locations of Tribes Involved in the Yucca Mountain Project (adapted from D'Azevedo, 1986).



Map 2. Yucca Mountain Cultural Resources Area (SAIC modification of DOE, 1986).

and Gunnery Range were withdrawn from the public domain. This area includes Yucca Mountain. The oral testimony combines with the presence of the many cultural resources identified to indicate that, had the land not been removed, these cultural resources would still be used by members of these ethnic groups.

Perhaps some of the most important cultural resources interpreted, both in ethnographic interviews and on-site visits, are the religious sites in the study area. These sites, some of which are located at known archaeology sites, are of several different types. These sites contain great power in Shoshone and Paiute belief systems.

Burials are one of the most powerful items in Native American religious systems. Due to the nature of Shoshone and Paiute burial practices, burials are one of the most difficult cultural resources to identify. Based on our ethnographic experience and the extensive literature survey completed prior to the period of fieldwork, we hypothesized that burial locations were possible in the study area. During the course of the visits, numerous sites of potential burials were identified by the Native Americans participating in the site visits. There is strong evidence that the Yucca Mountain area has numerous burial locations.

Western Shoshone, Owens Valley Paiute, and Southern Paiute people traditionally used a wide range of plant species currently located in the Yucca Mountain area. Plants were used as food, as medicine, for making baskets, and in various religious activities. A few of these plants were identified during the visits. Unfortunately, the Yucca Mountain area had less than a normal rainfall before the fall visit so almost all plant life in the region had gone into a dormant state, making plant identification very difficult. An ethnobotany trip is planned for the spring, after which a detailed report on plant identification and use will be prepared.

ORGANIZATION OF THIS REPORT

The present report integrates data from the first round of ethnographic interviews and the first two site visit periods. Chapter Two describes the cultural resources project in some detail, particularly with regard to the laws that govern such studies. Chapter Three outlines the methodology used during the course of this study. Chapter Four is a detailed, site-by-site description of cultural resources interpreted during the first visit to the Yucca Mountain study area. Chapter Five summarizes the basic concerns expressed by the Native Americans involved in this research.

CHAPTER TWO

CHAPTER TWO: CRITERIA FOR INVOLVEMENT OF AMERICAN INDIAN TRIBES

This chapter presents ethnographic, ethnohistorical, and legal arguments for inclusion of American Indian concerns regarding the Yucca Mountain, Nevada, nuclear waste proposal. The arguments focus on three questions:

1. Do Indian people have a legal or regulatory right to be part of further site characterization studies?
2. What kinds of Indian people should be part of the study?
3. How many Indian people are potentially impacted?

The pertinent evidence was assembled at the request of the DOE as this agency further considered the relationship between its Nevada facility proposal and Indian people. While specific to Yucca Mountain, the evidence regarding Indian input issues is generally applicable to other potential nuclear waste sites.

LEGAL BASIS FOR PARTICIPATION

American Indian people in the United States today have an extensive and widening set of legal and regulatory rights to express opinions about the disposition of traditional ethnic resources. Given this national milieu, it is important to understand why Indian people were not considered as being affected by the Nevada nuclear waste Final Environmental Assessment (FEA) (DOE, 1986). Differences in meaning between the terms "potentially affected" and "potentially socially impacted" are critical. The Nuclear Waste Policy Act specified the term "affected Indian tribe" to mean:

...any Indian tribe (A) within whose reservation boundary a monitored retrievable storage facility, test and evaluation facility, or a repository for high-level radioactive waste or spent fuel is proposed to be located (B) whose federally defined possessory or usage rights to other lands outside of the reservation's boundaries arising out of congressionally ratified treaties may be substantially and adversely affected by the locating of such a facility.

Based on these criteria, it was determined that no "affected" Indian tribes existed in the Yucca Mountain study area (DOE, 1986:C.4-23; C.7-42, C.7-15).

The present chapter suggests that while there may not be Indian people who are technically "affected," there are Indian people who could be involved. The term "involved Indian tribes" is used here, following Soderstrom (1981:v), to include those tribes that could experience sociological, psychological, political, cultural, and economic effects attributable to a proposed project intervention. This definition emphasizes the types of institutions potentially impacted. Leistriz and Murdock (1981:156-158) correctly point out the need to also consider how a proposed project would influence the process of human interaction and adaptation, as well as the institutional results of those behaviors. In the United States, there is an extensive body of national, state, and local law and agency regulation that defines why and how the impacts should be assessed.

The present analysis focuses on those impacts that are generally recognized to be cultural, and especially religious, impacts (Stoffle, Jake, Evans, and Bunte, 1981). Impacts on cultural elements and processes are considered. The decision to focus on cultural impacts derives from the status clarity given to this variable by national laws and regulations that define the role of American Indian religious concerns in project assessments.

Relevant Federal Policies

American Indian Religious Freedom Act (AIRFA). The American Indian Religious Freedom Act (AIRFA) of 1978 (P.L. 95-341) specifically reaffirms the First Amendment of the United States Constitution rights of American Indian people to have access to lands and natural resources essential in the conduct of their traditional religion. Specifically, AIRFA states the following:

...henceforth it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.

In Section 2 of AIRFA, the President of the United States is asked by Congress to direct various federal departments and agencies to consult with native traditional religious leaders to determine appropriate changes in policies and procedures necessary to protect and preserve American Indian religious practices. Although a number of agencies responded to AIRFA (Federal Agencies Task Force 1979), the response of the Advisory Council on Historic Preservation seems to best reflect the intention of the Act.

Advisory Council on Historic Preservation (ACOHP). In 1985, the Advisory Council on Historic Preservation (ACOHP) issued a draft of its "Guidelines for Consideration of Traditional Cultural Values in Historic Preservation Review." Historic preservation reviews are mandated by Section 106 of the National Historic Preservation Act of 1966. Since then, these guidelines have been reviewed and termed state-of-art by a number of scientists, agency personnel, and American Indian religious and political leaders (American Anthropology Association, Workshop Proceedings, 1985; Harjo, 1985). The Council guidelines provide a basis for discussing which Indian people could be involved in the cultural study project.

A key element of the guidelines is the assertion that

A property need not have been in consistent use since antiquity by a cultural system in order to have traditional cultural value. A sacred mountain . . . , for example, might have gone out of use when the Indian group to which it is important was placed on a reservation and converted to Christianity, but have come back into use as part of a contemporary revitalization movement in the tribe; the value ascribed to it would be a traditional one. (ACOHP, 1985:7)

It is argued here that Yucca Mountain and the area around it were traditionally used and valued by Indian people, and despite physical separation due to these cultural resources being incorporated into the Nellis Air Force Base Bombing and Gunnery Range and the Nevada Test Site, the Indian people continue to value these cultural resources. Therefore, there are Indian tribes who should be involved with the studies concerning the proposed Yucca Mountain nuclear waste repository.

POTENTIALLY INVOLVED INDIAN PEOPLE

Assuming Indian people are potentially involved in the nuclear waste facility project, then who are these people? Ethnographic and ethnohistorical data suggest the following conclusions: (1) the cultural resources of at least two American Indian ethnic groups that traditionally occupied (i.e., pre-1850) the Yucca Mountain area are potentially impacted and (2) the cultural resources of a number of additional American Indian ethnic groups that have used the Yucca Mountain area since 1850 are potentially impacted.

Traditional Indian Groups (Pre-1850)

Traditional Holy Lands. The Yucca Mountain area is part of the Mojave Desert, which is an important region to many American Indian ethnic groups. These groups resided here for thousands of years before European occupation, using the land and its resources and building these into a cultural definition of themselves as a people. Most of these groups perceive that they were created on their traditional lands and, in so doing, the Creator also gave them a special supernatural responsibility to protect and manage the land and its resources. In Western terminology, the Mojave Desert is their Holy Land (Spicer, 1957).

The Southern Paiutes, for example, believe that they were created by the Supernatural near Charleston Peak, called *Nuvugantu*, located in the Spring Mountains (Kroeber, 1970; Laird, 1976; Stoffle and Dobyns, 1983). The Spring Mountains are twenty-five miles southeast of the proposed Yucca Mountain repository. According to Laird (1976:122):

In prehuman times Nuvugantu was the home of Wolf and his brother, Mythic Coyote. It was the very heart of Tuwiin-Yaruvipu, the Sacred Land.

There was and is no place in Southern Paiute traditional territory more sacred than the Spring Mountains and the areas around them. Continued knowledge of and belief in traditional Southern Paiute cosmology remains central to Southern Paiute cultural persistence (Spicer, 1971; Bean and Vane, 1978). Concerns for this sacred area have been expressed repeatedly in studies involving Southern Paiute and Shoshone people (Bean and Vane, 1979 and 1982; Miller, 1983; Stoffle and Dobyns, 1982 and 1983; Stoffle, Dobyns, and Evans, 1983). Most recently, Nevada Paiutes expressed concerns for Pahrump Valley as an especially sacred area (Stoffle, Evans, and Jensen, 1987) because of its relationship to the Spring Mountains.

It should be emphasized that holiness in Indian religious belief is no more a function of frequency of personal visitation than is holiness in Christian belief a function of frequent pilgrimage to the Holy Land/Israel. Holiness is an inherent attribute. Pilgrimage overtly attests to holiness, but neither augments nor diminishes it. Thus, physical separation, whether voluntary, such as migration in search of work, or forced, due to loss of legal access, does not in and of itself reduce the holiness of traditional lands.

Overlapping and Shared Territory. Traditional occupation and joint-use boundaries have changed over time; so for the last thousand years, three or four American Indian ethnic groups could have occupied any specific location in the northern portion of the Mojave Desert, such as the Yucca Mountain area. Each of these ethnic groups could have traditional cultural values regarding any specific location.

An extensive national study of which American Indian ethnic groups resided in what lands at the time of European intrusion was conducted during the federal Land Claims Commission hearings (Kuykendall et al., 1978). During these legal hearings, it was generally agreed that Yucca Mountain was located on the border between lands traditionally used by the Southern Paiutes and the Western Shoshone (see Map 1).

Ethnic Versus Band Affiliation. It is essential to distinguish between the concept of an "ethnic group," such as the Western Shoshone or the Southern Paiutes, and a "localized band," like the Yomba or the Moapa. The difference between these two types of social groups has important implications for who is defined as potentially impacted.

The last 200 years of Southern Paiute ethnic group history can be used to illustrate the two concepts and to demonstrate their importance to the study. It is important to note that the Western Shoshone people have similar social structures and underwent similar changes; however, space does not permit a parallel analysis of both ethnic groups.

The Southern Paiutes are a people (an ethnic group) who share a common culture, language, and society. They traditionally occupied and used a wide territory, ranging from Black Mesa, Arizona, in the east to Yucca Mountain, Nevada, in the west and from Sevier Lake in the north to Palo Verde Valley on the lower Colorado River in the south (see Map 1).

Controlling this territory was an ethnically-based social unit termed here the "nation." The nation functioned to move goods and services back and forth between ecological zones thus increasing the population carrying capacity of the region under Southern Paiute control (Stoffle and Evans, 1976; Stoffle and Dobyns, 1982). There is ethnohistorical evidence that the Southern Paiute nation had national chiefs until the mid-Nineteenth Century (Stoffle and Dobyns, 1982:47-49). Within this territory were local areas that were the primary residence of local bands, each having its own resources and leaders, but primarily functioning in terms of the national social and economic relationships. Just as goods and services moved within Southern Paiute national territory, so did people under the authority of national chiefs.

Infectious disease and Euramerican territorial encroachment combined to virtually eliminate the national functions and integration of the Southern Paiute nation by the 1840s (Stoffle and Dobyns, 1982 and 1983; Stoffle, Dobyns, and Evans, 1982). As evidence of the date of encroachment, Pippin and Zerga (1983:51) note that a fireplace stone, inscribed with the date 1847, was found in the foundation of a Euramerican house located on the Nevada Test Site.

Local bands increased in political importance due to the loss of national functions. However, ethnic identity and the movement of people between ecological zones persisted. As agricultural lands along rivers and springs were lost to Euramericans and as natural gathering areas were destroyed by Euramerican domestic animals, Paiute people began to gravitate to sources of wage employment (Stoffle and Dobyns, 1983:108-110; Stoffle, Dobyns, and

Evans, 1982:52). Paiutes worked for wages as miners, cowboys, farmers, and river boatmen. By the 1880s most Paiute people had been drawn to wage labor sources and had constructed permanent homes at the edges of Euramerican villages. A similar process is documented for the Western Shoshone (Crum et al., 1976:88-89, 91, 101; Bowers and Muessig, 1982:22; Forbes, 1967:153; Rusco, 1975:128).

From these residential "labor camps," Paiutes and Shoshone people continued to return to their remaining hunting, gathering, and subsistence farming locations in order to supplement marginal and seasonal wages. Shoshone and Paiute people continued after forced removal to be knowledgeable about traditional areas as demonstrated in 1950 when Professor Richard Shutler was guided on an early archaeology survey of the Yucca Mountain area by a Shoshone Indian who lived in the nearby town of Beatty, Nevada (Pippin and Zerga, 1983:26).

In the Twentieth Century, the federal government began to set aside portions of traditional territory as reservation lands for Southern Paiute people. In doing so, the federal government began to treat local labor camp populations as tribes and their leaders as chiefs. This political fiction emphasized legitimate local leadership and control over nearby cultural resources, but ignored the traditional cultural rights and obligations of all Southern Paiutes to use and to be responsible for natural resources throughout their Holy Land. Not all local bands received official federal recognition, and some, the San Juan and Chemehuevi Paiutes, were incorporated into other Indian tribal organizations. In addition, the Southern Paiute traditional lands were divided between four states: California, Nevada, Utah, and Arizona. This separation served to further the political and economic divisions among Southern Paiute people.

The notion of the local Southern Paiute tribe was a federally created political fiction that had divisive effects on the Southern Paiute people. Nevertheless, they continued to try to maintain or reestablish national functions and ethnic group integration. Perhaps one of the more obvious mechanisms for this process is the practice of placing children of the same couple on different tribal registration rolls. Knack's (1980:48) detailed kinship analysis of Utah Paiutes demonstrates how fluid band membership is due to intermarriage, residential mobility, and transfers of membership from one band's roll to another.

Political and economic reintegration is occurring in a number of ways. It has been achieved by five bands who have united under a single chairman and council as the Paiute Indian Tribe of Utah (Department of Interior, 1982). More recently, an almost complete national political reintegration has been achieved through the establishment of the Southern Paiute Tribal Chairman's Association. This political body is composed of representatives from all Southern Paiute governments except Chemehuevi and San Juan Paiute. The San Juan Paiutes, however, are just being recognized by the Bureau of Indian Affairs as an Indian tribe (Federal Register, Vol. 52, No. 154, August 11, 1987).

Southern Paiute people continue to recreate their traditional national structure through kinship ties, economic interdependency, and political organization. Turner (1985:52) concludes, based on an extensive assessment of contemporary Kaibab Paiute cultural development, that Southern Paiute people maintain strong symbolic and social ties with other Southern Paiutes and that together these ties constitute an emerging Southern Paiute nation. Many Southern Paiutes expressed the desire to achieve this traditional national level of social integration because they comprise a single ethnic group that still occupies and is responsible for its own Holy Land. Quoting the Paiute Tribe of Utah (Department of Interior, 1982:2):

To the Paiute People, the land is a source of cultural, spiritual, and physical nourishment. Following generations of their ancestors, today's Paiutes still hunt and forage on their traditional lands. They conduct their ceremonies, bury their dead, and celebrate on sites of historic significance.

The most important methodological implication of separating traditional ethnic group concerns from contemporary tribal concerns is that all of the tribes currently existing within the traditional ethnic territory must be contacted in order to permit a complete ethnic group response to a project occurring somewhere within traditional territory. If county and state boundaries are used to define the limits of a study area, only those tribes that happen to have a reservation located within those Euramerican political units are subject to study. In order not to exclude some and sometimes most of the potentially impacted ethnic group members, it is important to have the concept "potentially impacted" Indian tribe refer to any contemporary tribe containing living members who are identified with a traditional ethnic group territory.

Recent American Indian Occupants (Post-1850)

Euramerican encroachment on Western Shoshone and Southern Paiute traditional territories occurred in the 1840s, and by the 1850s most valuable and productive natural resources were in the hands of Euramericans. Just as the Western Shoshone and Southern Paiute people began to gravitate toward wage labor opportunities after 1850, so did other American Indian people.

Mine camps, large ranches, commercial farms, and railroad lines served to attract Indian people of many ethnic backgrounds. Indian laborers often were recruited by Euramerican companies and later remained outside their own traditional territories where wage work was available. Most Euramerican mining and railroad camps had an Indian camp nearby where Indian workers and their families lived. Pippin and Zerga (1983:55, 62-63) note the presence of thirteen inactive mining districts that lie wholly within the Nevada Test Site or Nellis Air Force Range, four railroads built in the region during the first decade of the twentieth century, and numerous farms and ranches in the area. Based on data from recent interviews with Nevada Paiutes, we conclude that there would have been Shoshone and Paiute ranch hands living with their families on many of these farms and ranches (Stoffle, Evans, and Jensen, 1987).

Other American Indian people emigrated to the traditional lands of the Western Shoshone and Southern Paiute (such as the Yucca Mountain area) in order to work for Euramerican commercial operations. These immigrants began to use and perceive the land they colonized and its resources as they had their own traditional territories. For example, in a recent article Drover (1985) points out that Navajo workers who came to build a railroad across the central portion of the Mojave Desert remained as maintenance crews living in isolated communities along the railroad. Drover states that these Navajo people created sweathouses, hogans, and other dwellings near the railroad; these buildings have cultural value to the Navajos as historic and religious structures. In another recent study (Stoffle, Evans, and Jensen, 1987:14- 15), Navajo women who were relocated to the Colorado River Indian Tribes reservation have replaced most of their traditional weaving and medicine plants with

ones available in the Mojave Desert. Also important for the immigrants was learning where minerals for pigment and medicine were located. Inevitably, these Indian people died and were buried in the lands they colonized. In general, these data suggest that immigrant Indian people have developed cultural attachments in these nontraditional areas and that the longer they remained in the colonized lands, the more cultural attachments they established.

Traditional or Nontraditional Values. The Advisory Council's guidelines (ACOHP, 1985:7) state that only "traditional cultural values" are a legitimate concern under the National Historic Preservation Act. A traditional cultural value is one that has historical depth; a value that has not historically been ascribed to a property is a nontraditional value (ACOHP, 1985:6) and, while important, does not fall under the National Historic Preservation Act.

This guideline raises the question, "Should structures, plants, animals, and places that acquire cultural value while members of an ethnic group reside outside their traditional territory be defined as traditional or nontraditional values?" It is beyond the scope of this study to answer this question, but the solution may hinge on whether the ACOHP guideline is specific to a physical property or to a place. If the cultural value of property is traditional, then it may not matter that the property is located in a nontraditional place. So, if Navajos traditionally valued sweathouses, then sweathouses are a traditional value even if they are built hundreds of miles outside of traditional Navajo territory. If Navajo people living in Clark County, Nevada, have used the types of plants and animals that are found in the Yucca Mountain area in a traditional manner, then they have traditional values that may be impacted by the repository project. These examples seem to meet the intention of the ACOHP guidelines, and if so, it would mean that any Indian people who currently maintain traditional cultural values associated with properties in the Yucca Mountain area are to be considered as potentially impacted by the proposed nuclear waste facility.

Individual, Local Association, or Tribal Contacts. Another issue is whether these recent American Indian occupants of the area are best represented directly as individuals through local Indian associations or through their original tribal administrations. The decision as to which is the most appropriate consultation procedure may vary according to where the Indian people live. If they live in Las Vegas, then it may be best to contact them through the Las Vegas Indian Center. This organization functions, much as a tribal government, to represent the opinions and service the needs of Indian people who are not enrolled at local reservations, but do reside in the Nevada counties of Clark, Nye, and Lincoln. The Indian Center has its closest contact with the urban Indian population, so Indian people who live in isolated rural Nevada villages should be directly contacted. If a group of off-reservation Indian people wish to have their concerns reviewed by their tribal government, then this procedure should be considered. Without a more complete understanding of these Indian people, it would be inappropriate to decide on a single procedure for determining their cultural concerns.

LOCATION AND APPROXIMATE NUMBER OF IMPACTED INDIAN PEOPLE

The Western Shoshone, Southern Paiutes, and Owens Valley Paiutes are the American Indian ethnic groups having the most direct affiliation with cultural resources that may be located in the Yucca Mountain area. Most of these people are enrolled at one of thirteen Indian reservations. It is expected that persons enrolled at all of the Southern Paiute and

Western Shoshone reservations listed in Table 1 are potentially impacted by the project. We expect to find that only a portion of the people enrolled at the Owens Valley Paiute/Shoshone reservations are potentially impacted, but that determination cannot be made without contacting those tribal groups. One nonward status group, the Pahrump Paiutes, is to be treated as a distinct political unit.

Indian people who are living away from their traditional reservations are more difficult to identify. The off-reservation analytical frame is considered to consist of towns that are located within two-hours drive from the proposed Yucca Mountain facility site. Most of the Indian people who live off-reservation in southeastern Nevada will not be enrolled at one of the local reservations. The State of Nevada Employment Security Department (ESD) estimates that there were 5,640 Indian people living in Clark County in 1985, of which only 298 (5.3 percent) were enrolled at the Las Vegas Paiute or Moapa Paiute Indian reservations. Similarly, the ESD estimates that there were 120 Indian people living in Lincoln County, and there are no reservations there. Further research will determine which Indian people who live in the region around the Yucca Mountain site can be contacted through one of the listed tribal units and which must be contacted directly.

Table 1 lists the location and approximate number of potentially impacted Indian people. There is reasonable certainty about the locations where Indian people live because of previous ethnographic fieldwork in this area. The numbers of Indian people living at any one place, however, is only a reasonable estimate based on previous fieldwork and available published reports. The exact numbers of people enrolled with each tribe or living in one community often change because of deaths, births, and seasonal migration in search of work. Because of these facts, the figures in Table 1 reflect the most complete demographic information available. Each estimate reflects the best sources of information, so a variety of sources are used. While the actual population figures will vary slightly, the relative percentage of the potentially impacted people living or enrolled at one location is not expected to be significantly different from that presented in Table 1.

CONCLUSION

In June 1987, the DOE initiated activities to consider Native American concerns as required by the American Indian Religious Freedom Act and the National Historic Preservation Act. The DOE adopted procedural recommendations described in Chapter Three and funded an American Indian cultural resource assessment study of site characterization activities at and around Yucca Mountain, Nevada. Because social impact assessment derives from the National Environmental Policy Act (NEPA) and because the Nuclear Waste Policy Act specifically exempts site characterization from NEPA requirements, a social impact assessment will not be conducted at the present time. American Indian cultural resource studies, however, will occur during site characterization because of AIRFA and the NHPA, which are independent of NEPA. A new term, "involved," is now used to describe the project status of the sixteen participating tribes.

Tribal contacts, in-depth interviews, and two on-site visits have generally supported the assumptions presented earlier in this chapter. Contact was initiated with fifteen "tribal governments," including thirteen federally recognized tribal governments, the leaders of the nonward status Pahrump Paiute group, and the Board of Directors of the Las Vegas Indian Center representing the off-reservation Indian people. All fifteen tribes expressed concern for

Table 1. Number and location of Indian people involved in the Yucca Mountain Cultural Resources study (page 1 of 2)

I. SOUTHERN PAIUTE TRIBES¹	
Chemehuevi Paiute Tribe, California	300
Chemehuevi Paiutes, Colorado River Indian Tribes, Arizona	300
Las Vegas Paiute Tribe, Nevada	113
Moapa Paiute Tribe, Nevada	185
Paiute Indian Tribe of Utah	516
Kaibab Paiute Tribe, Arizona	200
SUBTOTAL	1,614
II. OWENS VALLEY PAIUTE TRIBES²	
Lone Pine Paiute-Shoshone Tribe, California	115
Fort Independence Paiute-Shoshone Tribe, California	62
Big Pine Paiute-Shoshone Tribe, California	50
Bishop Paiute-Shoshone Tribe, California	500
Benton, California	50
SUBTOTAL	777
III. WESTERN SHOSHONE TRIBES³	
Timba-Sha, California	199
Yomba, Nevada	60
Duckwater, Nevada	106
SUBTOTAL	365

Table 1. Number and location of Indian people involved in the Yucca Mountain Cultural Resources study (page 2 of 2)

IV. OFF-RESERVATION AMERICAN INDIAN PEOPLES ⁴	
Tonopah, Nevada	15
Beatty, Nevada	20
Pahrump Valley, Nevada	50
Tecopa, California	10
Carp/Elgin, Nevada	5
Caliente, Nevada	5
Las Vegas, Nevada	5,342
<hr/>	
SUBTOTAL	5,447
TOTAL INVOLVED INDIAN PEOPLES	8,203

¹Since 1977, Stoffle has been in regular contact with these tribal groups and has conducted numerous surveys that have required a listing of tribal members from the tribal rolls. These figures reflect his most recent knowledge about these groups.

²These figures derive from a book by the U.S. Department of Commerce Federal and State Indian Reservations and Indian Trust Areas.

³The Timbisha Shoshone figure comes from the tribe's Federal Acknowledgment documents, and none of these Indian people are members of any other Indian tribe (Federal Register, Vol. 47, No. 214, November 4, 1982). About fifty of these Indian people live at Furnace Creek, California, but as soon as this new tribe receives full government services and land, many of the tribal members are expected to return to the Death Valley area. The last two figures derive from the U.S. Census for 1980 and were checked with a member of one of these two tribal governments.

⁴The first six population figures come from the personal knowledge of Richard Stoffle and Richard Arnold, Director of the Las Vegas Indian Center. An unknown (but perhaps significant) number of Indian people reside on farms and ranches in Nye and Lincoln counties. The Las Vegas population is an estimate based on the State of Nevada ESD report for 1985. The figure was derived by taking the 5,640 Clark County Indian population estimate and subtracting the 113 people enrolled at the Las Vegas Paiute Reservation and the 185 people enrolled at the Moapa Paiute Reservation. These figures were checked by the Director of the Las Vegas Indian Center, who works on a daily basis with Indian people who are not enrolled at a southeastern Nevada reservation, living either in the city of Las Vegas or in the rural areas of Clark, Lincoln, and Nye counties.

cultural resources in the Yucca Mountain area and a desire to participate in the study. The Colorado River Indian tribe became the sixteenth involved tribe in order to represent the concerns of an estimated 300 Chemehuevi people who are governed by that tribe.

CHAPTER THREE

CHAPTER THREE: PROJECT METHODS FOR CONSULTATION AND CULTURAL RESOURCE IDENTIFICATION

Cultural resource identification¹ during social impact assessment projects requires two distinct phases of work: consultation and identification. The methodology used to guide the identification of cultural resources in the Yucca Mountain area has been tested and modified since 1978 (Bean and Vane, 1978, 1979; Stoffle and Dobyns, 1982 and 1983; Stoffle, Jake, Bunte, and Evans, 1982; Stoffle, Dobyns, and Evans, 1983). For the Yucca Mountain cultural resource project, the methodology has been divided into ten tasks, based on three assumptions: (1) Western Shoshone, Owens Valley Paiute, and Southern Paiute people have traditional cultural values associated with the Yucca Mountain area (Stoffle, Olmsted, and Evans, 1987), (2) these three Indian ethnic groups, as well as ones with more recently developed ties to the Yucca Mountain area, are potentially impacted by development in the area (Stoffle, 1987), and (3) the three ethnic groups are represented by sixteen contemporary tribal governments.

