CULTURAL RESOURCE OVERVIEW
Fremont National Forest
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CULTURAL RESOURCE OVERVIEW

FREMONT NATIONAL FOREST

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Left to Right: Joaquin Miller; John C. Fremont; and "Chief John," headman of the Dakubetede.
Acknowledgements

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The Editor
This document represents the first volume of a Cultural Resource Overview for the Fremont National Forest of south central Oregon. It is designed to provide a framework in which to interpret cultural resources found on the Forest and with which these resources can be evaluated for legal, scientific, and community significance. This document consists of several sections.

An environmental overview provides information on present and past environmental conditions of the area. An ethnographic overview focuses on the settlement and subsistence patterns of the Native American inhabitants of the area, paying particular attention to their use of areas of the Forest.

An archaeological overview describes the development of prehistoric cultures in the area and provides summary descriptive information of the prehistoric cultural resources found on the Forest. A historic overview summarizes the events and activities which have occurred in the area since the arrival of Euro-Americans in the 1800's. It also provides a brief description of the historic cultural resources found on the Forest.
A research directions section relates archaeological ethnohistorical, and historical research objectives to the Forest's cultural resources program. A management section discusses issues and concerns about the Forest's cultural resource management program and offers what are believed to be realistic and achievable approaches to maintain and improve that program in light of budgetary limitations.

The Overview concludes with a comprehensive bibliography of sources consulted, appendices with a variety of detailed information, much of which is excerpted from other works, and a management summary.
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INTRODUCTION

THE FREMONT NATIONAL FOREST AND CULTURAL RESOURCES

The Fremont National Forest, located in south central Oregon contains about 1,198,000 acres in Lake, Klamath, and Deschutes Counties (see Figure 1). The Forest Supervisor's Office is located in Lakeview and ranger stations are located in Lakeview, Paisley, Bly, and Silver Lake.

Organized in 1908 from Forest reserves established two years earlier, the Forest now provides numerous resources of value to local communities, the state of Oregon, and the nation including timber, minerals, wildlife and game animals, and recreation opportunities. In addition the Forest also yields an extensive array of cultural resources,

... those fragile and nonrenewable remains of human activity, occupation, and endeavor as reflected in districts, sites, structures, artifacts, objects, ruins, works of art, architecture, and natural features that were of importance in human events, both historic and prehistoric ... (and whose value) ... lies in potential for providing information about former ways of life and in their historical significance to the community in which they now exist (Minor, et al 1979:1).
The Fremont National Forest is legally required to identify, evaluate, and, in
general, manage the cultural resources on public lands under its jurisdiction
and to consider the effect that Forest-initiated or Forest-authorized actions
will have on cultural resources and to protect those resources when
significant. These actions are required by a number of laws and an executive
order including the Antiquities Act of 1906 (P.L. 59-209), the Historic Sites
Act of 1935 (P.L. 74-292), Reservoir Salvage Act of 1960 (P.L. 85-665, as
Preservation Act of 1966, Executive Order 11593 of 1971, "Protection and
Enhancement of the Cultural Environment," and the Historical and Archaeological
Resources Protection Act of 1979 (P.L. 96-95).
A cultural resource overview is the product of a systematic records search of existing ethnographic, historical, and archaeological literature on an area. It provides a summary of known resources and knowledge with the intent of providing "the starting point for future cultural resource investigations" (FSM 2361.22a). An overview is also a management tool providing background information useful in determining the effects on cultural resources on land management decisions.

An overview combines and analyzes existing data and knowledge. It seeks to provide guidance for interpreting and assistance in evaluating cultural resources. In addition, it evaluates the adequacy of existing information, the reliability of predictions based on that information, and recommends additional research needed to improve the information base and to develop reliable predictions (McDonald 1979:1).

Finally, an overview can serve to acquaint Forest Service employees and the general public with the presence and value of cultural resources on the Forest and their relation to the area's cultural heritage. Hopefully, it will also serve to "foster a sense of respect and care for the significance of cultural resources" (Minor et al 1979:1).
SCOPE OF THE FREMONT OVERVIEW

This overview focuses primarily on the actual lands under Fremont National Forest jurisdiction. Summary material for the areas immediately adjacent to the Forest and for the Great Basin in general is presented in order to place the Forest in its regional context. To a large extent this latter secondary focus draws on information contained in the overview done for the Bureau of Land Management's Lakeview District (Minor et al 1979), which lies adjacent to the Fremont National Forest.

An environmental overview provides information on present and past environmental conditions of the area. An ethnographic overview focuses on the settlement and subsistence patterns of the Native American inhabitants of the area at the time of Euro-American contact. Particular attention is directed towards their use of areas of the Forest. Ethnographic summaries of these people, the Northern Paiute, Klamath-Modoc, and Achumawi, are found in the appendices.

An archaeological overview describes the development of prehistoric cultures in the area and the prehistoric cultural resources found on the Forest. A historic overview summarizes the events and activities which have occurred in the area since Euro-American arrival in the 1800's and provides a brief description of historic cultural resources found on the Forest. A cultural resource synthesis highlights materials in these sections.
A research directions section relates archaeological, ethnohistorical, and historical research objectives to the Forest's resources. A management section discusses issues and concerns and suggests courses of action. The Overview concludes with a comprehensive bibliography of sources consulted, appendices with a variety of detailed information much of which is excerpted from other works, and a management summary for the Forest.

ENVIRONMENTAL OVERVIEW

The following sections describe the major environmental parameters for the Fremont National Forest. In reviewing this section several points should be noted. First is concurrence for this area with an admonition in the Cultural Resource Overview for the neighboring Winema National Forest that Great Basin information cannot be uncritically applied to the Forest (Thompson et al 1979:17). Second is Bailey's (1936:9) statement that this area closely agrees with the Great Basin in climate, flora, and fauna. And third is O'Connell and Madsen's (1982:3) cautious warning regarding using modern biotic communities as "units of analysis in the reconstruction of past environments."

Accordingly, where information specifically about the Forest was not available, inferences were drawn from adjacent areas. In drawing inferences from Great Basin information an attempt was made to include consideration of the Forest's differences, particularly altitude and a more westerly location. Research information of paleoenvironmental dynamics as well as the effects of Euro-American activity on native ecosystems provided guidance in the reconstruction of past environments.

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Most of the Fremont National Forest lies within the Basin and Range Physiographic Province of the United States with a small portion in the northwest falling within the High Lava Plains Physiographic Province (Franklin and Dyrness 1973:6; Baldwin 1976:5; Wenzel 1979:7). Both these provinces fall within the Western Great Basin, a region characterized by internal drainage systems (see Figure 2).

The Basin and Range province is characterized by northwest trending fault block mountains with intervening flat valleys blanketed with alluvium. Drainage is interior with short streams flowing into low lakes and playas (Wenzel 1979:7).

The High Lava Plains province consists of "a relatively undeformed expanse of young lava flows dotted in places by cinder cones and lava buttes (Baldwin 1976:113). As the lava flows which form much of the terrain are rather recent, no distinctive drainage patterns have formed and the area exhibits at most moderate relief (Peterson et al 1976:4).

Forest topography ranges from flat to gently rolling lava plateaus and tablelands in its northern and western portions to some steep, highly dissected landforms in its central and eastern portions. Slopes range from gentle to moderately steep (up to 40 percent) with only small areas with slopes of greater than forty percent. The Forest topography is the result of faulting, eruptive centers, lava flows, bedrock type and geologic erosion. Most of the
FIGURE 2: PHYSIOGRAPHIC MAP OF FREMONT NATIONAL FOREST AREA

(FROM EDWIN RAISZ 1955)
Forest elevations are greater than 4,500 feet (1,400 meters) with Crane Mountain in the southeast corner of the Forest having the highest elevation at 8,454 feet (2,640 meters) above sea level (Wenzel 1979:7).

The Forest is traversed by several major and many minor block faults. Winter Ridge and Coleman Rim are examples of the steep and unstable escarpments resulting from such faulting. Winter Ridge rises some 2,600 to 3,100 feet (812-970 meters) from Summer Lake within a horizontal distance of about one and one-half miles (Wenzel 1979:7; Allison 1982:23).

Two major mountainous areas comprise the Forest, the Warner Mountains on the eastern edge and a series of mountains west of Lakeview. Domeshaped landforms with radial drainage patterns are a common volcanic feature and include Gearhart Mountain, McComb Butte, Hager Mountain, the Black Hills, and Drake Peak. Eruptive centers on the Forest range in size from small cinder cones to massive volcanic piles (Wenzel 1979:7-8).

Five major drainage basins are within the Forest. The Goose Lake and Klamath basins have exterior outlets. The Summer Lake, Chewaucan, and Warner Basins drain into the Great Basin. A small portion of the northwest part of the Forest is within the Fort Rock basin. Major rivers include the Sycan and Sprague Rivers in the Klamath Basin and the Chewaucan River in the Chewaucan Basin.
About 601 miles of perennial streams and 3,471 miles of intermittent streams are found on the Forest. In addition, there are numerous scattered permanent and seasonal ponds, seeps and springs, marshes, and some wet and moist meadows. Some permanent lakes are scattered throughout the Forest and include Dog, Hart, Blue, Deadhorse, Campbell, Slide, and Big Swamp Lakes (Silovsky 1928:7-8).

GEOLGY

The Fremont National Forest falls primarily within the Basin and Range geologic province with some northwestern portions of the Forest falling within the High Lava Plains province. These correspond to the physiographic provinces described previously. Baldwin (1976) and McKee (1972) provide review of the geology of these areas. More detailed studies concerning areas wholly or partially within the Forest have been done by Johns (1949), Walker et al (1967), Peterson and McIntyre (1970), Wells (1975), Travis (1977) and Wenzel (1977, 1979). Figure 3 provides a reference for geologic time periods referred to in the succeeding discussion.

The Basin and Range Province contains features generally geologically older than the High Lava Plains. This province has been described by Franklin and Dyrness (1973:34) in the following manner:
### GENERALIZED GEOLOGIC TIME CHART FOR OREGON

<table>
<thead>
<tr>
<th>ERA</th>
<th>PERIOD</th>
<th>PRINCIPAL GEOLOGIC EVENTS</th>
<th>AGE* (in millions of years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>QUATERNARY</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>HOLOCENE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glaciers in mountains receding. Crater Lake and Newberry Crater formed by explosion and collapse of volcanic cones. Love flows near Mt. Hood, at McKenzie Pass, and in central and southeastern Oregon.</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PLEISTOCENE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active glaciers in mountains. Growth of large volcanoes along crest of Cascades and in central Oregon. Pluvial lakes in south-central part of State. Nestadons and giant beavers in Willamette Valley; camels and horses in grasslands of central and eastern Oregon.</td>
<td>2-3</td>
</tr>
<tr>
<td>CENOZOIC</td>
<td>TERTIARY</td>
<td><strong>OLIGOCENE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>First eruptions of lava at crest of Cascade Range. Extensive outpourings at 1-m in south-central Oregon. Cascades high enough to form climate barrier. Drier climate east of High Cascade Range.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>EOCENE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Willamette Valley and parts of Coast Range covered by warm, shallow seas. Inhabited by abundant and varied mollusks. Warm temperate flora growing in both eastern and western Oregon, with Metasequoia, maple, sycamore, ginkgo, and katsura trees plentiful. Three-toed horses, camels, giant pigs, saber-toothed cats, orendants, tapirs in John Day country. Cascade Range too low to affect climate of eastern Oregon.</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PALEOCENE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not mapped separately in Oregon, but rocks of this age known in southern Coast Range.</td>
<td></td>
</tr>
<tr>
<td>MESOZOIC</td>
<td></td>
<td><strong>CRETACEOUS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Most of State covered by warm seas. Ammonites, trigonites, and other mollusks, abundant in Medford and Mitchell areas. Tree ferns growing near Austin in Grant County. Formation of principal metaliferous deposits in State following batholithic intrusions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>JURASSIC</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oregon largely covered by seas. Brachiopods, mollusks, and ammonites abundant. Some marine reptiles. Ferns, cycads, ginkgoes, and conifers growing on land areas. Period of serpentine intrusion with formation of chrome deposits followed by granitic intrusions in Klamath Mountains, Blue Mountains, and possibly Wallowa Mountains.</td>
<td>136</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TRIASSIC</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Most of Oregon covered by warm seas. Sponges, corals, ammonites, gastropods, and nautiloids. Volcanic active and widespread especially in northeastern and southwestern Oregon.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PERMIAN</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warm seas cover much of State. Limestone reefs forming. Fusulinids common. Volcanism in northeastern part of State. Rocks now exposed in central and eastern Oregon.</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CARBONIFEROUS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Much of State covered by warm seas containing brachiopods and corals. Ferns and calamites growing on land areas. Rocks now exposed in Suplee area of central Oregon.</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DEVONIAN</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seas probably covered Oregon. Small limestone outcrops in central Oregon contain Middle Devonian corals (about 370 m.y.).</td>
<td>345</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PRE-DEVONIAN</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Pre-Devonian&quot; includes the vast stretch of geologic time extending back to the oldest rocks found on the earth. Rocks of this age are not known in Oregon. Nearest &quot;pre-Devonian&quot; rocks (450 m.y. old gabbros) in Klamath Mountains, northern California.</td>
<td>395</td>
</tr>
</tbody>
</table>

*Adapted from U.S. Geol. Survey*
The western Basin and Range province is made up largely of Miocene to Recent flows of basalt, pyroclastics, and alluvial sediments. Further east, two rock assemblages are prominent (1) Miocene flows of rhyolite, dacite and andesite near Abert Rim and Paisley; and (2) altered basalt and andesite flows and tuffs overlain by tuffaceous sedimentary rocks in an area just east of Lakeview. Principal fault-blocks in the area (Winter Ridge, Abert Rim and Steens Mountain) are capped with Miocene flows of basalt.

The High Lava Plains province is composed of relatively recent geologic formations (Walker et al 1967) and has been described by Franklin and Dyrness (1973:33) as follows:

Geologic formations in the High Lava Plains province consist largely of Pliocene and Pleistocene lavas, tuffs and alluvium. In many areas, Quaternary valley fill deposits overlie the older volcanic flows. These are comprised of alluvium and lake deposits plus eolian sediments, all of which were derived from the volcanic rocks of the uplands. Evidences of extensive volcanic activity during Pleistocene and Recent times are abundant.

On the Forest itself are commonly found eruptive centers with accompanying rolling lava plateaus. Eolian Mazama ash and pumice deposits are found on the western and northern parts of the Forest. They range in depth from thin layers north and west of Gearhart Mountain to Antelope Flat, deeper deposits north of
Antelope Flat and deposits up to six feet (1.8 meters) deep north of Location Butte (Wenzel 1979:6-8). Figure 4 shows the general geology of the Forest as a mosaic of basalt and rhyolite eruptive centers, basalt and tuff flows, pyroclastics and sedimentary rocks and alluvial and landslide deposits.

Deposits of obsidian and crypto-crystalline silica can be found on the Forest. Mercury deposits have been mined in the Quartz Mountain area and south of Summer Lake. Uranium deposits have been mined in the mountains northwest of Lakeview. Gold, lead, zinc, and copper are reported in the mountains south of Paisley. Gold is also located in the High Grade District in the southeast section of the Forest. Pumice and perlite are found on the western portions of the Forest. Explorations for oil and natural gas hint of its existence on the Forest Numerous geothermal resources are known throughout the region (Silvermoon 1982:74-5).
FIGURE 4: GENERALIZED GEOLOGY OF THE FREMONT NATIONAL FOREST
( FROM WENZEL 1979:4 )

- LANDSLIDE DEPOSITS
- PYROCLASTICS/SEDIMENTARY ROCKS
- BASALT AND TUFF FLOWS
- ALLUVIAL DEPOSITS
- BASALT ERUPTIVE CENTERS
- RHYOLITE ERUPTIVE CENTERS

DESIGNED and DRAWN by:
ROBERT MUELLER
CLIMATE

The climate of the Fremont National Forest falls within the High Plateau region as delineated by Loy (1976:138). This climate is characterized by light precipitation, low relative humidity, rapid evaporation, abundant sunshine, and wide temperature ranges (Wells 1936:4-1). Temperature and precipitation on the Fremont can vary widely over short horizontal distances and rapidly changing vertical distances such as the interfaces at Winter Ridge and Summer Lake and Abert Rim and the Chewaucan Marsh (Wenzel 1979:9).

The Forest is located in the semiarid rain shadow area east of the Cascade Range where precipitation is light and occurs primarily in the fall (20-25%), winter (30-40 percent), and spring (25-30 percent). Dry summers are characterized by intense localized thunderstorms. Precipitation levels depend greatly on elevation and, since precipitation measurements on the Forest began to be made in the late 1960's, these levels have ranged from a low of 8.2 to a high of 38.2 inches (16.8 to 97.0 centimeters). This compares to averages of 12 to 16 inches (30 to 40 centimeters) recorded for lower lying elevations of the High Plateau region. Precipitation results primarily from low pressure systems moving in from the Pacific Ocean on the dominant westerly and southwesterly winds (Wenzel 1979:9; Sterns 1974:842, 860; Franklin and Dyrness 1973:42; Fremont National Forest Storage Guage Precipitation Measurement Data).

Summer weather is generally moderate and winters are long. Annual temperatures may vary through a range of 130 degrees. High temperatures at low elevations may be about 100 degrees F while low temperatures at high elevations may be
about -30 degrees F. The range of normal temperatures between the warmest and coldest months is about 44 degrees to 55 degrees F, with the average annual minimum temperatures ranging between -8 degrees to 20 degrees F, and the average annual maximum temperature ranging from 55 degrees to 71 degrees F. Mean temperatures for July range from a minimum of 36 degrees to 46 degrees F and a maximum of 80 degrees to 88 degrees F. For January they range from a minimum of 10 degrees to 18 degrees F, to a maximum of 36 degrees to 40 degrees F. Diurnal ranges of temperature may be as much as 18 degrees F in midwinter to 48 degrees F in midsummer (Wenzel 1979:9; Loy 1976:132; Sterns 1974:856-860; Wells 1939:4-2).

**FLORA**

Within the Fremont National Forest are three forest and steppe province vegetation zones as recognized by Franklin and Dyrness (1973). These include the Pinus Ponderosa Zone, a lower elevation forested area; the Juniperus Occidentalis Zone, a transition zone between forested areas and the shrub-steppe; and the shrub-steppe zone, dominated by sagebrush. Local climatic and edaphic conditions results in some variation beyond that normally associated with these three zones.

Three main forest plant associations are recognized on the Fremont as indicated by the dominant species in the overstory. These are those where the overstory is dominated by lodgepole pine, ponderosa pine, or mixed species of conifers (Hopkins 1979:6-9; Volland 1976:7-19). The mixed conifer overstory areas generally have ponderosa pine subordinate or no more than codominant with white fir and/or sugar pine, incense cedar or western white pine.
Altitudinal range of the three forest types varies with ponderosa pine associations ranging from about 4,800 to 7,000 feet (1,500-2,190 meters), the mixed conifer associations ranging from 5,000 to 7,400 feet (1,560-3,312 meters), and the lodgepole associations ranging from 5,000 to 8,400 feet (1,560-2,625 meters). Quaking aspen is found throughout all three type associations along streams, lakes, and in poorly drained areas from about 5,500 to 7,000 feet (1,690-2,190 meters).

While all three main type associations exist throughout the Forest there are differences in the distribution of individual species. Mixed conifer associations with western white pine are generally limited to the Warner Mountains. In cooler and moister locations, which generally conform to higher elevations, may be found subalpine fir, Shasta red fir, Engelman spruce, whitebark pine, mountain hemlock and Douglas fir. Western juniper occurs in some of the drier forested areas with shallow, stony soil, especially in ecotonal areas with the Juniperus Occidentalis Zone.

Understory composition among the Forest associations varies with a range from some relatively open ponderosa pine stands to dense, thicket-like lodgepole stands and mixed conifer stands. Most forested areas were maintained in a "pure" ponderosa pine community "under a regime of naturally occurring wildfires" and before "aggressive fire control" (Hopkins 1979:2).

Understories contain a variety of shrubs, grasses, sedges, rushes, and forbs. Shrubs include bitterbrush, sagebrush, huckleberry, snowberry, Oregon grape, mountain mahogany, rabbitbrush, manzanita, serviceberry, ceanothus, and
currant. Grasses include native species, such as, bottlebrush squirreltail, intermediate and bluebunch wheatgrass, Idaho fescue, mountain brome, giant wildrye, northern meadow barley, Wheeler's bluegrass, and Thurber needlegrass. Introduced grass species are quite extensive including Kentucky bluegrass, cheatgrass brome, and timothy. Forbs found on the Forest include vetch, aster, biscuitroot, balsamroot, strawberry, dandelion, epos, lupines, plantain, and yarrow.

The Juniper woodland transition areas range in elevation from 4,700 to 6,000 feet (1,440-11,875 meters). Associated with juniper is usually mountain-mahogany, Idaho fescue, bluebunch wheatgrass, western needlegrass, sandberg bluegrass, bottlebrush squirreltail, and low sagebrush. Isolated ponderosa pine may be found in more sheltered areas. This zone has a savannah-like appearance due to the openness of shrubs and trees.