TASKS INCORPORATED IN THE CONSULTATION AND IDENTIFICATION METHODOLOGY

There are ten distinct tasks incorporated in the methodology used during the course of this project. The order of the tasks is essentially chronological, with some tasks occurring sequentially and with others occurring simultaneously. In addition, some tasks are primarily used for consultation purposes while others are used for identification of cultural resources. In the following sections, the activity associated with each task is discussed, along with the actual activity that occurred for each task during the cultural resources project. The ten tasks are as follows:

1. Search specialized literature.
2. Contact Official Indian Representatives.
3. Appoint Official Tribal Contact Representatives (OTCRs).
4. Conduct key cultural expert interviews.
5. On-site visit with key cultural experts and OTCRs.
6. Integrate and evaluate findings.
7. Analyze data.
8. Draft report.
9. Review and resolutions by Tribes.
10. Finalize report.

¹ Cultural resource identification, in the context of this report, means identifying the cultural values that are associated with physical cultural resources or artifacts.

1. Search Specialized Literature

A literature search is a required task in any research methodology used during impact assessment projects. A specialized literature search builds on the initial literature search by incorporating information derived from less readily accessible documents, such as local newspapers, local public documents, and early traveler and settler diaries. These sources of information, combined with standard ethnographic information sources and interviews with key cultural experts, help triangulate information concerning cultural resources (Stoffle, Jake, Bunte, and Evans, 1982:117). Used in this way, a specialized literature search is a task devoted to the identification of cultural resources.

Ideally, the specialized literature search is conducted throughout the life of a project. During the fieldwork for the cultural resources project, study team members continuously seized spare moments to locate sources of information in local libraries, museums, and archives.

2. Contact Official Indian Representatives

Tribal Contacts. Because most Native American Indian people belong to a federally recognized Indian tribe, the first point of contact in any impact assessment project involving Native American cultural resources should be with the tribal councils. Tribal councils serve as the official governing body for the tribal group and most tribal councils are headed by chairpersons. Researchers and study team members should follow the protocol of first contacting the chairperson, because the elected leader of the tribal group should be the first person on the council contacted about any research activity including cultural resource projects. Three types of contacts are usually employed: (1) letter, (2) telephone, and (3) face-to-face presentations. These contacts are the first steps in the consultation process.

According to the original study design (Stoffle, 1987:12-14), the official tribal contact procedure for the cultural resources project involved three major ethnic groups: the Owens Valley Paiutes, the Western Shoshone, and the Southern Paiutes. Encompassed in these three ethnic groups are thirteen federally recognized Indian tribes (see Table 1). During the course of the project, the Colorado River Indian Tribes (CRIT) reservation was added to the list because of the large Chemehuevi population currently enrolled there. Each of these fourteen tribal groups was first contacted by letter. Tribal Contact Letter #1 described the project and the initial work schedule and requested permission to proceed with a presentation about the cultural resources project to the tribal councils. In all cases, this letter was followed by several telephone calls, during which more information about the project was given to the chairperson or tribal council. An initial presentation schedule was also formulated during this series of telephone calls.

Our first choice with regard to the face-to-face contacts was to make a presentation to the tribal council or some subset of the council at a regularly scheduled council meeting. Due to scheduling conflicts and time constraints (some councils hold meetings weekly; others hold meetings monthly), only ten of fourteen presentations were made to full tribal councils. The remaining four presentations were made to the tribal chairperson and one or more council members. At the end of each presentation, the tribal council or the chairperson (if the full council could not meet) was asked if the tribe wanted to be involved in the cultural resources project. Each of the fourteen federally recognized tribes asked to be included in the project.

During the tribal presentations, maps, photographs, and slides supplemented oral presentations that described the Native American cultural resources project. Afterwards, much discussion took place, and questions posed by the meeting participants were answered until they had a clear understanding of the proposed high-level repository site and their proposed role in the cultural resources study. Materials, such as photographed copies of maps showing the Yucca Mountain region and cultural resources study area, helped to clarify these issues.

Nonward Indians and Off-reservation Contacts. Native American Indians who do not belong to federally recognized tribes are categorized as either nonward status groups or off-reservation Indian people. "Nonward status" is a Bureau of Indian Affairs' (BIA) term used to categorize Indian groups that do not have federal recognition as "tribes," but that are recognized as having a "community" that has persisted through time. As a nonward status group, these Indian people receive some BIA benefits, but not the full range of benefits that would be available to them as a federally recognized tribe. Unlike federally recognized tribes, nonward status groups do not have trust lands. "Off-reservation" Indian people are primarily those who currently live in large urban areas. Off-reservation Indian people may have reservations with which they are ethnically affiliated, but for a variety of reasons, they are not currently enrolled at such a reservation.

Following the original study design (Stoffle, 1987:10-15), a decision was made to include one nonward status Indian group and one off-reservation Indian group in the cultural resources project. The Pahrump Paiutes have nonward status and live forty miles from Yucca Mountain. Members of the Pahrump Paiutes have cultural and traditional ties to the Yucca Mountain area and have concerns about cultural resources in the area. The off-reservation Indian group is the Las Vegas Indian Center in Las Vegas, Nevada. The Center currently has over 5,000 Indian people on its client list; some of those on the list have cultural concerns for the Yucca Mountain area.

Procedurally, both the Pahrump Paiutes and the Las Vegas Indian Center were treated in the same manner as the fourteen federally recognized tribes. After both groups received Tribal Contact Letter #1, a series of phone calls were made to schedule presentations. In the case of the Pahrump Paiutes, a face-to-face presentation was made to the Pahrump chairperson and four tribal elders. The Las Vegas Indian Center does not have a tribal council; however, it does have an Executive Board of Directors. A presentation was made to the Center's Executive Board; the Director of the Center acted as the "tribal chairperson." After each presentation, both the Pahrump Paiutes and the Las Vegas Indian Center group asked to be included in the cultural resources project.

3. Appoint Official Tribal Contact Representatives (OTCRs)

Because tribal councils have busy administrative schedules and because many council members have full-time employment in other jobs, the councils should appoint an Official Tribal Contact Representative (OTCR) as the second step in the consultation process. We have developed and refined the OTCR position during several impact assessment projects. The primary function of the OTCR is to serve as an information link between the project

staff and the tribal council. The day-to-day administrative schedules of tribal councils do not allow them to track the details of every cultural resource project they receive. Through orientation, training sessions, and regular meetings with project staff, the OTCR becomes specialized in a particular project. This specialization allows the OTCR to provide updates to their tribal council and answer questions from council members when the time comes for them to make recommendations regarding the disposition of cultural resources.

The OTCR also helps the project staff in arranging tribal presentations, scheduling interviews with key cultural experts, and serving as a translator when tribal elders wish to talk about the project in their own language. The OTCR reads a copy of the report, recommends changes, makes corrections, and then summarizes the report in a presentation to the tribal councils.

All of the tribal councils agreed to appoint OTCRs. In some cases, the OTCR was the tribal chairperson; often someone else who expressed the willingness and had the time was appointed. After the OTCRs were appointed, they became our official points-of-contact with the sixteen tribal groups.

A one-day orientation session was held in Las Vegas, Nevada, on September 9, 1987, for all the OTCRs. During the first part of this session, the discussion focused on better understanding the DOE high-level radioactive waste repository proposal and the reasons for the Native American cultural resources study. During the second part of the session, the discussion focused on explaining the coordination responsibilities of the OTCRs and on planning the first site visit to Yucca Mountain.

4. Conduct Key Cultural Expert Interviews

Interviewing key cultural experts is the second step in the identification of Native American cultural resources. We define the key cultural experts as people recognized by the tribal councils as being especially knowledgeable about the cultural resources of the group that may be located in the study area. Experts should be judged on their knowledge by members of their own community, not by the project staff (Werner and Schoepfle, 1987: 183-193). By interviewing people in a network sample fashion, some information about cultural resources will emerge, but it requires many interviews from the entire population to identify the best cultural experts (Werner and Schoepfle, 1987:185). By having the key cultural experts identified by their respective tribal councils, we eliminate some of the time and effort needed to identify which members of the group are the most expert (Romney, Weller, and Batchelder, 1986:313-338). Interviews with key cultural experts occur only after the respective councils have given permission to proceed with the study and after the OTCR has been updated on the project.

We began the key cultural expert interview phase of the Yucca Mountain Project on August 4, 1987, and finished on September 24, 1987. A total of forty-one interviews were completed during this time period. A two-team approach facilitated the practice of conducting interviews with cultural experts of one tribal group while simultaneously interacting with other tribal groups. The ethnographic interviews usually took place in the homes of cultural experts and lasted from one to seven hours. The ethnographers know of at least four instances when tribal members who were recommended by the council as knowledgeable about cultural resources chose not to participate in the study. These refusals occurred for a variety of known and unknown reasons.

Key cultural experts who agreed to participate in the study were provided with a descriptive presentation similar to that presented to the councils. Key cultural experts were asked a range of questions about the study area, the project, their family connections to the study area, and people who had lived in the region. The interviews provided a preliminary identification of the cultural resources that we could expect to find in the study area and helped us ascertain which tribal members could best identify cultural resources during the first site visit.

5. On-site Visit With Key Cultural Experts and OTCRs

An on-site visit accomplishes several different things during an impact assessment project. First, it helps elders recall items and events from their personal past. No one can remember every detail of an area, and the process of an elder seeing a study area firsthand often produces more data about cultural resources than the key cultural expert interviews produce by themselves. Second, the on-site visit allows the OTCRs and cultural experts to better understand the project and why they are being consulted about cultural resources in areas that have been removed from Indian control. Third, during the on-site visit, the cultural experts identify important cultural values associated with resources located within the study area. These values and resources are then officially recorded as being present within the study area. Fourth, the on-site visit allows the cultural experts and OTCRs an opportunity to see cultural resources in the study area, the existence of which has passed from the living memory of the ethnic group. These resources are recognized by cultural experts when viewed in person and are officially recorded as being present in the study area. The most common type of cultural resource is plants that were important to the ancestors of the Indian people but that the living members of the group did not know firsthand were present in the area.

The on-site visit was especially important for identifying cultural resources in the Yucca Mountain area due to the restricted access of much of the land in the region. Because of the establishment of the Nellis Air Force Bombing Range and later the Nevada Test Site, much of the region has been totally restricted for over forty-five years. The length of this total restriction means an entire generation heard about the region from their parents and grandparents, but were never able to see the land themselves. Nevertheless, we were able to take Native American people on the site visit who had lived and traveled in the region until the restricted access was enforced and, therefore, had personal knowledge of the region. Other Native American people on the site visit knew about the region from their parents. Some of the Native American people who visited the site had been taught earlier about cultural resources that they actually observed at Yucca Mountain for the first time.

A total of thirty-seven people made site visits, representing fifteen of the sixteen involved tribes. This effort produced a total of 73 cultural resource identification person-days over a ten-day period from September 28, 1987, to October 3, 1987, and from December 1, 1987, to December 4, 1987. The study area consists of over 70,000 acres of land, some parts of which are more accessible than other parts. Because it is impossible to see this much acreage in a short time period, two site visit routes were chosen as a beginning. The routes were designed to show examples of archaeology sites identified by the archaeologists working at Desert Research Institute in Reno, Nevada. One of the routes was in the area viewed by SAIC as being the initial area of site characterization activities and was easily accessible by elders, who for health reasons, were not able to move around easily. The other route

traveled up Fortymile Wash and offered good examples of habitation sites and lithic sites along the way. This route was less accessible than the other route and required four-wheel-drive vehicles. Some of the sites along this second route also were not as accessible as those along the first route.

Three of the sixteen involved tribes (Moapa, Benton, and Bishop) were unable to participate in the first scheduled site visit, and two tribes (Duckwater and the Las Vegas Indian Center) were not able to send their key cultural experts. The Moapa people were confronted with the death of a tribal member just before the site visit. The Moapa representatives were actually in Beatty preparing for the visit when they learned of the death. Duckwater and the Las Vegas Indian Center had scheduling conflicts with the site visits, but were able to arrange for one tribal member to visit the sites. Benton and Bishop had scheduling problems and could not send a representative.

A second site visit was scheduled for those groups that could not participate in the first visit. This second visit occurred from December 1, 1987, to December 4, 1987, with four tribal groups (Moapa, Bishop, Duckwater, and the Las Vegas Indian Center) participating. During this second site visit, seven new sites surveyed by the DRI archaeologists were visited in addition to one site included from the first site visit period. This second site visit was much more focused due to the information learned during the first site visit.

6. Integrate and Evaluate Findings

After the key cultural expert interviews and the on-site visits, all of the research data should be integrated and evaluated by the project staff in order to produce a complete description of the cultural resources in the study area. Integration and evaluation involves the transcription of interview tapes, organizing field notes, and integrating information collected in the literature-search phase with that collected during fieldwork.

The first steps of the integration phase for the Yucca Mountain Project began to occur while fieldwork was still being conducted. Biweekly, the key cultural expert interview tapes were sent back to the home office for transcription by the project secretary. Transcriptions were then made available for integration with other field notes when the study team returned. A preliminary interaction analysis was updated daily in the field. Findings from the literature search were already available, both as a document earlier submitted to SAIC and as information organized chronologically in the project files. Individual field notes were typed and organized by site and cultural interpretation. The construction of an electronic cultural resource data base was also begun during this integration and evaluation phase.

7. Analyze Data

Data collected during a social impact assessment project can be either qualitative, quantitative, or both. Qualitative data are collected through standard ethnographic techniques, and there are several methods for analysis available to anthropologists (Werner and Schoepfle, 1987; Pelto and Pelto, 1978). Quantitative data are usually collected through

surveys and questionnaires, but the use of such techniques is rare in social impact assessment projects involving Native Americans (Stoffle and Dobyns, 1983). Other types of quantitative data can be derived from documents found during the specialized literature search, for example, in census reports and in newspaper articles.

During this first part of the cultural resources project, most of the data collected during the fieldwork period is qualitative in nature. This data are the result of forty-one interviews with key cultural experts, plus the data collected during ten days of on-site visits. Most of the key cultural expert interviews were tape recorded and have been transcribed according to the technical procedures stipulated for this project. The handwritten field notes from the on-site visits and the remainder of the interviews have been typed, organized, and, for the most part, integrated into the tape transcriptions. This report is the result of the analysis of this data.

8. Draft Report

A draft report is always submitted to the tribal councils for review and comment as part of the consultation with Native Americans during a social impact assessment project. This review allows the OTCRs to see the sections of the report pertaining to their tribal group and to make recommendations and corrections in the event of any error. These corrections are then incorporated into another draft of the report.

A preliminary summary of the first site visit findings was prepared at the request of SAIC in October 1987. This summary contained brief discussions of the field activities and the major cultural resource findings derived from the on-site visits. A copy of this preliminary summary was sent to each of the OTCRs and tribal chairpersons of the sixteen involved tribal groups.

9. Review and Resolutions by Tribes

After a report has been completed, each tribal group involved in the cultural resources project should be allowed to review the report and comment on its contents. After such review, it is appropriate for the tribal councils to pass resolutions that are either in favor or not in favor of the report. These resolutions then become the official statement from the tribal councils about the reporting of their cultural resource concerns. These resolutions should be included in the final report as an appendix.

10. Finalize Report

Recommended changes from the tribal councils, prime contractors, and any outside reviewers will be incorporated into a final report. The DOE will release the final report as a public document after review by American Indian Tribal Councils and other relevant organizations.

FORMAL INTERACTION ANALYSIS

Formal interaction analysis tracks the progress and direction of consultative study designs, such as the cultural resources project (Stoffle and Howell, 1986). Study team members have documented five kinds of formal interactions: (1) letters, (2) phone calls, (3) personal contacts, (4) interviews, and (5) site visit contacts. Personal contacts are distinguished from interviews by the direction of the flow of information. During personal contacts, such as tribal presentations, ISR researchers provided project information to council members. During interviews, the Indian people provided the ISR study team with information. Site visit contacts

represent the person days spent on-site in the Yucca Mountain area.

In Table 2, these interactions are categorized by the group of people with whom the interactions occurred. For this first analysis, interactions are not subdivided by when they occurred during the study. A later analysis will examine the interactions according to the subdivisions of contact phase, field-work phase, and report-writing phase. These interaction totals are preliminary because we have not yet completed the transcriptions of field-note tapes completed during the field-work phase of the study. Table 1 will be revised as necessary when these transcriptions become available.

Since each interaction is vital to the organization and implementation of the cultural resource study, it is difficult to assign a rank or weight to each of the five kinds of interactions. For the purposes of this summary, we have made no attempt to weigh or rank the interactions. The total number of interactions is presented as a simple sum of the five types.

A total of 963 interactions were recorded in the time period from June 1, 1987, to December 10, 1987. Of this total, 640 were with the sixteen tribes or their representatives, and 323 were with contractors (SAIC), administrative people, project personnel, and other project contacts (principally Desert Research Institute archaeologists). The bulk of these 963 interactions were phone calls (456), of which more than half (245) were made to the tribes or their representatives.

Table 2. Number of interactions — June 1, 1987, to December 10, 1987

	Letters	Phone	Personal	Interviews	Site Visit Person Days	Total
Kaibab	9	10	3	10	7	39
Paiute Indian Tribe of Utah	11	10	7	2	5	35
Moapa	17	11	8	1	8	45
Las Vegas Paiute Colony	10	17	8	1	4	40
Las Vegas Indian Center	9	19	8	0	7	43
Chemehuevi	12	10	6	3	3	34
CRIT	8	11	12	7	6	44
Pahrump	6	13	4	6	1	30
Timbisha	13	15	7	0	8	43
Lone Pine	10	18	4	2	5	39
Ft. Independence	8	9	3	0	4	24
Big Pine	9	26	5	1	2	43
Bishop	13	26	17	3	0	63
Benton	8	21	14	3	0	46
Yomba	10	8	6	2	3	29
Duckwater	14	21	2	0	6	43
SUBTOTAL	167	245	114	41	73	640
Contractors	27	93	15	0	28	163
Administrative	17	57	6	0	0	80
Project Personnel	3	47	NA	NA	NA	50
Other Project contacts	4	14	0	0	12	30
SUBTOTAL	51	211	21	0	40	323
TOTAL	218	456	135	41	113	963

CHAPTER FOUR

CHAPTER FOUR: CULTURAL RESOURCE INTERPRETATIONS

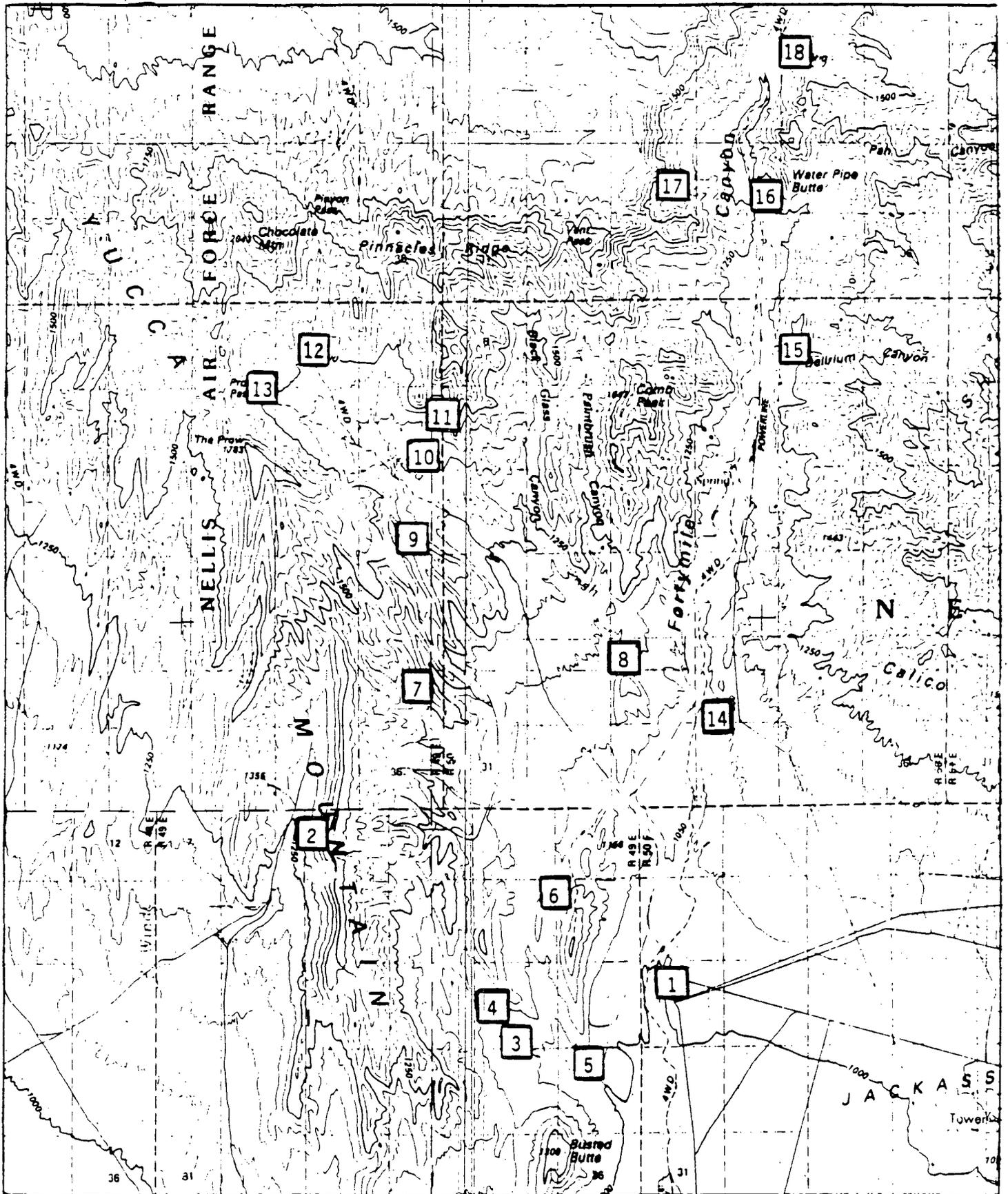
INTRODUCTION

This chapter presents findings derived from the fifth step in the research: the on-site visit. A number of visits will occur over the duration of the study. These visits are designed to become increasingly focused in personnel and purpose as the project progresses. The first visit was designed to (1) permit representatives of the sixteen involved tribes to observe firsthand the area under study so that a more complete understanding of the project could be communicated to tribal officials and members and (2) interpret cultural resources located on portions of the study area. Later visits will be more focused either addressing specific research questions like, "What traditional medicinal and food plants remain in the Yucca Mountain study area, and where are these located?" or visiting small specific site characterization locations that had not been previously visited for cultural resource interpretation by the Indian peoples.

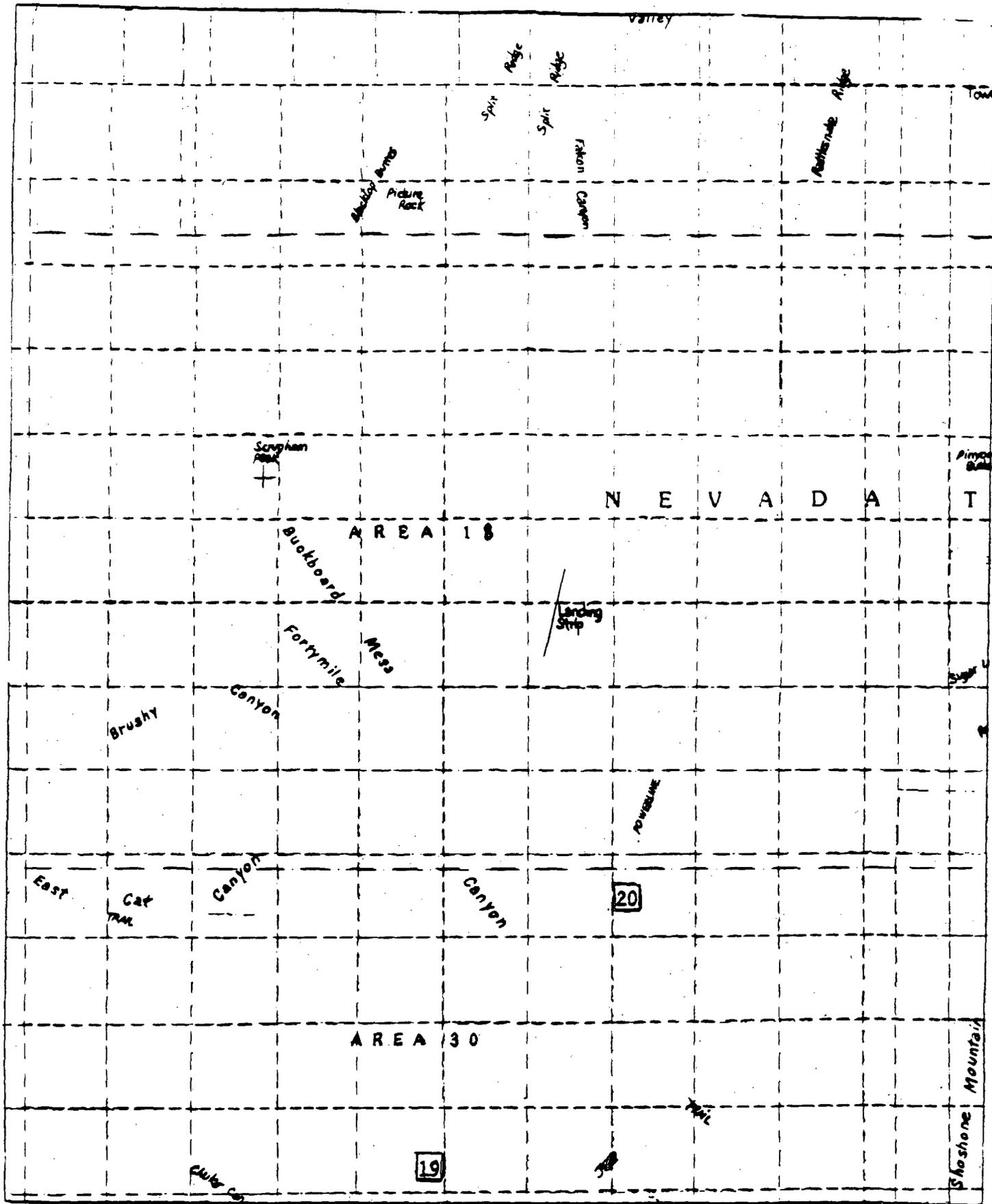
The location for the first visit was chosen in consultation with Science Applications International Corporation (SAIC) and the Desert Research Institute (DRI). Only a portion of the total Yucca Mountain cultural resource study area was selected to be visited by the Indian people. There are approximately 70,000 acres in the cultural resource study area, and many portions are only accessible by four-wheel-drive vehicle and by hiking. Thus, it was appropriate to limit the geographic scope of the first visit.

The visit area was chosen because it had been surveyed by DRI archaeologists, because it was relatively accessible, and because it would be where most of the site characterization activities would occur. Given these criteria, DRI archaeologists helped select two routes (Sites #1 through #7 and Sites #14 through #20) that permitted access to a sample of known cultural resources. A follow-up visit occurred since a few of the Indian groups could not participate in the first visit. Seven additional sites (Sites #8 through #13, #21) were explored on the second visit. Maps 3 through 5 show the approximate location of the twenty-one sites.

Representatives of the sixteen involved tribes responded positively to the site visit. Fifteen of the sixteen involved tribes were represented by thirty-seven people, producing a total of seventy-three cultural resource identification person-days on site (see Table 2 for a breakdown by tribe). Some tribes received permission to bring more than two people on site. Other tribes only sent one representative, and five tribal representatives could only visit Yucca Mountain for one day. No one was hurt or became ill during the days of rough travel and strenuous hiking. No one refused to participate in the study once the visits began. In fact, even after long twelve-hour days in the field, most of the Indian people gathered in a motel room after dinner to pour over maps and photos and to make additional comments about the study.



Map 3. Sites #1 - #18, Yucca Mountain Cultural Resources Project (map furnished by the University of Michigan).



Map 4. Sites #19 and #20, Yucca Mountain Cultural Resources Project (map furnished by the University of Michigan).

For most of these Indian people, the visit was an opportunity to see traditional lands that they had heard about from elders. For some, it was a chance to revisit Yucca Mountain, a place of traditional activity in earlier times. Actually being on site and seeing Yucca Mountain firsthand stimulated memories of the area and elicited hundreds of interpretations of sites, features, and artifacts.

Some of the sites that were visited, as well as some of the features, had not been recorded by DRI archaeologists because of their own need to study only a sample of the many sites in this large study area. These new sites may require survey and documentation by professional archaeologists so that all sites will have equal status in the cultural resource study and other projects.

Indian people who visited Yucca Mountain recognized the presence in the study area of many more sites and cultural resources than they were able to visit. They therefore expressed the desire to return to Yucca Mountain to do more work. One additional visit is currently planned. The sixteen tribes are being asked to select traditional plant experts for an ethnobotanical visit, scheduled for the spring of 1988.

SITE-BY-SITE DESCRIPTION

The following portion of this chapter presents the location and interpretation of cultural resources identified during the visits. In accordance with the Desert Research Institute's system for recording archaeological sites, the American Indian interpretations are organized by four categories "regions," "sites," "divisions," and "features." A "region" is a natural geographic area used by American Indian people. A "site" is defined as a place where Indian people lived, worked, or conducted some activity. A site is usually distinguished from surrounding sites by areas where no artifacts are found. This circumstance does not mean that nearby sites are unrelated, but they do have separate archaeology numbers. "Divisions" are defined as spacial subareas within large sites, and "features" are defined as something of special note at the site. While archaeologists normally would not define plants and animals as "features," this report takes a somewhat broader definition of the term and includes as features anything that was specially noted by Indian people at the site.

Sites #1 through #7 and #14 through #20 were explored during the initial visit and Sites #8 through #13 and Site #21 were seen on the follow-up visit. Following the site name is a permanent site number, when available, that links the site with State of Nevada and the Smithsonian Institute Site Numbering System. The cultural interpretations are then arranged alphabetically by participating ethnic group: Owens Valley Paiute, Southern Paiute, and Western Shoshone. Maps and photographs are included to help place and describe the cultural resources.

There are many types of names for the cultural resources that were identified. For example, squawberries, is a common name for a plant known as *hoopi* in Western Shoshone and *u'up* in Southern Paiute. Similar complexities exist with regard to the names for animals, places, and even artifacts. When an item is identified, usually only one of these names is available. In the following chapter, wherever possible, we have extrapolated from the one given name for a resource and added the common, scientific, or American Indian terms. These terms are to be "triangulated" by further document and site visit research, such as the ethnobotanical study. The use of terms in this draft thus remain tentative and subject to revision.

ORIENTATION SITES

The Indian people who visited the cultural resource study area were provided with maps and brief descriptions of the area before they arrived. Nonetheless, it was perceived, as essential to provide a physical orientation to the study area and those places that were to be visited. Three locations were chosen for orientation; however, after the first day of the site visits, one of the locations was eliminated because it was difficult to reach and not required for orientation. Comments made by Indian people at the remaining two orientation sites, Fortymile Terrace and the top of Yucca Mountain, are discussed here. All referenced photographs are located at the end of the site description section.

SITE #1 - FORTY MILE TERRACE (DRI Data Recording Form No. SR120982-1²)

Description. Fortymile Wash emerges from the Fortymile Canyon about three miles north of Fortymile Terrace. At that point, the wash is flush with the bottom of the canyon walls and about 3,600 feet in elevation. As the wash flows across the eastern flank of Yucca Mountain, it cuts deeply into thick beds of gravel. The wash continues past the southernmost portion of Yucca Mountain and eventually fades imperceptibly into the open flats between there and Amargosa Valley, which is approximately 2,300 feet in elevation.

The first orientation site is located on an old Fortymile Terrace at about 3,300 feet elevation and about 100 feet above the contemporary bed of Fortymile Wash. This orientation site was chosen to acquaint American Indian participants with key portions of the cultural resources study area. The view includes Yucca Mountain, Fran Ridge, Fortymile Canyon, Shoshone Mountain, the Calico Hills, Jackass Flats, Big and Little Skull Mountains, and Busted Butte [see Photos 1 (YM-1) and 2 (YM-41); Map 3].

This area was the first stop for all of the Indian groups, and it was specifically chosen in order to assist in their orientation; so, most Indian people usually made general comments about the study and the study area and did not focus on the specific elements of this site. Thus, the site has only one feature that was noted by Indian people: plants growing along the top of the terrace.

American Indian Site Comments. A DRI archaeologist noted that a 10,000-year old Clovis point was found at this site, illustrating the great length of time that American Indian people have occupied the Yucca Mountain study area. Many elders noted that this scientific fact corresponds with their own beliefs that, in the beginning, their people were created in this area by the supernatural.

The view from Fortymile Terrace stimulated the memories of several older Indian people. A number of Indian people recalled the Indian name for Fortymile Canyon (*Tovgwahunump*, Snake Canyon). One elderly Shoshone man told of the period when he worked and hunted in the area. Another Shoshone person recalled the memory of a family from Ash Meadows that used to travel between Pahute Mesa and Ash Meadows using Fortymile Canyon as an access route.

Feature: Plants

Southern Paiute

A Southern Paiute elder identified greasewood as a cultural resource and described several medicinal qualities of this plant. Ephedra was also identified as a medicinal plant and cultural resource.

SITE #2 - TOP OF YUCCA MOUNTAIN

Description. The top of Yucca Mountain, like most portions of the cultural resource study area, steadily increases in elevation from south to north. At its southern tip, Yucca Mountain is only about 3,300 feet in elevation in contrast with its northern tip of 6,610 feet.

The top of Yucca Mountain was chosen as the second orientation site because it provides a panoramic overview of the cultural resources study area and places beyond. The site is the south central portion of Yucca Mountain at an elevation of about 4,880 feet. From this location, Indian people can see major landmarks: Crater Flat, Bare Mountain, Timber Mountain, Chocolate Mountain, Pahute Mesa, Fortymile Canyon, Shoshone Mountain, the Spring Mountains with Mount Charleston (*Nevvugantv*), and the Funeral Mountains [see Photos 3 (YM-57) and 4 (YM-56); Map 3].

Because this site was used for orientation, Indian people made general comments about the study area and the project. As a result, again few site-specific comments were offered. Only two features, three plants, and an animal were mentioned while at this site.

American Indian Site Comments. During time spent at this location, Indians made general comments that reflected their attitudes toward the land and the proposed project. The following are representative of these comments:

I am glad we came up here so we can see this scenery before it is destroyed. To see where they are going to break the ground, before it will be destroyed. You can't tell me that it (site characterization) won't do it.

It (radioactive materials) will escape to the river (Colorado River) no matter where you put it. Deer will eat it, and we will hunt them and get it through them. It is just like what happened before, we use to have thousands and thousands of Indians—the land was full of people—before they got sick. White people brought disease, and the Indians got killed. All gone now.

During these orientation discussions, a commonly asked question was "What good are these studies?" More often, it was put as a statement, "These studies aren't going to do any good. The government will just do whatever they want to anyway." In order to address these questions and perceptions, an archaeological site (Dune Wash Rock Rings, 26Ny2960) near this site was visited. The site is technically called a lithic scatter, that is, an area where numerous chips of stone are observable on the surface indicating the presence of past Indian activities. A road proposed for the top of the mountain was rerouted at the request of the Desert Research Institute in order to avoid disruption of this site. While the site represents but one example of a ground-breaking activity and one site of potential importance to Indian people, the willingness to change a planned site characterization activity was perceived by the Indian people as a positive example.

Feature: Animal

Southern Paiute

A red-tail hawk was observed several times along the road to this stop over the duration of the site visits. The red-tail hawk is considered sacred to several Native American ethnic groups, including Southern Paiutes. The presence of this bird was considered by one Southern Paiute elder as a good omen for that particular day's activities.

Feature: Plants

Owens Valley Paiute

Greasewood was identified as a cultural resource traditionally used by Indian people. The pitch from greasewood is used for awls and for medicinal purposes. When soft, the pitch is rolled into a small ball and placed on the tip of a sharp needle—cactus needles were often used. When dried and hardened, it served to protect the thumb used for pressing. The pitch from greasewood is considered a multipurpose medicine, but it is often used to "pull" poisons out of a sore.

Southern Paiute

Pine pitch was identified as a medicine that is used to fight infection. Like greasewood, the pitch is used to "pull" poisons out of a sore. Pine pitch can be placed under the tongue and slowly absorbed into the body for cures.

Western Shoshone

A Western Shoshone identified a plant called rabbitbrush that is used to make Indian teas.

DUNE WASH SITES

Dune Wash is the major drainage associated with Sites #3, #4, and #5 that were visited by the Indian people. Dune Wash begins on the eastern flank of Yucca Mountain at approximately a 4,000-foot elevation and drains for about four miles to the southeast until joining with Fortymile Wash at a 3,146-foot elevation. Near its southeastern end, Dune Wash is constricted by the northern end of Busted Butte and the southern end of Fran Ridge. This constriction creates a natural hunting draw that served, according to the interpretations of the DRI archaeologist who was present and of Indian people, as one of the major natural advantages of the valley.

SITE #3 - DUNE WASH ROCKSHELTER (26Ny3042)

Description. The Dune Wash rockshelter is located at the southeast tip of Boundary Ridge where the ridge merges with the valley floor (see Map 3). The Dune Wash rockshelter is very accessible by foot because it is located near the valley floor. In front of the rockshelter is a gentle slope extending to the wash, which appears to be a working area. A few hundred yards away are two stone tanks or *tinajas* at Site #4, the only known water source in the area (Pippin, 1984:184). About a quarter of a mile down the wash are a series

of rock rings, named the Rock Ring Complex, Site #5, that are associated with the major constriction in the valley's shape.

There were six features noted during the various site visits. The rock outcrop [see Photo 5 (YM-58)] or low cliff, which runs along the end of the ridge, is perceived as a place for burials, as well as forming at one location a rockshelter that could have been used as a living area. The DRI archaeologists were able to date a hearth found at this rockshelter and found that the hearth had been used within this century (Pippin, 1984), thus the designation "historic." A grinding slab was found, as well as series of pits with natural stones. Many plants [see Photo 6 (YM-63)] and animals were evident during the visits to the site.

American Indian Site Comments. The site is perceived to be a seasonal hunting and gathering camp and perhaps used by persons traveling in a north-south direction. The Dune Wash area contains numerous plants and could have been an important seed-gathering area. Dune Wash will be one of the ethnobotany locations to be studied in the spring of 1988. Animals, especially rabbits, could have been collectively driven down the valley and captured with large nets at the constriction. One Western Shoshone elder remembered participating in rabbit drives held in the Yucca Mountain Cultural Resources Study Area when he was about nine years of age, i.e., around 1917. The rabbit drive was held by groups of people who normally did not live together at this time of year. They came together for the drive, hunted with a big net and bows and arrows, and, afterwards, went different ways.

The gentle slope of the ridge joins with a short vertical cliff before it merges into the valley floor and provides a natural location for "self-sealing" burials. Whenever possible, burials were placed in low rock cliffs having steep eroding rocks above them, but less steep non-eroding areas below. Such a burial location would continue to cover the body of the deceased. A number of Indian people mentioned the location would have been ideal for burials. According to one Western Shoshone elder, the cliff should be located where people live, not high up on steep slopes. His relatives are buried in such an area. There were established locations, as well as places away from homes, where people were buried. The consensus among representatives was that the area is a potential burial site, but that due to the self-sealing nature of the cliff's erosion, no specific location was recorded. The position and nature of the rock and erosion patterns at this site are similar to other known burial locations (see Chapter 5).

Feature: Rock Outcrop

Western Shoshone

A Western Shoshone elder identified the rock outcrop as a possible burial location.

Owens Valley Paiute

The rock outcrop was interpreted as a possible burial location.

Southern Paiute

A number of Southern Paiute elders interpreted the rock outcrop as a possible burial site. Another Southern Paiute person discounted the possibility of the spot being a habitation site, instead interpreting the site as a ceremonial spot. He also said that the possibility of burials was good and was surprised that there were no petroglyphs in the area, commenting that petroglyphs are always found at sites such as these. His conclusion was the petroglyphs had been either naturally destroyed or stolen.

Feature: Historic Rockshelter

Owens Valley Paiute

The historic rockshelter was interpreted as a good place to live because it is a wind break, provides shade, and provides a good view of the area.

Southern Paiute

Southern Paiute tribal representatives said that the historic rockshelter would have been a habitation site also used to hide grinding slabs and *manos*.

Western Shoshone

The rockshelter was interpreted as a winter camp.

Feature: Plants

Southern Paiute

A Southern Paiute elder identified buffalo berries or *hoop* berries at the site. *Hoop* berries are used for food and drink.

Western Shoshone

Greasewood was identified in several places as a cultural resource because of its medicinal qualities. At this site, the person noted the use of the small leaves that can be gathered and dried for use in a tea. Another cultural resource identified by Western Shoshone tribal representatives was *hoopi*, *u'upi*, and *U'up* (squawberries), which are plants used for food. Indian rice grass, or *wa'ai*, was identified and described as a traditional and nutritious source of food. Desert trumpet was identified as a cultural resource. Traditionally, the plant was used for part of a pipe, and part of it is edible during the early spring.

Feature: Artifacts

Southern Paiute

A rock was identified as a grinding slab.

Feature: Pits And Natural Rocks

Western Shoshone

There are pits at the site, some of which are associated with large natural stones, that elicited a number of interpretations. The pits were believed to be a trap for a large animal, such as a coyote or bobcat. According to this person, large rocks were held with sticks over shallow holes. This design created a deadfall trap (see Trigger Bundle Site #8). This person remembers building these traps in recent times, hunting pelts for a white man who paid cash for them. The pits marked a site that was believed to be used over a long period of time.

Feature: Animals

Western Shoshone

Tracks of a coyote were identified at this site. Some people noted that the coyote is a special animal that should not be killed. Other people noted that because they raise cattle sometimes they have to kill coyotes to protect the herds.

A number of Western Shoshone men noted that the Yucca Mountain area was known as a special place for gathering chuckwallas. One elder suggested that this site would be good for finding the large lizard, but did not see one during the visit. The chuckwallas were usually used for medicine. After being caught, they were dried in the sun. The whole lizard was ground up and used as a poultice on a cut. When used for food, the intestines are taken out and then the whole body was roasted underground. As chuckwallas cook, they expand causing the covering dirt to rise.

Southern Paiute

One Southern Paiute noted the tracks of a deer near the site.

SITE #4 - TWIN TINAJAS (26Ny3059)

Description. The Twin Tinajas Site is located a few hundred yards to the north and west of the historic rockshelter. *Tinajas* are steep-sided natural rock basins that hold rain water. Commonly known by the Spanish term *tinajas*, they also are known by the Western Shoshone term *pooah* according to one of the Indian people visiting the site. Some *tinajas* in the desert are known to have been artificially expanded in order to increase their capacity, while others are modified by adding rocks as covers. These covers reduce access to the water by thirsty animals, keep the water clean from blowing dirt, and reduce evaporation. The two, or "twin," *tinajas* at Site #4 are the latter type [see Photos 7 (YM-44), 8 (YM-43), and Map 3]. They appear to be natural holes formed in the surface of a large solid boulder along the slope of the ridge. Heavy stone covers were placed over both *tinajas*. They are the only source of water near the rockshelter.

Features at the Twin Tinaja site included the *tinajas*, a low rock wall or rock alignment that is built against the large *tinaja* base-stone, and a variety of animal tracks. The plants located at this site are no different from those at the Dune Wash Rockshelter Site so they are not mentioned again.

American Indian Site Comments. Almost all of the Indian people who saw these *tinajas* recalled having seen and used such water containers during their youth. A very common reaction of the Indian people who participated in the site visits was to clean out the dirt and debris that had accumulated in the *tinajas*. This cleaning was also done in the past to ensure that any water collected in the *tinajas* would be clean and usable.

The *tinaja* site, combined with the nearby historic rockshelter, was interpreted as a place suitable for spending the winter because it was a good hunting spot and roots and plants were available. According to one Western Shoshone person, the Kawich people came into the area for short hunting and gathering trips, but also were known to have lived for extended periods at sites in the Yucca Mountain area.

Feature: Twin Tinajas or Pooahs

Owens Valley Paiute

A representative for the Owens Valley Paiute tribe indicated the *tinajas* at Site #4 were similar to ones located on a Western Shoshone trail that he and his grandparents had traveled. He noted that they cleaned out the *tinajas* during each visit so the water would be usable for other travelers.

Southern Paiute

The consensus among Southern Paiutes was that *pooahs* were modified natural holes used to hold water.

Western Shoshone

The *pooahs* were identified as being similar to *pooahs* in other areas used by Western Shoshones although the latter did not have covers. A Western Shoshone elder had also traveled on a trail marked by *pooahs* from Bishop to Yucca Mountain.

Feature: Rock Wall or Rock Alignment

Owens Valley Paiutes

The rock wall was identified as a house ring. Without removal of grass and soil, it would be difficult to tell whether the line of stones is a portion of a semicircular wall and, therefore, whether the surrounding stones are part of a fallen rock wall.

Southern Paiute

The line of rocks was interpreted as a marker indicating something located to the east of the site in the direction of Fran Ridge. A line of stones, it was noted, was placed to indicate where the next source of water or trail would be located. This person suggested that given the dry valley, the line of stones would probably indicate a *tinajas* water source on Fran Ridge. According to the DRI archaeologist present at the time, there are similar *tinajas* along that portion of Fran Ridge.

This interpretation is based on the assumption that the surrounding stones are not associated with the line of rocks, and, therefore, it is not a portion of a rock wall.

Feature: Animals

Southern Paiute

Signs of coyotes, wild burros, and deer were seen here. A clear game trail runs along the contour of the ridge to and from the twin *tinajas*. It should be noted that the base-rock of the *tinajas* has a series of other depressions that would catch water for short periods and, being uncovered, would be a source of water for the animals. Potentially, the site would serve both human and animals needs for water without generating use conflicts between the two. A number of elders mentioned that they do not like to establish their camps too close to their source of water out of respect for the water needs of animals.

SITE #5 - DUNE WASH ROCK RINGS (26Ny2960)

Description. The Dune Wash Rock Rings Site (26Ny2960) is located on the edge of a Pleistocene terrace on the north side of Dune Wash and on the southwest flank of Fran Ridge. This site is located less than a mile down-wash from Sites #3 and #4.

Features that were interpreted at Site #5 include plants traditionally used by Indian people, a cache or storage pit, and a series of rock rings. Eight rock rings and one cache or storage feature are located on the southwestern edge of the terrace just before it drops off into Dune Wash [see Photos 9 (YM-61), 10 (YM-48), and Map 3].

American Indian Site Comments. The location of the rock rings, perched on top of a ridge overlooking Dune Wash to the south and west and the expanse of Fortymile Wash to the south and east, stimulated a number of comments about the use of the site for "keeping track" of the whole southwestern portion of Yucca Mountain. The site is located at the narrowing of Dune Wash formed by Fran Ridge and Busted Butte and, according to the Indian people, it would have been the location of net traps used in rabbit or other small game drives.

The shape of the rock rings elicited several interpretations for its use and function. One Western Shoshone person said that such rock rings were called *tunduda*. There was only general agreement as to the possible functions of the rock rings, partially because such features can be produced by a number of traditional activities. Rock rings also are used differently in different portions of the region. To the north, rock rings serve as pine nut processing locations. Homes are made of more substantial materials where it is cold and wood is available. To the south, rock rings are sufficient to provide light sleeping shelter or to process delicate seeds. To some extent, then, the various American Indian interpretations received at this site reflect the complexity of the feature and the origin background of the people making the comments.

Feature: Rock Rings, Tunduda

Mojave

A Mojave elder interpreted some of the rock rings as shelters with doorways.

Owens Valley Paiutes

The rock rings were interpreted as house rings to store domestic materials. Another interpretation was that the rock rings were used as sleeping circles.

Southern Paiute

The Southern Paiutes who saw the rock-ring complex provided various interpretations for its uses. The rings were identified as sleeping circles, hunting blinds, look-out or ambush points, or burials. The Southern Paiutes, who provided the interpretation of the rings as sleeping circles, were both from the Mojave Desert region, thus reflecting a consistent pattern for this category of interpretation.

Western Shoshone

An elder said that the rock rings were used to process seeds, including activities such as husking and thrashing. The rock-ring complex would have been a place to thrash seeds left on whole branches. The rocks would have held the branches in place while the seed-bearing pods were thrashed in the center of the ring. The branches would then have been removed and the seeds collected from the hard surface of the terrace.

The rock rings could have been used as a place to shell or process pine nuts. The pine nuts would have been picked further north in the higher mountains, then brought to the lower, warmer elevations where they would be stored until dried and needed for food. The rock rings could have been used for both storage and eventual processing of the pine nuts.

The rock-ring complex was also identified as tepee rings. Another person interpreted the rock-ring complex as a spot to view game during hunting activity.

Feature: Plants

Western Shoshone

A cactus was identified as a source of food, tools, and needles. Cactus needles are traditionally used to put holes in buckskin.

Southern Paiute

Hoop berries, also called *buffalo berries*, and *cactus berries* were identified as food sources.

PROPOSED REPOSITORY BASIN SITES

North of the Dune Wash is a basin that is the proposed location for the high-level radioactive waste storage surface facilities. This area is where most site characterization activities will occur. The basin is formed on the east by Fran Ridge (4,026-foot elevation); on the south by Boundary Ridge (4,200-foot elevation); on the west by the flank of Yucca Mountain (4,830 - 4,000-foot elevation), which is distinguished by a series of small ribbonlike west-east ridges; and on the north by the upper portion of Yucca Mountain especially Comb Peak (5,352-foot elevation).

Indian people visited two sites in this area: Site #6, which is located in the southeastern corner of the basin near the western flank of Fran Ridge, and Site #7, which is a series of Rockshelters located just below the caprock on the western rim of Azreal Ridge.

SITE #6 - BURIED HEARTH SITE (26Ny3062)

Description. The Buried Hearth Feature was a well preserved stone-lined pit located at the edge of a small wash on the lower portion of a sandy flank of Fran Ridge [see Photo 11 (YM-51) and Map 3]. This feature is located in an area designated for 100 percent surface disturbance during site characterization, consequently the feature was partially excavated by DRI archaeologists. The sandy soil combined with the partial excavation of the feature to make American Indian interpretation difficult. Nonetheless, the interpretations suggest that the site could have been the result of at least three types of activity: home site, sweat house, or buried hearth.

American Indian Site Comments. All of the Indian people who visited this site commented that it was difficult for them to provide cultural interpretations because the DRI excavation moved some of the elements of the site. Many of the Indian people voiced negative comments about the archaeologists' need to conduct an excavation, thereby "destroying" the site.

A wide variety of plants were identified at this location, including Indian rice grass, which may have been one of the reasons why the site was used. Due to the dry, dormant condition of the flora in the Yucca Mountain area during the summer, detailed plant identification will wait until the spring 1988 ethnobotany visit.

Feature: Buried Hearth

Mojave

A Mojave elder said the feature is not a buried hearth, but could have been the base of a home site.

Southern Paiute

Southern Paiute tribal representatives interpreted the feature as the remains of a sweat house.

Western Shoshone

A Western Shoshone elder interpreted the feature as a barbecue pit to cook pine nuts or meats. This interpretation is similar to a hypothesis presented by a DRI archaeologist who was present at the site.

Feature: Plant

Western Shoshone

A plant was interpreted as *Hogee*, a type of wheat or seed grass. *Wa'ai*, also named Indian rice grass, was identified as a food plant at the site. *Hopee* was identified at the site.

SITE #7 - AZREAL RIDGE ROCKSHELTERS

Description. The northwestern portion of the basin that contains the proposed location for the high-level waste facility has a wide southeast wash about two miles in length. A number of environmental study wells were drilled into the base of this wash providing the name Drill Hole Wash. The western side of this wash is formed by the ribbonlike ridges on the flank of Yucca Mountain. The eastern side is formed by a long flat-topped, steep-sided ridge called Azreal Ridge. The flat top is formed by a hard layer of stone, commonly called a "caprock"; its resistance to erosion may have contributed to the dramatic steepness of the ridge's sides.

All along the caprock are a series of small rockshelters, called here the Azreal Ridge Rockshelters [26Ny1998, 26Ny3008 - 26Ny3010, 26Ny3015 - 26Ny3022; see Photo 12 (YM-68) and Map 3]. These rockshelters are perched hundreds of feet above the bottom of the wash and, therefore, are difficult to reach, but provide a panoramic southwest view of Drill Hole Wash and surrounding mountains. A large *tinaja* (Cleavage Gulch Tinaja, 26Ny2968; see Pippin, 1984:153-154) located in Drill Hole Wash, is the only known source of water. Azreal Ridge contains the heaviest concentration of rockshelters that show past human usage (Pippin, 1984:153).

The main feature associated with this site is the rockshelters; however, one plant was identified.

American Indian Site Comments. Because these rockshelters are difficult to reach and are removed from water, American Indian interpretations focused on the special uses of these places. While some of the rockshelters initially contained artifactual materials, they were not available for interpretation at the site because they are stored at DRI. In general, the site was interpreted as most appropriate for irregular activities, such as storing food in the winter, seeking protection from an enemy, or burying the dead. The rockfalls along the caprock provide an acceptable, but not ideal, location for burials. No exact location was noted, and some Indian people disagreed that there would be burials present. Self-sealing burial sites usually have an eroding portion of a cliff above the rocky cleft where the body is placed. At this location, the caprock is the top of the ridge, so a burial could be exposed

as the caprock is eroded. The Indian people did not reach a consensus on whether there are burials at this site, so the site was interpreted as a tentative burial location.

Feature: Rockshelter

Southern Paiute

The rockshelter complex was interpreted as a possible burial site because some of the artifacts, especially one sandal found by the archaeologists, are items that were placed within or near a burial. These rockshelters were also thought to be a place for people to hide from enemies and to store materials. Another person said that there was enough living space for five people in one of the caves. One Southern Paiute person interpreted the rockshelters as camps and winter habitation sites, and another Southern Paiute person said that the rockshelters would have been used to process and store meat during the winter hunting season.

Western Shoshone

The rockshelter complex was identified as a family hideout from the enemy and as a place to be protected from the rain. The rockshelter was also identified as an ideal lookout over the area.