Within the Forest the shrub-steppe zone plant associations range in elevation from 4,600 to 7,100 feet (1,437-2,188 meters). These are usually dominated by low sagebrush or mountain big sagebrush in association with a variety of grasses, sedges, and forbs.

Wet and moist meadows within the Forest show a variety of sedges and rushes with some grasses.
The Fremont National Forest falls primarily within the Transition and Canadian Life Zones as described by Bailey (1936). Lower lying portions of the Forest may extend into the Upper Sonoran Zone while some higher elevations approach the Hudsonian Zone. Silovsky (1982) has inventoried some 323 native animal species currently inhabiting the Forest for all or part of the year.

Presently 224 bird species are found on the Forest. These include a number of seasonal residents or migrants including loons, grebes, herons, egrets, bitterns, swans, geese, ducks and other waterfowl, as well as, cranes, coots, sandpipers, phalaropes, hummingbirds, swallows, vireos, warblers, and grosbeaks. More permanent birds include hawks, eagles, falcons, grouse, quail, owls, woodpeckers, jays, chickadees, wrens, finches, sparrows, thrushes, and robins.

One salamander, two toad, and two frog species comprise the amphibians inhabiting the Forest. Sixteen reptile species are present including eight snakes, seven lizards, and one turtle.

Nine species of fish are found in the five major drainage basins within the Forest. Two species of trout, tui chub, and speckled dace are found in all five basins, another trout species is found in the Klamath basin, and four additional species are found in the Goose Lake Basin. Two species of lamprey are found in the Klamath and Goose Lake Basins.
Sixty-seven mammal species inhabit the Forest. All except for several species of bats are year-round residents. These include a number of rodent species including gophers, squirrels, rats, mice, muskrat, beaver, and porcupine. Also present are a variety of hares and rabbits, shrews, bats and myotis species, raccoon, skunks, badgers, voles, a marmot, as well as, fur-bearing carnivores such as mink, ermine, marten, and longtail weasel. Other carnivores include the coyote, red fox, bobcat, and mountain lion. Pika and black bear are present as well as a number of game animals such as pronghorn antelope, mule deer, and Rocky Mountain elk.

Eight animal species historically present within the Forest have been extirpated. These include the formerly common gray wolf, river otter, and bighorn sheep and the probably uncommon lynx, grizzly bear, and chinook salmon and steelhead trout in the Sprague River system. Riparian, deciduous, grass/shrub/forb, coniferous, deadwood, and cliffs/caves/talus habitat types are found on the Forest.

PREHISTORIC ENVIRONMENTAL DYNAMICS

Climate and environment in the Great Basin, as in the rest of the world, has not been stable over the last ten to fifteen thousand years since the end of the Pleistocene and beginning of the Holocene era. Environmental change has been, and continues to be, an area of critical concern for prehistorians and archaeologists. Interpreting the cultural resources found on the Forest requires a knowledge of past environmental conditions. Kay (1982:81) points out that cultures indirectly respond to climatic change through responses to
climatically determined changes in biological and hydrological systems; those changes which are slow provide the "background to cultural adaptation and evolution," while more rapid changes are a "trigger to immediate cultural response."

Antevs (1948, 1955) and Hansen (1947a) were pioneers in determining paleoenvironmental conditions in the Great Basin. They posted a threefold sequence of post-Pleistocene climates including an early cool and moist period followed by a warm and dry period and then a return to a slightly cooler and moister period similar to that experienced today. Antevs terms these periods the Anathermal, Altithermal, and Medithermal, and dates them from 9,000 to 7,000 BP (Before Present), 7,000 to 4,500 BP, and 4,500 BP to the present.

Subsequent archaeological and paleoenvironmental research by Aschmann (1958), Bryan and Gruhn (1964), Baumhoff and Heizer (1965), O'Connell and Hayward (1972), O'Connell and Ericson (1974), Swanson and Muto (1975), Grayson (1973, 1976), and Mehringer (1977) suggests that Antevs' scheme is accurate only in the broadest and grossest sense. Basic objections to the scheme included the recognition that there was considerable regional variation in both time and space, that correlations between temperature and moisture were not as Antevs thought, and that environmental change in an area was unlikely to have been so great as to have had a significant effect on local populations (O'Connell and Madsen, 1982:2).
While there have been recent regional syntheses of paleoenvironmental information for some areas of the Great Basin (Weide, 1982; Currey and James, 1982; Davis 1982) no such synthesis exists for the Northern Great basin. Consequently, paleoenvironmental reconstructions for the Fremont National Forest are conjectural, based on research carried out in adjacent areas.

A broad outline of Great Basin paleoenvironmental change has been developed by Madsen (1982:102-3) and incorporates research done since Antevs' first formulation. Four main periods are described by Madsen including a late glacio-pluvial maximum from 18,000 to 14,000 BP, a period of deglaciation and rapidly changing environment from 14,000 to about 7,000 BP, a warmer and dryer period from 7,000 to 5,000 BP, and a slightly cooler and wetter period from 5,000 BP to the present characterized by three episodes of neoglacialiation.

A warmer and dryer period during the Altithermal may have occurred later in the northern Great Basin due to the persistence of moisture-bearing westerly winds (Bryan and Gruhn 1964:313). Indeed, based on settlement patterns and subsistence information for the Surprise Valley, moist and cool conditions of the Anathermal continued to about 5,000 BP (O'Connell and Hayward 1972:37; O'Connell and Ericson 1974:54-5). In the Lower Klamath Lake area Grayson (1976:96) suggests that at least the last half of the Lower Klamath Altithermal was wet, not dry.

Human presence in the Northern Great Basin during Madsen's period of deglaciation and rapid environmental change has been evidenced by a radiocarbon date of 13,200± 700 BP from Fort Rock Cave (Bedwell 1973:141). Whether humans were in this area or even on North America south of the great continental ice sheets much prior to this date is yet a matter of debate.
GLACIATION

During the late Pleistocene, glaciation was extensive on the Sierra and Cascade Ranges while less extensive glaciation is evidenced for the Steens Mountains, Newberry Volcano, Gearhart and Yamsay Mountains, Deadhorse Rim, and the Drakes Peak area (Blackwelder 1931; Crandell 1965:348; Peterson and McIntyre 1970:22; Carver 1972:5; Bentley 1974:224; Wells 1975:123). During the past 15,000 years four glacial episodes have been recognized in the Southern Cascades, the late Pleistocene Waban at 13,000 BP; Zephyr Lake at 9,400 BP; as well as the Holocene Neoglacial I, at about 2,000 BP; and Neoglacial II, since about 500 BP (Carver, 1972:51).

Glaciation in the Drakes Peak complex was extensive above 7,200 feet (2,250 meters) while east of the crest of the Cascades it was extensive above 6,400 feet (2,000 meters) and extended down valleys to about 4,800 feet (1,500 meters) (Wells 1975:123, Carver 1972:56-59). The snowline on the east slopes of the Southern Cascades extended down to about 6,400 feet (2,000 meters) during the Waban episode and 7,360 feet (2,300 meters) during the Zephyr Lake episode.

Considering the regional glacial picture and the Fremont National Forest's location downwind from the extensive Cascade glaciers, it can be hypothesized that elevations above 7,200 feet (2,250 meters) may have been glaciated and that permanent snowlines may have extended down to 6,500 feet (2,030 meters), with the possible exception of escarpments which may have been too steep for
snow accumulation. This conjecture reveals possible extensive glaciated or snow covered areas of the Fremont National Forest during the late Pleistocene including areas around Yamsay Mountain, an extensive area about forty miles (65 kilometers) long extending along Winter Ridge to Gearhart Mountain, high elevations adjacent to the Chewaucan River drainage, Barnes Rim, and the Warner Mountains east of Goose Lake (see Figure 5).

Glaciers made a rapid retreat at the end of the Pleistocene and the snowline in the Southern Cascades was raised by as much as 3,200 feet (1,000 meters) by the time postglacial climates became established (Carver 1972:43,72). During the Neoglacial I times Southern Cascade glaciation occurred down to about 6,400 feet (2,000 meters) while during Neoglacial II times glaciation was limited to the highest peaks above 6,400 feet (2,000 meters) (Carver 1972:46). While specific dates have not been established for the glacial features recorded on the Fremont National Forest, it is likely that some high altitude glaciation or permanent snowfield formation took place at least during Neoglacial I times.

PLUVIAL LAKES

Glaciation was accompanied by the rise of pluvial lakes which were quite extensive throughout the Great Basin. During the late Pleistocene these included pluvial Fort Rock Lake, pluvial Lake Chewaucan, enlarged Goose and Warner Lakes, Alkali Lake, Upper Klamath Lake, as well as, pluvial lakes in the Sycan and Klamath marshes and along the Sycan and Sprague Rivers (Hansen 1947a:18; Morrison 1965:266; Loy 1976:121; Allison 1979: and 1982:64). As deglaciation progressed, these lakes diminished in size. Davis (1982:71) reported that a decrease of 2.5 C and a 68 percent increase in precipitation from today's figures would result in full pluvial conditions.
FIGURE 5: PLEISTOCENE LAKES (FROM LOY ET AL 1976:121)
Allison (1979, 1982) has developed detailed chronologies for pluvial Fort Rock Lake and pluvial Lake Chewaucan. He suggests that these may have been at their maximum during the late Pleistocene although the evidence is not unequivocal (Allison 1982:64-67). As the Pleistocene drew to a close, pluvial Lake Chewaucan split with the alluvial formation of the Paisley Flat so that there existed a pluvial Winter Lake and pluvial ZX Lake. This latter covered the present day Chewaucan Marsh and Abert Lake. Allison assigns this occurrence to a middle Tioga-Pinedale time which corresponds to Carver's (1972:51) Waban glacial episode. ZX Lake levels were approximately 4,390 feet (1,372 meters) and Winter Lake levels were approximately 4,340 feet (1,362 meters) at this time (Allison 1982:64). Pluvial Fort Rock Lake at this time stood somewhere near 4,440 feet (1,344 meters) (Allison 1979:66-67).

It is probable that some small pluvial lakes existed on the Fremont during late Pleistocene times as evidenced by the several lake derived soils mapped by Wenzel (1979:22-3,29,31). Major areas exhibiting these soils include Antelope Flat north of Yamsay Mountain, the Sycan Marsh and Sycan Flat areas, upper portions of the Sycan River, the Lee Thomas Meadow area below Gearhart Mountain, some areas south of Yainax butte, and the Yocum Valley area. Wenzel (1977:80) speculates also that the Coffeepot Flat area may have been covered by a small lake at one time despite no observable evidence.

As post-Pleistocene weather conditions became warmer and with less effective precipitation the pluvial lakes decreased in size. Whether these lakes completely disappeared is a matter of contention.
Allison (1979:69) suggests that Lake Abert and Summer Lake did dry up during the Altithermal. Water must have been present in these basins to some extent, however, given the persistence of chub subspecies on the northwest side of Summer Lake, at the XL Spring at the north end of Abert Lake, and in the Chewaucan drainage from Pleistocene times to the present (Hubbs and Miller 1948:67). Similarly, Hansen's (1947a:122) assertion that Lower Klamath Lake went dry and has been challenged by Grayson's (1976:92) conclusions drawn from the Nightfire Island avifauna that lake levels were "relatively higher" during the late Altithermal. Weide (1976:178) suggests that in localities associated with pluvial lakes "hydrologic conditions sufficient to maintain extensive marshlands" have existed since 7000 BP.

A Neopluvial period has been designated by Allison (1982:70-71) for the period about 4000 to 2000 BP and is contemporaneous with the Neoglacial period. During this time a recreated ZX Lake rose to a level of 4,212 feet (1,316 meters) and Summer Lake to 4,193 feet (1,310 meters). In the Fort Rock area deflation basins created during the Altithermal became ponds and were connected with each other by a thin sheet of water at an elevation of at most 4,326 feet (1,419 meters) (Allison 1982:55-57).

**VOLCANIC AND TECTONIC ACTIVITY**

Volcanic activity in the northwest part of the Great Basin had ceased in many areas by early Pleistocene times. Such activity, however, continued in areas to the north and west of the Forest. Big Hole and Hole-in-the-Ground just north of the Forest are thought to be of late Pleistocene or early Holocene
formation (Patterson and McIntyre 1970:21-22). To the west the explosive eruption of Mount Mazama and the formation of Crater Lake has been dated to about 7000 BP while Newberry Volcano activity to the north has an extensive record of eruptive activity and lava flows from about 6400 to 1200 BP (Kittleman 1973:2958,2976).

Grayson suggests for the Fort Rock Basin area that while Mazama ashfall had no lengthy effect on terrestrial vertebrate fauna, the nature of short-term effects and the impact on human settlement patterns is unknown (Grayson 1979:453). In areas of pumice deposition the change in edaphic conditions favored shifts towards a lodgepole pine forest subclimax of varying length (Hansen 1942:532). The western and northern portions of the Forest were probably affected by eolian pumice depositions somewhat similar to the Fort Rock area and the areas examined by Hansen. It should be pointed out, however, that even where negligible long term effects on societies are thought to have resulted from prehistoric eruptions, "the initial impact may have been disastrous in a small area for a short time" (Grayson and Sheets 1979:631-2).

The northwest portion of the Great Basin has also been tectonically active throughout the Quaternary (Carver 1972:14). Faulting in the Summer Lake area has persisted from late Pliocene or early Pleistocene times to recent time (Dornath 1958:45). Davis (1982:72) suggests that tectonic activity may have been more important than climatic change in determining postpluvial resource availability.
PREHISTORIC FLORA

Boreal forest during late Pleistocene times are reported to have been more or less continuous at the plateau level from just south of the continental ice sheets to southeastern Oregon (Heusser 1960:37). During glacial-pluvial conditions higher elevations shifted into the Canadian Life Zone with increased spread of white fir, grand fir, Douglas fir, western white pine, western hemlock, and mountain hemlock (Hansen 1947a:70).

Tree lines during the last glacial-pluvial maximum 14,000 to 18,000 BP may have been reduced in elevation 1,600 to 3,200 feet (500 to 1,000 meters). From 14,000 to about 7,8000 BP they were gradually increased in elevation to conditions similar to the present (Madsen 1982:102). The Lost Forest stand of ponderosa pine in northeastern Lake County is a relic of the forests which covered much of the lower elevation basin during glacial and early Holocene times.

Forests were more widespread and abundant during early postglacial times with a white pine and ponderosa pine maximum evidenced from pollen profiles at Chewaucan and Klamath marshes and the Warner Lakes area (Hansen 1947a:102; 1947b:167). Xeric vegetation began moving northward during early postglacial times, invading warmer and dryer areas (Detling 1967:33). On deglaciated terrain lodgepole pine was a common postglacial pioneer invader (Hansen 1946:721).
As the forests retreated to higher elevations grasses increased to a maximum which was established about the time of the Mount Mazama eruption at 7,000 BP (Hansen 1947b:169). This grass maximum was followed by a greasewood, rabbitbursh, sagebrush maximum following the Mazama ashfall. This maximum was more pronounced at Chewaucan Marsh and the Warner Lakes than at the Klamath Marsh (Hansen 1947a:115-18). In areas of Mazama ash deposition lodgepole pine domination was favored (Hansen 1947b:167).

A shift in the seasonality of temperature from winter to summer during the mid-Holocene favored different vegetation communities and changed the availability of surface water resources (Davis 1982:68). In the pollen profiles studied by Hansen grasses decreased and chenopods and composites increased during this time. Following about 4000 BP, the profiles showed an increase in western white pine which would indicate cooler and moister conditions (Hansen 1947a:108).

Biotic communities at the time of Euro-American contact have since been altered by livestock grazing and land management practices including fire suppression (Theodoratus 1979:14). Grazing has degraded natural communities permitting an increase in native shrubs undesirable for browsing, a reduction in grasses and forbs, and the invasion of alien annual weeds. Fire suppression has altered a postfire vegetational sequence of short-lived perennial grasses or root-sprouting shrubs followed by sagebrush and long-lived perennial grasses (Young et al 1976:187-91). Under pristine conditions the chance of a naturally occurring fire to have taken place at any particular location on the Forest was about once in every three to five years (Hopkins, personal communication). Natural fires plus whatever fires the aboriginal population may have set would have resulted in increased grassland and savannah or open forest conditions.
PREHISTORIC FAUNA

Grayson (1982) has synthesized existing knowledge concerning Great Basin mammals during the last 15,000 years. Of the sixteen extinct Pleistocene mammalian genera he reports for the Great basin, six have been found at Fossil Lake including the ground sloth Glossotherium, the giant short-faced bear Arctodus, the elephant Mammuthus (mammoth), the horse Equus, peccaries Platygonus, and camels Camelops. The ten genera found elsewhere in the Great Basin and which may have inhabited the northern area include two other genera of sloths, two genera of cats including the cheetah Acinonyx and the sabre tooth cat Smilodon, another genera of camels, two antelope genera, and one genera of shrub oxen and two genera of woodland muskox.

Extinction of large Pleistocene mammals has been explained by a number of differing but perhaps complementary hypotheses including loss of habitat due to climatic change, disease introduced from Old World fauna migrating into the western hemisphere, and human hunting activity (Martin and Wright 1967). As the Holocene progressed and glacio-pluvial conditions diminished boreal animals became restricted to mountainous areas in the Great Basin (Grayson 1982:92). Local biotic communities in the Great Basin approached their modern form by about 7000 BP (O'Connell and Madsen 1981:2). At lower Klamath Lake the range and distribution and abundance for waterbirds was established early in the Holocene (Grayson 1976:832).

Grayson (1982:95-96) suggests that antelope and mountain sheep were in greater abundance than deer in prehistoric time with an increase in deer after 1000 BP in the archaeological record. Bison was also widespread, though not particularly abundant, in the Great Basin during Holocene times.
With Euro-American interference in Great Basin ecological systems, big horn sheep disappeared, antelope reorganized their seasonal movement, deer increased with the increase in juniper woodland and cover, rabbits thrived in deteriorated range conditions, and predators other than the coyote decreased (Theodoratus 1979:14). Also, as indicated previously, animals extirpated from the Forest in historic times include the gray wolf, river otter, big horn sheep, lynx, grizzly bear, and chinook salmon and steelhead trout in the Sprague River system.

SUMMARY AND SYNTHESIS

The Fremont National Forest is located in the High Lava Plains and the Basin and Range Physiographic and geological provinces. The northwestern part of the Forest is in the High Lava Plains and is characterized by flat to gently rolling lava plateaus and tablelands. The rest of the Forest is in the Basin and Range Province and is characterized by northwest trending fault block mountains with intervening alluvial valleys. Volcanic and fault features are found throughout the Forest.

The Forest's climate is characterized by long, moist winters and moderate, dry summers. Precipitation is light, humidity low, sunshine abundant, evaporation rapid, and temperature ranges wide.

Three main vegetation zones are found on the Forest: a Pinus ponderosa zone of ponderosa pine, lodgepole pine, or mixed conifer forest types; a Juniperus Occidentalis zone of an open, transitional woodland of juniper, shrubs, and grasses; and a shrub–steppe zone dominated by sagebrush and grasses.
Forest wildlife consists of a variety of large and small mammals, amphibians, reptiles, and fish species. Over two hundred species of birds including many waterfowl use the Forest.

Prehistoric environmental information for the Forest and surrounding areas is summarized in Table 1. The period from 15,000 to 7000 BP shows significant environmental change from the late Pleistocene boreal forests and faunal assemblages to floral and faunal assemblages within the parameters of modern biotic communities. During this time climate became warmer and less moist than it had been during glacial times, perhaps approaching conditions similar to modern times about 7000 BP.