Feature: Plants

Owens Valley Paiute

The desert trumpet plant was identified in the sandy portion of the wash below the rockshelters. This plant is used as a food source and for making tea.

YUCCA WASH SITES

The northern portion of Yucca Mountain is divided by a large dry valley that derived its name from Yucca Wash, a long wash that extends the full length of the valley. The drainage extends about nine miles from its head near Chocolate Mountain (6,703 feet) until its mouth joins Fortymile Wash (3,400 feet). The valley is 1.5 miles wide at its head and narrows to about .4 mile at its mouth. The major topographical points around the rim of Yucca Wash (presented clockwise) are Chocolate Mountain, Pinnacles Ridge, Comb Peak, Alice Ridge, Fran Ridge, and the Prow. Along most of its length, the wash has created a deep arroyo in the valley floor that is otherwise relatively flat. The sides of the Yucca Wash valley are formed by steep mountain slopes.

Evidence of prehistoric and historic occupation and use is found throughout the Yucca Wash valley (Pippin, 1984). Different types of sites from various portions of the valley were selected for visits by the Indian people. Six sites (#8 through #13) were visited (see Map 3); these sites include an open lithic scatter site, a rock quarry, a camping area near two large rock tanks, rockshelters, plant gathering areas, and a ceremonial site. These sites, which are only a selection of many sites in the valley, represent the greatest site diversity of any region visited by the Indian people.

SITE #8 - YUCCA WASH QUARRY (26NY1011)

Description. Parallel to Fortymile Wash are two north-south ridges. Fran Ridge is southernmost, and Alice Ridge fills in the space between the mouth of Yucca Wash and the northern portion of Yucca Mountain. Alice Ridge is about 1.5 miles in length and ranges from 4,037 to 3,700 feet in elevation. At its northern end are a rock quarry and small camping area (see Map 3).

The Yucca Wash Quarry Site is categorized as an extensive quarry and temporary camping site by the DRI archaeologists. It is characterized by a large lithic scatter made up of numerous flakes, cores, and stone tool remnants. According to the DRI archaeologist at the site during the visit, there were 8,000-year-old artifacts found at the site. The northern portion of Alice Ridge is the source of the stone materials used for tools.

Features interpreted at this site include the use of the site itself, the quarry materials, a fireplace, plants, and animal tracks. It should be noted that certain types of religious activities would normally occur near a major quarry site such as this one. These activities would focus on explaining to the rock why it was being taken and the tasks to which it would be put (see Chapter 5).

American Indian Site Comments. The consensus among the Indian people who visited this site was that the area was a good short-term camping area because it provided good visual control over the surrounding territory. The site is without access to water and so would not have been used for a longer period. They were impressed with the amount of stone tool material available at the location.

Located near the site are two deep geologic trenches that were dug as part of site characterization. The people looked at these trenches and asked whether anything found by the archaeologists at the site influenced the location of these trenches. The DRI archaeologist was not certain, but believed that the location of the trenches had been adjusted in order not to disturb the site.

Feature: Site As Camping Area

Las Vegas Indian Center

The representative from the Las Vegas Indian Center was the first to note the strategic location of the site because of its view over the surrounding areas. According to this person, the site could be used as a temporary camp, probably for the processing of stone tools, without fear of being seen by others first. He noted that the lack of water at the site would be a problem if the site was to be used for a longer period.

Feature: Artifacts

Southern Paiute

The people were impressed by the great amount of native stone available at the base of Alice Ridge. They noted that many chips seemed to be tools. They also noted the great amount of obsidian chips found at the site [see Photo 13 (YM-133)].

Feature: Fireplace

Southern Paiute

One Southern Paiute elder interpreted a ring of stones located in a flat area as a possible fireplace [see Photo 14 (YM-127)]. The stones were close together in what would have been the middle of the fireplace because, when the people were finished with a fire, they would put the retaining stones together in its middle. This formation would keep the heat longer.

Another person noted that herbs could be dried on such a ring of stones. The herbs would be placed on top of the hot rock as the fire was dying out.

Feature: Plants

Southern Paiute

Several plants were identified by Southern Paiute elders as useful cultural resources. These were squawberries (*U'up*), which could be either used as a food or for a drink; Indian tea, which is a medicine; greasewood, which is a medicine; and a desert trumpet, which was chewed.

Western Shoshone

A Western Shoshone elder noted a recent use of greasewood. As an adult, he loaded refined ore onto trucks at a copper mine. After years of this activity, he absorbed so much copper into his body that he became medically disabled with what was called "copper-poisoning." The copper company paid for his medical care, but there was no close hospital; so he and his family moved to Schurz, Nevada. While receiving western medicine for his copper-poisoning, he attempted to cure himself with greasewood and by soaking in a hot spring. He purchased gelatin capsules and placed fresh greasewood leaves in them. He attributed his cure to Indian medicines: greasewood and hot spring baths.

A Western Shoshone woman noted that greasewood will not provide a cure unless the user says a prayer to it and ask it for specific help.

Feature: Animals

Southern Paiute

One Southern Paiute elder identified mountain sheep tracks near this site.

SITE #9 - SEVER TANKS (26NY1964)

Description. About three miles up Yucca Wash is a hidden valley. The valley actually is formed by a minor drainage system, called Sever Wash, that runs parallel for 1.75 miles before joining Yucca Wash. Sever Wash has eroded into Yucca Mountain causing a portion to become physically isolated. At the head of Sever Wash is a small round valley. It is bounded on the west by a steep wall of Yucca Mountain that tops out at about a 5,000-foot elevation and on the east by the steep 4,775-foot isolated mountain remnant. Access to the valley can be gained by traveling up the steep and narrow Sever Wash that flows out of the valley to the southeast and across a low saddle (4,400-foot elevation) to the northeast. The valley is hidden from trails that would have been located in Yucca Wash and would only be observable from atop the steep vertical 800-foot Yucca Mountain cliff (see Map 3).

The hidden valley contains a variety of cultural features, including open area camping and processing stations, rockshelters, and at least two large *tinajas* located in the bedrock of upper Sever Wash. The *tinajas* are somewhat unique because of their size. The DRI archaeologists who recorded the site estimated that these tanks have capacities that exceed 80 gallons each.

Features interpreted by Indian people at this site include artifacts, a potential burial, plants, and animals.

American Indian Site Comments. The Indian people suggested that this site would have been used for long periods of time. It has a good source of water due to the large *tinajas*, protection from observation derived from the surrounding mountains, protection from the elements available in the rockshelters, and even its own source of food in the plants that can be gathered in the valley.

Feature: Grinding Stones

Southern Paiute

Several Southern Paiute elders identified grinding stones located in open areas in the hidden valley [see Photo 15 (YM-143)]. One elder commented that only women used the grinding stones, so he felt this location was a camping spot that both men and women would have used. A Southern Paiute woman commented that there were different kinds of grinding stones for different purposes. One type would be used to pound and grind meat; others would be used for grinding plant material.

The open areas would have been used for processing various types of items. For example, one woman noted that pine nuts would have been processed in this location. They would be brought down from the north and processed here because it was warmer.

This woman noted that her grandmother used to have different grinding slabs and matching stones. They would be located at various spots where she camped. During the day, the sun would dry them out at various rates. Moisture in the stones was the important issue. Her grandmother would move from stone to

stone as the moisture left them. Her grandmother told her that this process was something women used to do. This woman suggested that the distribution of the grinding slabs all over the flat sandy areas of the hidden valley may have been to catch sunlight at different times of the day.

Feature: Tinajas

Southern Paiute

The Indian people noted that the bedrock tanks were partially filled, perhaps mostly filled, with sand and rocks [see Photo 16 (YM-144)]. Were the tanks to be cleaned, as the Indian people who used this site would have done, the tanks would be much deeper. The Indian people suggested that each tank may have much more than an 80-gallon capacity, perhaps exceeding 300 gallons.

Feature: Possible Burial

Southern Paiute

The center of the valley has a sandy area where there are a number of large stones. Two of the elders, a man and a woman, identified these stones as possibly being associated with a burial. Although this spot would not have been a normal place for a burial, it would have been appropriate. The soft sand would have made digging easy. Neither person would spend more than a couple of minutes at the site, preferring to move away to another portion of the valley.

Feature: Lithic Scatter

Southern Paiute

Across most of the valley, the Indian people identified small stone chips [see Photo 17 (YM-136)]. These chips were returned carefully to the exact location where they were found, as is appropriate according to the belief that these tools belong to the person who left them and should not be moved by others.

Feature: Rockshelters

Las Vegas Indian Center

The rockshelters were probably used for sleeping, as well as for activities like processing seeds [see Photo 18 (YM-146)]. Because much of the hidden valley, as well as portions of Yucca Wash, can be seen from the rockshelters, they could have been used as look-out points.

Southern Paiute

One of the elders noted that a camp would not be made next to the water sources because this placement would interfere with the animals getting water. Camping would occur in the rockshelters that surround the valley.

Feature: Plants

Southern Paiute

Two different plants were identified as cultural resources at this site: One was Tule Spring cactus, described as a survival food, with the seed being the edible portion. In addition, Joshua plants were identified as having been used both for food and fiber. The larger trees have fruit that is a valued food. The roots of larger Joshua trees have a red, wire-like root. These roots made a pretty color. They were like small copper wires. They could be cut from the plant, soaked in water, and then woven into a basket to provide a red decoration.

Feature: Animals

Southern Paiute

A man and a woman independently identified the tracks of mountain sheep on the site. One of the Paiute men noted that his brother works for the Nevada Test Site as a bulldozer operator. While he was cutting some of the roads in the Yucca Mountain area, he observed mountain sheep. The elder noted that the mountain sheep are very important in many Indian religions because a sheep was an Indian doctor before it took its sheep form.

At the *tinaja*, there were also deer tracks [see Photo 19 (YM-142)].

SITE #10 - YELLOW ROCKSHELTER (26Ny4648)

Description. Directly north of the Sever Tanks site, about .75 miles, are two sites that represent how different portions of Yucca Wash were used. The two sites and the surrounding area are depicted in Photo 20 (YM-156) (see Map 3). The first of these sites, the Yellow Rockshelter Site, is located near the bottom of Yucca Wash on a small bench about 50 feet above where water would flow when the wash is active. The elevation here is about 4,400 feet. The second site, Boulder Rockshelters Site, is located upslope about .50 miles. It will be described in more detail in its Section #11.

The Yellow Rockshelter Site is composed of a few small rockshelters found in a yellow rock formation. There were very few artifacts found in the shelters, but there is a lithic scatter on the slope a few yards away.

American Indian Site Comments. The Indian people interpreted this site as being only casually used. Rock chips scattered along a nearby slope indicated the site had been used for tool production and that the rockshelters could have been a place where activities occurred during harsh weather. Note that the Indian people suggested the nearby Boulder Rockshelter Site was used as a winter hunting/ processing camp. The Yellow Rockshelter Site was probably not used on a more permanent basis because it is located too low in the wash to be easily protected, it lacks water except when the stream flows, and it does not have a great volume of plants or animals to make it useful for gathering or hunting. The people generally felt that the purpose of the site was somehow tied to another site in the area. They were interested in seeing the Boulder Rockshelters located higher on the slope, and so very little time was spent at the Yellow Rockshelter Site.

SITE #11 - BOULDER ROCKSHELTERS (26Ny4643)

Description. The Boulder Rockshelter Site is located just north (about .50 miles) of the Yellow Rockshelter Site; it can be viewed in the upper center of Photo 20 (YM-156) (see Map 3). The site involves two large boulders located high on the southwest-facing flank of north Yucca Mountain, at about a 4,700-foot elevation [see Photo 21 (YM-157)]. At the edge of each boulder is a rockshelter. Downslope from the boulders is a long lithic scatter (26Ny4642).

These boulder rockshelters, grinding slabs, plants, and pieces of chipped stone were significant features interpreted by the Indian people at this site. There were six grinding slabs located in or near the front of the rockshelters.

American Indian Site Comments. The site may have been used as a temporary hunting camp. Most of the Native Americans who visited the site felt the location was too high for a regular camp where people stayed for long periods of time. One Southern Paiute elder interpreted the site as a mountain sheep hunting camp. He explained that even though there was no nearby water, the place could have been used for weeks at a time. The Indian people would not normally live close to water when they were hunting because the animals might be kept from the water and move out of the area. Another reason is that a camp placed close to water would have been interpreted by other Indian people as an indication that the people at the camp were trying to claim ownership of the water and the area. This encroachment could cause strife and tension among other people who needed to use the water. He also explained that in this area, despite its relative isolation, Indian people would have been bothered by miners. He said that this explanation was another reason for Indian people to camp away from water sources.

According to the Paiute elder, this site might have been used as a base camp by hunters. If the camp was temporary and used only by men during the hunt, there would have been no grinding slabs. Because he noticed six grinding slabs in and near the rockshelters, he decided that this site was not a temporary hunting camp. It would be a more permanent hunting camp that had women present. The women would have brought something to grind or found something in the area themselves, for example, the Joshua plant fruit, while the men were away hunting. The "old time" women were very strong. They could carry things on their head for long distances. A Paiute woman noted at this point in the conversation that her mother said that women would often pick pine nuts while men hunted. Another seed was *U'upi*, the presence of which she noted outside the rockshelter. This location is unusual for natural stands of the plant, so she believed that the seeds had been brought to this site from somewhere else and that the women had processed the *U'upi* here on the grinding stones. Regarding the strength of the "old time" women, she knew a woman who carried a whole deer down a mountainside after the deer had been killed by her husband.

A Southern Paiute woman said that the location would have been too hot in the summer, so it was probably a winter camping area. She also noted that there was a rock wall at the entrance of a rockshelter, indicating a need for warmth. A Paiute man partially disagreed with the winter camp interpretation; he noted that his father and grandfather hunted mountain sheep in July and August because the sheep were fat and slow at that time of the year. The lambs are big then, so they do not nurse, and the mothers get real fat.

The possibility that the rockshelters were used for storing extra food was suggested by a Paiute woman. She and a Paiute man discussed the interpretation and decided against it. Food would have been stored in lower elevations. The rockshelters provide easy access to animals. There are too many foxes in the area, and they are reputed to be good at taking stored food. A fox would even steal shoes from a camp at night, according to the Paiute man. The broken pottery was noted. The Paiute man suggested that the people may have stored pots at a camp they normally used.

Feature: Rockshelters

Southern Paiute

The rockshelters were identified as part of a hunting camp that was occupied by both men and women.

A rock wall located at the entrance of one rockshelter was identified as suggesting that the camp was used in cold weather [see Photo 22 (YM-161)].

Feature: Grinding slabs

Southern Paiute

Three different types of grinding slabs among the six slabs present in the two rockshelters were identified at this site. One Southern Paiute elder said that men did not use grinding stones, so the site might have been where the women stayed while the men were hunting. Different grinding stones were used for different purposes. One type of grinding stone was used for grinding deer meat jerky.

Feature: Artifacts

Southern Paiute

A Southern Paiute elder who has experience with flint knapping identified unfinished arrow heads at this site. He said that they had been broken the wrong way, so the maker threw them aside.

Broken pottery could have come from pots left by people who normally used the site for hunting.

Feature: Plants

Southern Paiute

U'upi berries (squawberries) were identified at this site. A Southern Paiute elder said that the plants would normally not grow at this spot, but because the people who lived here ate the berries at this site, the plants had come up from dropped seeds. She explained that the people would have brought the seeds that needed processing to this location from the gathering areas located elsewhere.

Sagebrush was found on the slope below the rockshelters.

Feature: Animal

Southern Paiute

On the slope below the rockshelter, one of the Indian people found the tracks of a mountain sheep.

SITE #12 - CHIA AREA

Description. Toward the head of Yucca Wash, it widens and divides into smaller washes that have their own origins in nearby passes and canyons related to Chocolate Mountain, such as Prow Pass, Claim Canyon, and Pinyon Pass [see Photo 23 (YM-148)]. The Chia Site is a .75-mile-long portion of upper Yucca Wash, located between 4,700 feet and 4,900 feet in elevation.

To the northwest of the Chia Area is a long terrace that contains stone chipping stations, one of which is site 26Ny4631. Site 26Ny4631 was not visited. The DRI archaeologists found a large expanse of chia estimated at many acres during their 1985 survey of the area.

The chia plants were closely associated with a recently burned area. Their occurrence is expected, inasmuch as chia and many other Indian food plants had to be managed in order to have them be fully productive. Fire was one means of managing grass-seed food plants because the fire reduced competition with other woody plants. Grasses are the first plants to emerge after an area is burned.

There were no features noted at this site because the chia plants were gone when the Indian people visited the site. As a result, they made no specific comments about the site. Chia could have been eaten by deer or cattle; a dead cow was found a few hundred yards away on the terrace, and a deer was observed at the Prow Site. It also had been a dry year, so the chia may not have sprouted as abundantly as in the year when first viewed by the DRI archaeologists. The site is planned to be an ethnobotanical site visit in the spring of 1988.

American Indian Site Comments. One of the Owens Valley Paiutes said that the site was loaded with medicine. When asked for more information, she said that she could not tell, but that it was "strong medicine."

SITE #13 - PROW PASS CEREMONIAL AREA (26NY3053 - 26NY3055)

Description. Prow Pass Ceremonial Area is located .85 miles west of the Chia Gathering Area (see Map 3). Prow Pass is the major low-elevation area (5,250 feet) that separates the northern and southern portions of Yucca Mountain. Prow Pass is an easily accessible pass; it links Crater Flat and Yucca Wash. The pass derives its name from a narrow, dramatically steep portion of Yucca Mountain that is called "the Prow" because it resembles the prow of a ship.

DRI archaeologists surveyed six sites in this area, three of which were visited by Native American representatives. The sites visited were all associated with a 150-foot-tall, free-standing rock formation located at about a 4,800-foot elevation on the eastern slope of Prow Pass. The site is dominated by the presence of the Prow of Yucca Mountain, which is located just to the south.

A stone pestle placed in a rock cairn was the outstanding feature interpreted at the Prow Pass. Also interpreted were possible burial rocks, rock rings, hollow rocks with openings, three small *tinajas*, grinding slabs, and an animal.

American Indian Site Comments. All the Indian people who visited this area interpreted it as being a very religious place. It is possible that the site represents an area where people were buried. The site appears to have a ceremonially buried woman's tool—a stone pestle—that may be associated with a memorial ceremony, such as are observed today by Western Shoshone and Southern Paiute people one year after a person dies. The Western Shoshone representatives commented that this site was very powerful and important.

Feature: Stone Pestle

Owens Valley Paiute

A stone pestle, cylindrical in shape, approximately 14 inches in length was discovered at the base of the highest point on the ridge. The stone had been placed in a pile of rocks—a stone cairn—at the base of a tall point on the ridge [see Photos 24 and 25 (YM-187 and YM-188)].

One of the Owens Valley Paiute women noted that it was a rare find. She commented that it should be left alone, but she did not want it to be taken by someone. She was concerned over what should be done with it, if anything.

Southern Paiute

A Southern Paiute man noted that the placement of the pestle suggested that it had been placed there for ceremonial reasons. He thought that it might be associated with a memorial burial ceremony. Such a ceremony would be conducted one year after the death of a person. It would be near, but not at, the grave. He said that this site was not a grave because it was too high on the ridge. He suggested that the grave would be in a self-covering location elsewhere lower on the slope of

the ridge or in the immediate area. Although most of the deceased person's possessions are either destroyed during the burial or placed in the grave, some personal items are kept for the memorial ceremony. The items are then used to remind relatives and friends of the person. The items become the focus of the ceremony, and after the ceremony, they are destroyed or buried. He suggested that the pestle could have been an item that was ceremonially buried after it had been used in a memorial ceremony.

This person eliminated the possibility that the stone pestle was just being stored in this location. If the people were to store it, it would be located near the grinding slab or mortar where it was used. It would never be stored in such an exposed place, far above the nearby rockshelters where the grinding slabs were found.

Western Shoshone

One of the Western Shoshone elders refused to remain near or comment on the pestle. Another noted the religious importance of the pestle and the area in general and also left the site of the pestle.

Feature: Possible Burial

Western Shoshone

On the uphill slope from the site toward the crest of Prow Pass, one of the Western Shoshone men identified a location that was a possible burial. In a small draw, there was a small hole in a rock face, and a series of flat rocks were piled in front. He said that it looked like a traditional northern Shoshone burial area. The flat rocks were key in the identification.

Feature: Grinding Slabs

Western Shoshone

A man noted the various grinding slabs in the area [see Photo 26 (YM-184)]. He noted that most of the time the old people would leave the grinding slab and grinding handstone in one spot. Men would never grind the seeds; so if grinding slabs were found at a camping site, women would have come there with the men. The Shoshone word for grinding slab is *Po'to*.

In an area where people could harvest pinyon nuts, there would be big pits near the camp where the nuts were to be ground. The pine nuts would be placed in the pits in the cones and left to dry. The pits were often covered with sagebrush. When the pine nuts were dry and needed, the Indian people would uncover the pit and process the nuts. They would have their grinding slabs nearby. Such pits were dug near this man's family camp at White Rocks Spring (see site description in this chapter).

Southern Paiute

A woman noted that the grinding slabs and stones were left in one place and that nothing would happen to them. They were "cherishable" in those days. Nowadays, other people just come around and pick them to take home.

Feature: Rock Rings

Southern Paiute

A rock ring was found on the northeast slope of the area. The ring was large enough, according to one man, to hold five or six persons. A brush or skin structure would be placed above the rocks. He noted that two or three families would go around together; each family would have five or six members.

Feature: Tinaja

Western Shoshone

A Western Shoshone man said that the small rock tanks or *tinajas* were like ones he remembered. Whenever he or his family found one, they would clean them out. He remembers worms would grow in them, and these were always removed along with rocks and twigs that had gotten into the *tinajas*.

Feature: Rocks with Holes

Western Shoshone

A man noted that there were a number of rocks with holes in them on the northeastern slope near the rock rings. He hit the rocks with a small stone and noted a special tone. He said that there were musical stones like these located near Duckwater that were used by the Indian people.

Feature: Animal

Western Shoshone

A deer was spotted, and it indicated the good hunting in the Yucca Wash area, according to one man.

FORTYMILE CANYON SITES

Fortymile Canyon is about twenty miles long from its head near Scrugham Peak to its mouth where it widens at the confluence of Yucca Wash (near Calico Hills) to form Fortymile Wash. The Indian people interpreted the canyon as rich in American Indian cultural resources and, as such, is independently valuable to Indian people. Perhaps more important for this study, the canyon is a potential source of information that will help explain the use patterns and significance of Yucca Mountain.

From the data provided by the Indian people, it appears that Fortymile Canyon can best be understood as a route linking places and resources found at warmer and lower elevations to the south, such as Yucca Mountain and Ash Meadow, with places and resources found at cooler and higher elevations in the north, such as Pahute and Rainier mesas. Although it appears that many of the sites served Indian people who were on the way to somewhere else, there may have been resources located in Fortymile Canyon that caused it to be the destination of Indian people leaving more permanent homes and coming into the area.

The Indian people were able to visit a number of sites located in the central and southern portions of Fortymile Canyon. DRI archaeologists were extremely helpful in suggesting sites to visit. This portion of the American Indian site visit was somewhat unique because so much of the Fortymile Canyon area had not been studied. About half of the southern portion of the canyon had not been surveyed by DRI archaeologists, and the survey results were not available either during the site visits or while this interim report was prepared. None of the central and northern portions of the canyon had been surveyed or written about by DRI archaeologists. As a result of these factors, Indian people were left much more on their own to find sites and to make independent interpretations. Only a couple of locations had been disturbed by archeology excavation. So the Fortymile Canyon sites provided the Indian people with new challenges and opportunities for cultural identification and interpretation.

The following section discusses the sites visited in Fortymile Canyon. These areas are Sites #14 through #21.

SITE #14 - FORTY MILE LITHIC SCATTER (26Ny955)

Description. The Fortymile Lithic Scatter Site is located on the west terrace of Fortymile Wash about .35 miles to the east of the base of Fran Ridge. Technically, this site is at the head of Fortymile Wash, but it has been included in this region because it is the only site from the wash area and it is very close to the canyon entrance. The site is on a flat terrace about 75 yards from the edge of Fortymile Wash. At this point, the terrace is about 3,400 feet in elevation (see Map 3). The surface of the site is covered by well-developed desert pavement and a wide variety of plants. The site is without nearby access to water and is in an open unprotected area.

A lithic scatter occurs over an area of at least one acre. The soil is sandy, and the flakes appear every few feet across the site. Most of the flakes were made from obsidian. No grinding stones were observed. The site was probably used as a place for processing stone tools from naturally occurring obsidian boulders found in Fortymile Wash (personal communication, C. Lockett). Three features were mentioned at this site: obsidian flakes, plants, and an animal.

American Indian Site Comments. Indian people discussed with the DRI archaeologist whether the obsidian and white chert flakes were left by their ancestors or washed down from higher elevations in Fortymile Canyon. This question probably derived from the fact that there is no apparent reason why Indian people would have been on the site. There was an extensive discussion about desert pavement and the presence of big game animals during the Clovis period.

Feature: Obsidian

Southern Paiute

A Southern Paiute woman who picked up an obsidian flake remembered that her grandmother often used obsidian flakes for medicinal purposes. Her grandmother cut her own hands with an obsidian flake to permit "thick blood" to drain out. She did this remedy when she had an overall sluggish feeling, which she attributed to having thick blood.

Feature: Plant

Southern Paiute

Greasewood was used for many medicinal purposes. Like aspirin, it is used as a cure-all for a wide range of sicknesses. A cloth can be soaked in boiled greasewood and applied to a wound.

A plant was identified as possible *Hoop* berries. There was some discussion among the Indian people as to the identification of this plant; others said it was *Uupi*. All agreed that the plants were too dry to be exact in identification and that when the leaves come out in the spring the plants could be properly identified.

Feature: Animal

Southern Paiute

One of the women indicated a mark in the sand under a bush that she interpreted as having been produced by a turtle.

SITE #15 - TRIGGER TRAP BUNDLE SITE (26Ny4722)

Description. The Trigger Bundle Site is located in a south-facing rockshelter, that overlooks the confluence of Delirium Canyon and Fortymile Canyon. The rockshelter is located a considerable distance up a steep talus slope making access difficult. There is no known nearby source of water; however, Twin Springs is located about two miles up Fortymile Canyon.

The rockshelter offers an excellent field of vision that includes all of the southern portion of the canyon; the most significant features discovered at this rockshelter are two bundles of small game hunting trap triggers. DRI archaeologists discovered two bundles of deadfall trap triggers stored or hidden deep in the back of the rockshelter. Archaeologists removed one trigger bundle for analysis, from which they estimate there are fifty to seventy-five triggers in each bundle [see Photo 27 (YM-199)].

American Indian Site Comments. Visiting this site caused one Owens Valley Paiute representative to remember that one of her grandfathers had told her that he had traded Owens Valley salt for resources from the Yucca Mountain area. He specifically discussed a long canyon having an Indian name that translated as "Snake Canyon." An important aspect of this Snake Canyon was a petroglyph site that was located at its northern end (see Site #20).

Many Indian people were not able to climb the steep talus slope to reach this site; however, those who did were so impressed with the trigger trap bundles that only one other aspect of the site was discussed. This response, which is unique among the rockshelter sites visited by these Indian people, suggests the potential significance to these Indian people of the trigger trap bundles. Another unique response occurred at this site. It is a two-part issue revolving around Indian people having direct access to artifactual materials. One part is directed to concerns about being able to touch artifacts remaining where they were found. The

second has to do with the problem of interpreting sites when the artifacts have been removed by the archaeologists. While both of these issues were raised elsewhere, they were only raised together and with greatest intensity at this site. Perhaps this response was stimulated by the significance of the trigger trap bundles. These issues will be discussed during the forthcoming work with the Indian people to design the mitigation plan.

Feature: Artifacts

Owens Valley Paiute

No Owens Valley Paiute had seen similar trigger trap bundles. One Owens Valley Paiute would have liked to hold the bundle, but felt it was overly protected by the archaeologist, who did not offer to let the Indian representatives hold the bundle.

Southern Paiute

A Southern Paiute elder identified two different kinds of rocks in the rockshelter that would have been used for pounding and identified two pottery shards [see Photo 28 (YM-196)].

No Southern Paiute elder who visited the site had seen similar trigger trap bundles. One person said that he or she would like to see the other bundle and was displeased that the archaeologists had removed it. Another person said that he or she would like to see the other bundle, but was pleased that the archaeologists were taking such good care protecting the one bundle that remains in the rockshelter.

Western Shoshone

Western Shoshone representatives said that they had not seen similar bundles of trap triggers.

SITE #16 - TWIN SPRINGS (26Ny4664)

Description. The Twin Springs Site is located in Fortymile Canyon about two miles north of the Trigger Bundle Site. The site occurs at the confluence of Fortymile Canyon and Pah Canyon. The name Pah Canyon (the word *pah* means water in Shoshone and Paiute) suggests the presence of an important water source somewhere up this side canyon. The DRI archaeologist did not study this canyon, and the ethnographers could not visit this canyon because it lacks a road and because time was not available to hike its length. Unless other sources of water are found in side canyons, Twin Springs will retain the status of being the only permanent source of water other than seeps in the southern and central portions of Fortymile Canyon.

Given a working hypothesis that the central purpose of Fortymile Canyon was to serve travelers, it is reasonable to expect that Twin Springs would be a commonly used camping and stopping spot. In addition, because it is approximately halfway from the canyon mouth to the upper portion of the central portion of Fortymile Canyon, the site is central to all destination activities focused on the resources of Fortymile Canyon itself. Thus, Twin Springs is ideal as a camping spot for people traveling elsewhere, as well as for a more permanent camp for people who planned to remain for longer periods in order to use the resources of Fortymile Canyon.

The site derives its name from two springs located at a 4,300-foot elevation on the steep western face of Water Pipe Butte [see Photo 29 (YM-22)]. At this location, the bottom of Fortymile Canyon is about 4,000 feet in elevation, so the springs have a difficult 300-foot access. There is little reason for or evidence of Indian people having camped around the springs. The base of a stone house and a 30-foot deep tunnel into the face of the butte near one of the springs attests to the presence of Euramerican miners occupying the spring site.

The location of the miner's stone house at the site of the springs suggest a number of hypotheses and illustrates differences between how American Indian people and Euramericans may have used the resources of Fortymile Canyon. First, the Euramerican stone home is located immediately next to a regionally important source of water. This house reflects an attitude of claiming or owning the water, perhaps with the intention of selling the water. The name of the site, Twin Springs, and an arrow indicating the springs' location are pecked into a large vertical stone face at the bottom of Fortymile Canyon. This action further suggests an effort to claim and use the site for commercial purpose. The Indian people said that they would have camped in the canyon bottom or in rockshelters located across the canyon, but never on a steep hillside near the water. Not only would the site have been difficult to use as a camp, but also having a permanent camp near a water source interferes with animal access to the water (see comments at Site #4).

A second hypothesis is that the Euramerican miner chose a defensive position for his home out of fear of retribution from someone. Such a situation could have derived from a number of events. After the gold strikes near Beatty, the Yucca Mountain area was filled with thousands of prospectors looking for new veins of gold or silver. Some of these prospectors attacked Indian people who were still living at or using isolated tractional resources (see comments Site #11). Perhaps the miner who built the cabin forcibly removed Indian people from the site and feared their retribution for the action. All of these thoughts remain hypothetical for this area, but represent events that occurred as the mining frontier expanded into traditional Indian territories in the American Southwest (Spicer, 1962).

The Twin Springs Site actually has two divisions: the camping area located in the canyon bottom and the twin springs located above on the steep hillside. Rockshelters located across the canyon had not found as part of the DRI archaeology survey and so are treated as a separate site (Site #17, Twin Springs Rockshelters) in this report [see Photos 29 and 30 (YM-22) and (YM-79) and Map 3]. Subsequent to these visits, a permanent site number (26Ny5567) was assigned to these rockshelters. In fact, Indian people who visited the Twin Springs and the rockshelters perceive them to be part of a single place.

American Indian Site Comments. A Western Shoshone elder interpreted the site as an area of traditional Indian activity. He interpreted Twin Springs as a trappers' camp, used by Indian people in recent times and also recognized the site as a place where he stopped on the way to a one-year death ceremony that was held at White Rock Springs. The White Rock Springs Site is tied into the function of many places in the Yucca Mountain area. The site is discussed later in this chapter as Site #21.

Division One Description. Division One is a large, flat, sandy area located about 20 feet above the wash in Fortymile Canyon. The site is about 300 vertical feet lower than and about 2,000 feet downslope from Twin Springs. The site would be difficult to protect, having poor visibility up and down the canyon, but it has easy access. Division One features in-

clude vegetation of interest to Indian people; a petroglyph boulder [see Photo 31 (YM-10)]; a rock ring [see Photo 32 (YM-17)]; a rock weight cluster [see Photos 33 and 34 (YM-13 and YM-80)]; a lithic scatter [see Photo 35 (YM-8)]; and a grinding slab [see Photo 36 (YM-21)].

Feature: Petroglyph Boulder [see Photo 31 (YM-10)]

Mojave

A Mojave elder interpreted the markings on the petroglyph boulder as a sign to mark the springs.

Owens Valley Paiute

Owens Valley Paiutes interpreted the petroglyph boulder as a trail marker to Twin Springs.

Southern Paiute

Most of the Southern Paiutes participating in the study interpreted the petroglyph boulder as a trail marker to the water at Twin Springs. One person interpreted one of the drawings on the petroglyph as a symbol for mountain goats. Another person interpreted one of the markings on the boulder as the turtle symbol, used by Southern Paiute people.

Western Shoshone

The Western Shoshone elder responded that the petroglyph boulder markings indicated the presence of a Water Baby. A Water Baby is a spirit that lives at and owns artesian springs (see Chapter 5).

Feature: Rock Ring

Owens Valley Paiute

A representative of the Owens Valley Paiutes interpreted the rock ring as a sleeping shelter.

Southern Paiute

Southern Paiutes who visited the rock ring commented that it might have been a hunting blind or a place to dry deer hides.

Western Shoshone

Western Shoshone cultural experts interpreted the rock ring as a spot to dry pine nuts and wood.

Feature: Rock Weight Cluster

Mojave

The Mojave elder who participated in the site visit said that the rocks were used as tomahawks. Another person said that they were weights to hold down nets.

Owens Valley Paiute

Owens Valley Paiutes identified the rocks as a tomahawk, or ax, or as a tool used to straighten arrows. Another Owens Valley Paiute interpreted the rocks as part of a coyote trap.

Southern Paiute

Southern Paiutes who saw the rocks said that they were used to pound mesquite. Another Southern Paiute said that the rocks were used to hold down a net to trap rabbits.

Western Shoshone

A Western Shoshone elder who had camped and hunted near Twin Springs said that the rocks were part of a coyote trap and that the site was used as a camp for trappers. The elders also said that the rocks could have been used for nets to trap rabbits or sage hens.

Feature: Lithic Scatter

Southern Paiute

The site is covered with chips of stone, lithics used in the production of artifacts. One of these chips was obsidian and was identified as an arrowhead.

Feature: Grinding Slab

Western Shoshone

A stone near the rock ring at the camping spot was identified as a grinding slab.

Division Two Description. Division Two of the Twin Springs Site is defined as beginning at the eastern edge of the Division One camping area and extending for approximately 2,000 feet upslope to the twin springs. Features of Division Two include a small rockshelter, plants near the two springs, and a variety of artifacts located downslope from the springs.

The small rockshelter is located next to the southernmost spring. A bundle of sticks was found behind a bush at this spring. Plants traditionally used for basket weaving were also found growing at this spring. A minor lithic scatter, a few pottery shards, *manos*, grinding slabs, and a rock cluster were found downslope from the springs.

Feature: Small Rockshelter

Southern Paiute

Southern Paiutes said that the remains of fire were in the small rockshelter at the spring and concluded that at one time it had been used as a short-term shelter.

Feature: Plants

Southern Paiute

Southern Paiutes identified three plants that are cultural resources. They identified a plant as *sehoviam*, which is used in basket weaving. Buffalo berries were identified as a source of food and drink. Another plant was identified as possibly devil's claw, an increasingly rare plant used in basket making.

Southern Paiute

A bundle of sticks was found at the rockshelter near the source of water. The sticks were identified as part of the *sehoviam* plant, which is used for basket weaving. The person who found them thought that they were put there intentionally to be picked up and used at a later time.

Feature: Rock Ring

Southern Paiute

A cluster of rocks was found downslope of the springs and identified as a hunting blind.

Feature: Grinding Stones

Southern Paiute

The Southern Paiute participants recognized two rocks downslope of Twin Springs as *manos*. *Manos* are round rocks used in conjunction with grinding slabs to grind seed or other food materials. Southern Paiutes identified two grinding slabs on the western downslope of Twin Springs.

Feature: Pottery Shards

Southern Paiute

Pottery shards were found on the western slope of Twin Springs. One shard was identified as Anasazi style and similar to pottery shards found at Pahrump, Nevada. On the Western slope of Twin Slopes, a second piece of pottery was found that had lines showing how the pot was formed, according to one person.

SITE #17 - TWIN SPRINGS ROCKSHELTERS (26Ny5567)

Description. A number of rockshelters are located across the canyon from the Twin Springs. These sites are located approximately 1,700 feet from the Twin Springs camping areas and approximately 3,700 feet from the twin springs. The rockshelters have relatively easy access, located at a 4,250-foot elevation or about 250 feet above the canyon floor. There are four rockshelters located at the base of the free-standing remnant of a cliff [see Photo 37 (YM-87-A) and Photo 38 (YM-19)].

Several features of interest were found at this site. These features were associated with specific rockshelters, so the feature names identify where they were found [see Photos 39, 40, and 38 (YM-32, YM-33, and YM-19)] and grinding slabs and *manos* [see Photos 41 and 42 (YM-28 and YM-29)] associated with the rockshelters. A jagged rock ring [see Photo 43 (YM-30)] and pottery shards associated with rockshelter #1 elicited significant interpretations. A plant of interest was another feature located at Site #17 [see Photo 44 (YM-84)], as well as a bird's nest [see Photo 45 (YM-20)].

American Indian Site Comments. Most of the Western Shoshone and Southern Paiute people who visited this site interpreted the jagged rock ring as a burial. Western Shoshone tribal representatives also associated pottery shards with the possible burial. Some of the participants avoided spending too much time at the site to avoid disturbing the possible burial site and rockshelters. Several interesting features were found at Site #17, and their interpretations are listed below.

Feature #1: Rockshelter

Owens Valley Paiute

The cave was interpreted as a winter hunting and migration camp. The Indian people said that the rockshelter was in a good location because of its proximity to sources of pine nuts.

Southern Paiute

Southern Paiutes said that the rockshelter was used for shelter and would have also been used for protection since it is located at the top of a ridge.

Feature #1: Fire Pit Rocks

Southern Paiute

Flocks in the rockshelter were identified as a fire pit or cooking pit.

Feature #1: Grinding Stones

Owens Valley Paiute

A rock in the rockshelter was identified as a grinding slab with marks on it to indicate ownership.

Western Shoshone

A Western Shoshone elder located a grinding slab downslope of the east-facing rockshelter. A rock found on this slope was identified as a *mano*.

Feature #1: Rock Wall

Owens Valley Paiute

The rock wall in the rockshelter was identified as a feature used to separate sleeping quarters.

Feature #1: Jagged Rock Ring

Southern Paiute

Most of the Southern Paiutes who saw the jagged rock ring agreed that it was probably a sign that a burial had been placed there.

Western Shoshone

Western Shoshone Indian people who saw the jagged rock ring said that it was possibly a burial.

Feature #1: Pottery

Western Shoshone

Pieces of pottery found near the jagged rock ring were thought to be associated with a burial. Pots belonging to the deceased person were often broken during the burial ceremony. The pottery was identified as similar to Western Shoshone pottery.

Feature #1: Plants

Western Shoshone

Site visit participants identified sagebrush as a cultural resource used for spice and for coloring hair.

A Western Shoshone elder identified a type of grass called *huugoo*. The grass has a small seed used for food.

Feature #2: Rockshelter

Owens Valley Paiute

The second rockshelter was believed to be a winter shelter because it received direct sunlight and was considered a "nice place to stay" in the summer because it was shaded and therefore cool.

Southern Paiute

The Southern Paiute Indian people who visited the second rockshelter identified an upper rock shelf that could be used for storage of materials. They thought that this rockshelter would be used as a summer shelter.

Western Shoshone

The second rockshelter was interpreted as a winter shelter used for the storage of food and other material goods.

Feature #2: Stick

Southern Paiute

A small stick protrudes from the upper rock shelf in the second rockshelter. Southern Paiutes identified the stick as having been used to hang a tarp to enclose the living space or used to hang meat or a basket full of pine nuts.

Western Shoshone

A Western Shoshone elder believed that the stick would have been used to hang a mirror or used to hang a rabbit.

Feature #3: Plant

Western Shoshone

At the third rockshelter, a milkweed plant was identified as a cultural resource. The milkweed plant is used to keep away insects.

Feature #3: Grinding Rocks

Southern Paiute

A rock found at the third rockshelter at Site #10 was identified as a well-worn grinding slab. A second rock found at the third rockshelter was identified as a handstone or *mano*.

Feature #4: Rockshelter

Western Shoshone

A Western Shoshone elder identified this rockshelter as a place to store food.

Feature #4: Bird Nest

Southern Paiute

A bird's nest found near rockshelter #4 was identified as a red-tail hawk's nest.

SITE #18 - YELLOW ROCK SPRING

Description. The Yellow Rock Spring Site is located about two miles north of Twin Springs Site on an eastern slope of Fortymile Canyon. At this location, the wash in Fortymile Canyon is about 4,175 feet in elevation; the site begins at a sandy area about 4,185 feet in elevation; two seep/spring areas begin above 4,200 feet, and a yellow rock formation begins about 4,250 feet and extends to about 4,475. Rockshelters are located at a number of elevations in the yellow rock formation. Most of these were found to be without the man-made features, such as grinding slabs, found at many other rockshelters in Fortymile Canyon, such as Twin Springs rockshelters. One rockshelter, located at the southern extent of the yellow rock formation and about 200 feet above the canyon bottom, contained grinding slabs

and a rock wall at its margin.

The major features at the site are the small rockshelters, the plants associated with the seeps/springs, and a living area on the sandy slope below the rockshelter [see Photo 46 (YM-38) and Map 4)]. The site had not been surveyed by DRI archaeologists, so the only descriptions are those provided by the ethnographer and the Indian people.

American Indian Site Comments. Indian people generally perceived the site to be occasionally used while people were traveling through the area. The site did not have any apparent reason for Indian people to come here and stay for long periods. There was no surface water at the time of the site visit, but it should be noted that the ground appeared wet in spots and the weather had been abnormally dry for the past four months. People noted that all but one of the rockshelters were without grinding slabs and other signs of extensive occupation.

A canyon located just to the north of the site might have been a route to gather pine nuts on Shoshone Mountain, according to one Western Shoshone elder. Traveling about 4.5 miles up that canyon, a person would travel 3,000 vertical feet, reach one of the tallest peaks on Shoshone Mountain (7107 feet), and be surrounded by pine nut trees. The Yellow Rock Site may have been used as a base camp for people to return to after gathering the pine nuts in the much higher elevations. Some of the Indian people suggested that the site may not have been used as a storage and processing area, which seems to have been the purpose of sites located at lower elevations.

The plants were lush compared with many other areas in the canyon bottom, so a number of the Indian people wanted to revisit the site when plants were in full bloom and could be identified.

Feature: Plant

Owens Valley Paiute

Bitterbrush, a plant that attracts deer, was identified at the Yellow Rock Spring Site. The number of plants in the area was noted.

Western Shoshone

Wild rose with small red berries was identified as a cultural resource. Sagebrush was identified by Western Shoshone people as a cultural resource used for spice and hair dye.

One person noted the presence of a pine nut tree growing out of the yellow rock formation. Comments on this tree led to a discussion of the abundant pine nut trees growing in the distance to the east on the side of Shoshone Mountain. This conversation in turn led to the previous discussion about possible uses of the site as a camping area while gathering pine nuts.

Feature: Artifacts

Owens Valley Paiute

A number of flint chips located on the sandy area below the rockshelters was noted by the Indian people. The ground had a heavy cover of plants over it; so, the full extent of the site could not be determined, but one Indian person noted that it must have been a large camping area.

SITE #19 - RED ROCKSHELTER

Description. The Red Rockshelter Site is located about 3.5 miles north of the Yellow Rock Site on an northeastern flank of Fortymile Canyon. The site has one major rockshelter that is surrounded by a number of small openings in the rock face. This rockshelter is one of the largest and most accessible visited by the Indian people. At this point, the canyon floor is 4,350 feet in elevation. The rockshelter is probably no more than 75 feet higher than and 500 feet from the canyon floor. The rockshelter faces the canyon so that it would be easily observed by any traveler. The rockshelter could not be easily defended. While the rockshelter is sufficiently large to hold a number of people, there is ample room in front of it for many more to camp in the sandy flats. The site lacks water; however, none of the side canyons were explored.

The major features at the Red Rockshelter Site include several grinding stones; large obsidian flakes, both of which are located in the rockshelter; and vegetation that interested a number of Indian people (see Photos 47, 48, 49, 50, and 51 (YM-88, YM-93, YM-92, YM-75, YM-78) and Map 4)]. The site had not been surveyed by the DRI archaeologists, so the only descriptions are those made by the ethnographer and Indian people.

American Indian Site Comments. Most Indian people who visited the site indicated that it was a good place to camp and even to spend some time if the people had brought water with them. There were many grinding slabs. One Western Shoshone person said that the small openings in the rock face were probably used for storage.

Feature: Main Rockshelter

Mojave

A Mojave elder said that the rockshelter could possibly be a burial site. A small opening in the face of the red rock was identified as a possible pottery cache.

Owens Valley Paiute

The rockshelter was believed to be a camping area.

Feature: Grinding Rocks [see Photo 48 (YM-93)]

Owens Valley Paiute

A tribal representative from Owens Valley spotted a rock, turned it over, and identified it as a grinding slab. Another tribal representative later confirmed that

it was a grinding slab and also identified a *mano*. The grinding slab was then turned back over as it had been before.

Owens Valley Paiute

A second grinding slab was identified as a slab to process meat. A porous volcanic rock was identified as a rock that was used to grind pine nuts. The large pores were useful for catching and holding pine nuts.

Western Shoshone

Western Shoshone tribal representatives identified five grinding slabs and two *manos* among the various rocks located on the floor of the rockshelter.

Feature: Obsidian Flakes

Owens Valley Paiute

A piece of obsidian that was found at the Red Rockshelter was identified as a part of an arrowhead. Another piece of obsidian was identified as part of a knife. In general, the person was impressed with the amount of obsidian that was present on the floor of the rockshelter.

Western Shoshone

Several obsidian flakes and pieces were identified.

Feature: Plants

Southern Paiute

An elder knowledgeable about plants identified a plant called spurge, which is used for medicinal purposes. There were many other plants on the sandy flat area in front of the rockshelter. This elder expressed the desire to visit the site again when the plants were blooming.

SITE #20 - PETROGLYPH PANELS

Description. Fortymile Canyon makes a 90 degree fork to the west about 1.2 miles north of the Red Rockshelter site. This fork is the beginning of what is termed in this report as the northern portion of the canyon. The other part of this fork is a canyon that goes in a northeasterly direction before it opens into broken flatlands. The existing dirt road, Fortymile Canyon Road, appears to follow along the old Indian trail and short-lived stage coach trail to Tippipah Spring, which is located about 6.25 miles further at the tip of Shoshone Mountain. The major drainage of the Fortymile Canyon Road extends .75 miles north of the Fortymile Canyon Road where it has eroded headward into the edge of a major flatland. There are a series of petroglyph panels at the point where this drainage cuts through this flatland.

The Petroglyph Panels Site is located at an elevation of 4,800 feet and is approximately 4.5 miles northeast of the Red Rockshelter Site. The site is easily accessible. Any trails to the site have been eliminated by a dirt road that cuts through the middle of the site. Major features include petroglyphs, a medicine rock, and a rockshelter. Petroglyphs are pecked into two free-standing vertical rocks [see Photos 52 and 53 (YM-167 and YM-164)]. Just above the two-panel rock is a flat horizontal stone that has a round hole in its center [see Photos 54 and 55 (YM-174 and YM-175)]. Fifty yards from the petroglyphs is a small rockshelter.

American Indian Site Comments. The Indian people who visited this site perceived it to be a place for religious activities. It would not be an appropriate camping location; it lacks water, shelter, and other resources that would attract people to it. Many of the Indian people, especially the Western Shoshones and Owens Valley Paiutes, believed that the site was a place for meeting before groups went into Fortymile Canyon. Some of the petroglyphs were used to indicate sources of water and camping, while others designated who controlled the area. One person from Owens Valley thought that this might be the petroglyph site her grandfather told her was near the head of Snake (Fortymile) Canyon. If so, it was a site of considerable importance for it to be one of the characteristics by which the area was described. This point is in keeping with the site's religious importance and with its function of serving as a map of the area.

It should be noted that the only other rock containing petroglyphs, the boulder at the Twin Springs Site, was interpreted as being a map to indicate the source of water.

Feature: Petroglyph

Southern Paiute

One of the Indian elders who observed the petroglyphs believes that they have both medicinal and other power potentials. The elder believes that the petroglyphs were made by *tutu* (spelling uncertain), spirits of the mountains. According to this elder's beliefs, if the petroglyph reveals its meaning to a person, then the life of one of the person's family members will be in danger. For this reason, the elder avoided spending much time near the petroglyphs.

Another Paiute elder interpreted some of the petroglyphs as being signs of persons traveling through the area and perhaps markers to designate that the land was controlled by them and their families. The lizard petroglyph was one of these signs [see Photo 56 (YM-165)].

Western Shoshone

Petroglyphs were interpreted as maps of the area by a Western Shoshone elder. According to this elder, leaders would gather at this location before going into the Fortymile Canyon area. The maps indicate camping areas and sources of water.

Feature: Medicine Rock

Southern Paiute

An elder found a rock on the low ridge above the two petroglyph panels. This rock has a six-inch deep cylindrical hole in its top.

Such holes are similar to ones used to place offerings in medicine rocks by both Southern Paiute and Western Shoshone peoples (see Chapter 5). This elder felt that this rock could be a medicine rock and compared it with other types of rocks when discussing its function with two other Indian people.

Western Shoshone

The rock was visited by two Western Shoshone elders. Both identified the hole in the top of the rock as being man-made. One suggested that it could have been made by someone with a drilling tool, perhaps a surveyor who wanted to put a blasting charge in the rock. The other person disagreed noting that the rock was not part of the solid top of the rimrock and that the hole has a lip inside [see Photo 56 (YM-175)]. This person thought that it had been made by the Indian people. He noted that the rock was set up from the ground and made an interesting musical tone when hit with another rock at the narrow end. Both persons agreed that medicine rocks were used by Shoshone people and that offerings were left in and around the rocks.

Feature: Rockshelter, Grinding Stones

Southern Paiute

The rockshelter is located about fifty yards from the petroglyph panels and, like the panels, is produced by a portion of the caprock that has broken away from the lip and fallen into the wash below. The rockshelter would only permit one person to work there, according to one of the women. Another elder found a hand grinding stone stored in a crack under the shelter roof. A grinding stone was found on the floor of the shelter.

Western Shoshone

The Western Shoshone people who visited this small rockshelter noted that it was not a place to live. It was too small. Maybe, it was used for some other purpose, perhaps associated with the religious activities at the petroglyphs.

SITE #21 - WHITE ROCK SPRINGS (26Ny9)

Description. White Rock Springs is located about 15 miles directly northeast of the Petroglyph Panel Site (see Map 5). It is located at a 5,000-foot elevation and about five miles away from the base of Rainier Mesa, elevation 7,000 feet. The site derives its name from the very white stone formations that horizontally mark the sides of the mountains in the area and from which a permanent spring emerges.

Only one group of Indian people were able to visit this site, and that visit occurred just at dark after a long day of four-wheel travel in Fortymile Canyon. Because of the timing, site-specific interpretation is limited. Other Indian people, however, mentioned the importance of the White Rock Springs Site. As a result, the following section has extensive general comments but only one site-specific comment. The site will be visited during the ethnobotanical study.

American Indian Site Comments. White Rock Springs is one of the key locations for understanding the Yucca Mountain area. Three elders specifically mentioned traveling through the Yucca Mountain area to attend events at this site or to live here while hunting or gathering in the area. One elder came from the Death Valley area to attend a memorial ceremony, such as that discussed with respect to the Prow Pass Ceremonial Area. Another person's family lived to the north in Kawich Valley, but traveled on a regular basis to White Rock Springs.

Another person lived in the Beatty area, but spent portions of each year in a cabin at White Rock Springs. He said that people from as far north as Duckwater used to come to this spot for hunting and trapping. They would often then go on to Beatty where they would stay with other Indian people. Beatty was attractive because it was warmer in the winter and had hot springs located about five miles north of it in Oasis Valley. The Indian people would keep the Oasis Valley hot springs clean in the same manner that they cleaned the rock water tanks, according to this man. The Oasis Valley hot springs were not extensively modified by Indian people; the white people dug a tunnel back into the hill behind the hot spring, and this alteration was perceived by the Indian people to be wrong.

This Western Shoshone elder came to White Rock Springs both as a child and as an adult. He usually stayed in the stone cabin currently located at White Rock Springs [Photo 57 (YM-207)]. He first came to White Rock Springs with female relatives to gather and process pine nuts. The women collected pine nuts, while the men hunted in the area. Large storage pits were dug near the site in order to store the pine nuts. The women also gathered materials and made baskets while staying at this location. They used Devil's Claw in their baskets, but most of it came from a sandy area near Scotty's Castle in Death Valley.

As an adult, he came back to the area with other men to hunt. He continued to stay at this cabin until the early 1950s. After the area became part of the Nevada Test Site, he continued to hunt here without using the cabin.

Another Western Shoshone representative said that he had an uncle who raised a garden near Tippah Spring to the south. He said that Indian people planted crops everywhere they lived, generally planting corn, melons, and squash. They often located their gardens away from water sources, carrying water to the plants in five-gallon buckets.

Captain Jack, for whom a nearby spring is named [Photo 58 (YM-208)], was a person who was known by one of the Western Shoshone elders. Captain Jack was mixed Paiute and Shoshone. He was like so many of the elders of the time in that he preferred to walk or run rather than to ride a horse. He would run alongside a horse for hours, then turn off the main trail in order to take a footpath that would often put him at a destination before the horse and rider. His knowledge of these foot trails, as well as pride in his ability to run, caused

him to prefer running even though he could have owned a horse. The Western Shoshone elder noted that he also had an uncle who would not ride horses preferring, like Captain Jack, to run alongside and take footpaths.