After 7000 BP the climate seems to have shifted to a regime of less effective moisture perhaps characterized by summer precipitation and temperatures warmer than today. The northeast facing portions of the Forest probably experienced this shift earlier than the other areas. Conditions seem to have shifted towards more effective moisture about 4000 BP. Generally, the conditions of the last 7,000 years appear to show the broad wet/dry climatic fluctuations characteristic of the present day with the existence of an essentially modern flora and fauna. Euro-American interference in pristine natural communities has altered those communities, significantly changing habitats and species compositions.
Table 1: A Hypothetical Sequence of Prehistoric Environmental Change for the Fremont National Forest and Surrounding Areas

<table>
<thead>
<tr>
<th>Year</th>
<th>Glacial-Pluvial Conditions</th>
<th>Climate</th>
<th>Flora and Fauna</th>
<th>Volcanics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre 15,000 BP to 9,500 BP</td>
<td>Glaciers and snowfields Extensive in Forest. Winter Lake, ZX Lake, other extensive pluvial lakes in Great Basin and increased lakes in Forest.</td>
<td>Cold and moist, perhaps 2.5°C cooler and 68% more precipitation than now. Winter precipitation.</td>
<td>Boreal forests extensive, tree lines reduced 500-1000 meters. Mammoths, horses, camels, bison, ground sloths and other Pleistocene species. More browsers and cool weather life forms.</td>
<td>Big Hole and Hole-in-the-Ground</td>
</tr>
<tr>
<td>9,500 BP to 7,000 BP</td>
<td>Rapid deglaciation and decrease in size of lakes, some becoming marshes.</td>
<td>Cooler and moister than present, becoming warmer with less effective moisture.</td>
<td>White pine followed by ponderosa pine maximum, lodgepole pine invade deglaciated areas, treeline rises, increase in grasslands. Extinction of many Pleistocene mammals, modern waterbird parameters established.</td>
<td>Mount Mazama eruption, extensive ashfall, 7000 BP, Newberry 6400 BP</td>
</tr>
<tr>
<td>7,000 BP to 5,500 BP</td>
<td>Formation of Klamath and Sycan Marshes from lakes after Mazama eruption</td>
<td>Begin a shift to summer precipitation.</td>
<td>Grassland maximum, lodgepole pine invade pumice areas. Flora and fauna composition parameters resemble modern.</td>
<td>Newberry 6000 BP, Newberry 5800 BP</td>
</tr>
<tr>
<td>5,500 BP to 4,000 BP</td>
<td>Neoglacial I – 2000 BP Neoglacial, rise in ZX and Summer Lakes, other Great Basin Lakes.</td>
<td>Warmer and drier than present, less effective moisture.</td>
<td>Chenopod-composite maximum, more pronounced on east side of Forest, treeline above present.</td>
<td>Newberry 2500 BP, Newberry 1900 BP, Newberry 1720 BP, Newberry 1270 BP</td>
</tr>
<tr>
<td>4,000 BP to Historic Times</td>
<td>Neoglacial II – 2000 BP Neoglacial, rise in ZX and Summer Lakes, other Great Basin Lakes.</td>
<td>Return to winter precipitation, moister and cooler.</td>
<td>Increase in white pine, tree line reduced. Decreased mountain sheep and antelope, increased deer about 2000 BP.</td>
<td></td>
</tr>
<tr>
<td>Historic Times</td>
<td>No glaciers, lake level fluctuations.</td>
<td>Broad wet/dry climatic alterations similar to last 7,000 years.</td>
<td>Destruction of native communities and grasslands, increased sagebrush and juniper woodlands. Disappearance of bighorn sheep, bison and other species; decreased antelope, increased deer, rabbits, and coyote.</td>
<td></td>
</tr>
</tbody>
</table>
ETHNOGRAPHIC OVERVIEW

The following sections present ethnographic information on the Native American inhabitants and users of the Fremont National Forest area about the time of their contact with Euro-Americans. These sections are focused on settlement and subsistence patterns and other activity which these people may have undertaken in the Forest's area and which may be reflected by archaeological materials. Comprehensive ethnographic summaries of these people as developed by Minor, Toepel, and Beckham (1979) and may be found in the appendices.

The use of ethnographic information to draw inferences useful in the interpretation of archaeological material is one of the principal methods used in reconstructing past lifeways. Ethnographic analogy draws inferences based on the similarities or differences between the archaeological evidence and the cultural patterns known for the Native American inhabitants of the area. Problems do exist with this method, particularly its positivist nature and the difficulty in assigning archaeological material any specific cultural or linguistic affiliation. Given the apparent temporal stability of the subsistence patterns followed in this area, the use of ethnographic analogy may be warranted. When utilized in conjunction with other methods, such as a contrastive approach or ethnoarchaeological experimentation, a number of alternative hypotheses may be generated for use in interpreting the archaeological record.
It is important to note that most of the ethnographic material pertaining to
the native inhabitants of this area was gathered after the time of
Euro-American contact and after significant acculturation had taken place.
Most accounts are based on the recollections of a few elderly informants who
had been quite young or not even born at the time of contact. In addition, the
cultural patterns these people were recollecting may have been patterns which
were already adjusting to Euro-American influences, particularly the
destruction of native habitats, the introduction of the horse, population
decline due to disease, and the Euro-American desire to deal with a centralized
authority.

NATIVE AMERICAN OCCUPATION AT EURO-AMERICAN CONTACT

Four Native American peoples, the Northern Paiute, the Klamath, and the Modoc
and, to a lesser extent, the Achumawi occupied or used the Forest area (Figures
6 and 7). Information on Native American occupation of the Fremont National
Forest area at the time of Euro-American contact comes from a number of
sources. While in general agreement, these do differ from some specific
locations. Borders between peoples should generally be seen as lines of
overlapping territory or use rather than as strict dividing lines between
peoples; although, Ray (1963:201) states that the Modoc considered
transgression of their boundaries as grounds for warfare, particularly with the
Northern Paiute, Achumawi, and Shasta.

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The northern corridor should be understood to extend to 44° N. The Modoc area extends in the southwest to the base of Mount Shasta, not shown on the map. Based for the Klamath on Spier, 1930, and for the Modoc on Ray, 1963.
FIGURE 7: TERRITORY OF THE NORTHERN PAIUTE (FROM STEWART 1939:126)
Steward (1939:128) reports that the Paiute called themselves 'nomo' (people) and that the word 'Paiute' is probably derived from the native words 'pa' (water) and 'ute' (direction). Spier (1930:1) reports that the Klamath called themselves 'maklakes' (men). Kroeber (1925:319) suggests that the word 'Klamath' may be derived from the word 'Athlamet', a term used to designate the Klamath by the Kalapuya, a Willamette Valley peoples. Spier (1930:2) reports that 'Modoc' has its origins in the Klamath-Modoc words 'moadok; maklaks'(south people) or 'moadokkni' (southerners). 'Achumawi' (dwellers by the river) is used to designate the Native Americans along the Pit River although it originally referred to one band of these people (Kniffen 1928:311).

Steward (1939:131-135) and Kelly (1932:70-72) report at least two different bands of Northern Paiute in the Forest's area, the Yahuskin centered in the Paisley vicinity and the 'Kidutodado' (Woodchuck Eaters) or 'Gidutakadu' (Groundhog Eaters) to the south and east along the east slopes of the Warner and Surprise Valleys. The Yahuskin band was also known as the 'Yapatika' (Yapa Eaters) or 'Goyatika' (Crawfish Eaters), the latter a post contact designation originating during their stay near Beatty during the reservation era. It appears that the Yahuskin may have consisted of two or more subgroups. These include the 'Dubuteyatikadu' (Deer Eaters) of Summer and Silver Lakes, the 'Paavituvwarai' (White Flint Dwellers) of the Chewaucan Valley, and the Soho or Paisley region band. For the Kidutodado a subname is identified from the area around Adel, 'Saibutikadu' (Tule Eaters).
The Klamath were concentrated around Klamath Marsh and Lake, the Williamson River, and the Sprague River while the Modoc, linguistically and culturally close to the Klamath, occupied the area to the south around Lower Klamath Lake, Tule Lake, the Lost River and east to Goose Lake (Spier 1930:8; Stern 1966:4-5). The Achumawi were concentrated to the south along the Pit River drainage and southwest edge of Goose Lake although they did reach as far north as Lakeview and Bonanza while hunting (Kroeber 1925:304; Kniffen 1928:308:310).

Six tribelets of Klamath are identified with the upland Klamath occupying the area of the Upper Sprague River and the Sycan River (Stern 1966:19; Spier 1930:10) identifies the easternmost settlement of the Klamath as somewhere west of Gearhart Mountain with summer villages also identified as being the Sycan Marsh and River and at Yamsay Mountain.

Three tribelets of Modoc are identified with the 'Kokiwas' (people of the far out country) occupying the Langell Valley and area eastward to Goose Lake, (Ray 1963:201-211); Stern (1966:19). In the Forest's vicinity winter villages were located along the Lost River and in the Langell Valley and on a peninsula extending into Goose Lake just across from Davis Creek, California. Summer Villages have been identified for Dog Lake, along Drew's Creek, and near Keno Spring just south of Yainax Butte. This latter location was also a ceremonial center.

Apparently, the Sycan Marsh area was used by both the Klamath and Yahuskin Paiute (Steward 1939:132). In addition, it appears the Klamath may have also shared the Chewaucan Marsh area and possibly Abert Lake with the Yahuskin
The word 'Chewaucan' is seen to have its origins in the Klamath word for arrowhead (tcuwakan) possibly referring to arrowheads or wappato roots (tcuwa) found at the marsh. The Goose Lake area was also used by the Kidutodado Paiute, the Hodoc, and the Achumawi (Kniffen 1928:309; Kelly 1932:70; Ray 1963:201).

Three language phyla are represented by the languages spoken by the aboriginal peoples who used the Forest's area. The Penutian Phylum is represented by the Lutuami language with its Klamath and Modoc dialects (Spier 1930:1). The Hokan phylum is represented by its Palainhnihan branch and the Achumawi language (Olmstead and Steward 1978:225). And finally, Northern Paiute or Paviotso represents the Monoish Genus of the Numic family of the Utaztekan phylum (Goss 1977:53).

Disagreement exists concerning into which culture area the Native American inhabitants and the area they occupied fall. Kroeber (1939:51-53) places the Northern Paiute in the Great Basin Culture Area and places the Klamath-Modoc and Achumawi-Atsugewi into special sub areas of the Great Basin. Kroeber sees the Klamath-Modoc as having cultural affiliations with the prehistoric Lovelock Culture of the Lower Humboldt Valley and only recently having received during the nineteenth century an overlay of Columbia Plateau and Plains cultural traits.

Spier (1930:233), however, sees the Klamath-Modoc as having Plateau affiliations with a strong relationship with northeastern California, citing the Klamath-Modoc riverine orientation as supportive of this placement. Some
relationships with other areas is suggested with "social habits" reflecting those found in Northwest Coast Cultures and religious beliefs and practices reflecting those found in northern California and western Oregon. Stern (1966:4) views the Klamath and Modoc cultures as fundamentally of Great Basin origin though subject to influences from California and the Plateau. In Stern's scheme the Modoc diverged towards California while the Klamath diverged towards the Plateau cultures. The Klamath were subsequently more receptive to later influences from the Northwest Coast area.

SETTLEMENT AND SUBSISTENCE STRATEGIES

An overview of settlement and subsistence strategies practiced in the Forest's area by its aboriginal inhabitants will highlight many of the uses to which the Forest was put by these people. Current understandings of settlement and subsistence strategies in this area, the Great Basin, and indeed, in many areas of the world, have been heavily influenced by the theoretical constructs of Julian Steward (1938). Consequently, discussion of the settlement and subsistence strategies of the Forest's aboriginal inhabitants will be prefaced by a brief description of Steward's model.

Steward (1938) describes the Basin-Plateau peoples of western North America as "simple hunters and gatherers with a sparse and scattered population" and living "at a bare subsistence level" with a culture "meager in content and simple in structure." An understanding of this generalized pattern was sought by examining human ecology in the Great Basin through consideration of the environment, human cultural mechanisms developed to exploit the environment, and the resulting behavioral and institutional adaptations (Steward 1938:2).
Thomas (1973:156-157) summarizes Steward's theory of Shoshonean subsistence patterns as follows:

The central assertion is that Great Basin cultural ecology had a socially fragmenting effect upon aboriginal populations. The constraints imposed by this harsh, unpredictable environment were such that traditional institutions other than the nuclear family were notably absent. Ecological relationships predetermined the population density, limited the size, mobility, and distribution of village groups, and influenced the overall nature of economic cooperation and property rights (Steward 1938:230). The Shoshoneans depended upon a multiple subsistence pattern which exploited contiguous but dissimilar environments. Plant foods were the staple of the pattern, with pinon nuts and hard shelled seeds from herbaceous plants being the most important wild crops. Plants provided sufficient food, so long as people dispersed in groups of only a few families. Hunting was a secondary activity to supplement the essentially vegetal diet. A well-defined seasonal round permitted the Shoshoneans to coordinate plants ripening in different seasons into an over-all subsistence-settlement network. This demographic pattern centered about a semipermanent winter village encampment, often located on the ecotone between the sagebrush flats and the pinon-juniper belt flanking the mountains. Necessary conditions for winter encampments were "accessibility to stored seeds, especially pine nuts, water, sufficient wood for house building and fuel, and absence of extremely low winter temperatures" (Steward 1938:232). Winter villages
accommodated about 15 to 20 families. During these periods of maximal aggregation, cooperative hunting of jack rabbits and antelope was often attempted. Families left the winter village in the summer to reestablish habitation closer to the ripening herbaceous plants. Although families would occasionally travel up to 30 to 40 miles for an exceptionally abundant crop, most remained within a few miles of the winter village in order to reoccupy the site, provided that the local pinon crop was satisfactory.

Steward (1938:233-234) recognized variation in the generalized pattern, particularly in locations such as the Owens Valley in California where "geographic diversity provided all essential foods and materials within small territories" and seed crops were reliable. This situation of extreme geographic diversity and stable crops resulted in more stable and perennial villages and strengthened political cohesion above the family level. Steward suggests that the Northern Paiute may have encountered similar situations, although he only names some Nevada locations and does not specifically mention any areas in the immediate vicinity of the Forest.

Madsen (1982:210-212) has schematically represented Steward's basic model and the sedentary collector variation represented by the Owens Valley Paiute (Figure 8). He places these on a continuum with the addition of "nomadic foragers who live in groups as small as individual families and travel from season to season from environmental zone to environmental zone, subsisting on local flora and fauna as they become available" (Madsen 1982:211).
FIGURE 8: SCHEMATIC OF THREE TYPES OF HUNTING/GATHERING SUBSISTENCE-SETTLEMENT STRATEGIES FOUND ALONG A CONTINUUM OF FORAGERS TO SEDENTARY COLLECTORS (FROM MADSEN 1982:211)

A-FULLY NOMADIC FORAGERS
B-STEWARD'S SHOSHONEAN MODEL
C-SEDENTARY COLLECTORS
Beardsley (1955:135-140) provided a typology useful for examining the settlement and subsistence strategies of hunting and gathering and other cultures. Relevant portions of this typology to the native peoples of the Forest include the following types, free wandering, restricted wandering, central-based wandering, and semi-permanent sedentary.

One final point to keep in mind when examining settlement and subsistence strategies is the prehistoric and ethnographic use of fire by native peoples. Shinn (1980:417-418) documents the varied uses to which fire was put including broadcast burning to encourage the production of wild forage and plant foods, to facilitate hunting and travel in forested areas, and as a technique used to surround and/or drive hunting of game and the gathering of insects.

THE KIDUTODADO NORTHERN PAIUTE

The most comprehensive source of information on the Kidutodado Northern Paiute, also known as the Surprise Valley Paiute, is Kelly's (1932) ethnography. The following discussion is based on this work.

The Kidutodado followed a settlement and subsistence strategy which fits comfortably into Steward's model. Winter villages were located along the foothills of the Warner and Surprise Valleys and also along the shores of lakes formerly found in this area. Houses were conical, mat covered lodges, apparently a Plains form diffused into the area during the late 1800's and which replaced an earlier dome-shaped structure. Winter villages had five to six houses of nuclear families subsisting on food caches of seeds, dried roots,
and meats, as well as hunting game, particularly the communal hunting of rabbits and antelope using brush corrals. Village locations were moved during the winter as food caches were exhausted.

With the coming of spring some fishing was done in creeks and streams. Winter villages were dismantled and people began to move into the hills to gather roots as they became available. Root gathering continued on into the summer and included yapa or epos, biscuitroot, camas, wild onion, bitterroot, sunflower, and balsamroot. The Big Valley area was a major location for this activity. By late summer gathering activities had shifted to grass seeds and sunflowers and movement began back into the valley for berry and seed gathering.

Hunting activity during most of the year was an individual or small group affair. From May to July groundhogs, porcupines, and squirrel were hunted, often by both sexes. Individual or small groups of males hunted deer and antelope, with the Kidutodado in the Warner Valley using a stalking method not often used by those in the Surprise Valley. Some fire drives of deer took place in late summer. Fall found hunting activity focused on wildcats and communal rabbit drives and waterfowl hunting. Communal hunting of rabbits and antelope continued on into the winter. Bear and otter were also hunted during this time as were sage hens, grouse, and prairie chicken.

Throughout the months of food gathering, processing and storage of foods was a primary activity. Food caches were established near winter village sites and at locations in the hills where the early spring gathering took place. Pinyon
nuts were a limited resource, found in few locations in the Kidutodado's range. Basically, these people followed a seasonal pattern focused on dryland resources with a fairly eclectic resource base.

THE YAHUSKIN NORTHERN PAIUTE

Little ethnographic information directly relating to the Yahuskin Paiute is available. It may be that they followed a pattern similar to the Kidutodado, although the geographic diversity of the Yahuskin territory with escarpments rising rapidly from valley floors may have offered the type of environment which Steward (1938:233-234) suggests may have favored a more sedentary and specialized pattern.

Kelly (1932:96) does report that some of her informants report that the Yahuskin in the Silver Lake area practiced some lake or deep stream fishing and that the hunting of elk, deer and antelope included driving the animals over cut banks. Fremont (Jackson and Spence 1970:593) reported in his explorations that the Chewaucan Marsh was "covered with high reeds and rushes, and large patches of ground had been turned up by the squaws in digging for roots, as if a farmer had been preparing the land for grain..." Fremont also reported that the north end of Abert Lake showed numerous ducks and "frequent tracks of Indians along the shore, where the grass had recently been burnt by their fires."

THE KLAMATH

Spier (1930) and Stern (1966) are the two most comprehensive sources of information on the Klamath. The following discussion is based on these works.
The Klamath followed a settlement and subsistence strategy of seasonal economic rounds and permanent winter villages. Winter villages were located at "sheltered, sunnyspots on running streams or at springs warm enough to prevent ice from forming" and might consist of a few to a hundred or more semisubterranean earth lodges stretched along a river bank for a half mile or more. These winter villages were in fixed locations and reoccupied from year to year. Some individuals made the winter village their year-round home.

In the early spring the Klamath moved to fishing stations, usually located somewhat close to the winter villages. They fished for suckers, salmon, and trout. In late spring and through the summer they moved to the prairies and mountains, gathering camas, epos, yan, and arrowroot in meadows and tules, cattail, wild celery, mosses, and waterfowl eggs in the marshy, watery flats. Both the Sycan and Chewaucan Marshes were visited for these purposes. August and September found the Klamath at marshes gathering wokas or pond lily seeds. The importance of this resource to the Klamath is underscored by their designation of this time as the start of their year.

Throughout late spring and summer residences shifted in both locality and group composition depending on the availability and nature of the resources to be gathered. Summer houses were circular lodges without an earth covering and with a side entrance. During this time individual hunters took to the mountains and desert areas.

Early fall would find the Klamath moving into the mountains to collect camas, seeds, berries, and wild plums. Mid-October found them returning to the winter villages. Collective animal drives took place during this time and involved
antelope, deer, waterfowl, beaver, otter, and rabbits. Fall was also the time for long distance hunting and war parties, the Klamath having periods of intermittent hostility with the Northern Paiute and hostilities approaching "predatory aggressiveness" towards the Achumawi and Shasta peoples.

Basically, the Klamath followed a strategy of permanent winter villages and shifting summer base camps with subsistence focused on riverine and lacustrine resources supplemented by some hunting and dryland resources.

THE MODOC

Ray (1963) and Stern (1966) are two of the most comprehensive sources of Modoc ethnographic information. The following discussion is based on these works.

Like the Klamath, the Modoc settlement and subsistence strategy involved seasonal economic rounds and the occupation of permanent winter villages and semipermanent spring and summer villages. Winter villages were also the permanent homes for the elderly and crippled, too infirm to meet the physical demands of the seasonal rounds. This necessitated periodic returns to winter villages by young people with food supplies.

In early spring the Modoc moved to semipermanent fishing sites for three to four weeks. During this time they also gathered some roots and desert parsley in the sagebrush scat. As epos became available and fish diminished, the Modoc moved to the good epos digging grounds, with the best sites near streams or rivers with access to trout which would be available through August. Epos played a large role in meeting the subsistence needs of the Modoc, comparable to the role of wokas for the Klamath.

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Late June and early July found the Modoc moving to the moist meadows of the coniferous forests to harvest camas. As this resource was widely dispersed, this time of year involved the most widespread population dispersal and most frequent movement of camps. During late July the white camas was harvested, a leaching method being used in processing to counter its normally poisonous nature. Late July also found individual Modoc hunting antelope and mountain sheep.

Late summer and early fall found the Modoc utilizing a second run of suckers and harvesting a variety of grass seeds, berries, and fruits. During late summer remote and higher locations were used for gathering huckleberries and other fruit and to hunt deer and elk. Deer were sometimes hunted with fire drives to hilltops or small mountains.

People returned to winter villages in October. Communal hunting of antelope with a chute and pound method was practiced in fall and winter. Trout fishing took place in December and through holes in the ice through the winter. Particularly good hunting was found by the Modoc in the area between Goose and Tule Lakes, particularly Yokum Valley and Steele meadow in the spring and fall.