Feature: Cabin

Western Shoshone

A Western Shoshone elder lived in the stone cabin located near the White Rock Springs. The cabin was used for decades by him, his family, and other Indian people.

PHOTOGRAPHS

Photo 1



Photo YM-1: Tribal representatives and researchers at Forty-mile Terrace (Site #1) looking north along Fortymile Wash, Fortymile Canyon, and to the west at Yucca Mountain.

Photo 2



Photo YM-41: Tribal representatives and researchers at Forty-mile Terrace (Site #1) looking at Yucca Mountain and discussing the study area.

Photo 3



Photo YM-57: Marie Wilson (Las Vegas) and Leslie Davis (Big Pine) on the top of Yucca Mountain (Site #2) point across Crater Flat toward the Bare Mountains.

Photo 4

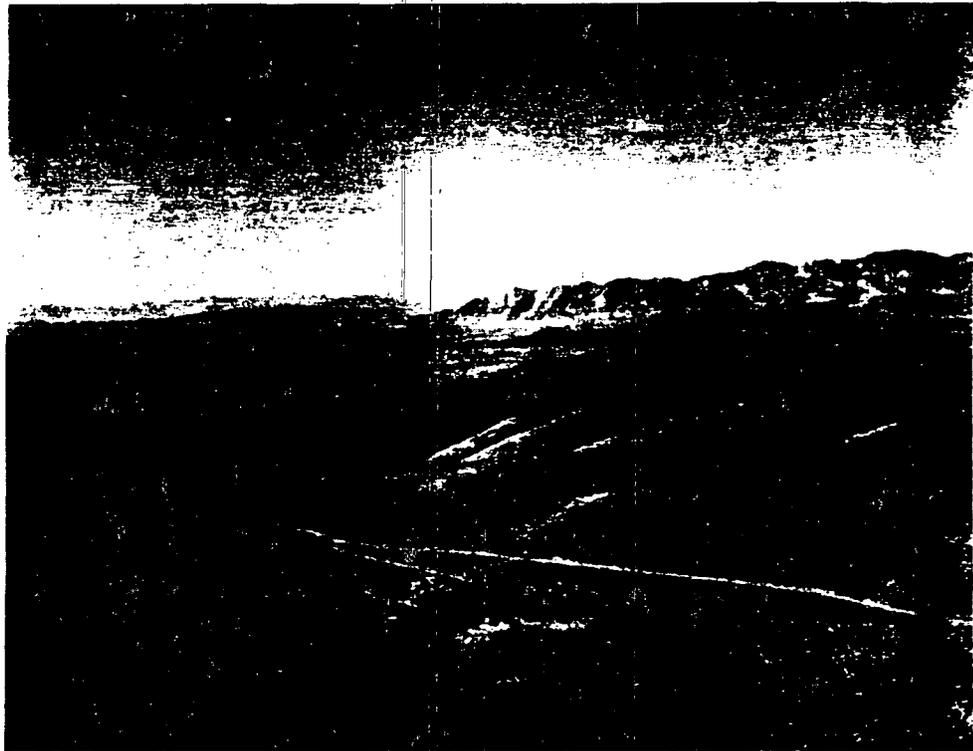


Photo YM-56: View of Crater Flat from the top of Yucca Mountain (Site #2) looking at southern end of Bare Mountain and a road through Steve's Pass.

Photo 5



Photo YM-58: Walking from the Dune Wash Rockshelter (Site #3) to the Twin Tinajas (Site #4).

Photo 6



Photo YM-63: Indian Rice Grass, or wa'ai, found near the Dune Wash Rockshelter (Site #3).

Photo 7



Photo YM-44: Levi Hooper (Yomba) and project ethnographer Richard Stoffle lift two rock covers off of one of the twin tinajas (Site #4).

Photo 8



Photo YM-43: Levi Hooper (Yomba) observes details of one of the twin tinajas after the stone covers have been removed (Site #4).

Photo 9



Photo YM-61: Dune Wash Rock Rings (Site #5), looking northwest across Fortymile Wash towards Calico Hills at the southern end of Shoshone Mountain.

Photo 10



Photo YM-48: Levi Hooper (Yomba), Dolores Gillette (Death Valley), and Rosemary Birchim (Yomba) study one of the eight rock rings (Site #5).

Photo 11



Photo YM-51: Ian Zabarte (Duckwater) observes the buried hearth at Site #6, in Repository Basin area.

Photo 12



Photo YM-68: Marie Wilson (Las Vegas) sits in one of the Azreal Ridge rockshelters (Site #7) and looks into Drill Hole Wash.

Photo 13



Photo YM-133: Herbert Myers (Moapa) holding worked obsidian from Yucca Wash Quarry (Site #8).

Photo 14



Photo YM 127: Lalovi Miller (Moapa), Louella Tom (Moapa) and Herbert Myers (Moapa) discuss rock hearth at Yucca Wash Quarry (Site #8).

Photo 15



Photo YM-143: Richard Stoffle (ethnographer) discusses grinding slab with Irene Benn (Moapa) and Lalovi Miller (Moapa) at Sever Tanks (Site #9).

Photo 16

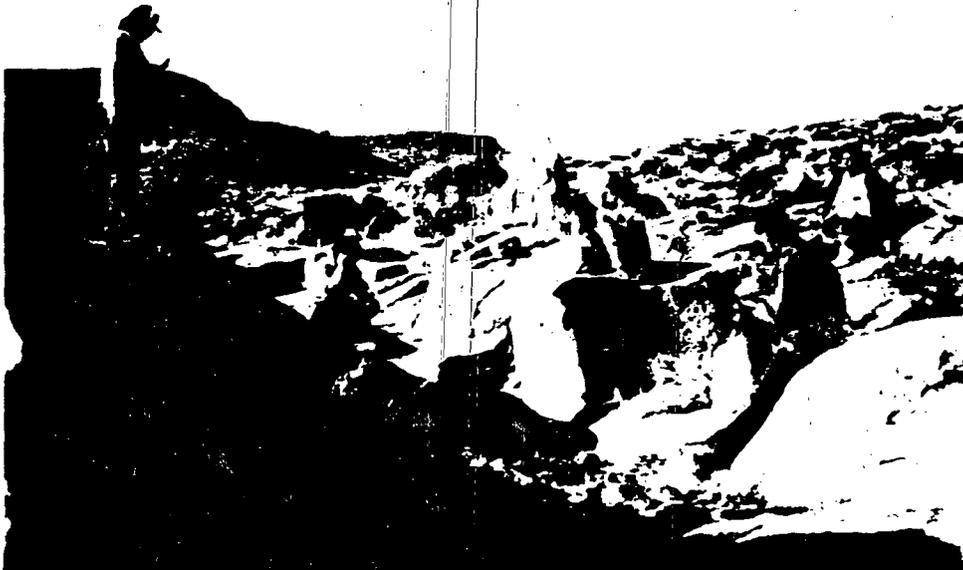


Photo YM-144: Kit Fox (Las Vegas Indian Center), Tom Greider (SAIC), Cari Lockett (DRI), Stoffle (UM), and Irene Benn (Moapa) discuss large Sever Tank.

Photo 17



Photo YM-136: Herbert Meyers (Moapa) points out chipping pattern on lithic material at Sever Tanks (Site #9).

Photo 18



Photo YM-146: Kit Fox (Las Vegas Indian Center) and Stoffle (UM) discuss rock-shelters at Sever Tanks (Site #9).

Photo 19



Photo YM-142: Lalovi Miller (Moapa) and Stoffle (UM) discuss the animal tracks near large Sever Tank (Site #9).

Photo 20



Photo YM-146: Kit Fox and other Indian people walking towards Yellow Rockshelter (Site #10) and Boulder Rockshelters (Site #11).

Photo 21

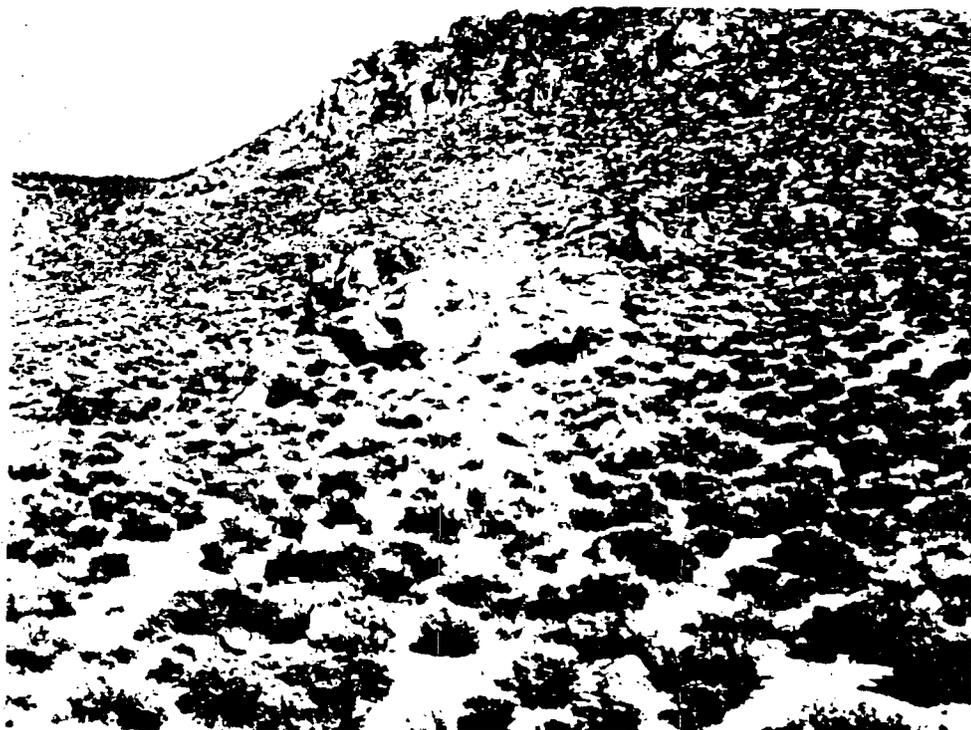


Photo YM-157: Boulder Rockshelters high on flank of north Yucca Mountain with lithic scatter area down slope.

Photo 22



Photo YM-161: Herbert Meyers (Moapa) and Stoffle (UM) discuss rock chips, grinding stones, and rock wall at Boulder Rockshelters (Site #11).

Photo 23



Photo YM-148: View from head of Yucca Wash looking northwest at Chica Gathering Area (Site #12) and Chocolate Mountain and Pinyon Pass on right flank.

Photo 24



Photo YM-187: Boyd Graham (Duckwater) points to 14 inch stone pestle found in rock cairn at Prow Pass Ceremonial Area (Site #13).

Photo 26



Photo YM-184: Ted Shaw (Duckwater) showing how to use a large grinding slab found in Prow Pass Ceremonial Area (Site #13).

Photo 25



Photo YM-188: Boyd Graham (Duckwater) beside stone pestle and rock cairn at Prow Pass Ceremonial Area (Site #13).

Photo 28



Photo YM-196: Effie Smith (Las Vegas Indian Center) at Site #15 holding two pieces of pottery identified by her as Paiute.

Photo 27



Photo YM-199: One of two bundles of traps found in rock-shelter at Trigger Trap Bundle Site (Site #15).

Photo 29



Photo YM-22: View of Twin Springs (Site #16) looking east from Site #17; springs in upper left near white band of rock, camping area in center of photo.

Photo 30

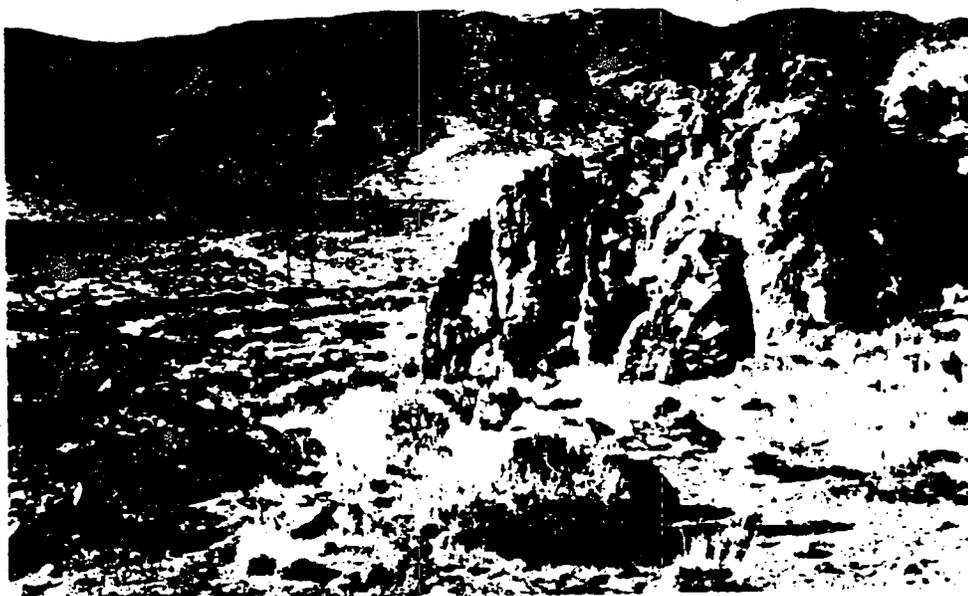


Photo YM-79: A view north up Fortymile Canyon from the camping area at Twin Springs (Site #16).

Photo 31



Photo YM-10: Petroglyph boulder located in Division 1 at the Twin Springs (Site #16). Water Baby sign in foreground, map to spring on top.

Photo 32

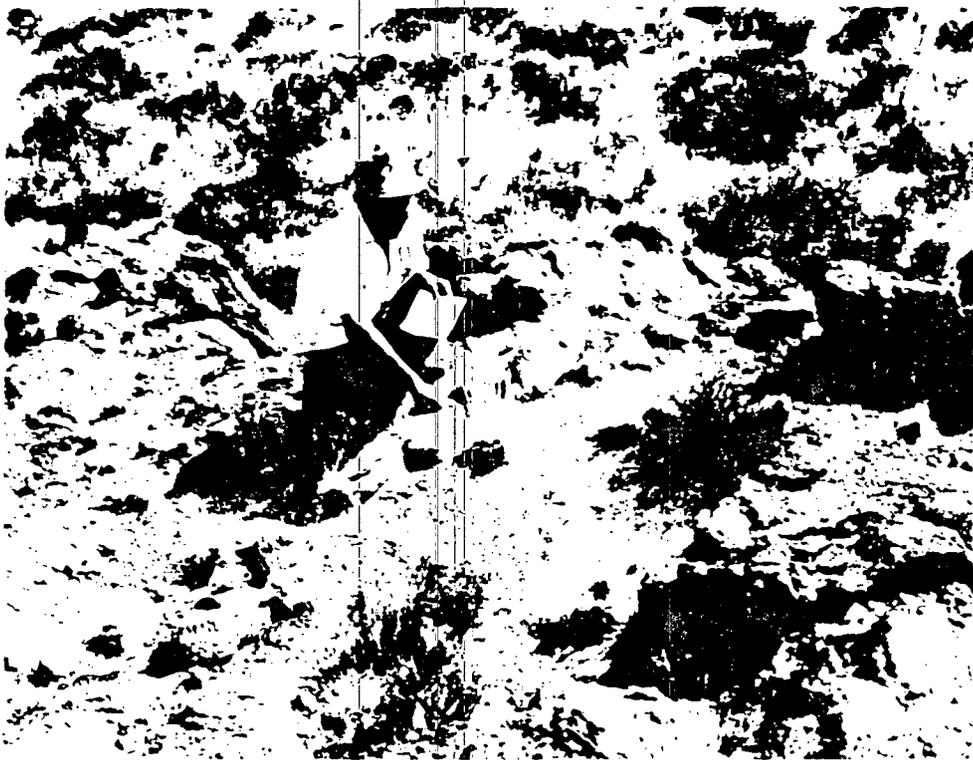


Photo YM-17: Charles Smith (Chemehuevi) takes personal notes on a rock ring that overlooks the camping spot at Twin Springs (Division 1, Site #16).

Photo 33



Photo YM-8: Edward "Tito" Smith (Chemehuevi) holds examples of the lithic (stone) materials found at camping spot at Twin Springs (Division 1, Site #16).

Photo 34



Photo YM-13: Three grooved rocks clustered together at the camping spot at Twin Springs (Division 1, Site #16).

Photo 35

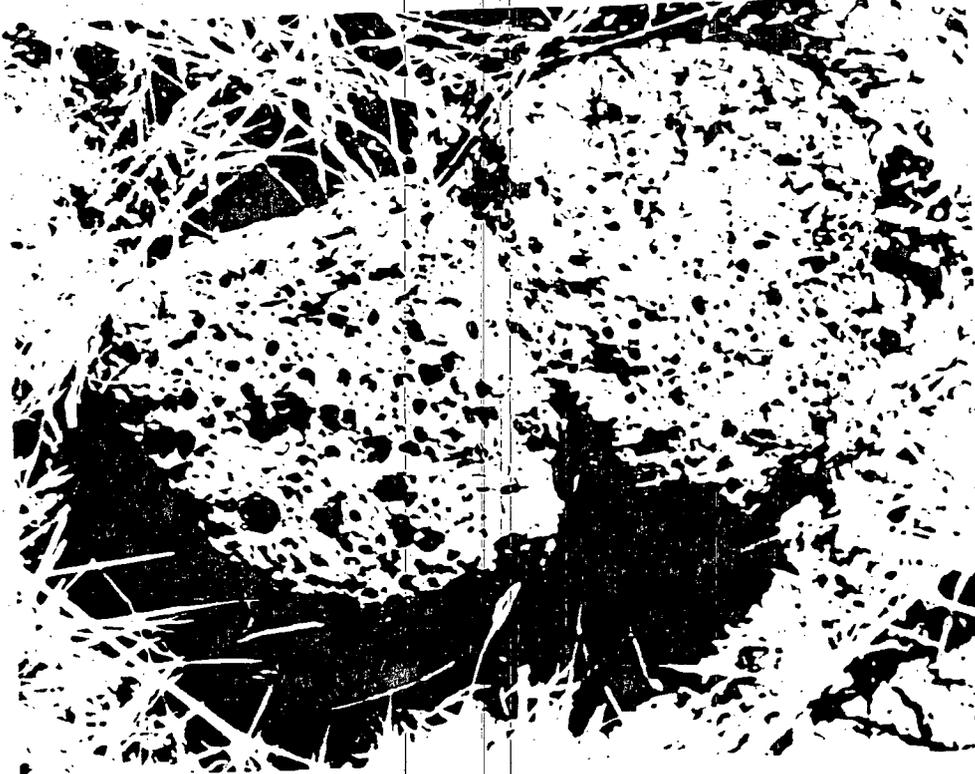


Photo YM-80: One of three grooved rocks clustered together at Twin Springs (Division 1, Site #16).

Photo 36



Photo YM-21: A grinding slab at the camping spot at Twin Springs (Division 1, Site #16).

Photo 38



94

Photo YM-19: Edward "Tito" Smith (Chemehuevi) observes Rockshelter #4 at Site #17.

Photo 37



Photo-87-A: A series of rockshelters (Site #17) at the lowest portions of the central and left ridges; located west of Twin Springs (Site #16)

Photo 39



Photo YM-32: Cari Lockett (DRI archaeologist) and Pauline Esteves (Death Valley) discuss the functions of Twin Springs Rockshelter #1 (Site #17).

Photo 40



Photo YM-33: Hank Patterson (Death Valley) and Stoffle (UM) discuss two southwest-facing rockshelters at the Twin Spring Rockshelters (Site #17).

Photo 42



Photo YM-29: Dolores Gillette (Death Valley) holds a mano (hand grinding stone) found on the east slope of Site #17.

Photo 41



Photo YM-28: Dolores Gillette, Grace Goad, and Hank Patterson (all from Death Valley) stand by a grinding slab on the east slope (Site #17).

Photo 43

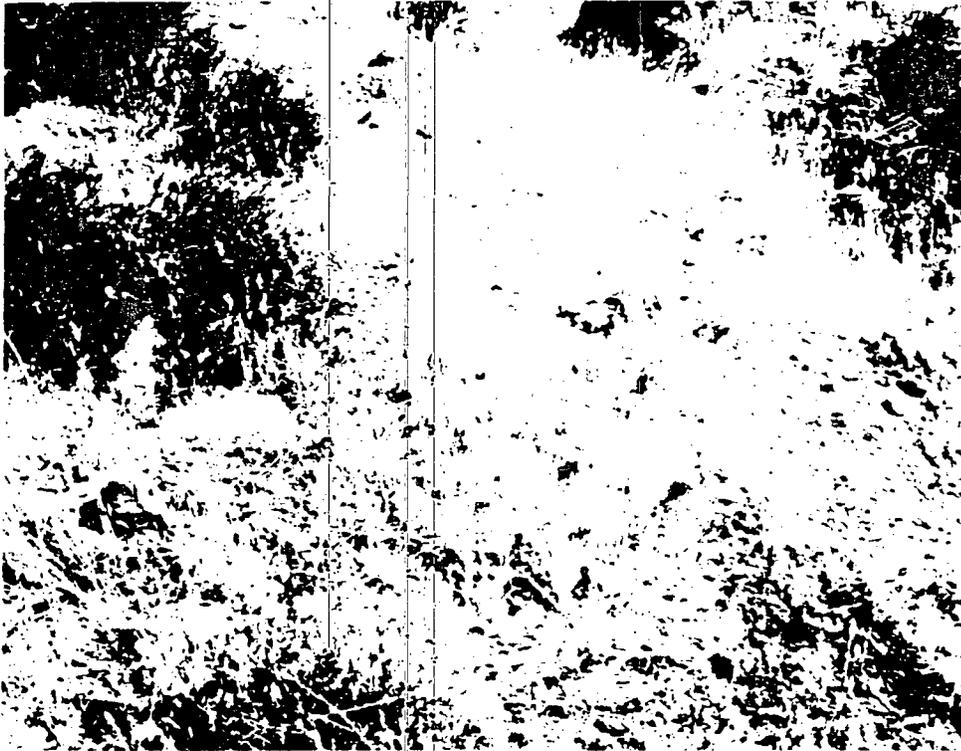


Photo YM-30: The jagged rock ring feature at the Twin Springs Rockshelter.

Photo 44

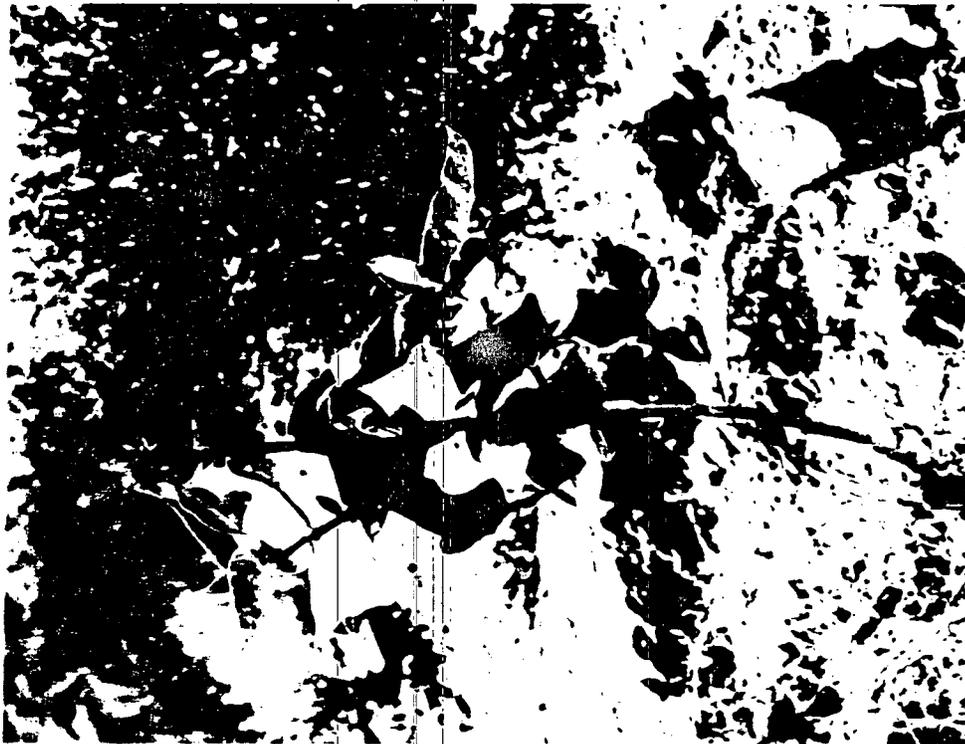


Photo YM-84: A milkweed plant at Rockshelter #3 at the Twin Springs Rockshelter (Site #17).

Photo 45



Photo YM-20: A red-tail hawk nest at Rockshelter #4 at the Twin Springs Rockshelters (Site #17).

Photo 46



Photo YM-38: Cari Lockett (DRI archaeologist) and Pauline Esteves (Death Valley) visit springs and rockshelters at the Yellow Rock Spring (Site #18).

Photo 47

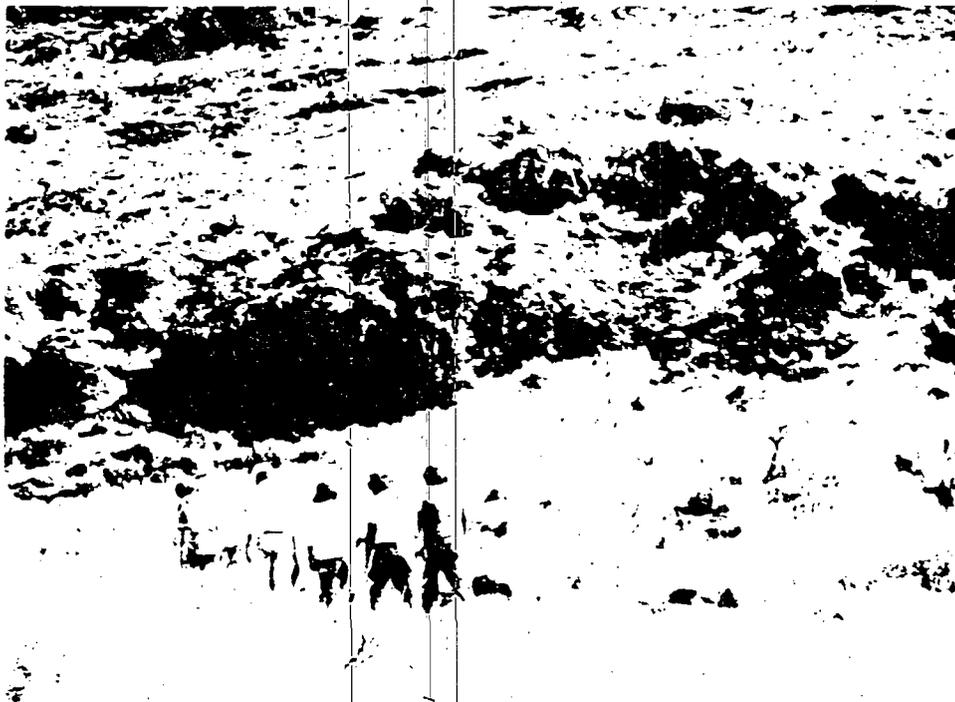


Photo YM-88: Mary Lou Brown (Chemehuevi), Stoffle (UM), Neddeen Naylor (Lone Pine), Woodrow Pete (Cedar City), and Mart Snow (Shivwitz) walk toward the Red Rock-shelter (Site #11) in center of photo.