The Modoc followed a more generalized strategy than the Klamath relying heavily on dryland roots and grass seeds and small and big game hunting supplemented by fishing and berry and fruit gathering.
THE ACHUMAWI

Olmstead and Stewart's (1978) recent comprehensive summary of ethnographic information on the Achumawi is the primary source upon which the following discussion is based. Additional references are made to earlier works of Kroeber (1925) and Stewart (1941).

The Achumawi followed a strategy of permanent winter villages and seasonal economic rounds (Kroeber 1925:305-311; Olmstead and Stewart 1978:225-229). Winter villages were concentrated along the Pit River and its tributaries and consisted of large quadrilateral semisubterranean pit houses which, unlike the Klamath and Modoc were covered by bark and not earth. Summer dwellings, when present, were brush or mat windbreaks.

Subsistence for the Achumawi varied with those in the western portion of their territory utilizing salmon and acorns while those in the eastern areas utilized more Great Basin subsistence resources such as seed and roots (Olmstead and Stewart 1978:225-229). Grassland resources used included epos, camas, wild onions, and other bulbs. In early spring clover and thistles were eaten. In fall wild grass seeds were collected and fields burnt. Also collected were sunflower seeds, as well as, a variety of insect larvae and insects, berries, and fruits.

Marsh resources included duck, geese and other waterfowl and their eggs. Trout, suckers, and where available, salmon were obtained from the Pit River and its tributaries and sometimes involved the use of wiers and rock dams. The
sagebrush flats were the location of spring gathering of sage grouse eggs and the fall hunting of antelope, jackrabbits, and sage grouse. Also hunted in more wooded and mountainous areas were mountain sheep, elk, bear, deer, and a variety of smaller animals. Deer hunting involved the use of pit falls; their frequent use led to the Achumawi being called Pit River Indians. Hunting of antelope and rabbits was a communal affair (Steward 1941:366-367).

The Achumawi followed a riverine oriented settlement and subsistence strategy which was adjusted according to the specific resource available in their territory. They appear to have been as sedentary as the Klamath.

RECOMMENDATION SERVICES

The Native American world view stressed the interdependency of human life and the natural world. In Stern's (1966:15) words "among the creatures of this world, man is less the exploiter than a fellow being." For the Klamath, Modoc, Northern Paiute, and Achumawi the shaman was the central religious figure and also functioned as the principal healer. Variation existed among these peoples on the shaman's role and also to what degree persons not shaman had access to spiritual power. Prior to Euro-American contact and influence, the shaman was generally also the major political or authority figure with influence.

Among the Klamath both shamans and other individuals could seek and receive spiritual power (Spier 1930:93-94). Such quests were often made at puberty, during a mourning period, by a man at the birth of his first child, and indeed at any other time a person so desired. Power was sought at sacred places
including certain rivers and lakes in the mountains where an individual might fast, run, pile rocks, and swim. Mourners would purify themselves first in sweat lodges. A spirit came to seeker in a vision or a dream, manifesting itself as an animal or some natural phenomena. Its power was expressed in a song, the spirit and the song being one and inseparable. Powers received concerned healing and curing, gambling, hunting, love-making, and shamanistic trickery.

A shaman would seek and receive powers from different spirits and would use these powers for curing, to manipulate conditions such as the weather, wokas harvest, fish runs for prophesy, and to protect the community against spirits which may have been maligned (Spier 1930:108-118). Shamanistic activity could occur anytime during the year, although it usually took place during mid-winter in the form of performances at a shaman's house.

For both the Klamath and Modoc human accomplishment was contingent on access to sources of power (Stern 1966:16 Ray 1963) expresses the difference between the Klamath and Modoc relations with spirits. For the Klamath, a spirit became a "helper" to a shaman or individual. For the Modoc, on the other hand, a person became the human instrument of a spirit. Spirit power was given only to those who sought to become shamans among the Modoc.

Among the Kidutodado Northern Paiute shamans acquired their power through dreams, often beginning in early childhood (Kelly 1932:189-191). Dream vision quests to secure and renew power were taken in the mountains. While some shamans specialized, others were "general practitioners." Powers included healing, weather control, prophesy, and ensuring fruitful communal antelope hunts.
Achumawi shamans and individuals received powers in visions or dreams received during quests into the mountains (Stewart 1941:412-415; Olmstead and Stewart 1978:232-234). Spirit's powers aided in hunting, war, gambling, curing and healing.

The Klamath and Modoc cremated their dead in cremation piles located near their villages (Spier 1930:71). The Achumawi cremated their dead in shallow mountain graves which were covered with rocks and dirt (Stewart 1941:443). The Kidutodado Northern Paiute buried their dead in surface graves covered with rocks in the mountains (Stewart 1941:411).

TRADE AND WARFARE

The Klamath, Modoc, Northern Paiute and Achumawi interacted with each other in different ways when it came to matters of trade and warfare. Raids and reprisals rather than full-scale warfare were the principal forms of intergroup hostilities. Individuals and kin groups among these people might also have feuds with others within their culture.

For the Kidutodado Northern Paiute hostilities with unrelated neighbors were "caused chiefly by theft of women or trespass and consequent infringement of hunting rights" (Kelly 1932:185). For the Modoc hostilities occurred when enemy raiding parties were discovered, territory enroached upon, property stolen, and people harrassed and slaves were to be taken (Ray 1963:134:135). For the Klamath raids for "plunder, slaves, and revenge" were "engendered by patriotic motives and tangible benefits" and were not merely extensions of private quarrels (Spier 1930:24).
The Klamath were part of the Chinook trading system, speaking the Chinook trading jargon and traveling to the Warm Springs area and to the great Wishram-Wasco trading center at the Dalles (Spier 1930:24-25). They traded Pit River yew and oak bows and beads as well as Achumawi, Atsugewi, and to a lesser extent, Northern Paiute, Shasta and Upland Takelma slaves for horses, blankets, buffalo skins, parfleches, dentalium shell beads, and dried salmon and lamprey (Spier 1930:39-42). The Klamath participated as "middlemen" in the slave trade, relying on the Modoc to obtain Achumawi slaves in raids. The Modoc, sometimes in concert with the Klamath, raided the Achumawi with relative impunity (Ray 1963:135-136). They also sometimes accompanied the Klamath in raids on the Shasta peoples. Spier (1930:313) suggests that the Klamath may not have adopted the institution of slavery until the early nineteenth century and the coming of the horse and the opening of slave traffic with Columbia River peoples.

To a lesser extent mutual raids and reprisals occurred between the Klamath and Northern Paiute as well as with the Upland Takelma of the Rogue River and Sahaptin peoples of the Columbia and the Cayuse (Spier 1930:24-25). In addition to the Wishram-Wasco and Warm Springs people, the Klamath were on friendly terms with the Molalla of the Oregon Cascades with whom they traded woka seeds and beads for buckskin. Some trade with the Shasta also occurred with skins and blankets being exchanged for beads. The Klamath carried on only indirect trade with the Achumawi through the Modoc, and that was relatively minor.

Trade and hostilities occurred between the Northern Paiute and the Klamath. Kelly (1931:186) reports that the Kidutodado are said to have come from the
Steen Mountain area and driven the Klamath from the Warner and Surprise Valleys in prehistoric times. The Klamath are reported to have used wall-like rock structures as fortifications "just high enough so a person can sit behind them and shoot over the top." During the early historic period the Klamath are reported to have raided the Northern Paiute for horses and conflicts are said to have occurred near Chiloquin and along the Sycan River near the Sycan Marsh.

Stewart (1941:441) reports conflicts as having occurred between the Achumawi and Northern Paiute including the Kidutodado. The Kidutodado Northern Paiute are also reported by Kelly (1932:151-152) to have conducted moderate trade with the Achumawi, exchanging sinew, arrowheads, red paint, buckskins, moccasins, and yapa for oak bows and arrows, some baskets, and dried fish including suckers and salmon. Achumawi trade links extended towards the Sacramento Valley, sending shell beads up the Pit River and furs downstream (Kroeber 1925:309). The Dubuteyatikadu Northern Paiute of the silver and Summer Lake area are reported to have traded with the Tenino, exchanging buckskin and roots for salmon and horses (Suphan 1974a:64).

Obsidian from Tucker Hill, Yamsey Mountain, and Frog Mountain has been found in archeological sites in the Willamette Valley area, apparently obtained by the Kalapuya through trade with the Molalla whose territory bordered that of the Klamath and Northern Paiute (Toepel and Sappington 1982:30-32).

The extent of the obsidian trade is apparent from the finding of obsidian from the Glass Buttes area as far away as British Columbia (Minor et al 1979:101).
SUMMARY AND SYNTHESIS

The area of the Fremont National Forest was used by several Native American groups including the Klamath and their close relations the Modoc, the Kidutodado (Surprise Valley) and Yahuskin (Silver-Summer Lake-Paisley area) Northern Paiute, and the Achumawi of northeastern California. These various peoples seem to have primarily used the area of the Forest on their seasonal subsistence rounds, to secure resources such as obsidian, and for spiritual quests.

The Northern Paiute peoples appear to have been central based wanderers, using semi-permanent winter villages and shifting summer camps. The Klamath, Modoc, and Achumawi were somewhat more sedentary than the Northern Paiute with permanent winter villages and a more areal restrictive subsistence round in proximity to winter villages than the Northern Paiute pattern.

Klamath subsistence was focused on riverine and marsh resources. The Modoc had a more generalized pattern including the exploitation of dryland root crops and the hunting of game. The Northern Paiute subsistence base was generalized and included grass seed gathering and hunting. In the eastern portions of their territory near the Forest the Achumawi subsistence base included grass seed and root gathering, fishing and hunting.

Changes to the Native American cultures during the late prehistoric and early historic eras are probably reflected in the ethnographic record. These changes included the use of the horse, an expansion of long-range trade, the
replacement of the shaman by secular figures as leader with power and
authority, the destruction of native biotic communities, and the decimation of
native populations by Euro-American diseases.

Native American use of the Fremont National Forest area should manifest itself
in a variety of archaeological site types in various environmental settings
(see Fremont National Forest Inventory Plan, 1984). Site types include winter
village sites along lowland water sources, summer base camps in higher
elevation areas, a variety of subsistence related task sites and temporary
camps, and spirit quest sites along rivers and lakes in the mountains. Nearly
all environmental zones of the Forest were probably used by native peoples,
although meadow, marsh, riparian, and forest-grassland ecotone zones may show
more intensive use.

ARCHAEOLOGICAL OVERVIEW

The following sections present a summary of the archaeological information on
the Great Basin, in particular its northern areas and the Fremont National
Forest. A brief thematic overview of northern Great Basin archaeology is
presented. This is followed by a summary of the area's cultural chronology and
an examination of settlement and subsistence systems in the archaeological
record. These last two sections are presented with the intent of aiding in the
analysis and interpretation of prehistoric cultural resources found on the
Fremont National Forest.
In discussing settlement and subsistence systems, northern Great Basin examples of Surprise and Warner Valleys are augmented by examples from other areas (Figure 9). The Reese River example is presented because of its similarities to the Great Basin ethnographic record. The Owens Valley example is presented because of gross environmental similarities in uplands and mountains rising dramatically from a valley floor. And the lower Humboldt Valley, Nevada example is presented because of possible similarities with the as yet not fully unanalyzed Abert Lake situation.

Background information is given to research carried out on the Fremont National Forest, particularly concerning research objectives and methods. This is followed by a gross district by district description of sites and chronological evidence and a general discussion. A summary and synthesis attempts to place the Forest in its regional context.

NORTHERN GREAT BASIN ARCHAEOLOGY

Aikens (1982:141) identifies the pioneer period of northern Great Basin archaeological research as that from the early 1930's to 1942, from Cressman's (1937) inventory of eastern Oregon rock art through a series of excavations of cave sites culminating in a major northern Great Basin monograph (Cressman et al 1942). Aikens sees the major research questions for this period as concerned with the age and cultural affinity of aboriginal occupation, particularly whether the Great Basin Culture Area was a precursor to southwest Basketmaker Culture (Steward 1940) or descended from it (Krieger 1928; Loud and Harrington 1929; Kroeber 1939). As a result of investigations at Catlow Cave,
FIGURE 9: ARCHAEOLOGICAL SITES AND LOCALITIES CITED IN THE CULTURAL RESOURCE OVERVIEW.

KEY
1 - Kawumkan Springs
2 - Nightfire Island
3 - Fort Rock Basin
4 - Sycan Marsh
5 - Coffeepot Flat
6 - Abert Lake
7 - Warner Valley
8 - Surprise Valley
9 - Steens Mountains
10 - Dirty Shame Rockshelter
11 - Lower Humboldt Valley
12 - Reese River Valley
13 - Owens Valley
Paisley Five Mile Point Caves, Lower Klamath Lake, and Fort Rock Cave Cressman (1940) concluded that this area was occupied very early. With the advent of radiocarbon dating in the 1950's, Cressman's ideas were confirmed.

With confirmation of early human occupation of the Great Basin, conceptual frameworks in archaeological investigations shifted from culture history to a consideration of issues of cultural ecology. O'Connell et al (1982:231) describe this application as descriptive ecology consisting of two phases, first, an attempt to reconstruct the prehistoric environment and subsistence practices of single sites and, second, a shift in the mid 1960's toward regional reconstruction of settlement and subsistence patterns.

Jenning (1957) and Cressman (1956) utilized ethnographic and ethnohistoric analogy from Steward (1938) and Spier (1930) respectively to reconstruct past lifeways from the archaeological record at Danger Cave, Utah and Kawumkan Springs, Oregon. The notion of a Desert Culture with an antiquity and consistent duration spanning the last ten thousand years or so was developed by Jennings (1957) and Jennings and Norbeck (1955). Aikens (1978a:72) describes this lifeway as a "broad hunting-gathering pattern of life, involving small groups of people who moved often and whose possessions were limited to what they could carry." Cultural change was gradual and incremental.

Aikens (1982:147) presents what he terms "one of the clearest reflections yet available of the ancient Desert Culture lifeway" in his description of artifacts from dry sites in the northern Great Basin. It is as follows:
Items of clothing included sagebrush bark sandals and rabbitskin robes. Footwear must have been very important to a people who were obliged to travel far and often, and it is the most abundantly attested form of personal clothing. For gathering, fetching, and carrying there were a variety of twined baskets, soft bags and nets. Digging sticks of mountain mahogany for taking roots and shoots, and manos and metates for breaking and grinding seeds were well represented. Atlatls and darts, bows and arrows; and stone projectile points to arm them, all occur in the collections, as do numerous cutting and scraping tools of chipped stone. The hunt provided not only food, but furs, sinews, and bones used in making clothing, in the hafting of stone tools, in the fashioning of bowstrings; and in the making of awls and other manufactured tools. Flaked stone drills and abrading tools of rough scroatic basalt further attest the manufacture of wooden objects such as atlatls, bows and associated gear.

Neither was the assemblage unrelieved nor utilitarian. Many of the baskets from Koaring Springs Cave had been ornamented in geometric patterns by inlaying fibers of different colors; many of the dart shafts and arrow shafts had been painted with rings of red and blue; a pair of tiny baby's sandals had been given a soft inner lining of rabbit fur; a piece of cane had been cut and perforated as a musical flute; and a perforated Olivella shell from the Pacific Coast had perhaps been strung as a bead. The collection illustrated, in short, not only the day-to-day tasks of the desert lifeway, but also some of its pleasures.
Almost since its inception, two major types of criticisms were directed at the Desert Culture concept, one dealing with a matter of scale and the other asserting that there was more variation in paleo-climatic conditions and prehistoric demography than the concept seemed to indicate (Fowler and Jennings 1982:110). Subsequent studies resulted in the recognition that within the Great Basin were "a variety of area-specific and ecology-specific adaptive systems" and the Desert Culture concept came to be subsumed under a Desert Archaic and then Western Archaic Classification. Fowler and Jennings (1982:110) describe the Archaic lifeway as "most versatile in adaptation, developing different tool kits as required in the collection of selected resources in a well established yearly-round" within an overall hunting and gathering subsistence economy focused on plant and animal resources. Controversy over the Desert Culture concept also stimulated paleo-environmental research which revealed a more complex pattern of climatic change and stability throughout various areas of the Great Basin than Antev's (1948, 1955) model suggested. Fowler and Jennings (1982:111) suggest that as a result of the Desert Culture controversy there was a shift in Great Basin archaeology from a "single site" perspective to settlement-subsistence systems over a large area and also to "the application of new approaches to research design, simulation studies, and sampling strategies" to Great Basin problems in prehistory.

Reviewing the results of forty-five years of archaeological and ethnographic research in the northern Great Basin, Aikens (1982: 515-152) feels the "presupposition of Great Basin anthropology that the distribution and abundance of food and industrial resources controlled the distribution, density and residential stability of human groups there" is supported.
O'Connell et al. (1982:233-236) suggest that while continued exploratory and cultural historical research is appropriate for contemporary Great basin archaeology, the adoption of evolutionary ecology as a theoretical framework is needed to reconstruct settlement-subsistence systems without ethnographic analogs and to explain the changes sustained through time by these systems.

Use of optimal foraging theory is cited as one application of evolutionary ecology. This theory refers to the underlying principle that "all else equal, more efficient strategies—those that produce the greatest return in energy relative to time or effort expended—will be favored over those that are less efficient."

Aikens (1982:152) suggests that some of the most profitable and informative prehistoric research will be biogeographical and that analysis of landscapes in terms of the distribution and abundance of foods and industrial resources will lead directly to the elucidation of archaeological site distributions (this human subsistence and settlement patterns) at least for those periods when environmental conditions rather like those of modern times prevailed. Further, as paleo-climatic and paleo-environmental studies continue to be advanced, it will be possible -- it is now possible, in some places-- using established biogeographical principles, to infer enough about past biotic distributions to permit such analysis to proceed even for periods climatically different from the present --
Aikens also stresses the need for ethnobotanical studies "of the gathering patterns of native peoples and quantification of the yields resultant from their labor" as well as studies of native vegetation patterns existing prior to their destruction by Euro-American activity such as Couture (1978, 1980), Young et al. (1976), and Corson (1979).

Broad-scale surface surveys being done in conjunction with Federal cultural resource management programs are seen by Aikens (1982:151) as aiding in the determination of settlement and subsistence patterns, especially when done in conjunction with geographical and biogeographical studies. This view is supported by Fowler and Jennings (1928:113). They stress the need for "well thought-out sampling strategies" and the collection of data "within the framework of competent regional, possibly Basin-wide research designs."

NORTHERN GREAT BASIN CULTURAL CHRONOLOGY

A rough outline of cultural chronology in the northern Great Basin, based in part on work in the Fort Rock Basin (Bedwell 1973) and at Dirty Shame Rockshelter in southeastern Oregon (Aikens et al. 1977) has been presented by Aikens (1982:141-147).

Earliest occupation of the northern Great Basin is best evidenced by the remains of the paleo big game hunters of terminal Pleistocene times, including the Clovis Culture (Aikens 1977:147). Clovis projectile points are found throughout the Great Basin and although no exact date has been established for them in this area, Aikens offers an estimate of 11,500 to 11,000 BP. An early
date of 13,200 BP is reported by Bedwell (1973:141–143) for an archaeological assemblage in association with a hearth at Fort Rock Cave (Figure 10). The paucity of the assemblage, the wide standard deviation of the radiocarbon date, and the questions concerning the validity of the association of the artifacts with the hearth make it difficult to draw generalizations from the find.

A preprojectile point of chopper-scraper tradition has been suggested for periods up to 25,000 or more years ago by a number of researchers (Carter 1958; Simpson 1958, 1960; Harrington and Simpson 1961; Krieger 1964; Leakey, Simpson and Clements 1968; Davis 1978). The evidence for this tradition is scanty and equivocal, especially in light of reinterpretations of the material in question (Hester 1973:59; Aikens 1978b:146). Fowler and Jennings (1982:112) suggest that archaeologists have yet to look in the right places for this supposed tradition. In any event, no manifestations of this alleged early tradition have been found in the northern Great Basin.

The fluted point tradition of the paleo big game hunters and the Clovis Culture is followed by the Western Pluvial Lakes Tradition, described by Bedwell (1973:170) and seen by Aikens as congruent with the southern California San Dieguito Complex (Warren 1967) and the Windust phase of the Columbia-Snake Region (Leonhardy and Rice 1970:4–6). Aikens (1978a:75) sees this tradition as part of "a direct historical relationship between Clovis Culture and the Desert Culture" with the point of convergence being the exploitation of lakeside resources. Bedwell (1973:170) describes this tradition as a specialized economic adaptation to a lake, marsh, and grassland environment and typified by assemblages with:
FIGURE 10: EARLY ASSEMBLAGE FROM TOP OF GRAVEL AT FORT ROCK CAVE, DATED 13,200 BP (FROM BEDWELL AND CRESSMAN 1971:19)
tools having well-controlled percussion flaking, nonstemmed and nonnotched lanceolate projectile points (with round or indented bases), large lanceolate and ovaste knives, and substantial numbers of large and moderate sized scrapers, gravers, and use-worked flakes (Figure 11).