Photo 48



Photo YM-93: Neddeen Naylor (Lone Pine), Stoffle (UM), Woodrow Pete (Cedar City), and Mary Lou Brown (Chemehuevi) examine a grinding slab at the Red Rockshelter (Site #19).

Photo 49

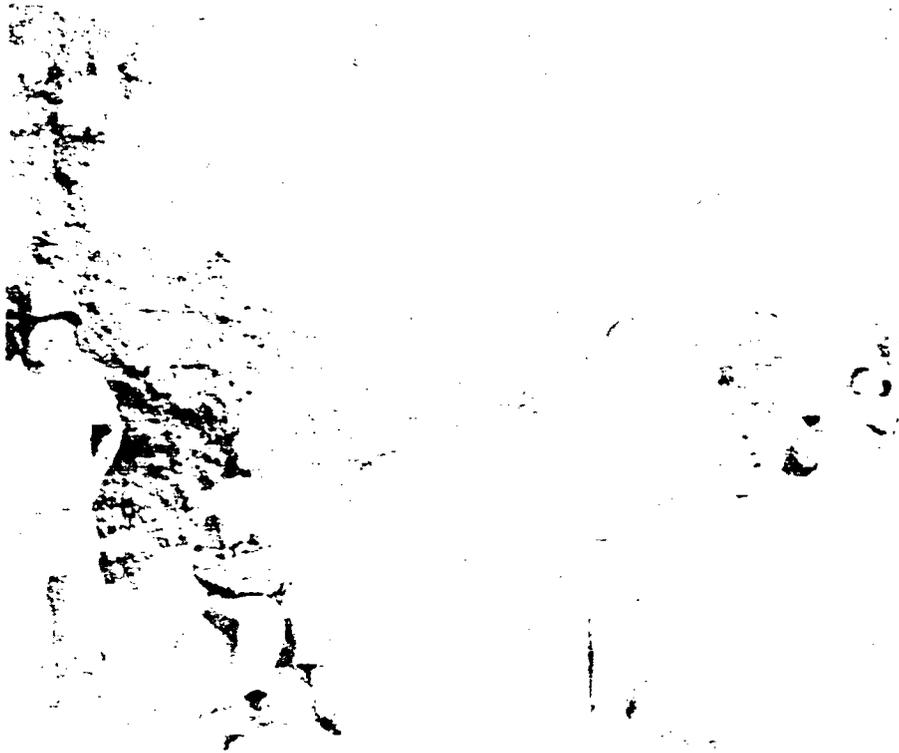


Photo YM-92: Woodrow Pete (Cedar City), Mary Lou Brown (Chemehuevi), Neddeen Naylor (Lone Pine), and Mart Snow (Shivwitz) talk about use of the large rockshelter at Site #19.

Photo 50



Photo YM-75: Leslie Button (Lone Pine) investigates one of the small holes at Site #19 near rockshelter.

Photo 51



Photo YM-78: Angela Colarusso (SAIC escort), Leila Wilder (Fort Independence), and Harry Wilder (Fort Independence) discuss the rockshelter (Site #19).

Photo 52

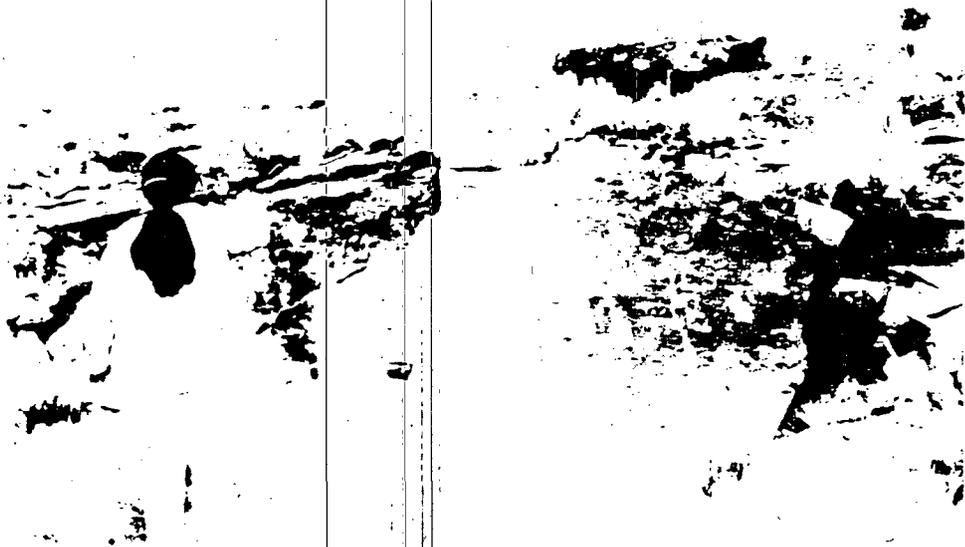


Photo YM-167: Irene Benn (Moapa) and Herbert Meyers (Moapa) discuss petroglyph panel (Site #20).

Photo 53



Photo YM-164: Herbert Meyers (Moapa) discusses petroglyphs (Site #20).

Photo 54

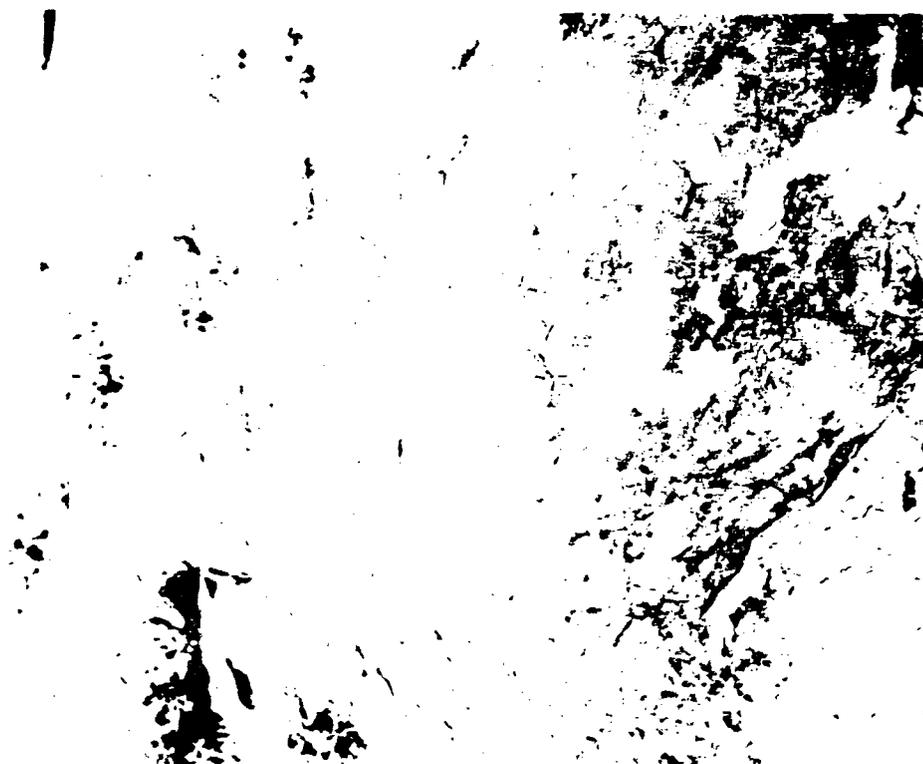


Photo YM-174: Possible medicine rock with man-made hole in center, located on caprock above petroglyph panels (Site #20).

Photo 55

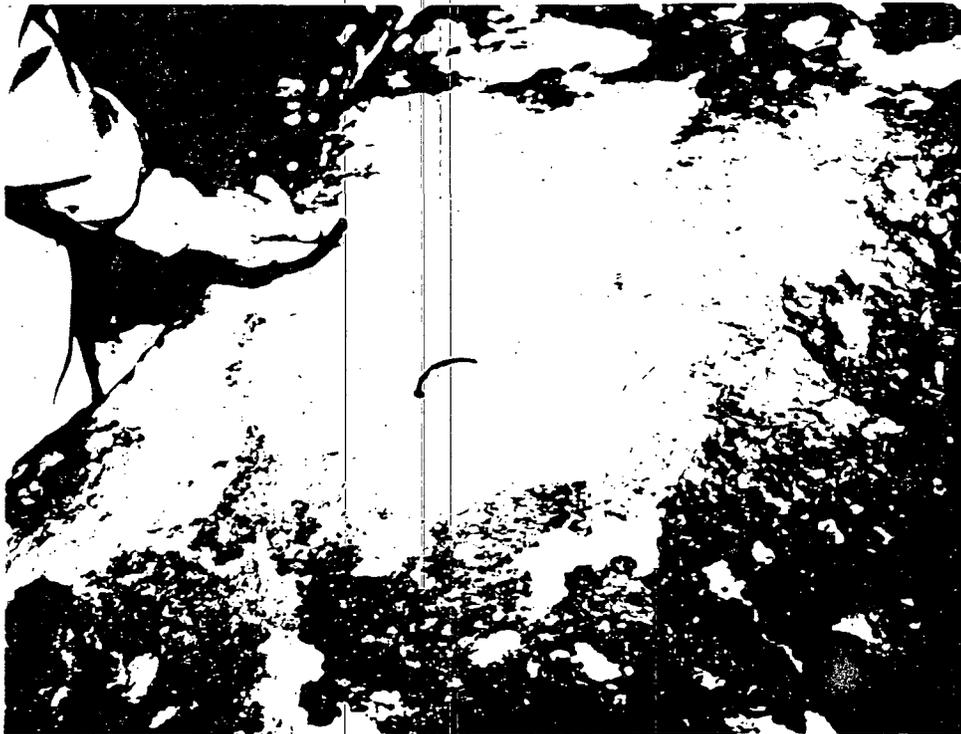


Photo YM-175: Close up of man-made hole in possible medicine stone above petroglyph panel (Site #20).

Photo 56

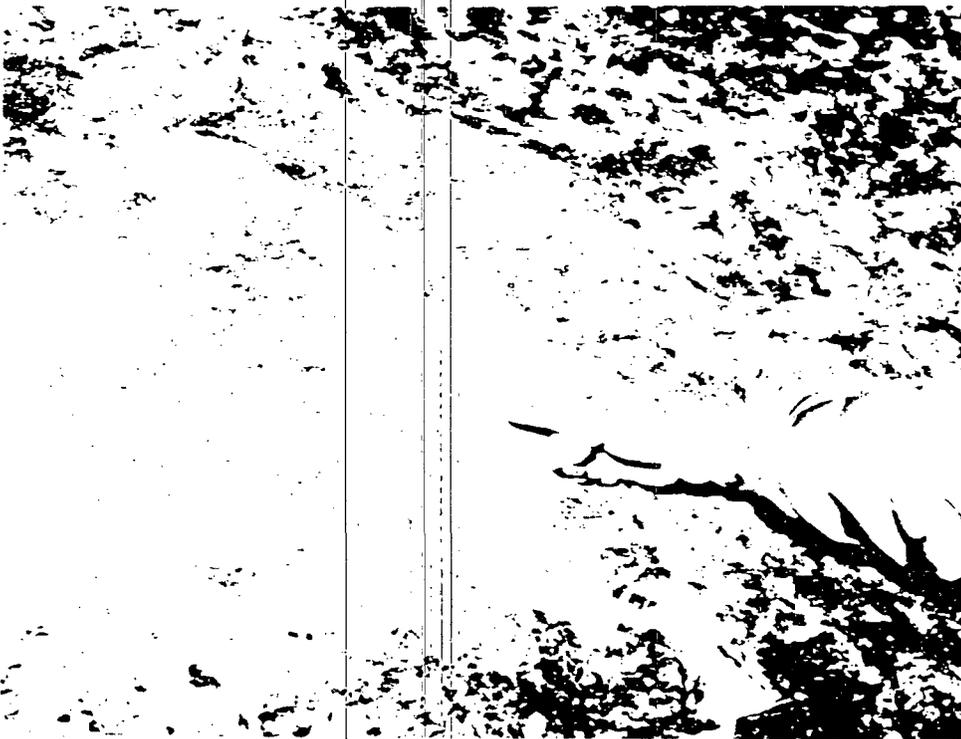


Photo YM-165: Herbert Meyers (Moapa) discusses lizard sign on petroglyph panel (Site #20).

Photo 57



Photo YM-207: Whiterock Spring (Site #21), Ted Shaw (Duckwater), and Boyd Graham (Duckwater) in front of cabin where Ted stayed when living in the area.

Photo 58



Photo YM-208: Earth-roofed stone cabin near Whiterock Springs (Site #21) view to the south towards Eleana Range which contains Captain Jack Spring.

ETHNOGRAPHERS' COMMENTS ON THE SITES VISITED

The purpose of this section of the Yucca Mountain Native American cultural resource study is to identify, locate, and interpret cultural resources in the study area. Because of extremely dry conditions during the summer and fall of 1987 and because of the time of year, plant identification and location will be conducted in the spring of 1988. Also in the spring, a discussion will begin with the tribal leaders and the designated elders to determine what should be done about the identified cultural resources. This mitigation study will address the relative importance of various cultural resources and provide recommendations regarding ways to address potentially adverse impacts to these resources that derive from site characterization or facility development.

This section of Chapter Four provides an opportunity to discuss patterns of cultural resource identification and interpretation that have emerged from the first site visit. The more general meaning of cultural resources and how they are tied into the ethnographic literature are discussed in Chapter Five.

GENERAL CULTURAL RESOURCE INTERPRETATION ISSUES

The Southern Paiute, Owens Valley Paiute, and Western Shoshone tribal representatives identified and interpreted cultural resources at the Yucca Mountain study area. First, it is clear from the archaeological record and from these two weeks of fieldwork that there are hundreds, perhaps thousands, of cultural resources in the study area. Secondly, there are cultural resources that are sometimes difficult or impossible to interpret given the information available to the Indian people at the moment. Some of these interpretations can be clarified and further explained by bringing other Indian people who are more knowledgeable to the site. In other instances, however, the current interpretations are the best that can be achieved. Third, Indian people sometimes provided more than one interpretation for a cultural resource.

More than one interpretation of a cultural resource usually occurred because different Indian people used the same resources in different ways. Some of these variances are explained in the following resource-specific discussions. Other variances in interpretations derived from differences in knowledge among the Indian people who visited the site. Interpretations were based on various types of knowledge: (1) direct knowledge of the Yucca Mountain area, (2) knowledge from their parents, grandparents, or other relatives, and (3) knowledge about similar sites located elsewhere. In most cases, Indian people couched their comments in terms of conditional phrases, like "...it could be," and "...it probably is," that reflect the confidence of the Indian people in their own interpretation. In the preceding portion of this chapter, these confidence statements have been used to present the best interpretations of a site or feature. When apparently legitimate differences in interpretation arose, all possible interpretations were presented, leaving resolution for future study.

Sites are excavated by archaeologists if there is clear danger that the sites may be destroyed. Excavation of features, however, was another factor that contributed to diversity of interpretation. Some of the features were partially excavated, so interpretation was very difficult. Several of the archaeology sites had test pits excavated years before this study and before any involvement of Indian people, so it was impossible at the time to have Indian people interpret the features before excavation. When the archaeology effort and the Native American effort are coordinated, the problem of excavation before interpretation will be eliminated.

A final interpretation issue is concerned with multiple use by non-Indian people and the use of Euramerican material culture items by Indian people. Fortymile Canyon was extensively used by Native Americans during the precontact period and during the historical period. The Twin Springs Site illustrates the problem of intermixing people and artifacts because the site has both precontact and historic occupation features. Numerous historic artifacts lie on the surface of the site, such as tin cans and pieces of metal. Historic period signs naming and pointing to the springs were chipped into the rocks by someone, probably the Euramerican who built the cabin next to the spring. Often Euramerican artifacts and evidence of historical occupation are assumed to be from the Euramericans. It has become apparent from these interviews that this assumption is no longer tenable. Native Americans worked at mines and ranches throughout Nevada after losing control over most of their traditional territories. Invariably, they adopted Euramerican technology while trying to maintain their own cultural values and activities. Hence, Shoshone and Southern Paiute men still went into the mountains to hunt deer, but they used rifles instead of bows and ate canned beans instead of mesquite beans. One elderly Shoshone man, who had camped in the Twin Springs area during the 1930s before the Nevada Test Site was established, remembered numerous times he traveled through and lived in the area until the mid-1950s. During this time, he used a mixture of traditional Indian and adopted Euramerican technology. So, a historic period site and associated Euramerican artifacts may have been used by the Indian people, who may still value these things and places.

PLACE

While visiting Yucca Mountain, several of the elders from the three ethnic groups recalled numerous experiences that they had in the area. Some of the younger tribal representatives also recalled what their family members and other respected elders had said about traditional Paiute and Shoshone activity in the Yucca Mountain area. Members of three ethnic groups used the area in recent times for gathering plants, hunting coyote and bobcat, and herding horses. According to interpretation provided by Indian people, the Yucca Mountain area was also used for religious ceremonial activity and for burying the deceased. After visiting some of the sites, the Indian people said that it is apparent that the area was used by Native American Indians for hundreds, if not thousands, of years.

PLANTS

Many important plants were identified during the site visits in spite of dry conditions. Plants used for food, medicine, and baskets were identified. Greasewood, *hoop* berries, and rice grass are all plants tied into traditional lifeways. Recognized plant areas, such as those surrounding the Buried Hearth Site and at Dune Wash, are potentially the locations of important food and medicine plants. A Western Shoshone elder stated that there is an abundance of plants for food and medicine in the study area. Fortunately, this issue is the subject of further study because the ISR ethnographic team plans to conduct an ethnobotany visit to Yucca Mountain in the spring of 1988. A detailed report of the use of food and medicinal plants will be provided after the spring ethnobotany visit.

The possibility of extensive long-term occupation of the area by Native Americans is a question to be tested by further plant study. The hypothesis that the area was more than a place on the way to somewhere else is reinforced by the tentative identification of Devil's Claw at the Twin Springs Site. Devil's Claw is widely used in basketry by Native Americans in the Southwest. Traditionally, Native American basket makers would transplant Devil's Claw in

order to provide supplies of the material close to where they were living. As a consequence, Devil's Claw is somewhat unique among desert flora because it has two varieties: one is wild, and the other, a domesticate (Nabhan et al., 1981). It is often easy to tell one variety from the other by looking at the seeds. The wild variety has black seeds while the domesticated variety has white seeds. If the plant tentatively identified as Devil's Claw is found to be of the domesticated variety, this identification will reinforce our data on long-term, purposeful occupation of the Yucca Mountain region by Shoshone and Southern Paiute people. The spring ethnobotanical visit with the tribal plant specialists will help confirm the presence of this and other plants.

ANIMALS

Coyote tracks were observed at a number of sites, and a coyote was seen by an ethnographer. Much of Southern Paiute and Western Shoshone mythology is based on the coyote, and the animal has been given a special status differentiating it from other animals. Any activity perceived to have an adverse impact on coyote habitat is unacceptable to many Indian people.

One deer was seen in Yucca Wash, and numerous deer tracks were observed, some apparently made the night before a site visit. Deer trails were found at the Twin Springs Site (Division 1). A Southern Paiute elder said that the trails reinforced his interpretation that the nearby rock ring was used as a hunting blind since deer can use the same trails for many years. Many of the Indian people had heard stories about eight-point deer on Pahute Mesa; these stories corresponded with their own knowledge of deer-hunting activity in the area before the Nevada Test Site was established.

One morning, on the way to Yucca Mountain from Mercury, a golden eagle was observed sitting by the side of the road. The eagle took flight just as our trucks came abreast of it. Eagles are very important in the religious beliefs of all Indian people, and the sighting of this bird was considered by the site visit participants as a good sign for the day's activities.

A red-tail hawk was observed several times along the road leading to the top of Yucca Mountain overlook. Several people felt that the area must have been the hunting territory of the hawk since it was seen at the same location at different times over a period of several days. A red-tail hawk's nest was also located at rockshelter #4 at the Twin Springs Site. Red-tail hawks are important in the religious beliefs of Indian people, especially the Southern Paiutes, who consider the red-tail hawk to be sacred.

Another Western Shoshone elder has direct knowledge of other kinds of birds at Yucca Mountain. He recalled seeing quail, nutcrackers, woodpeckers, flickers, and two kinds of bluejays at Yucca Mountain.

Also identified are the desert tortoise and chuckwallas. While no desert tortoise and chuckwallas were seen during the site visits, Indian people reported previous sightings of chuckwallas in the area. A desert tortoise was observed by the ethnographers at the Dune Wash Rock Ring during a preliminary site visit in May 1987. The desert tortoise, while used traditionally by the Paiutes and Shoshone people in religion and as a food source, is now strictly a religious animal. Chuckwallas were used for food and medicines, but are only used for medicine today.

BURIALS

The ethnographic data indicate that the issue of identifying and protecting burials will be prevalent throughout this Native American cultural resources project. The rockshelter complex at Twin Springs Site is an important location partially due to the possible burial located there. One Shoshone elder remembers attending a one-year mourning ceremony in the White Rock Springs area. Perhaps, there are multiple burials in the Prow Pass Ceremonial Area.

The power inherent in burials is enough in itself to make Indian people classify a site as culturally important. If a site has possible burials and other cultural resources, the overall concerns for the site increase exponentially.

Indian people who visited Yucca Mountain emphasized that burials have power and should not be disturbed. However, protecting burials is a complicated process because Shoshone and Southern Paiute burials are very difficult to locate, even by knowledgeable people. Furthermore, the most competent people in locating burial locations, members of the Owens Valley Paiute, Southern Paiute, and Western Shoshone ethnic groups, are the ones who most want to keep burial locations secret to ensure their protection. In the case of this cultural resources study, some potential burials were identified because the Indian people trusted that, within the context of this study, the identification would provide justification for and lead to their protection.

ARTIFACTS

Grinding slabs and hand-held grinding stones were found at several of the sites. The Indian people would frequently pick up and experience how hand grinding stones fit into the palms of their hands. One Owens Valley Paiute man identified a particular grinding slab at the Red Rockshelter Site as typical of what he was familiar with from his childhood. The grinding slab had been turned upside down near the edge of the rockshelter. He said that often the grinding slab would have markings on it, identifying ownership. The grinding slab would be turned upside down over the handstone when a family left the shelter. Sometimes, branches would be placed over a rockshelter to camouflage its location. Grinding slabs were found at each rockshelter visited during the site visits, indicating that plant, seed, and meat processing was a major activity of the Indian people living in the area.

One Owens Valley Paiute woman expressed concern that the handstones would be picked up and hoarded by non-Indian people. Concern was also expressed for other artifacts, such as arrowheads and pottery, found at Yucca Mountain.

Obsidian flakes found by Indian people during the site visits stimulated many conversations and interpretations. For one Southern Paiute woman, picking up and holding an obsidian flake triggered the memory of her grandmother's medicinal use of the stone. Her grandmother used obsidian flakes to cut her wrists and drain out "thick" blood that caused sluggish feelings. This memory had not come to mind until holding one of the many obsidian flakes at Fortymile Wash. The experience tends to validate the argument for letting Indian people see cultural resources firsthand at Yucca Mountain.

Pottery shards were found by Indian people at a few sites, such as on the west slope of Twin Springs. A Southern Paiute recognized pottery shards found on this slope and said that they were similar to the style of pottery found at Pahrump, Nevada. A brief discussion then took place about the possible historical relationships that might link Southern Paiute

pottery with pottery located at Yucca Mountain. In the same location, Indian people found a pottery shard with lines showing formation patterns. Pottery fragments found at the Dune Wash Rockshelter were interpreted as being associated with a possible burial in the area. Western Shoshone people explained that it was common practice to break a deceased person's pottery.

Other artifacts in the study area included a cluster of grooved rocks that were identified as having three basic functions. The rocks could have been used as weights to hold down rabbit nets used during rabbit drives. This interpretation came from Indian people who had some experience with using rabbit nets. Another function was as a tool, either for pounding plant material, for straightening arrows, or for use as a weapon. A third function was as weights used to hold metal traps, such as those used by Indian and Euramerican trappers during the historic period. Like many of the cultural features in the Yucca Mountain region, all of these interpretations can be appropriate. Because the three grooved rocks were found clustered together, it is assumed that someone left them in anticipation of returning to the area.

The petroglyph boulder at the Twin Springs Site was thought by the Indian people to have been moved to its location from somewhere else. The consensus was that the petroglyph was a map, or trail sign, indicating the location of the springs in the area. Other markings on the rock were interpreted as a graphic map of the mountain ranges in the vicinity and as ownership markings related to the springs. This information reinforces interpretations given by Western Shoshone representatives who saw the large area of petroglyphs at the Petroglyph Panel Site. These petroglyph panels were interpreted as being a large map of the surrounding area, showing the relation of Fortymile Canyon to the surrounding places.

According to the Paiute and Shoshone people who participated in this study, rock rings were used by their ancestors for a variety of purposes. The rock rings in Dune Wash elicited numerous interpretations. The Owens Valley Paiute tribal representatives interpreted the rock rings as a structure for storing domestic materials or as sleeping circles. Southern Paiutes interpreted the rock rings as possible sleeping circles, hunting blinds, ambush points, or burials. Western Shoshone tribal representatives associated the rock rings with seed husking, thrashing, and grinding. Another Western Shoshone tribal representative interpreted the rock rings as tepee rings or a place to view game during hunting activity.

The jagged rock ring (Site #17) was an atypical rock ring in that the rocks were jagged and were positioned in an upward, vertical direction. The typical style of rock rings used for hunting and food processing includes round-edged rocks placed in a flat, horizontal position. Western Shoshone and Southern Paiute tribal representatives interpreted the jagged rock ring as a burial marker because of these characteristics. As mentioned earlier, pottery fragments found nearby were associated with a possible burial since breaking the possessions of the deceased was a common practice.

Rockshelters were interpreted as living spaces usually associated with positive environmental characteristics, such as proximity to pine nuts or plants. Physical locations of rockshelters were also taken into consideration for their interpretation. For example, the Azreal Ridge Rockshelters are in a high inaccessible location and were interpreted as a place to hideout and protect the family. A rockshelter at Twin Springs (rockshelter #1) was interpreted as being used for protection because of its location at the top of a ridge.

CHAPTER FIVE

CHAPTER FIVE: ETHNOGRAPHIC OVERVIEW OF CULTURAL RESOURCE FINDINGS AND RADIOACTIVITY INTERPRETATION

This chapter presents an ethnographic summary of cultural resource concerns specific to the Yucca Mountain site characterization study area and an overview of key theories of knowledge that are relevant to how Indian people interpret radioactivity. The purpose of this ethnographic summary is to render more understandable the wealth of site-specific interpretations presented in Chapter Four. Emerging from the ethnographic data are insights into the philosophical foundations that serve both Indian and Euramerican people as theories of knowledge, i.e., epistemology, for interpreting all cultural resources, as well as radioactivity. One highlighted finding is that some tribal elders are interpreting radiation in terms of traditional cultural understandings about the physical universe.