The earliest period for Dirty Shame Rockshelter has an assemblage similar to that described by Bedwell but it includes some notched projectile points absent from the Fort Rock area including Northern Side-notched, Elko Eared, and Elko Corner-notched projectile points (Aikens et al 1977:20).

For the period 8000 to 7000 BP Bedwell (1973:1-172) sees the introduction of new cultural elements into the Western Pluvial Lakes Tradition and suggests that these elements, corner notching of projectile points and finer flaking, originated in the Eastern Great Basin. Aikens et al (1977:20) note the closer affiliation of the Dirty Shame Rockshelter projectile points with areas to the east and south.

The Western Pluvial Lakes Tradition was followed by what in the general sense is termed the Western Archaic. As noted earlier this term subsumes the earlier Desert Culture and Desert Archaic concepts and is associated with a history of disagreement over how to characterize the cultures of the Great Basin during this time.

Aikens (1982:151) describes the northern Great Basin culture chronology as characterized by the "maintenance of the same basic tool types and activity patterns ... throughout the last ten millennia or so" with climatic
*Artifacts recovered during excavations in strata/levels dated to the time of the Western Pluvial Lakes Tradition.*
fluctuations altering environments "sufficient that the intensity of occupation they actually sustained varied significantly over time." Human societies made adjustments to changing environmental conditions "not in the realm of technological adaptation, but rather in the realm of social behavior."

The conservative nature of the Western Archaic Technology in the northern Great Basin is demonstrated by the persistence of basic tool types and gradual change among a few artifact types. Hanes (1977:11) notes in the Dirty Shame Rockshelter assemblage the representation of irregular and leaf-shaped biface knives, block milling stones, manos and large projectile points is constant throughout the occupational sequence. Crude slab bifaces and slab milling stones are more dominant prior to 5900 BP while after 2700 BP utilized flakes and uniface scrapers double in number, gravers, core tools, drills, and miscellaneous biface tools increase slightly, and arrow points appear.

Stylistic changes in projectile point types, while gradual and extending over somewhat lengthy periods of time, do provide some usefulness as artifactual time markers for the northern Great Basin. Table 2 provides a chronology of point types as represented by the Fort Rock and Dirty Shame Rockshelter assemblages with additional time ranges for other Great basin areas. Figures 10-14 provide illustrations of some of these point types.

Changes in the social behavior of northern Great Basin societies is reflected in the archaeological evidence for changes in settlement and subsistence. Adjustment to changing environmental conditions, particularly during the

By contrast, in the higher elevation Klamath Basin area a continuity in occupation and tasks is demonstrated by Cressman (1956). For Kawumkan Springs, Aikens and Minor (1978) suggest a continuous occupation sequence dating back 5,000 years based on obsidian hydration analysis. Further south in the basin at Nightfire Island a continuous occupation sequence dating back to about 6000 BP and showing a fairly stable pattern of stability in the utilization of lake and marsh fauna is reported (Grayson 1976:76-77).

In the Surprise Valley area O'Connell (1975:43-46) reports that around 4500 BP a sedentary lifestyle was replaced by less stable settlements whose populations were able to disperse and recombine as resource availability dictated. This shift possibly reflects an in situ adaptation by the area's inhabitants to a changing environment or an abandonment of the area and subsequent reoccupation by a different group. O'Connell (1975:46) speculates that —

the break in stylistic continuity across the northern Great Basin (including Surprise Valley) represents a population movement, with people from the central Great Basin displacing a different ethnic group along the northern rim of the Basin at about 4500 BP —
Table 2: Chronology of Great Basin Projectile Point Types (after Hanes 1977, Heizer and Hester 1978b, Aikens 1982)

<table>
<thead>
<tr>
<th>SERIES OR TYPE</th>
<th>NORTHERN GREAT BASIN TEMPORAL RANGE*</th>
<th>GREAT BASIN TEMPORAL RANGE+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clovis Fluted Point</td>
<td>11,500 - 11,000 BP</td>
<td></td>
</tr>
<tr>
<td>2. Haskett/Haskett-like</td>
<td>11,000 - 7,000 BP</td>
<td>7,950 - 6,950 BP</td>
</tr>
<tr>
<td>3. Lake Mohave</td>
<td>13,200 - 6,535 BP</td>
<td>13,200 - 7,950 BP</td>
</tr>
<tr>
<td>4. Great Basin Transverse</td>
<td></td>
<td>10,950 - 7,950 BP</td>
</tr>
<tr>
<td>5. Scottsbluff</td>
<td>7,925 - 6,535 BP</td>
<td></td>
</tr>
<tr>
<td>6. Angostura</td>
<td>7,925 - 6,535 BP</td>
<td></td>
</tr>
<tr>
<td>7. Black Rock Concave Base</td>
<td></td>
<td>9,500 - 7,000 BP</td>
</tr>
<tr>
<td>8. Northern Side Notched</td>
<td>9,500 - 5,855 BP</td>
<td>8,950 - 2,950 BP</td>
</tr>
<tr>
<td>9. Wendover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Corner Notched</td>
<td>6,845 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>b. Side Notched</td>
<td>7,100 - 5,855 BP</td>
<td></td>
</tr>
<tr>
<td>10. Humbolt Series</td>
<td>7,950 - 3,050 BP</td>
<td></td>
</tr>
<tr>
<td>a. Concave Base A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Concave Base B</td>
<td>2,740 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>c. Basal Notched A</td>
<td>7,925 - 1,140 BP</td>
<td></td>
</tr>
<tr>
<td>d. Basal Notched B</td>
<td>9,500 - 1,140 BP</td>
<td></td>
</tr>
<tr>
<td>11. Pinto Series</td>
<td>4,950 - 2,650 BP</td>
<td></td>
</tr>
<tr>
<td>a. Shoulderless</td>
<td>1,405 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>b. Sloping Shoulder</td>
<td>1,405 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>c. Square Shoulders</td>
<td>1,405 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>d. Barbed Shoulders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. One-Shoulder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Willowleaf</td>
<td>9,500 - 5,855 BP</td>
<td></td>
</tr>
<tr>
<td>12. Elko Series</td>
<td>7,100 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>a. Side Notched</td>
<td>7,100 - 365 BP</td>
<td></td>
</tr>
<tr>
<td>b. Eared</td>
<td>9,500 - 1,140 BP</td>
<td></td>
</tr>
<tr>
<td>c. Corner Notched</td>
<td>9,500 - 3,000 BP</td>
<td></td>
</tr>
<tr>
<td>d. Split Stem</td>
<td>2,740 - 365 BP</td>
<td></td>
</tr>
</tbody>
</table>

73
13. Gunther Barbed

14. Rose Spring Series
   a. Corner Notched  5,000 - 365 BP
   b. Side Notched    2,740 - 365 BP
   c. Contracting Stem 2,740 - 365 BP
   d. Sloping Shoulder 1,405 - 365 BP

15. Eastgate Series
   a. Expanding Stem  7,100 - 365 BP
   b. Split Stem

16. Desert Side Notched  5,000 - 365 BP

17. Cottonwood Series
   a. Triangular  1,090 - 320 BP
   b. Leaf-shaped
   c. Bi-pointed

2,250 - historic times
2,250 BP historic
850 BP historic
650 BP historic

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FIGURE 12: EARLY GREAT BASIN PROJECTILE POINT TYPES.  
( KEY TABLE 2 )
FIGURE 13: LARGE, NOTCHED, GREAT BASIN PROJECTILE POINT TYPES

(KEY TABLE 2)
FIGURE 14: SMALL, RELATIVELY RECENT GREAT BASIN PROJECTILE POINT TYPES (KEY TABLE 2)
Recent research in the Abert Lake area indicates that sedentary populations of possibly as high as 5,000 lived in villages along what was then "a freshwater environment much like that of Klamath Lake today" (Pettigrew 1980a). These people, termed the Chewaucanians, subsisted on lacustrine resources until forced to abandon the area as these resources were drastically reduced by the decreasing levels and increasing salinity and alkalinity of Abert Lake (Pettigrew 1980b:54-55).

Both Pettigrew (1980b:64) and O'Connell (1975:46) suggest that the sedentary villagers in the areas they discuss may have been the Sahaptin ancestors of the present day Klamath-Modoc. They also suggest these people may have been replaced by the Numic speaking peoples from whom the Northern Paiute are descended. O'Connell suggests that the geologic-chronological dates which indicate a relatively late movement of Numic speakers into the northern Great Basin are only minimum estimates and "may be consistently too young by a factor of two or three when applied to mobile hunting groups."

The classic model for explaining the distribution of Numic languages throughout the Great Basin is Lamb's (1958:99). This model suggests the expansion of the three branches of Numic from the southwestern part of the Great Basin, spreading by migration from about 1000 BP and continuing to contact times. Like the Desert Culture concept, the concept of a Numic expansion has been a continuing controversy in Great Basin prehistory. Goss (1977:60) presents a model in distinct opposition to Lamb's. This model suggests that the Numic family and its Utaztecan ancestors have been in the Great Basin for the last ten thousand years.
After examining linguistic, archaeological, and environmental information, Aikens and Witherspoon (1982:14–15) present a model of Numic expansion from a central Great Basin core homeland inhabited by them since the breakup of Utaztecan 5,000 years ago. This model suggests that the Numic peoples with their mobile, drylands-adapted lifeway replaced the more sedentary, lacustrine and/or horticulturally oriented Lovelock, Fremont, and Anasazi peoples in areas abandoned during the great 13th century drought. Further, this replacement is seen as part of an ebb and flow "coordinated with and motivated by recurring changes in the effective moisture regimes" and initially involving "the classical Desert culture and the lake-marsh or lacustrine life styles" about 5000 BP.

SETTLEMENT AND SUBSISTENCE STRATEGIES

Recent Great Basin archaeological research has shifted focus from culture history to cultural ecology, the study of culturally dependent, unfixed relationships between human populations, other lifeforms, and their physical surroundings, functioning together in integrated systems. With this shift in focus regional studies of settlement and subsistence patterns have become more common and important.

For the cultures of the Fluted Point and Western Pluvial Lakes Tradition minimal information is available in regional context on settlement and subsistence. For later times more information is available, particularly from regional studies of studies undertaken by Thomas (1973) in the Keesee River Valley of Nevada, Weide (1974) in the Warner Valley, O'Connell (1975) in the
Surprise Valley, and Nettinger (1977) in the Owens Valley of California. Together, the archaeological record seems to indicate at least five different settlement and subsistence patterns during the last thirteen thousand years or so.

The people of the Fluted Point Tradition of late glacial times appear to have been broad-ranging, loosely cyclical hunters of big game (Aikens 1978a:75). The Western Pluvial Lakes Tradition of the early Holocene is characterized by a diversified lacustrine subsistence base with occupation along or near lakeshores (Bedwell 1973:54-56). For the remainder of the Holocene several different patterns seem to have temporally coexisted.

In the Surprise Valley a sedentary or semisedentary, marsh-oriented pattern is indicated by O'Connell (1975:46). In the Warner Valley, Weide (1974:76-78) describes a pattern or relatively permanent lowland villages, central based wandering, and the exploitation of marsh and upland resources. In the Owens Valley a sedentary, dryland resource oriented pattern appears to have existed with minor changes over the last 5,000 years (Nettinger 1977:14-15). For this same period a seasonally transhumant, dryland adapted pattern analogous to Steward's Shoshonean model appears to have been prevalent in the Reese River area (Thomas 1973:173).

A sedentary, lake-marsh resource orientation is suggested for Nevada's Lower Humboldt Valley by Heizer and Napton (1970:42-44). Thomas (1973:174) questions this view in that it was developed not on evidence gathered within the context of a regional research scheme, but rather on evidence gathered with other
research objectives in mind. Bettinger (1977:33) discounts this criticism by emphasizing the similarities of the Lower Humboldt Valley with the Surprise and Owens Valleys.

Surveying the existing information known on the Klamath Basin area, Thompson, Wilke, and Linderman (1979:50-56) indicate that while representative regional information is not available, pattern similar to the ethnographic Klamath is indicated and is perhaps immediately descended from the Western Pluvial Lakes Tradition. In the Abert Lake area, Pettigrew (1980b:54) suggests the possibility of a sedentary village, lacustrine subsistence pattern spanning most of the last 5,000 years. Again, corroborative regional information is not yet available for this area.

Variation in settlement and subsistence patterns has prompted Bettinger (1978:28) to suggest that the Great Basin was characterized by different cultures with different adaptive strategies, a situation too broad to be subsumed under the Desert Archaic concept and not explainable by environmental variables. Aikens (1982:51), on the other hand, interprets the archaeological evidence to indicate that "the relative degree of sedentism (or atomism) of Great Basin populations was directly related to environmental variables" and that --

in a topographically diverse locality where major biotic zones intertinger or are closely juxtaposed, the standard Great Basin Desert Culture practice of foraging at a variety of resource loci on a continuing seasonal basis throughout the year could adequately support a relatively sedentary pattern or human occupation --
Disagreement exists over the lifeway followed by the people of the Fluted Point Tradition in the Great Basin. Heizer and Baumhoff (1970:7) and Hester (1973:123) feel there is insufficient Great Basin-specific evidence to indicate a big game hunting lifeway for these people. On the other hand, Davis (1963:204), Tuohy (1968:31) and Aikens (1978a:7), among others, argue for the presence of a big game hunting lifeway. To a large extent this view is based on the presence of Clovis and other fluted points in the Great Basin and an analogy to what is known about their association with late Pleistocene megafauna elsewhere in North America.

Jennings (1978:36) suggests that the paleo-big game hunters wandered cyclically from one resource to another, frequently returning to favorite locations and camping near water sources, often on knolls. Tuohy (1968:31) indicates these people had lakeside hunting camps. While Jennings (1978:11) suggests that plant gathering was minimal until about 8-9000 BP, Davis (1963:209) suggests that these early people also used fruits, bulbs, nuts, and greens.

In discussing the earliest period in the Fort Rock Basin, Bedwell (1973:157-158) suggests that the area was used intermittently by "migrating groups of hunters and gatherers having a generalized economy not as yet focused on a lake environment." Having "a fairly balanced economy" these people hunted large and small game including bison, elk, deer, pikas, rabbits, ground squirrels, and other animals. In addition plant foods were used. Bedwell notes the absence of waterfowl in this early subsistence pattern.
Aikens (1978b:148) suggests that the Western Fluvial Lakes Tradition was likely derived from the Clovis tradition and represents a cultural transition between Paleo-Indian and early Archaic periods. Bedwell (1973:158) sees this tradition as showing a high degree of adaptation to a lake economy while at the same time showing a continuity with the period preceding it. Population density increased. Hunting was diversified with the use of large and small game animals as well as large numbers of land birds and waterfowl. Plant foods were utilized as were some fish.

SURPRISE VALLEY

O'Connell (1973:50) has defined a regional settlement and subsistence system for the Surprise Valley and possibly many of the other "well watered valleys along the northwestern edge of the Great Basin from about 6500 BP to the present. Settlements in this system were permanent or semipermanent base camps located near valley floor marshes. These were occupied by twenty-five to fifty persons or about five or six families. Resources generally found within a two hour walk from these villages formed the basis for subsistence. In the winter stored plant foods, big game, and some small game were used. In spring and summer, roots and seeds were collected and small game hunted. Two main variants existed for this pattern.

During the period 4500-6500 BP extended or communal families occupied semisubterranean earth lodges in relatively permanent village locations (Figure 15). O'Connell suggests similarities with the ethnographic Klamath, particularly in the utilization of marsh-grasslands resources. During this
FIGURE 15: RECONSTRUCTION OF A SEMI-SUBTERRANEAN EARTH LODGE
( FROM O'CONNELL 1975 ) * NOTE: RECONSTRUCTION
( AFTER SPIER 1930 ), PLAN AND SECTION OF MENLO PHASE
EARTH LODGE FROM KING'S DOG SITE, SURPRISE VALLEY. HATCHED
CIRCLES ARE POST HOLES.
period mountain sheep and to a lesser extent bison, deer, and antelope were the predominant animals hunted (O'Connell and Hayward 1972:33). Small game was used, including jackrabbits, cottontails, and small rodents.

During the period after 4500 BP nuclear families living in small brush wickups became the dominant household unit, village composition became less stable, and village site locations less permanent (O'Connell 1975:50, Figure 16). Big game decreased in importance while small game increased in importance and waterfowl began to be part of the subsistence base (O'Connell and Hayward 1972:36). O'Connell (1975:44-46) suggests climatic change and/or replacement of Klamath-Modoc ancestral people by a northern Paiute ancestral people who were better able to deal with changing environmental conditions as explanations for these changes.

Seven site categories were identified during O'Connell's (1975:23-26) work in Surprise Valley: Lowland occupation sites, caves, lowland temporary camps, upland temporary camps, obsidian quarries, lowland seed gathering and processing stations, and chipping stations. Some characteristics of these site categories are summarized in Table 3.
FIGURE 16: RECONSTRUCTION OF A BRUSH WICKIUP AND WINDSCREEN
( FROM O'CONNELL 1975 )
A. PLAN AND SECTION OF LARGEST BRUSH STRUCTURE FROM
KING'S DOG SITE, SURPRISE VALLEY. DARK CIRCLES
ARE POST HOLES, OPEN SECTION AT SOUTHEAST CORNER
IS ENTRANCE.
B. RECONSTRUCTION OF BRUSH WICKIUP ( AFTER MERRIAM 1955 ).
C. RECONSTRUCTION OF BRUSH WINDSCREEN ( AFTER MERRIAM 1955 ).
Table 3: Site Categories identified in the Surprise Valley

Settlement-Subsistence Pattern (after O'Connell 1975:23-26)

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>LOCATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowland occupation sites</td>
<td>Near Springs or permanent streams and marshes on valley floor</td>
<td>Varied size up to 500 yards (247 meters) diameter with substantial middens. Hunting and butchering tools: Projectile points and knives; plant processing tools: Mortars pestles, metates, manos; and manufacturing tools: Scrapers, drills perforators. Material includes obsidian, silicates, and basalt. Bone and antler awls, flaking tools; and wedges as well as ornaments including bone and shell beads and pendants.</td>
</tr>
<tr>
<td>Caves</td>
<td>Near base of mountains</td>
<td>Midden deposits and artifact assemblages comparable to lowland occupation sites.</td>
</tr>
<tr>
<td>Lowland temporary camps</td>
<td>Near springs, permanent or intermittent streams and marshes on valley floor</td>
<td>Small, about 25 yards (22 meters) diameter. Primarily hunting and butchering tool assemblage. Material includes obsidian and silicates. Uncommon occurrence.</td>
</tr>
<tr>
<td>Upland temporary camps</td>
<td>Margins of upland meadows, overlooking springs or small, permanent streams</td>
<td>Varied size up to 100 yards (91 meters) diameter. Primarily a hunting and butchering tool assemblage. Material exclusively obsidian.</td>
</tr>
<tr>
<td>Obsidian quarries</td>
<td>At obsidian flows or nodular ground deposits in mountains</td>
<td>Primarily shattered nodules, cores, and waste flakes. Few finished tools except for small wood scrapers.</td>
</tr>
<tr>
<td>Lowland seed gathering and processing stations</td>
<td>At large, stabilized sand dunes in arid greasewood-saltbush zone</td>
<td>Linear string up to 2 miles (3.2 Long of small clusters of plant processing equipment. Chipped stone tools uncommon.</td>
</tr>
<tr>
<td>Chipping stations</td>
<td>High ridges overlooking surrounding country</td>
<td>Varied size up to 500 yards (477 Meters) diameter. Projectile points, knives and chipping debris.</td>
</tr>
</tbody>
</table>

-87-
Thomas (1973:173-175) has defined a subsistence-settlement system "for the Medithermal period at the Keese River locality" which "probably extended over much of central Nevada" from about 3450 to 92 BP (2500 BC to AD 1858). This system is based on a dual central base wandering pattern.

Winter base camps of five to six nuclear families living in small domed brush wickiups were located in the higher elevation pinyon-juniper woodland, often at ecotone locations on the long, low ridges finering onto the valley floor.

While winter village composition was stable, site locations shifted over a period of a few years according to the availability of pinyon nuts.

Subsistence was based on the pinyon harvest whose seasonally fluctuating yield might have been able to have been predicted up to three years in advance.

Individual and communal hunts of antelope, mountain sheep, deer, and rabbits supplemented the pinyon diet.

Shifting summer base camps were along waterway shorelines in the lower elevation sagebrush grasslands. These were also inhabited by nuclear families, although perhaps fewer than the winter villages. Rather than wickiups, brush windbreaks and sun shades were used. Subsistence was focused on the summer ripening roots and grass seeds, particularly Indian ricegrass.

Four microenvironments were defined for this system including an upper sagebrush-grass zone, a pinyon-juniper belt, arid sagebrush flats, and a riverine zone in the sagebrush flats (Thomas 1973:158). Habitation sites are
found in the riverine and pinyon-juniper zones and exhibit tool assemblages for food preparation and preservation, tool manufacture and repair, and clothing manufacture and repair as well as the stone circle remains of dwellings (Table 4). Within the upper and lower sagebrush-grass zone are generally found task group sites with hunting, butchering, and plant procurement assemblages. Some temporary camps, probably associated with either winter antelope and rabbit drives or possibly with an important seed patch, are also found in the sagebrush-grass zone (Thomas 1973:172)
Table 4: Artifacts per assemblage correlation used in Reese River Ecological Project (Thomas 1973:166)

<table>
<thead>
<tr>
<th>Assemblage</th>
<th>Artifact Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task Sites</strong></td>
<td></td>
</tr>
<tr>
<td>Hunting</td>
<td>Projectile points</td>
</tr>
<tr>
<td>Butchering</td>
<td>Bifacial tools</td>
</tr>
<tr>
<td></td>
<td>Unifacial tools</td>
</tr>
<tr>
<td></td>
<td>Utilized flakes</td>
</tr>
<tr>
<td>Plant procurement</td>
<td>Bifacial tools</td>
</tr>
<tr>
<td></td>
<td>Utilized flakes</td>
</tr>
<tr>
<td><strong>Habitation Sites</strong></td>
<td></td>
</tr>
<tr>
<td>Food preparation and preservation</td>
<td>Grinding stones</td>
</tr>
<tr>
<td></td>
<td>Utilized flakes</td>
</tr>
<tr>
<td></td>
<td>Bifacial tools</td>
</tr>
<tr>
<td></td>
<td>Pottery</td>
</tr>
<tr>
<td>Tool manufacture and repair</td>
<td>Spokeshaves</td>
</tr>
<tr>
<td></td>
<td>Shaft straighteners</td>
</tr>
<tr>
<td></td>
<td>Waste flakes</td>
</tr>
<tr>
<td></td>
<td>Projectile points</td>
</tr>
<tr>
<td></td>
<td>Bifacial tools</td>
</tr>
<tr>
<td></td>
<td>Unifacial tools</td>
</tr>
<tr>
<td>Dwellings</td>
<td>Stone circles</td>
</tr>
<tr>
<td>Clothing manufacture and repair</td>
<td>Drills</td>
</tr>
<tr>
<td></td>
<td>Gravers</td>
</tr>
<tr>
<td></td>
<td>Unifacial tools</td>
</tr>
<tr>
<td></td>
<td>Utilized flakes</td>
</tr>
</tbody>
</table>
Bettinger (1977:12-16) identifies a prehistoric settlement and subsistence pattern in Owens Valley, California, with relative stability from 5450 BP (3500 BC) to historic times. The basis of this system was permanent lowland villages which served as year-round base camps for the exploitation of lowland root and seed resources and some small and big game hunting.

Three major shifts are observable in the Owens Valley pattern through time. First is a shift in subsistence focus from riverine to desert scrub plants about 2950 to 1350 BP (1500 BC to AD 600) which is reflected in a locational change in village sites from riverine to desert scrub settings. Second is the initiation of upland pinyon exploitation about 1350 to 950 BP (1500 BC to AD 600). The last major shift is a decrease in large game hunting after 950 BP (AD 600) which may reflect scheduling conflicts associated with the initiation of large-scale irrigation systems known from the ethnographic present.

Bettinger suggests that the shifts in the settlement and subsistence pattern may reflect responses to increased populations due either to intrinsic growth or in-migration and/or climatic change increasing or decreasing productivity of desert scrub plant food sources.

Seven major biotic communities were identified in the Owens Valley study, only four of which were used by the aboriginal population, the riverine, desert scrub, pinyon woodland, and upper sagebrush zones (Bettinger 1977:2-5).
Apparently not utilized were the Limberpine-Bristlecone zone of the Inyo-White Range and the Sierra Meadowland and the Sierran Conifer zones of the Sierra Meadowland and the Sierran Conifer zones of the Sierra Nevadas. Five major site categories were identified: lowland occupation sites, upland pinyon camps, riverine temporary camps, desert scrub temporary camps, and upland temporary camps. (Characteristics of these sites are summarized in Table 5).

**LOWER HUMBOLDT VALLEY**

While not specifically based upon a rigorous regional study, a settlement and subsistence system for the Lower Humboldt Valley of Nevada can be approximated from the work which has been done in the area. Ranging in time from at least about 3650 BP (2700 BC) to about 115 BP (AD 1835) this system was based on lakeside villages with ancillary caves and the exploitation of lacustrine resources (Heizer and Mapton 1970:40-44). It appears that semisubterranean pit houses were used. These villages may have been inhabited by as many as 250 to 300 persons (Bettinger 1977:33).

This lacustrine subsistence pattern involved a long continued and increasingly extensive exploitation of lake, riverine, and marsh resources, a pattern ethnographically manifested by the Klamath-Mooc (Napton and Heizer 1970:10/-108). Primary resources utilized included cattail and bulrush seeds, tui chub and other fish, and birds including migratory waterfowl (Ambro 1967:38-44). Of significantly lesser importance were the hunting of small mammals and the gathering of roots and insects near the villages and upland hunting of large mammals and the collecting of plant foods.
The rood resources of the Lower Humboldt Valley provided a varied yet stable subsistence base which enabled the area's inhabitants to maintain a dependable and nutritious diet over a long period of time (Cowan 1967:22-26). Contact with Euro-Americans, tear spread by the killings of native inhabitants by an exploring party, and the use of the area as an immigrant route disrupted the Lower Humboldt Valley settlement and subsistence system to the extent that the inhabitants of the area shifted to an adaptive strategy which became that recorded in ethnographic accounts.

WARNER VALLEY

Weide (1968:222-264, 1974:71-78) has identified a settlement and subsistence strategy for the Warner Valley area which included the "exploitation of adjoining but contrasting environmental zones, the marshes and slough of the valley floor and the open grassy reaches of the uplands" and existed from about 3450 to 1350 BP. Semipermanent winter villages of ten to twenty families were located at the mouths of major streams and along Crump Lake (Table 6). In the spring and summer the population dispersed to temporary camps of four to ten people in the dune and slough topography of the valley floor. From these camps hunting parties made forays into the Poker Jim Uplands where they camped at the edge of collapse lakes, springs, and knolls overlooking grassy swales.

Subsistence resources available from the dune and slough temporary camps included fresh water clams, chubs, tules, cattail, waterfowl and their eggs, and grasses (Weide 1974:74-76). These sites are characterized by fire-cracked rock, clam shell fragments, burned bone fragments, broken grinding tools, and
obsidian and basalt chipping debris. Grinding tools include mortars, pestles, manos, and metates. Also present are large basalt core tools such as scraper planes, choppers, and hammerstones as well as small obsidian tools. Grass seeds and roots may have been gathered but Weide sees "no evidence of their being processed in quantity."

The upland camps are characterized by few grinding or heavy core tools relative to small obsidian tools such as knives, scrapers, and projectile points. Hunting and butchering of deer, antelope, and mountain sheep were apparently the major tasks performed at these sites.

Weide (1968:262-267) indicates that after 1450 BP use of dune and slough sites decreased, upland swale and collapse lake sites were abandoned and in general use of the upland at different sites increased. It is hypothesized that climatic change decreased the productivity of lakes and marshes forcing an abandonment of the lake-marsh oriented settlement pattern. Weide suggests this change may reflect a retreat of pre-Northern Paiute peoples from this area and the expansion of the Northern Paiutes into southern Oregon.

Weide (1974:73) sees the Warner Valley pattern as contrasting to the late Prehistoric Northern Paiute inhabitants of the area. While "not different in kind" from the Desert Culture, the Warner Valley pattern did differ in having a more consistent winter composition from year to year and having both winter and summer settlements on the valley floor (Weide 1968:xvi).
Table 5: Major Site Categories in the Owens Valley Settlement-Subsistence System (after Bettinger 1971:13)

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>LOCATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowland occupation site site</td>
<td>Riverine or desert scrub zone</td>
<td>Permanent base camps for seasonal round. Occupied year-round by 50 to 200 individuals.</td>
</tr>
<tr>
<td>Pinyon camps</td>
<td>Pinyon woodland upland zone</td>
<td>Fall pinyon harvest camp for one to three families. Sometimes occupied in winter.</td>
</tr>
<tr>
<td>Riverine temporary camps</td>
<td>Riverine zone</td>
<td>Early spring and late fall camps for communal fishing and antelope drives. Occupied by 30 to 200 individuals. Spring and summer camps for plant collection by small, family-sized parties.</td>
</tr>
<tr>
<td>Desert scrub temporary camps</td>
<td>Desert scrub zone</td>
<td>Spring hunting camps for small parties. Spring and summer camps for plant collecting by small, family-sized parties.</td>
</tr>
<tr>
<td>Upland temporary camps</td>
<td>Upper sagebrush zone</td>
<td>Summer and early fall hunting camps for small parties.</td>
</tr>
</tbody>
</table>
Table 6: Major Prehistoric Activity Patterns for the Warner Valley, 3450-1450 BP (after Weide 1968, from Minor et al 1979:5/)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Settlements</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Winter villages of some size and permanence of location housed communities winter after winter. Winter villages form the primary multi-family community, an open community with much similarity of composition from year to year.</td>
<td>situated on permanent water; the mouths of major streams and favored spots on Crump Lake.</td>
<td>10 - 20 families</td>
</tr>
<tr>
<td>2</td>
<td>Spring-summer groups of one or several families moving in independence of others.</td>
<td>Best exposed in the scattered camps of the dune and slough topography. Similar activities also in the Crump Lake - Hart Lake area, carried on from winter camp bases in part.</td>
<td>4 - 10 people</td>
</tr>
<tr>
<td>3</td>
<td>Postulated on the basis of virtual absence of food grinding tools in the upland; superimposed on type 2, hunting parties of men from family groups in the valley traveling to hunt.</td>
<td>Camps at edge of collapse lakes, springs, knolls overlooking grassy swales along streams.</td>
<td>4 - 5 men (?)</td>
</tr>
<tr>
<td>4</td>
<td>Quarry workshop sites located at the sources of obsidian and other workable lithic materials; lithic manufacturing activities primarily took place at these sites, which were visited individually or by small groups of men (?) from types 1 - 3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PREHISTORIC ROCK ART

The vicinity of the Fremont National Forest is also the location of an impressive array of prehistoric rock art including pictographs or painted designs and petroglyphs or designs cut into rock surfaces. Generally this vicinity can be divided into three rock art areas: a primarily pictographic Klamath Basin, a transitional area of pictographs and petroglyphs in the Summer-Abert-Goose Lake region, and a petroglyph area in Warner Valley and eastward (Cressman 1937:46). Some of Cressman's drawings of rock art from these areas are pictured in Figure 17.

Spier reports that while the Klamath did not make pictographs, assistants to shamans did repaint them and the mythological Klamath culture hero, "Kemukumps" was said to have made some of the Klamath area pictographs. Similarly, the Northern Paiute are reported to have not made petroglyphs, attributing their origin to "coyote" or "old-time" or non-Paiute peoples (Stewart 1941:418). In some other areas of western North America, rock art is present in the ethnographic record and associated with adolescent or puberty ceremonies, human fertility and the sexual experience of women, clan designations, shamanistic practices, weather control ceremonies, and hunting (Cressman 1937:73; Heizer and Clewlow 1973:4-5). If associated with spiritual activities, it may be that rock art's absence from the Klamath and Paiute ethnographic record may reflect not the absence of its practice but the reluctance to divulge sacred information.
FIGURE 17: PREHISTORIC ROCK ART FROM SITES NEAR THE FREMONT NATIONAL FOREST (FROM CRESSMAN 1937).

Big Wokas site north of Chiloquin

Willow Creek site

Abert Rim site

Picture Rock Pass Site

KEY

- Pictograph, Red
- Pictograph, Blue-green
- Petroglyph
- Petroglyph
Heizer and Baumhoff (1962:197-199) have identified seven Great Basin prehistoric rock art styles (Table 7). Puebloan painted rock art is limited to areas bordering the Southwest and is not found in the area of the Fremont. Pit and Groove rock art consists of "conical pits pecked into the surfaces of boulders with an occasional groove connecting several pits" and may be associated with surround hunting (Heizer and Baumhoff 1962:20, 207-223). The pits are usually one-half to one inch (1.27-2.54cm) deep and one to two inches (2.54-5.8cm) in diameter although some have diameters up to twelve inches (30.5cm). This rock art style "may predate pre-Shoshone and pre-Northern Paiute peoples and refer to a scattered, wide-ranging hunting population of early postglacial times," about 6950 to 4950 BP (Heizer and Baumhoff 1962:207, 235-238). It has been found in as distant locations as Washington, Kansas, Colorado, and California.

Heizer and Baumhoff (1962:11-12, 46, 222-239) suggest that Great Basin petroglyphs were associated with the ritual or magical aspects of hunting in light of the specific design elements and the positive correlation of petroglyph sites with game trails, draws, winter grazing areas and areas suitable for surrounding hunting. In their view the rock art expressed the group solidarity important for cooperative activities. Some petroglyphs may also have been painted. Abandonment of the rock art practice may be correlated with the disappearance of local game populations (Heizer and Clewlow 1973:25).

Great Basin representational and abstract styles are found throughout the vicinity of the Fremont National Forest (Cressman 1937:4/-48, 71-73; Swartz 1978:23). The Klamath Basin area appears to have assimilated aspects of
<table>
<thead>
<tr>
<th>Style</th>
<th>Method of Application</th>
<th>Temporal Range</th>
<th>Defining or Characteristic Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Basin Painted</td>
<td>Painting</td>
<td>950 BP - historic times</td>
<td>circles, parallel lines</td>
</tr>
<tr>
<td>Great Basin</td>
<td>Pecking</td>
<td>1950 - 450 BP</td>
<td>mountain sheep, quadrupeds, foot, hand, horned human, Katchina figure</td>
</tr>
<tr>
<td>Representational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Great Basin Curvilinear Abstract</td>
<td>Pecking</td>
<td>2950 - 450 BP</td>
<td>circle, concentric circles, chain of circles, sun disc, curvilinear meander, snake, star or asterisk</td>
</tr>
<tr>
<td>Great Basin Rectilinear Abstract</td>
<td>Pecking</td>
<td>1950 - 450 BP</td>
<td>dots, rectangular grids, bird tracks, rake, cross hatching</td>
</tr>
<tr>
<td>Scratched</td>
<td>Incising, Scratching</td>
<td>950 BP - historic times</td>
<td>sun disc, parallel lines, cross hatching</td>
</tr>
<tr>
<td>Puebloan Painted</td>
<td>Painting</td>
<td>1450 - 850 BP</td>
<td>Katchina figure</td>
</tr>
<tr>
<td>Pit and Groove</td>
<td>Pecking</td>
<td>4950 - 4950 BP</td>
<td>pits and grooves</td>
</tr>
</tbody>
</table>
different rock art styles (Cressman 1937:47). The Great Basin Painted style appears to have influenced the Klamath area which shows a rich and varied use of colors including red, black, white, orange, blue-green, and yellow. Heizer and Clewlow (1973:36) suggest that this pictographic style may be associated with female puberty ceremonies or fertility rites and may not be related to hunting.

Design elements of Great Basin rock art styles include humans, animals, circles and dots, angular or linear geometric designs, and curvilinear or nonlinear, wavy or geometric or free-form designs (Heizer and Clewlow 1973:9). The Great Basin representational and abstract styles are associated with pre-Numic peoples (Heizer and Baumhoff 1962:14-15; Heizer and Clewlow 1973:25). The Great Basin scratched style is associated with Numic peoples and Bettinger and Baumhoff (1982:494) suggest that it was less concerned "with hunting magic than the defacement of pre-Numic rock art" and may be associated with either disruption of activities of pre-Numic peoples or the elimination of the spiritual power associated with the pre-Numic art so that the Numic peoples might occupy an area and continue their expansion.

FREMONT NATIONAL FOREST RESEARCH BACKGROUND

Concern about cultural resources on the Fremont National Forest is documented as beginning as early as 1936. Bach (1981:398-399) presents a copy of a memorandum dated that year from the Forest's chief lumberman to the Supervisor concerning "points of historical interest." Cited in the memo were "smoke signal pits" and "pit house" lodges in the Abert Lake vicinity, hunter blinds along the shores of lakes and west of Valley Falls, and rock cairns "frequently seen on commanding points."
Formal archaeological work began on the Forest with the inception of Federal cultural resource legislation of the last two decades. Cole (1969) and Aikens and Minor (1977) conducted work in the Coffeepot Flat area on contract by the ZX Ranch through the University of Oregon. This project was concerned with the pool area of the proposed Coffeepot Reservoir on the Chewaucan River. Cole (1978) describes a powerline survey project conducted for the Pacific Power and Light Company along a route from the Silver Lake area to Malin, Oregon, and which passed through the Sycan Marsh and Lost River areas. Burtchard (1978) conducted survey work in the Cox Flat area for the Phillips Uranium Corporation which was proposing to drill in the area.

U.S. Forest Service initiated work on the Fremont Forest began in 1975 with field inventories on various districts. Early records concerning project areas, survey methodology and resources encountered are incomplete or nonexistent. Kaiser (1983:12-14) attributes this incomplete documentation to the use of "Forest Service personnel that were hobby collectors with an amateur interest in artifacts" and who were unable "to articulate effectively in archaeological terms." With the hiring of more professionally trained personnel, "the Forest Cultural Resource Program, inventory and documentation, took on a scientific complexion in regard to formulating methods and executing these methods."

Currently, "in compliance with applicable Federal legislation," the Fremont National Forest:

"conducts cultural resource surveys on all areas to be impacted by Forest Service ground disturbing projects."
... The inventories are conducted to confirm that any cultural resource properties found and determined eligible for the National Register of Historic places are not inadvertently transferred, sold, demolished or substantially altered" (Kaiser 1983:14).

**Coffeepot Flat Project**

Aikens and Minor (1977:27) had as a research focus the thesis that the Coffeepot Flat area "was exploited during the warmer months of the year by people who probably wintered around the great Chewaucan Marsh." These people were attracted to the area not only for the food resources which completed those found at the marsh, but also for the obsidian nodules found weathering out of nearby perlite deposits.

Fifty sites were located in the three and one half mile study area. These consisted of either sites concerned with habitation and related domestic activity or "specialized activity loci, the scenes of different tasks performed by people ranging from a nearby base camp (Aikens and Minor 1977:28). Habitation sites were characterized by internal differentiation of material and areas while the activity loci were more specialized. Results of the Coffeepot Flat work supports the:

"conclusion that the desert-montane pattern of seasonal movement ethnographically and archaeologically documented further south along the Sierra-Cascades ... was also
characteristic of Northern Great Basin peoples, beginning perhaps as early as 8000 years ago and continuing to recent times" (Aikens and Minor 1977:28).

Methodology employed on this project included coverage of all types of terrain and vegetative cover types in the project area by teams of two to seven persons (Aikens and Minor 1977:2-8). "Quantitative and comparative analysis" was "attempted only with the casual flake tools which were "not attractive to most artifact hunters and remain in large quantities."

"Controlled surface collections were made at six sites . . . selected from the total survey sample as representing the overall range of size and locational variability." Two of these six sites were selected for excavation in order to obtain "artifact samples undistorted by the effects of surface collecting" and in the hope of finding "datable cultural features and artifacts."

A variety of point types were identified including an early, though questionable, Scottsbluff type (Aikens and Minor 1977:22). Also identified were Black Rock Concave Base, Humboldt, Northern Side-notched, Elko Bare Creek, Gunther and Rose Spring types.

**Pacific Power and Light Power Line Project**

Cole (1978:3) identifies the intent of this project as being "to identify archaeological, paleontological and historical sites" that were "apt to be adversely affected" by construction of the power line. Fourteen archaeological
sites were "located in relatively flat areas where there was some accumulation of soils, sand or pumice (Cole 1978:19). Most of these were in the Sycan Marsh area.

Cole (1978:20–21) suggests a Great Basin affiliation for the sites encountered on the basis of the diagnostic characteristics of artifacts and flakes. Cole writes that:

"Nothing was noted, either from the artifacts and flakes or the site locations, that would indicate that the Klamath were more than casual contributors to the archaeological remains of this area."

Forest Service Project Related Inventories

As of September 1982, sixty-four Fremont National Forest cultural resources related reports had been filed with the Oregon State Historic Preservation Office (SHPO). About two-thirds of these, forty-two, are concerned with timber sales. Ten reports are concerned with spring, pond and other water development projects; three with fence construction, two with proposed building constructions, two with proposed land exchanges; and two with timber stand or plantation improvements. In addition, one report is concerned with a revegetation project, one with mineral exploration, and one with a prescribed burn. (Appendix D).

Most of the reports on file with SHPO appear to be dated 1979 or later and there is significant variation among the Districts in both the dates and types of project reports. Bly Ranger District reports appear to span a time range.
from 1979 to 1982 although some reports are undated. Except for a timber plantation improvement and a fence construction project, these fourteen reports are concerned with timber sales. Lakeview Ranger District reports, while undated, appear to be from the 1981 and 1982 field seasons. Of the eleven reported on file, ten are concerned with timber sales and one is concerned with a proposed work camp construction.