SPECIFIC CULTURAL CONCERNS

A number of specific cultural resource concerns emerged from the first and second visits to the Yucca Mountain area and from key cultural expert interviews conducted on the reservations. In this section of Chapter Five, these concerns are summarized. The details of the location and nature of these concerns are presented on a site-by-site basis in Chapter Four.

CONCERNS FOR PLACE

The Yucca Mountain area was jointly used in traditional and historic times by Shoshone and Paiute people. We are only beginning to understand the various purposes of the area, but our preliminary findings suggest that it was much more than an area on the way to somewhere else. Yucca Mountain was a place where people camped at many times of the year to accomplish a wide range of tasks. In the spring, there was food, medicine, and basketry plants to be gathered. By midsummer, certain important grass seeds were ripe for harvest. In the fall, pine nuts were gathered to the north on Timber Mountain and Pahute Mesa and to the east on Shoshone Mountain. Indian people suggested that pine nuts were carried to the lower elevations of Yucca Mountain for drying, processing, and, perhaps, storage.

Since all persons were simultaneously engaged in different activities, plant gathering would have been combined with hunting and the preparation of equipment. Rabbits would have been hunted throughout the spring and summer, but would have been the focus of large communal drives in the fall. Deer would have been hunted throughout the year, including during the winter months when they would have been in greater abundance due to leaving the colder elevations and traveling to the warmer Yucca Mountain area. Tortoise were hunted for meat and shell rattles. Chuckwallas were caught in the spring, summer, and fall to be used for food and for an important medicine. Stone quarries provided special quality materials for the production of lithic tools.

Fortymile Canyon tied these various resources together serving as a major north-south trail route. Rockshelters along its length appear to have been extensively used for processing and for storage of surplus food and equipment. The canyon is so important that its Indian name (*Tovgwahunump*, which literally means Snake Canyon) was known by Shoshone people from as far north as the Yomba Shoshone reservation, from as far south as Death

Valley, and by one Owens Valley Paiute, whose grandfather traded with people in the Yucca Mountain area. In addition, numerous Indian people suggested that petroglyphs found in the canyon and at its northern terminus are symbolic representations or maps of the canyon and its resources.

In summary, the Yucca Mountain area is important to contemporary Indian people because they identify it as a place of traditional Indian activity. During the visit, several people identified different Indian camp sites and described historic ties with the Yucca Mountain area. For example, one Western Shoshone man explained that he camped and ran wild mustangs through the area. Another man spent most of his life gathering plants with female elders and hunting with male elders in the area. For these individuals and for many others, the Yucca Mountain study area has places of direct historic and cultural significance.

CONCERNS FOR PLANTS

Native Americans relied on plants for their survival, making ethnobotanical knowledge essential to their "transhumant adaptive strategy" (Stoffle and Evans, 1976) for living in the desert. An intimate knowledge of plant genetics has been suggested as a major cultural focus of desert-dwelling Indian people (Anderson, 1956; Shipek, 1970).

A wide variety of plants continue to be used by these ethnic groups for food, medicine, ceremonies, and economic activity. It is evident that plants are important to Southern Paiute, Western Shoshone, and Owens Valley people because they say a prayer before a plant is picked and used. The prayer contains a request that the plant provide the needed medicine or nutrition. The plant, like people, has rights.

Yucca Mountain was identified as a place with several plants that have been traditionally used by these Indian people for medicine and food. Among the important medicinal uses of the types of plants found at Yucca Mountain, one type of plant had been used by one of the Indian people visiting that area to treat his cancer. Pine nuts, a major source of food, could have been gathered from Chocolate Mountain, the Shoshone Mountains, the Calico Hills, and Timber Mountain.

Unfortunately, the plants in the Yucca Mountain area were dormant due to the lack of summer and fall rains. Less than one-tenth of an inch of rain had fallen during the previous four months. As a consequence, the plants had dropped their leaves to reduce moisture loss. In such a condition, the plants are almost impossible to identify.

In spite of the dormant condition of the flora at Yucca Mountain, a few plants were recognized and commented on by Indian people during the site visit. These include plants traditionally used for basket weaving, food, and medicine. Of special importance was a plant found at Twin Springs that was tentatively identified as Devils' Claw, which produces a black fiber used in coiled baskets. Were the presence of this plant to be confirmed, it would indicate that specialized basket-material plants had been planted at one of the springs in Fortymile Canyon. This transplanting would be strong evidence supporting the regular and extensive use of the Yucca Mountain area.

A spring visit is planned to resolve many of the plant identification and usage questions raised by the first visit. A professional botanist will accompany the Indian plant specialists to ensure proper Western scientific identification of the plants.

CONCERN FOR ANIMALS

Indian people express concern for all animals because of a traditional belief that all insects and animals are important to the earth. Respect for animals is demonstrated in the kinds of traditional prayers that are said in association with hunting and taking the life of an animal.

Animals can be known by their sign as well as by direct observation. During the one-week visit to the Yucca Mountain area, a number of animals were observed while others were identified from sign. A few were suspected of living in the area based on the type of environment where those animals normally live. Two animals, the desert tortoise and the chuckwalla, were singled out as being relatively unique to the area and important to Indian people. Both of these animals are cultural resources; the desert tortoise is part of Southern Paiute tribal religious symbolism, and the chuckwalla is used medicinally.

CONCERN FOR NATURAL ELEMENTS

The concern of Native Americans for natural elements is strong, as it is for place, since soil, water, rocks, and minerals are components of the Holy Land. Many of the Southern Paiute and Western Shoshone elders who visited Yucca Mountain commented that they hold in high regard people who have knowledge of water sources, which are so vital for sustaining life in the desert. The Indian people believe natural elements should be protected from contamination and alteration.

Most of the Indian people who participated in the visit expressed concern for the kinds of adverse impacts the proposed high-level nuclear waste repository might have on the earth and water in the Yucca Mountain area. One Indian woman stated that the repository site and site characterization surface disturbances would permanently, and therefore unacceptably, alter the quality of the earth at Yucca Mountain. A number of Indian people told us that they believe the water system of the Yucca Mountain area is connected to a single, integrated, regional water system, so any radioactive leakage at the Yucca Mountain waste facility would harm the animals, plants, and people of the entire region. Derived from this perception, Indian people who live as far away as Parker, Arizona, feel that they could be directly impacted by the waste facility at Yucca Mountain.

The belief that the water sources are connected underground to each other correlates with the belief about Water Babies. Both Western Shoshone and Southern Paiute people mentioned Water Babies could be present at springs in the area. According to the ethnographic literature (Miller, 1983), Water Babies owned springs and had elaborate systems of underground pathways. These pathways usually took form as underground watercourses so that the Water Baby could travel from one spring to another. Water Babies are never good, at best neutral, and are extremely dangerous. If a person angers a Water Baby, the person will almost surely die. By extension, then, any activity that damages or destroys the underground water sources will anger the Water Babies who own it, thereby endangering everyone in the vicinity.

CONCERN FOR BURIALS

Burials are among the most sensitive of traditional cultural resources. According to Miller (1983:75-76),

As power has a profound affinity for the living, some of it lingers as long as there is any vestige of life. Hence, there is always some power around graves, but by its nature it is less vital and so more likely to cause harm or be used in sorcery. It appears to be power that has been trapped and stagnated, only released when decomposition is complete. Therefore graves are generally avoided.

Even discussing burials can bring on emotional stress to Indian people. One Indian elder warned that if people walked through the dust of a burial, physical harm could come to them. Disturbance of burials can potentially bring the spirit of the deceased back to earth. So, the task of identifying burials is physically and emotionally dangerous to the living person and is never taken lightly.

In addition to the belief that burials contain power and that they should never be disturbed, death and the resultant burial ceremonies are significant components of Southern Paiute and Shoshone culture. Burial ceremonies are religious events involving great numbers of people who engage in song and prayer. The deceased person is remembered at a one-year ceremony of worship and prayer. Disturbance of a burial can require that a ceremony be repeated at great emotional and economic cost to the involved Indian people.

Paiute and Shoshone burials were designed to be self-covering. Whenever possible, burials were placed in low rock cliffs having steep eroding rocks above them, but less steep non-eroding areas below. Such a burial location would continue to cover the body of the deceased. As a result, over time, burials become more and more difficult to identify. Identification of burials is, therefore, a judgment decision based on an Indian person's knowledge of traditional burial practices and an interpretation of existing physical features.

Paiute and Shoshone burials can occur in areas that also have other important religious values attached to them. Any power from these other sources is consequently combined with the power inherent in the burial. Burials that are associated with caves, springs, certain kinds of petroglyphs, and trails will tend to concentrate the power in the area, making the location potentially very hazardous to living people unless the correct precautions are taken. Partly to avoid the negative consequences of this concentrated power and partly to avoid the deceased person's spirit, Paiute and Shoshone people would leave a habitation site when someone died and was buried there, even if it was at a desirable location. Often these people would never return to the area. One elderly Shoshone man described just such an incident that occurred when he was a young man living and working in the Yucca Mountain area.

According to a number of Indian people visiting the area, portions of the Yucca Mountain area have many of the characteristics associated with burials. The area was extensively used over a period of hundreds, perhaps thousands of years, and there are numerous rock ridges ideal for self-covering burial locations. Indian people identified six potential burial sites in the Yucca Mountain area. One Western Shoshone elder described the Twin Springs Site

as a place where he had camped on his way to attend a one-year death ceremony at White Rock Springs. Other Southern Paiute elders indicated that many Indians lived in the area, and there are many Indian burials there. One area in particular (the Prow Pass) might be a significant burial area, containing more than one burial.

CONCERN FOR ARTIFACTS

Southern Paiute and Western Shoshone people believe artifacts belong to the original owners, the Indian people. They believe that artifacts were intentionally left in a spot and that they should remain there until their original owners return. Artifacts left by Indian people in traditional camping, gathering, and hunting areas are important to Indian identity, history, and culture.

Many people expressed the fear that artifacts will continue to be taken from sites and hoarded by amateur pot hunters or bulldozed at construction sites. Ambivalent feelings were also expressed about artifactual materials taken from sites for study by archaeologists. Many people said that the artifacts should be returned to the appropriate tribe. The removal of artifacts is a potential source of conflict between Native Americans and archaeologists; however, mutually agreeable artifact mitigations have been developed between many of these involved tribes and regional archaeologists.

In the Yucca Mountain area, the Indian people identified cultural values associated with a wide range of artifacts. Their observations filled the ethnographic field notes and are presented in detail in Chapter 4. The Indian people explained how many of the artifacts were used and how the artifacts served as a physical validation of their ethnic connection with Yucca Mountain. In addition, the artifacts were perceived as belonging to the person who left them in that specific location.

A TRADITIONAL VIEW OF RADIOACTIVITY

Indian people have responded strongly to the concept of radioactivity being near traditional plants, animals, artifacts, and places of occupation. Why they have responded in this manner is not as well understood as why they respond as they do to other types of projects like power transmission lines and natural resource exploitation. The latter response is better understood because they have responded to dozens of cultural resource impact assessments over the past decade.

Although there have been a number of projects in the region involving radioactivity, to our knowledge there has been only one study of the potential impacts of project-related radioactivity on Indian people (Cultural Systems Research, 1987; Stoffle, Evans, and Jensen, 1987). That study assessed the potential impacts of the proposed California low-level radioactive waste disposal facility on Indian people in the Mojave Desert. Eight of the sixteen Yucca Mountain tribes participated in the California study. The present Yucca Mountain study builds on these few previous insights and may produce the first complete assessment of a traditional American Indian interpretation of radioactivity.

RADIOACTIVITY: THE ANGRY ROCK?

Ethnographic studies of human societies document that people who live in a region over long periods of time come to understand, explain, and deal with most of the natural components of their environment. Such knowledge is termed "local knowledge" or "emic perspectives" of the environment. The Shoshone and Paiute people involved with this study certainly

quality as having local knowledge inasmuch as they have lived in the region for more than a thousand years. What is not as certain is whether radioactivity or any of the many radioactive minerals would have been recognized as a natural element.

During the State of California low-level radioactive waste facility siting project, Indian people were asked whether radioactivity existed before it became widely known and used as a man-made element in the 1940s. Responses varied widely. Many people said the concept of radioactivity was not taught in schools when they were kids so they were not aware of it. These people either misunderstood the question or were reluctant to discuss a sensitive issue relating to traditional beliefs. Others, generally persons the researchers had known for years, began to consider the issue and to provide partial interpretation. One Chemehuevi Paiute elder, for example, discussed places where the old people told him never to spend the night. These were places of great power that could make you sick if you remained there. He also told the ethnographers about powerful rocks that could cure or harm and were used only by religious leaders. If these rocks were broken, they could release their power and potentially harm people. Consequently, it was always better not to break a rock unless you understood the extent of its power.

Other Indian people confirmed these ideas about rocks having power. It is recognized that some rocks have more or different power than others. Breaking a rock or removing it from its place without fully explaining these actions not only releases the power inherent in the rock, but also angers the rock.

Rocks can also be self-willing, inasmuch as they can reveal themselves to people and act on people. Crystals, for example, have a self-willing, animate power and will reveal themselves to a person whom they desire to be with. If this person picks them up, the person will have great luck. The luck, however, is taken away from others and eventually people will come to recognize this fact and single out the excessively lucky person as having used some nonhuman power at the expense of his or her people. Threats of community sanctions usually make the person take the crystal back to where it had revealed itself and return it with an explanation of why it was being returned. The ethnographic literature also discusses the power of crystals for Great Basin and surrounding Native American groups (Levi, 1978; Miller, 1983).

During the key cultural expert interviews for the cultural resources project, various people were asked specific questions about a traditional perception of radiation and general questions about rocks and their power. While knowledge of this issue and full understanding of the questions appeared to vary, as it had in the California study, the issue of trust seemed to dominate the responses. The researchers, for example, had not worked closely with the Owens Valley Paiutes and Western Shoshone people, thus few interviews delved into basic philosophy. In contrast, Southern Paiute people were more at ease with the researchers and discussed the issue openly.

The following is a slightly edited text from a Kaibab Paiute elders meeting held on the Kaibab Paiute reservation. The meeting was conducted as part of the initial interviews with tribal elders regarding disposal of radioactive waste at Yucca Mountain, Nevada. This text represents one of our first interpretations of radiation in a traditional context. Eleven people, mostly elders who knew each other well and had worked with the ethnographers for more than a decade, attended the three-hour meeting.

Ethnographer:

Did the old people ever worry about those rocks? I mean, those rocks have been around. Were there ever places where the old people said you couldn't go because the rocks would cause harm? Is it possible that the old people actually knew about radioactivity and the harm in the rocks?

Indian Woman #1:

Not that I know of, I don't think they knew 'cause they never went to school or studied anything like that.

Indian Woman #2:

(She speaks in Paiute for a few minutes discussing the question.)

Indian Woman #1:

Maybe that's what it meant. We didn't understand them. We didn't listen to our older elderly people too much, 'cause as she (indicating the other elder) says that in the old days, you know, old Indian people used to say that even rocks are harmful. They are cruel.

Indian Woman #2:

Maybe that's what it meant.

Indian Woman #1:

They were probably trying to tell us, and we didn't understand. We didn't pay attention to them that much. But the only thing that I really paid attention to is my grandfather telling me even the lakes and the rivers, the Colorado River especially, at times it gets mean. It'll take a life. They'll run around there and holler and go wade around in there, it will get angry with you, it'll take you. (She tells a story of a little boy who drowned; it validated the belief for her.)

Indian Woman #3:

The elders told me they also believe . . . rivers are supposed to be flowing freely, but what does man do today? They dam them up, so, therefore, those lakes and dams that are man-made are no longer safe because they've been forced to stand like that and don't belong there. The water doesn't flow freely like they're suppose to. That's why you see places like Quall Creek [a new lake in Utah], it takes people.

Indian Woman #2:

Even the mountains. (She tells a story of a woman who got lost; it validated the belief for her.)

Ethnographer:

If you dam the water and the water is no longer free to do what it naturally does and it becomes angry, and you mine the rock and turn the rock into something else, is there a connection? It is similar? Is it like changing the rock from what it was and making it angry? Does this [interpretation] make any sense?

Indian Woman #3:

The rock is being used for destructive purposes. What happened, they're using it for power right? Then, what have we got after that? Waste! And what happens when it becomes waste? Ok, so you are going to bury it. Nobody has any guarantees that that waste is not going to be harmful, that it's not going to come out of its containers, that it's not going to affect the watershed, that it's not going to contaminate the tribes that are downstream from where it is.

Ethnographer:

The water has a will of its own. (pause) Will the rock? (pause) Is it possible? (long pause)

Indian Woman #1:

(Nonverbally indicating yes) In the mountains it is the same way. They can take people.

In another interview conducted in a private home, a Paiute elder from Utah discussed radioactivity in terms of a yellow rock that was only used by warriors who put it on their faces just before going into battle. The rock was extremely strong, but could be used under the right circumstances. It had to be collected carefully with the person explaining the purpose of the collection and especially why it would be ground up for use. Otherwise the rock would not only withhold its positive power, but could cause physical harm to the warrior or religious leader. The Paiute elder conveying these interpretations believed that the negative components of radioactivity derived from the rock having become angry by the way it was mined and the purposes to which it was being put.

PLACATING THE ANGRY ROCK

The self-willing life force in rocks can be "talked to." Crystals can be picked up or left alone or returned to their place in the desert without danger of them becoming angry if the action is explained. Other rocks can be talked to and asked for their power to be used to help a person. While the proper treatment and return to their original location in the desert is sufficient to satisfy crystals, some of the special helping rocks must be thanked with gifts.

Curing rocks, for example, have special curing powers, but these rocks must be approached, touched, and thanked so they will provide cures and not harm the person requesting their power. There are two such rocks, one Southern Paiute and one Western Shoshone, that are used by the Indian people involved with this study.

The Southern Paiute rock is located on an isolated mountainside in Utah. The rock has a flat surface that will accommodate a prone person. In profile, the rock has a shape that has been interpreted as being like an eagle's head. The eye is a four-inch diameter hole that extends for more than twelve inches into the rock. When a person approaches the mountainside, prayers are said to communicate to the rock why the person is present. Unless the prayers are appropriately said and in the Indian language, the rock will not reveal itself. When the sick person sees the rock, a gift is presented. Most gifts are round stones that have been selected while the sick person was coming to the site. Both large and small stones are used as gifts. The stone is placed in the eye of the curing rock, but first the person must remove the stone left by the previous sick person. These past gifts to the rock are placed carefully downslope from the rock, small stones on one side, large stones on the other, forming a visual record of the times people have visited the curing rock. With his or her stone in the eye of the curing rock, the person says prayers that describe the illness and then lies down on the rock. A person may go to the rock with an Indian doctor who helps with the access and curative prayers. When the curing period is over, the sick person leaves.

The issue of curing rocks was raised while Indian people were interpreting a "possible" curing rock located at the Petroglyph Panel Site (see Chapter Four, Site 20). According to a Western Shoshone elder, a commonly used curing rock is located in west-central Nevada. This rock has been "designated" by Indian religious leaders as a medicine rock, that is, it has been sung over by a medicine man, after which the rock became sacred and could cure sick people. In order to tap into the curing power of the rock, a sick person must first pray over the rock and then lie down on it. After the curing period, the person leaves money on the rock or around it in the soil. Other people never remove this money because they recognize the money as an offering to the curing rock. Any person can go to this curing rock and do his own blessing, or he can be accompanied by a traditional healer.

The ethnographic data on the power of crystals and curing rocks, Indian people's interactions with these rocks, and the traditional interpretation of radioactivity may help in understanding Indian people's concerns regarding a high-level radioactive waste repository by introducing two factors. First, rocks have spiritual depth: there is a self-willing life-force in rocks. If so, radioactivity may be harmful to humans because a spiritually powerful rock (uranium) is treated in ways that the rock defines as inappropriate. Because of this inappropriate treatment, the rock is angry. Can the containers that are designed to hold the high-level radioactive waste, which is a by-product of science, constrain the spirit of an angry rock? Second, Indian people have always talked with spiritually powerful rocks. Indian people make requests of, explain human situations to, and give thanks to their powerful rocks. Could the spirit of the angry rock be talked with in the effort to reduce its anger and, thus, the danger perceived to be associated with it? These two factors and the connections between them will be explored further in the forthcoming discussions with Indian people regarding possible mitigating strategies for cultural resources.

GENERAL CULTURAL RESOURCE PERCEPTIONS

The term "cultural resources" derives from United States laws and regulations that govern studies used to determine the disposition of American Indian artifacts, physical burials, natural materials used in subsistence, religion, daily life, and places of historic and religious importance. Because these laws were established without consultation with Indian people, these items of traditional culture have been evaluated with regard to how much of a re-

source they are to science, the state, or the nation.

In the last decade, most of these laws have been amended to take into consideration the extent to which items of traditional Indian culture are a resource to Indian people. This section of Chapter Five is an effort to explain why items of traditional culture present in the cultural resources studies area are valued by the Indian people involved in this study.

HOLY LANDS VERSES RESOURCE DEVELOPMENT

Native American people who belong to the Western Shoshone, Southern Paiute, and Owens Valley Paiute ethnic groups express a preservation philosophy regarding traditional lands and the animals, plants, artifacts, and burials that exist there. This philosophy primarily derives from a supernaturally established relationship between these lands and the people who have lived here since creation. This "Holy Land" relationship has been discussed in Chapter Two. One holistic philosophy that logically derives from this human-land relationship addresses the issue of how to act towards the land, animals, plants, artifacts, and burials. Simply, the philosophy leads to the normative assertion that these cultural resources should be left undisturbed, i.e., they should be preserved as they are, neither removed nor modified in any way.

This philosophy is in sharp contrast with an instrumental human-land philosophy that leads to the normative assertion that the land, animals, plants, artifacts, and even burials should be utilized for economic development. This philosophy is premised on the epistemological belief that humans should dominate and control the natural environment for the immediate benefit of whoever is sufficiently powerful to hold sovereignty over the land. Consistent with this instrumental human-land philosophy, unused natural or human resources have a potential for development, being termed "wild lands" or "wild people," and therefore constitute a challenge for development efforts. The process of conquering wild resources has variously been termed "progress," "modernization," "civilization," and "development." The human and natural components of a system are perceived of as "resources" to be "managed."

The very terms used to describe the current study, "Native American Cultural Resources," reflect a philosophy that is antithetical to the core philosophical belief of the Indian people involved in this study. Understanding the existence of a conflict in basic philosophies is a complex, but essential, starting point for explaining American Indians' responses to the cultural resources study project.

Abstract philosophies, however, are often explained in easily understood norms that are used to guide everyday behavior. For example, one Indian woman explained her preservation philosophy by telling of a time when she was a young girl and found a small cave. In the cave were various baskets, pots, and hunting equipment of the old Shoshone people, just as they had left them. She returned to her home to tell her mother of the discovery. Her mother cautioned her by saying that while it is acceptable to look at these items, nothing should be removed because the items still belong to the people who left them there. The moral is clear: do not remove what does not belong to you because the old artifacts still belong to their original owners. The Indian people involved in this study have a norm that calls for respecting another's right to make, own, and leave forever something in a chosen place, as well as the right of plants, animals, and even rocks to be where they are.

ACCESS AND OBLIGATIONS TO TRADITIONAL RESOURCES

Euramerican competition for traditional Indian resources in the Yucca Mountain area probably began in the late 1840s. Our summary of the published literature relevant to the Yucca Mountain area (Stoffle, Olmsted, and Evans, 1987) suggests that while resource competition continued for decades, the area remained predominately under the control of Indian people until the development of ranches in the 1890s and of mining camps after 1902. After the turn of the century, Euramericans dominated the area's natural resources, as well as inter-ethnic affairs.

Despite losing sovereignty over many natural resources, especially permanent sources of water during the first four decades of the twentieth century, Indian people continued to use the Yucca Mountain area in many traditional and new ways. Usage was closely tied to access. Isolated springs remained under Indian control until taken by Euramerican miners. Indian people, according to one elder, became less and less willing to visit isolated areas to use traditional resources because of fears that the miners would shoot the men and take the women. Finally, the Yucca Mountain area began to be withdrawn from the public domain in the early 1940s with the formation of the first portions of the Nevada Test Site and the Nellis Air Force Range.

USING HOLY LANDS

The preservation philosophy of these American Indian people appears to be in conflict with their own development activities. Indian people were not passive respondents to their environment, but instead actively used it to grow cultigens for subsistence and trade; husband wild varieties of plants that were trimmed, burned, and transplanted to increase yields; quarry minerals for medicine and decoration; modify the flow of streams to form irrigation canals; hunt animals for food, clothing, and medicine; and peck maps, solar calendars, and territorial signs into natural stone.

These development activities are not in conflict with the preservation philosophy discussed above because of (1) who is doing the development and (2) how the development is done. In the first instance, these Indian people believe that they have a right to use the land because they have a supernaturally derived responsibility to care for it and, to do so, they must subsist as an ethnic group. The essential criterion for using the land, plants, and animals is having knowledge of and practicing correct usage procedures. These procedures derive directly from the epistemological belief that the animals, plants, and even the land have a life force given to them by the supernatural. Anthropologists have recorded such beliefs among human groups throughout the world and have termed the belief system "animism." These Indian people believe that everything has human-like rights, which derive from the human-like life force bestowed upon them at creation.

"Talk to it" is one of the first normative instructions given when tribal elders tell others how to interact with plants, animals, and physical elements. Before a plant is picked for medicine, a person must approach the plant with an explanation of why the person is there (i.e., someone is sick and in need of curing from the plant) and what he wants to do (i.e., pick a portion of the plant to take away to make medicine). If a person fails to convince the plant that the request is valid, if the picking is harmful to the plant, or if the proper overall respect is not perceived by the plant, then the cure will not occur. The plant will withhold its medicine.

Animals that are hunted without respect for their rights will not return to the area, or they will become invisible to the hunter. Rocks that are moved, ground up, or in anyway modified without being properly approached, handled, and placated can withhold their power or even use their power to harm people who use them without following the correct procedure.

The Indian people's loss of access to many areas, brought about by Euramerican intrusion on traditional lands, has made it increasingly difficult for them to maintain their traditional human-land interactions. This encroachment has exposed many traditional plants, animals, physical elements, artifacts, and burials to inappropriate uses. Non-Indian people have made traditional plants into commercial products; needlessly shot birds, snakes, and reptiles for sport; mined the minerals leaving scars on the land; and collected Indian artifacts and burials for personal home display, illegal commercial sale, and scientific analysis.

In response to these new threats, many of these Indian people have begun to protect traditional resources in nontraditional ways. For example, some Indian people will move artifactual materials to their homes and tribal museums, as well as recommend burials be reburied on Indian reservations in order to protect artifacts and bodies from being misused by non-Indian people. Neither action is ideal, according to traditional norms, but circumstances have forced the Indian people to violate the norm of leaving items where they are in order to be consistent with their commitment to provide overall protection for the resources.

SUMMARY

These Indian people have lost sovereignty over most of their Holy Lands, but they retain a supernaturally derived responsibility for protecting cultural resources that remain in place. To fulfill this responsibility, Indian people are engaged with representatives of the dominant society to identify the cultural values associated with those cultural resources that remain in the Yucca Mountain study area and to explain why they believe these cultural resources are as important today as they were in the past. Once these resources are interpreted, the Indian people will explain what should be done with these resources according to appropriate norms. These recommendations, defined by the Euramerican term "mitigation," will be developed at a later point in the study process.

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