Fourteen of the fifteen Paisley Ranger District reports are from the 1981 and 1982 field seasons. Only one report, Walton (1979) from the 1979 and 1980 field seasons have been filed with SHPO. With the exception of one timber stand improvement report, all of the Paisley Ranger District reports are concerned with timber sales.

All of the Silver Lake Ranger District reports on file with SHPO appear to be from the 1979 and 1980 field season. No reports have been filed for the 1981 and 1982 field seasons as of September 1982. Of the twenty reports on file with SHPO, ten are concerned with spring, pond, and other water development projects and five with timber sales. Other reports are concerned with fence construction, building construction, a prescribed burn, and a revegetation project.

Four Fremont National Forest reports filed with SHPO do not have a specific district designation. These include two reports concerning land exchanges, one concerning mineral exploration, and one concerning a timber sale. All these reports were filed between 1977 and 1979.
It appears that many inventory reports, especially for surveys completed before 1980, were never filed with SHPO. Many of these reports were, however, included in Environmental Assessment Reports for projects with ground disturbing potential.

Survey methodologies used in the various project inventories differed, becoming increasingly scientific, more defined and explicitly stated in more recent years. In addition, documentation of the resources encountered have become more complete and standardized in recent years incorporating, among other changes, the use of soil type classifications presented in Wenzel (1979) and plant association classifications in Volland (1976) and Hopkins (1979).

Bunten (1977:1) conducted a survey of the Sycan Marsh area involving a two phase survey method. Phase one consisted of a "controlled" and "uncontrolled" intensive reconnaissance of the majority of the area, what has also been termed a "windshield survey." Phase two consisted of a "general surface reconnaissance" with an:

"Inspection of all land surfaces that can reasonably be expected to contain visible archaeological resources. Every portion of the study area whose surface can be seen without major modification of the vegetation or structural cover, and where it is reasonably possible that human activities that would leave traces might be carried out, ...(was) ...(was) inspected."

Reasonable areas expected to yield prehistoric evidence were defined as those which might involve resource exploitation including:
"Such resources as obsidian outcrop for tools; creek bottoms, ridges and groves for hunting; the marsh itself is a source for birds, fish and vegetable foods; the rim rock for shelter and religious activity; and the sheltered bays for living, working and playing."

Twenty-five sites were located by Bunten (1977:1) including chipping stations, quarry sites, manufacturing areas, vegetable gathering or hunting sites, probable rock shelters, possible housepits and living sites. A portion of the Sycan Marsh area was nominated to the National Register. Fremont National Forest records are complete concerning the eligibility for the Sycan Marsh Archaeological District; however, this material is apparently unavailable at the Oregon State Historic Preservation Office and the Oregon State Museum of Anthropology at the University of Oregon.

Decarufel (various dates) employed a methodology of a "reconnaissance survey" using a "zig-zag pattern" examination of areas with potential for archaeological resources being revealed. These areas include road cuts, springs, water courses and obsidian deposits. Surveys at water development project areas attempted to achieve complete coverage.

Walton (1979) employed an "experimental sampling design" consisting of a stratified random sample with fifty-five parallel transects/each receiving a 20 percent coverage. Walton adopted this strategy after rejecting a grid pattern as not feasible over the terrain to be covered. Walton also utilized an experimental site record form being developed by the Forest archaeologist for recording information to be entered on the TRI mapping system.
Steward (various dates) employed a reconnaissance of areas likely to exhibit cultural resources including road cuts, ridgetops, saddles, creekbeds, springs and seeps, rock ridges, talus slopes, dry meadows and ecotones. Less intensive coverage of areas of dense ground cover and heavy duff was undertaken. Transects of twenty to sixty meters were used to obtain a project area coverage ranging from an estimated 19 to 31 percent.

Kaiser (various dates) and Silvermoon (various dates) employed similar methodologies involving transect interval sampling and stratifying the project areas into areas designated as having high or medium potential for the discovery of cultural resources and those having a low potential. Coverage of the former areas ranged from about 85 to 100 percent. Coverage of the latter areas was attempted at a minimum of five percent of the project area. Low potential coverage for some projects ranged up to fifteen percent depending on the coverage obtained by survey of high or medium potential areas. Areas identified as having high or medium potential for the discovery of cultural resources included places within one-eighth of a mile of springs, lakes, and ponds, terraces along drainages and springs, areas within one-quarter mile of Class 1 streams, areas of 0–5 percent slope with east, south or westerly aspects, ecotones, aspen groves, major ridge systems including saddles, rock faces and high elevation "lookout" areas. Areas identified as having low potential included isolated or discontinuous ridges, primary floodplains, all slopes of greater than 15 percent, sagebrush scablands and heavily forested areas.
The Fremont National Forest inventory plan, with a "major emphasis" of stratifying the Forest into "cultural site probability areas," the plan "outlines the steps necessary to meet legal compliance cultural inventory on the Fremont Forest including planning, implementing and documenting the inventories conducted" (Kaiser 1984:1-2).

Methodology Used in Analyzing Recorded Resources for this Overview

Generally, Fremont National Forest site report forms on file at the Oregon State Museum of Anthropology at the University of Oregon were used as the primary source of information concerning recorded cultural resources of the Fremont National Forest. All these forms are duplicates of site forms filed with and assigned permanent numbers by SHPO. In addition, all cultural resource reports from the Fremont on file at SHPO were examined. This base pool of information was supplemented by site forms and project reports from recent field seasons and not yet filed with or processed by SHPO. In addition, the Fremont National Forest cultural resources files were examined for additional sites not recorded with SHPO. Isolated find forms on file at the Fremont or in sale reports at SHPO were also examined for examples of projectile point types. Sites recorded by Cole (1969, 1978), Burtchard (1978), Aiken and Minor (1977) as being on lands administered by the Fremont National Forest were also utilized.

Site forms were found to be of varying quality and range of completeness. Accordingly, certain assumptions were made when extracting data from the forms for analysis. Data extracted focused on the following environmental
variables: elevation, legal location, range of distance from permanent water source, aspect and slope and general environmental features. Additionally, information concerning size and type of site was extracted.

When elevation was given as a range, the mid-point between the two extremes was chosen to represent site elevation. Where no elevation was recorded but a topographic map locating the site accompanied the form, elevations were estimated from the map.

Site dimensions and sizes recorded in feet were converted to meters. Sizes given in acres or other measurements were not utilized. Distance from water source was used only if a listed source was indicated explicitly as permanent or the source indicated was generally known as a permanent source (the Sycan River, Currier Spring, etc.). Nonmetric distances were converted to metric.

Where a site was recorded as "flat" a slope of from zero to nine percent was assumed. Other general terms such as "gentle, gradual," or "rolling" were not assigned values. Where slope was given but no aspect recorded, aspect was estimated from any accompanying topographic map locating the site. The eight principal points of the compass were used to indicate aspect. Where two directions, such as east and south were given on a site form, a point midway between was chosen as the approximate aspect, i.e., southeast. Where a specific compass reading was given, such as 216 degrees, the site was given a value of the closest compass point used in this descriptive study, i.e., southwest.
Fourteen types of general environmental features were identified for classifying the Fremont National Forest sites. Some sites were assigned to more than one type of environmental feature when they exhibited more than one feature, i.e., spring in a meadow, a forested saddle, etc.

Where specific plant associations or communities, as defined by Volland (1976) and Hopkins (1979) were recorded, these were used to place a site in an ecotone (two or more association types), a juniper woodland or ecotone (CJ associations), forest (CP, CL, and CW associations), or meadow (SD, MD, MM associations). Where specific associations were not recorded, an attempt was made to approximate the associations from the plants which were recorded.

Where ponderosa pine, lodgepole pine, or white fir were recorded as being present at a site with various grasses and sagebrush, an ecotone designation was made. Where juniper and various grasses and/or sagebrush were recorded a juniper or ecotone designation was made. Where only trees, other than juniper, were recorded, a forest designation was made. Where only grasses and sagebrush were recorded, a sagebrush flat designation was made.

A site recorded at or within twenty meters of a stream, creek or river was designated as being along a water channel, bank or terrace. A site was not given this designation if identified as being on an intermittent creek. Sites without specific distances, but recorded as being along a river or on a terrace were included in this category.
Ridge and saddle designations were given to sites where this could be inferred from accompanying topographic maps with site location. Sites were designated as being at lakes or ponds or at springs only if they were recorded as such or marked at such locations on a map.

Knoll, rim rock, rock outcrop, rockshelter or cave, basalt talus slope and dunes designations were given to sites only if explicitly included on the site form.

National Forest sites were classified into sixteen types. Of these, eight involve some type of rock feature. Rock features were not lumped together because of what was felt to be subtle differences in the features as reflected by the language used on the forms such as rock wall, rock alignment, and rock piles.

Two types of lithic sites were identified, those with ground stone tools and those without. No attempt was made to differentiate between lithic sites with only flakes and those with identifiable artifacts. Sites recorded with no information on what was found were assumed to have at least included some lithic material.

Quarry sites were those specifically identified as such and include surface deposits. Pictograph sites were those specifically recorded as such. Sites recorded with house pits or depressions were designated depression sites.

Sites with a character or material in addition to lithics were not included in either of the lithic categories. Each site was assigned to only one type.
In many cases the material used for the tools or artifacts recorded was not identified. Probably, it would not be a too inaccurate assumption to designate obsidian as the material present in most of these cases since of all known cases save one for projectile points, obsidian was the designated material. Also, many obsidian sources are known from this general region; few sources of other material are known.

The basic tool used in typing projectile points found on the Fremont National Forest was developed by Thomas and included in Thomas and Bettinger (1976:282-287). This was supplemented by illustrations and type descriptions found in Heizer and Hester (1978), Bedwell (1973), Bryan (1965), and Layton (1972). Where possible, an attempt was made to place a point not only in a particular series, but also into a specific type. Consultations were also made with other professional archaeologists in assigning a type to a projectile point.

Archaeological data is reported and synthesized in the following section.

Archaeological Resources of the Fremont National Forest

Four hundred forty-two archaeological sites were identified as being on the Fremont National Forest (Table 8). Paisley Ranger District has 165 sites, Lakeview Ranger District 127 sites, Bly Ranger District 76 sites and Silver Lake Ranger District 74 sites.
Table 8: Identified Archaeological Sites on the Fremont National Forest as of December 1982

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>SHPO RECORDED</th>
<th>FNF FILES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bly</td>
<td>73</td>
<td>3</td>
<td>76</td>
</tr>
<tr>
<td>Lakeview</td>
<td>94</td>
<td>33</td>
<td>127</td>
</tr>
<tr>
<td>Paisley</td>
<td>163</td>
<td>2</td>
<td>165</td>
</tr>
<tr>
<td>Silver Lake</td>
<td>52</td>
<td>22</td>
<td>74</td>
</tr>
<tr>
<td>TOTAL FOREST</td>
<td>382</td>
<td>60</td>
<td>442</td>
</tr>
</tbody>
</table>

This section examines these sites in primarily descriptive terms: site size, environmental variables associated with sites, and cultural material typifying the sites. In addition, projectile point types identified as being on the Fremont National Forest are examined to suggest a temporal range for the use of various areas of the Forest.

Environment of Fremont National Forest Archaeological Sites

Fremont National Forest archaeological sites are located in a number of differing environmental settings. This section examines three specific and one general set of environmental variables concerning site location, elevation, distance from permanent water source, aspect and slope, and general environmental location. In addition, the range of size in square meters for the sites is also examined.
Archaeological sites on the Fremont National Forest tend to be located at elevations below 6,000 feet although there is variation among the four districts (Table 9). No site has been recorded on the Bly District as being above 5,900 feet although elevations on the district range up to 8,300 feet. The other districts, particularly Paisley, have sites recorded as being located at elevations up to 7,000 feet above sea level.

The distribution of archaeological sites by elevation among the districts reflects the differences in elevations of the districts themselves. Whether the elevational distribution of sites also reflects differing settlement and/or subsistence patterns practiced by prehistoric peoples in these areas cannot be determined without further study.

All but two of the sites on the Paisley Ranger District above 6,000 feet are primarily lithic scatters without any ground stone tools recorded as being present. Two sites above 6,000 feet are recorded as lithic scatters with ground stone tools, 35KL 598 located at 6,270 feet on a terrace of the North Fork of the Sprague River and 35 LK 1445 recorded at 6,120 feet at the spring at a forest/meadow ecotone in the upland Chewaucan drainage.

Of the nine sites on the Silver Lake Ranger District above 6,000 feet, six are lithic scatters and three are rock features. These latter sites include rock cairns at 6,470 feet (02-04-C1-1) and 6,740 feet (02-04-RX-11P) and a rock
"alignment" at 6,778 feet (92-04-MW-6). All nine sites on the Lakeview District above 6,000 feet are lithic scatters. Possible housepit sites (02-02-118 and 02-02-149) have been recorded for an upland meadow area of about 5,500 feet elevation on the Lakeview Ranger District.

Table 9: Elevation Ranges of Fremont National Forest Archaeological Sites

<table>
<thead>
<tr>
<th>ELEVATION IN METERS</th>
<th>Bly</th>
<th>Lakeview</th>
<th>RANGER DISTRICTS</th>
<th>Silver Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>4800-4900</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4900-4999</td>
<td>8</td>
<td>0</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>5000-5099</td>
<td>9</td>
<td>5</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td>5100-5199</td>
<td>15</td>
<td>12</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>5200-5299</td>
<td>17</td>
<td>5</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>5300-5399</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>5400-5499</td>
<td>0</td>
<td>15</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>5500-5599</td>
<td>2</td>
<td>16</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>5600-5699</td>
<td>4</td>
<td>17</td>
<td>0</td>
<td>4</td>
</tr>
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<td>8</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5800-5899</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
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</tr>
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<td>5</td>
<td>0</td>
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<td>6100-6199</td>
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<td>7</td>
<td>2</td>
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<td>1</td>
<td>0</td>
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<td>0</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>6600-6699</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>6700-6799</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>7000-7099</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Sites Used 62 109 136 60
% of Total 81.6 85.8 82.4 81.1
Distance from Permanent Water Source

Archaeological sites on the Fremont National Forest appear to be located primarily within 150 meters of a permanent water source although they may be found a full range of distances, including a substantial number more than 450 meters from a permanent water source (Table 10). Site data for the Bly and Lakeview Ranger District is too incomplete to make generalizations concerning this site location variable.

Paisley Ranger District archaeological sites are primarily located within 150 meters of a permanent water source although a little over a quarter of the sites with this data recorded are located further than that from permanent water sources. Nine sites are located at distances greater than 400 meters (about one-quarter of a mile) from a permanent water source. All of these are lithic scatters without any recorded ground stone tools. Five are located in forested areas and four are located at forest/meadow ecotones.

Silver Lake Ranger District archaeological sites present an interesting distributional pattern with most recorded less than a hundred meters or more than 450 meters from a permanent water source. Nineteen sites (35LK-550, 35-LK-1030, 35-LK-1031, 35-LK-1032, 35-LK-1489, 35-LK-1493, 35-LK-1495, 35-LK-1497, 35-LK-1498, 35-LK-1499, 35-LK-1500, 35-LK-1501, 35-LK-1504, 35-Lk-1506, 35-LK-1509, 35-LK-1512, 35-LK-1513, 02-04-RX-1 and 02-04-C2) are located more than 450 meters from a permanent water source. Three of these are rock cairn sites. One site is an obsidian quarry. Thirteen sites are lithic scatters and two are lithic scatters with ground stone tools. Of these lithic
sites, eight are located in meadows, three at ecotones, one in a juniper
woodland and two in forested areas with one site having no plant associations
recorded. Some of the meadow sites possibly should be classified as sagebrush
tlat or scabland sites but are designated meadow sites because that was the
term used on the site forms.

Table 10: Range of distances from Permanent Water Source of Fremont National
Forest Archaeological Sites

<table>
<thead>
<tr>
<th>DISTANCE IN METERS</th>
<th>Bly</th>
<th>Lakeview</th>
<th>Paisley</th>
<th>Silver Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>1</td>
<td>14</td>
<td>36</td>
<td>16</td>
</tr>
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<td>50-99</td>
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</tr>
<tr>
<td>100-149</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>150-199</td>
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<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>200-249</td>
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<td>6</td>
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</tr>
<tr>
<td>250-299</td>
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<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>300-349</td>
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<td>3</td>
<td>1</td>
</tr>
<tr>
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<td>400-449</td>
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<td>1</td>
</tr>
<tr>
<td>450+</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>19</td>
</tr>
</tbody>
</table>

| Sites Used | 16 | 18 | 79 | 42 |
| % of Total | 21.1 | 14.2 | 47.9 | 56.8 |

-119-
Aspect or Slope

Archaeological sites on the Fremont National Forest can be found to a large degree on slopes of less than twenty percent although data concerning this variable is absent from so many site forms that it is difficult to determine if a different pattern would emerge if the data had been recorded (Table 11). This is especially true for the Bly and Lakeview Ranger Districts. Another factor which may bias towards this generalization is that most inventory and survey work done on the Forest appears to have used this variable in stratifying project areas into high and low strata. The fact that most sites appear to be on slopes of less than 20 percent could partially be attributed to sampling error.

Aspects of archaeological sites found on the Fremont National Forest are quite variable. Thirteen sites on the Paisley Ranger District are recorded as having a north aspect. Eleven of these are part of larger site complexes located either in the Coffeepot Flat area, the southern upland Chewaucan river Valley or the rolling lava tableland to the east of the Sycan Marsh. The other two sites are located on creek terraces.

The three sites on the Silver Lake District with north aspects are located at present day dry meadows which appear to have been lakes at one time (35LK1285, 35LK1488, 35LK1489).
Fremont National Forest archaeological sites span a size range from under a hundred square meters in area to over 500,000 square meters (Table 12). About forty percent of the sites for which size could be determined are less than 1000 square meters in area. Fourteen sites appear to be over 250,000 square meters in area.

The one Bly District site (35KL286) greater than 250,000 square meters in area is located in a dry meadow at an elevation of 5,280 feet above sea level. This site consists of a several lithic scatters.

Of the three Paisley District sites larger than 500,000 square meters, one (35LK81) is located in the Coffeepot Flat area, one (35LK914) is located in the Sycan Marsh area, and one (35LK1371) is the principal mountain pass leading directly from the Chewaucan Marsh to the upland Chewaucan Valley and Coffeepot Flat. Of the three Paisley District sites between 250,000 and 500,000 square meters in area, two (35LK554 and 35LK556) are dune sites in the Sycan Marsh area and one (35LK78) is in the Coffeepot Flat area.

Of the four Silver Lake Ranger District archaeological sites greater than 250,000 square meters in area, two (35LK1510 and 35LK1513) are obsidian quarries, one (35LK1499) is a rock cairn site, and one (35LK1494) is a dry meadow lithic scatter.
Table 11: Aspects and Slopes of Fremont National Forest Archaeological Sites

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>ASPECT</th>
<th>0-9%</th>
<th>10-15%</th>
<th>16-20%</th>
<th>21-30%</th>
<th>31+%</th>
</tr>
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<tbody>
<tr>
<td>Bly</td>
<td>East</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Southeast</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Southwest</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>North</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Northeast</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lakeview</td>
<td>East</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Southeast</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>South</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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<td></td>
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<td></td>
<td>West</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Northwest</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>North</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Northeast</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paisley</td>
<td>East</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Southeast</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<tr>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Northwest</td>
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<td>0</td>
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</tr>
<tr>
<td></td>
<td>North</td>
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<td>3</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>Northeast</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Silver Lake</td>
<td>East</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td></td>
<td>South</td>
<td>9</td>
<td>1</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Southwest</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Northwest</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td></td>
<td>North</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Northeast</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>
Table 12: Range of Sizes of Fremont National Forest Archaeological Site

<table>
<thead>
<tr>
<th>AREA IN SQUARE METERS</th>
<th>Ely</th>
<th>Lakeview</th>
<th>Paisley</th>
<th>Silver Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 99</td>
<td>2</td>
<td>15</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>100 - 249</td>
<td>2</td>
<td>11</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>250 - 499</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>500 - 749</td>
<td>0</td>
<td>6</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>750 - 999</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>1,000 - 1,249</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>1,250 - 1,499</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>1,500 - 1,749</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1,750 - 1,999</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2,000 - 2,249</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2,250 - 2,499</td>
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<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2,500 - 2,999</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3,000 - 3,499</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3,500 - 3,999</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5,000 - 7,499</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>7,500 - 9,999</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>10,000 - 14,999</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>15,000 - 19,999</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20,000 - 29,999</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>30,000 - 39,999</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>40,000 - 49,999</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>50,000 - 99,999</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>100,000 - 249,999</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>250,000 - 499,999</td>
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<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>500,000+</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Sites Used: 25, 54, 108, 43
Percent of Total: 32.9, 42.5, 65.5, 58.0
Environmental Features

Fremont National Forest archaeological sites can be found at a number of environmental locations with ecotones, meadows, waterway channels, banks or terrace and juniper woodland locations seemingly having the greatest number of sites (Table 13). Sites are also located in forested areas although few seem to be found in lodgepole pine dominated forests. This could be the result of sampling error due to low ground visibility and lodgepole stands being stratified into areas of low potential to receive minimal coverage.

Six dune sites are recorded on the Paisley Ranger District, all in the Sycan Marsh area. These sites suggest similarities to the dune and slough sites identified in the Warner Valley area by Weide (1968, 1974).

The apparent absence of sagebrush flat or scabland sites in the Silver Lake District is probably attributable to differences in the ways sagebrush dominated areas were recorded from district to district. It is possible that some of the Silver Lake District meadow sites might be more accurately classified as sagebrush flat or scabland sites.

Further, the low frequency of ridge and saddle sites in the Bly and Silver Lake District is possible due to sampling error or unrecorded data. It is also possible that this difference with the other two districts is partially attributable to the ways in which the various areas of the Forest were used by differing prehistoric groups.
Table 13: Environmental Features of Fremont National Forest Archaeological Sites

<table>
<thead>
<tr>
<th>ENVIRONMENTAL FEATURE</th>
<th>Bly</th>
<th>Lakeview</th>
<th>Paisley</th>
<th>Silver Lake</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotone</td>
<td>19</td>
<td>39</td>
<td>65</td>
<td>20</td>
<td>143</td>
</tr>
<tr>
<td>Juniper Woodland or Ecotone</td>
<td>6</td>
<td>16</td>
<td>13</td>
<td>6</td>
<td>41</td>
</tr>
<tr>
<td>Forest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ponderosa</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>17</td>
<td>42</td>
</tr>
<tr>
<td>- Lodgepole</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>- Mixed Conifer</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>Meadow</td>
<td>6</td>
<td>13</td>
<td>28</td>
<td>15</td>
<td>62</td>
</tr>
<tr>
<td>Sagebrush Flat or Scabland</td>
<td>9</td>
<td>8</td>
<td>5</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Waterway Channel, Bank or Terrace (within 20 meters)</td>
<td>6</td>
<td>10</td>
<td>22</td>
<td>3</td>
<td>41</td>
</tr>
<tr>
<td>Lake or Pondside</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Spring</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Ridge</td>
<td>1</td>
<td>8</td>
<td>8</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Saddle</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Knoll</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Rim Rock, Rock Outcrop, Rockshelter or Cave</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Basalt Talus Slope</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Dunes</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>6</td>
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</table>
FREMONT NATIONAL FOREST SITE TYPES

Lithics

The overwhelming majority of Fremont National Forest archaeological sites are lithic scatters without any surface visible ground stone tools (Table 14). The absence of ground stone tools from some of these lithic scatters is probably attributable to artifact collectors, although it is possible that even with this sampling error corrected, most sites would still not have had ground stone tools given what is known archaeologically and ethnographically from the Forest and adjacent areas.

Quarries

Eight quarry or possible quarry/lithic source sites have been identified on the Forest. Four sites, two obsidian quarries (35LK1508 and 35LK1513), one possible obsidian quarry (35LK1510), and one surface "quarry" deposit (35LK1515), are located on the Silver Lake Ranger District in the vicinity of Hagar Mountain. One possible "white crypto-crystalline silica" surface "quarry" deposit (35LK1442) is located in the hills adjacent to the upland Chewaucan River Valley on the Paisley Ranger District. Two obsidian quarries in the vicinity of the Black Hills and Spodue Mountain (35KL96 and 35KL326) on the Bly Ranger District. One chert and jasper quarry (35LK1393) is located on the Lakeview Ranger District in the vicinity of Cottonwood Reservoir.
Pictographs

Three pictograph sites have been located on the Forest. One site (35Lk1516) is on the Lakeview Ranger District and consists of a "sun circle" and is apparently of Great Basin Curvilinear Abstract Style. This site is located in proximity to a possible habitation site of three to four housepits overlooking Goose Lake (35Lk1519). Two pictograph sites (35Lk306 and 35Lk312) are located in proximity to each other in the hills southwest of Yainax Butte. The first of these (35Lk306) consists of red ochre pictographs "with white line circles, geometric forms and one possible human form." The others (35Lk312) are recorded only as being red and white pictographs. These two sites are apparently representations of Klamath Basin styles related to the Great Basin Painted Style.

Rockshelters

Seven rockshelter sites have been located on the Forest. Documentation for most of these sites is quite incomplete and scanty. Two sites (35Lk932 and 35Lk940) are located on the Bly Ranger District in the Sycan Marsh area. One of these (35Lk932) is also recorded as being a "fire signal location." Three rockshelter sites are recorded for the Paisley Ranger District. One (35Lk902) is in the Sycan Marsh area and two (35Lk1395 and 35Lk1936) are in the drainage of the North Fork of the Sprague River. Two rockshelter sites (35Lk872 and 35Lk876) have been recorded for the Lakeview Ranger District, both in the Dry Creek area. One of these sites (35Lk876) is also recorded as having "stone rings."
Caves

One cave site (35LK896) is recorded for the Forest and is located on a tributary of Drews Creek in the Lakeview Ranger District. Documentation for this site is also incomplete though it is recorded as having lithic material.
Table 14: Fremont National Forest Archaeological Site Types

<table>
<thead>
<tr>
<th>SITE TYPE</th>
<th>Bly</th>
<th>Lakeview</th>
<th>Paisley</th>
<th>Silver Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithics, no ground stone tools</td>
<td>49</td>
<td>101</td>
<td>145</td>
<td>59</td>
</tr>
<tr>
<td>Lithics, with ground stone tools</td>
<td>10</td>
<td>/</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Quarry</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pictograph</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cave</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rockshelter</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Rockshelter with rock rings</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rock rings</td>
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<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rock rings and rock piles</td>
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<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Concentric rock rings and rock walls</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rock pile or cairn</td>
<td>0</td>
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<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Rock alignment</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rock walls</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rock rings with depressions</td>
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<td>0</td>
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<tr>
<td>Depressions</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Peeled Pine</td>
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<td>0</td>
<td>(2)*</td>
<td>1</td>
</tr>
</tbody>
</table>

* in association with another site type
Rock Features and/or Housepits

A number of rock feature and/or possible housepit sites have been located on the Fremont National Forest. Terminology used to describe these sites is quite variable, making it difficult to classify or compare them.

Eleven rock feature and/or housepit depression sites have been identified on the Bly Ranger District. Eight of these are located to the south and east of Yainax Butte in the Lost River drainage including six possible habitation sites (35KL284, 35KL285, 35KL287, 35KL288, 35KL292 and 35KL308) and two possible chute and pound antelope drive sites or possible cremation sites (35KL302 and 35KL307).

Site 35KL285 consists of "rock house rings," bedrock mortars and lithic material located on a ponderosa pine covered knoll at a spring. Site 35KL287 consists of two fifteen foot (4.6 meter) and two ten foot (3 meter) diameter rock rings, a bedrock mortar and lithics located on a "mound" in a meadow. Site 35KL288 consists of three "rock house rings" and lithic material located at a forest/meadow ecotone. Site 35KL292 consists of rock rings and a "housepit depression," bedrock mortars, ground stone tools and other lithics located on a knoll at a forest/meadow ecotone. Site 35KL308 consists of two "stone rings" with lithic material. This site is recorded as having been seriously vandalized. Site 35KL284 consists of several rock rings and "rectangular house sites" with lithic material.
Site 35KL302 consists of concentric rock rings with an outer diameter of twenty-five feet (7.6 meters) and an inner diameter of ten feet (3 meters). In addition this site has basalt cobble walls. It is located at a spring alongside of a ridge overlooking a meadow. Site 35KL307 consists of "double concentric rings" of basalt cobbles, another stone ring, numerous stone piles and a rock wall 3 x 100 (0.9 x 30.5 meters) south of the rings. Fire cracked rock, charred bone and ash are present inside the concentric rings. This site is recorded as a possible cremation site. From its description it is also possible that this is a chute and pound antelope drive site. This site was recorded as having been looted.

Two rock feature and/or housepit depression sites on the Bly District are located in the Barnes Valley area. Site 35KL230 consists of rock rings and "wickiup pits" sixteen feet (4.9 meters) and thirty-one feet (9.4 meters) in diameter with metates and other lithic material. This site is located in a juniper woodland in "scabrock." Site 35LK1262 is recorded as a "wickiup pit."

One housepit depression site on the Bly District is located in the Sycan Marsh area. Site 35LK937 consists of depressions, manos and other lithic material.

Seven rock feature and/or housepit depression sites are recorded for the Paisley Ranger District. Five of these sites (35LK897, 35LK903, 35LK916, 35KL303 and 02-04-197) are located in the Sycan Marsh area and two (35LK1368 and 35LK1369) are located along Winter Ridge.
Site 35LK897 consists of stone piles and rock rings with lithic material. Its recorded description is not sufficient to discern if this is a habitation site or a site associated with chutes and pounds for antelope drives. Site 35LK903 is recorded as having "housepits" and is located at a forest/meadow ecotone. Site 35LK916 is recorded as having "housepits" and lithic material and is located in juniper woodland. Site 35KL303 consists of eight "tipi" rings with dimensions of twelve feet by ten feet by two feet (3.7 x 3.0 x 0.6 meters) located on a slope and atop rim rock. This site also has what is described as "five circle and rain pools" and a one hundred foot (30.5 meter) cinder mound and lithic material. Site 02-04-197, which apparently has not yet been filed with SHPO, consists of possible housepit "depressions."

Site 35LK1368 is recorded as a "petroform" and rock alignment. Site 35LK1369 is recorded as a "petroform" and rock pile.

Six rock feature sites are recorded for the Silver Lake Ranger District. Site 02-04-CL-l is recorded as a rock cairn located near Corral Butte in the northwest part of the District. Site 35LK1504 is recorded as a rock cairn located in the Hager Mountain vicinity. Site 02-04-RX-11P is recorded as a number of rock cairns in the Grizzly Peak area. Site 02-04-MW-3 is recorded as stone rings and lithic material located in a dry meadow on a "split into a remnant lake" in the Foster Lake area. Site 02-04-MW-6 is recorded as a "rock alignment" near Foster Butte. Site 35LK1499 is located in the Sycan Marsh area and is described as "small stacks of vesicular basalt stacked on prominent boulders." This site is about one hundred and fifty meters in diameter and located on basalt rim rock in what appears to be ponderosa pine-juniper forest. It is described as a possible "spiritual" or "healing" site.
Twelve rock feature and/or housepit depression sites are recorded for the Lakeview Kanger District. The only rock cairn site among these is Site 02-02-DL-a3 located near Cougar Peak. The only site among these with stone walls reported is site 35LK848 located on a scab flat in the Strawberry Flat area. This site consists of seven walls of piled stones and lithic material. It may possibly be associated with antelope drives.

Seven rock feature and/or housepit depression sites are located in the Big Valley area, an area known to be ethnographically used by the Kidutodado or Surprise Valley Paiute. None of these sites appear to have been recorded with SHPO. Sites 02-02-153, 02-02-159, and 02-02-160 are all located at forest/meadow ecotones and consist of one or more rock rings with ground stone and other lithic material. Site 02-02-163 is also located at forest/meadow ecotone and consists of a rock ring with lithic material. Site 02-02-1118 is located in a meadow and is recorded as having “housepits” and lithic material. Site 02-02-149 is located at a forest/meadow ecotone and is recorded as having “housepits.” The Big Valley location of these sites is generally between 5,500 and 5,600 feet above sea level.

Site 35LK1449 is located in the Long Valley area and is recorded as consisting of possible pithouse depressions and lithic material. It is at a 5,400 foot elevation. Site 35LK850 is located in the Dog Lake vicinity on a narrow saddle and is recorded as having “depressions in deep cinder fill adjacent to large boulders” and lithic material. Site 35LK1519 is located on a “toe ridge” overlooking Goose Lake and consists of three to four “housepits” with diameters of 2.5 meters. This site is apparently in an ecotone location. It is also in proximity to a pictograph site (35LK1516).
Three sites on the Fremont National Forest are recorded as also having "peeled pines." These include sites 35LK1346 and 35LK1349 on the Paisley Ranger District east of the Sycan Marsh and site 02-04-W4 (02-04-14-38) on the Silver Lake Ranger District in the Wing Butte area.

**Projectile Point Types of the Fremont National Forest**

A number of different projectile point types have been identified as being found on the Fremont National Forest. For purposes of attempting to establish a time during which various areas of the Forest were first used by prehistoric inhabitants of the area, the Forest has been divided into several different drainage areas including the Silver Lake Basin, the Sycan Marsh and Sycan River, the Sprague and Lost Rivers, the upland Chewaucan River Valley, the Western Goose Lake Basin uplands and the Warner Mountains.

**Silver Lake Basin Drainage**

Broad necked and lanceolate projectile point types are well represented in the Silver Lake drainage portion of the Fremont National Forest (Table 15, Figure 18). These types include points in the Northern Side-notched, Humboldt and Elko series. Also represented are Cascade points and a large corner notched point.

A cache of possibly western Pluvial Lakes Tradition affiliation was also located in the Silver Lake Basin drainage (Figure 19). Consisting of large bitaces, large stemmed lanceolate projectile points and a notched Great Basin
FIGURE 18: SELECTED PROJECTILE POINT TYPES FROM THE SILVER LAKE BASIN DRAINAGE, FREMONT NATIONAL FOREST (KEY TABLE 15).
FIGURE 19: WASTINA LAKE CACHE, SILVER LAKE RANGER DISTRICT, FREMONT NATIONAL FOREST (02-04-1A, )
Transverse point, this cache was uncovered during construction activity by Forest Service engineering crew. As the find was made prior to the adoption of a collections policy by the Fremont National Forest, the artifacts were left in situ and recorded by cultural resource personnel. Unfortunately, later visits to the site revealed that the artifacts were gone, probably picked up by an artifact collector.

Examples of recent projectile point types are noticeably absent from this area. The only identifiable types found belong to the Rose Spring series. It is interesting to note that recent projectile point types, particularly Desert side-notched points, are reported to be scarce on BLM lands to the east of this area (William Cannon, personal communication, 1983). It is possible that the absence of recent point types in this area may be the result of sampling error caused by artifact collectors or insufficient survey coverage. It may also be that this area was much less intensely used during more recent times by prehistoric peoples than it was during early postglacial times. A similar conclusion was reached after recent research in the Fort Rock Basin (Toepel et al 1980:81).

Cross dating projectile point types would seem to indicate prehistoric use of this area as early as 11,000 years ago during Western Pluvial Lakes Tradition Times.
Table 15: Selected Projectile Point Types from the Silver Lake Basin Drainage, Fremont National Forest (Figure 18).

1. Kose Spring Corner Notched, 02-04-083, T.27S., k.11E.
2. Kose Spring Contracting Stem, MW-5, T.30S., R.15E.
3. Humboldt Concave Base, W.G.K. 8-6-78 - Isolated Find, T.27S., R12E.
4. Humboldt Concave Base - Isolated Find, T.29S., R.14E.
5. Large corner notched, 02-04-086, T.27S., R.11E.
6. Elko Corner Notched, 02-04-054, T.27S., R.13E.
7. Elko Corner Notched, 02-04-072, T.30S., R.12E.
8. Elko Corner Notched, MW-5, T.30S., R.15E.
9. Large side notched, W.G.K., 8-7-78 - Isolated Find, T.26S., R.12E.
10. Northern Side Notched, 35LK1286, T.30S., R.14E.
Sycan Marsh and Drainage:

A wider variety of projectile point types than in the Silver Lake Basin area, are found in the Sycan Marsh and drainage areas of the Fremont National Forest (Table 16, Figure 20). A number of early point types are represented including Lake Mohave, large side notched resembling Bedwell’s (1973:101) P-42 types, and generalized willow-leaf shaped lanceolate points. These types would seem to firmly establish prehistoric use of this area during Western Pluvial Lakes Tradition times.

Also represented in this area a number of broad necked, notched projectile point types including point in the Elko and Pinto series. Narrow necked point types represented include Desert side-notched, Eastgate and Rose Spring types. The variety of point types found in this area would seem to indicate a fairly continuous use of the area during the last 11,000 years or so.

Sprague and Lost River Drainages:

Projectile point types identified from the Sprague and Lost River drainages within the Fremont National Forest lack any of the large lanceolate types typical of early postglacial and pre-Altithermal times (Table 17, Figure 21). The earliest point type identified belongs to points of the Elko series. The earliest date for these types is approximately 9500 BP (Table 2). Given the apparent lack of other points contemporaneous with this date, it is speculative at best to suggest prehistoric use of this area at that time. When and if additional point types are located in this area, such a suggestion might be made.
FIGURE 20: SELECTED PROJECTILE POINT TYPES FROM THE SYCAN MARSH AND DRAINAGE, FREMONT NATIONAL FOREST (KEY TABLE 16)
Recent, narrow necked point types identified in this area include Eastgate, Cottonwood, and Rose Spring types. Pinto series points are also found in this area, suggesting possible prehistoric use of the area at least as early as 5,000 years ago and continuing into recent times.
Table 16: Selected Projectile Point Types from the Sycan Marsh and Drainage, Fremont National Forest (Figure 20)

1. Desert Side Notched, 35 LK 1354, T.32S., R.15E.
2. Desert Side Notched, 35 LK 905.
3. Rose Spring Contracting Stem, 35 LK 1354, T.32S., R.15E.
4. Rose Spring Contracting Stem, 35 LK 922, T.32S., R.11E.
5. Rose Spring Side Notched, 02-03-SF-IF3, T.33S., R.14E.
6. Eastgate Expanding Stem, Bly CRM #386 - Isolated Find, 1.33S., R.14E.
7. Pinto Square Shouldered, 35 LK 1468, T.32S., R.15E.
8. Elko Corner Notched, 35 LK 903, T.32S., R.14E.
9. Rose Spring Corner Notched, 02-04-197, T.32S., R.14E.
10. Rose Spring Corner Notched 35 LK 303, T.33S., R.14E.
11. Generalized Willow-Leaf Shaped, Bly CRM #382 - Isolated Find, T.33S., R.14E.
12. Elko Corner Notched, 35 LK 915, T.30S., R.15E.
13. Elko Eared, 35 LK 918, T.32S., R.15E.
15. Untyped, 35 LK 916, T.33S., R.14E.
16. Lake Mohave, 35 KL 371, T.34S., R.14E.
17. Lake Mohave, 35 LK 1349, T.32S., R.15E.
18. Large Side Notched, Bly CRM #408 - Isolated Find, T.34S., R.14E.
19. Large Side Notched, 35 LK 928, T.32S., R.13E.
20. Humboldt Concave Base, 35 LK 925, T.32S., R.14E.
FIGURE 21: SELECTED PROJECTILE POINT TYPES FROM THE SPRAGUE AND LOST RIVER DRAINAGES, FREMONT NATIONAL FOREST (KEY TABLE 17).
Table 17: Selected Projectile Point Types from the Sprague and Lost River Drainages, Fremont National Forest (Figure 21)

**Lost River Drainage**

1. Rose Spring Series, 35 KL 291, T.38S., R.12E., 4950'
2. Rose Spring Corner Notched, 35 KL 288, T.38S., R.12E., 5000'
3. Eastgate Expanding Stem, 3b KL 332, T.37S., R.11E., 6240'
5. Pinto Series, 35 KL 291, T.38S., R.12E., 4950'
7. Elko Corner Notched, 3b KL 291, T.38S., R.12E., 4950'
8. Elko Eared, 35 KL 288, T.38S., R.12E., 5000'
10. Elko Eared, 35 KL 291, T.38S., R.12E., 4950'

**Sprague River Drainage**

11. Elko Eared, 3b KL 597, T.34S., R.16E., 6280'
12. Pinto Square Shoulder (?), 35 LK 1263, T.39S., R.16E., 5000'
15. Rose Spring Contracting Stem, 35 LK 1263, T.39S., R.16E., 5600'
Upland Chewaucan River Valley and Drainage

Projectile point types identified in the Upland Chewaucan River Valley and drainage as a result of Fremont National Forest cultural resource inventories parallel the types identified by Aikens and Minor (1977:22) in the Coffeepot Flat area. Early types include a large, stemmed lanceolate point resembling the Scottsbluff type, a contracting stem lanceolate type and Northern side-notched points (Table 18, Figure 22). A variety of Elko series types are also identified for this area. These point types would seem to indicate prehistoric use of this area beginning at least 8,000 and possibly 9,500 years ago.

Also present in this area are more recent point types including points in the Elko and Rose Spring series. One point, identified as an Elko side notched point, was recorded as being made of "white crypto-crystalline silica." This point is the only one recorded on the Forest as being made of material other than obsidian although the incomplete nature of most site forms does not preclude that other material was used for other points but not recorded. This nonobsidian point was located within a few miles of a possible white crypto-crystalline silica quarry site (35LK1442). In addition, it is also interesting to note that a possible subgroup name for the Yahuskin Northern Paiute of this area is Paaviturviwari or White Flint Dwellers.
Western Goose Lake Basin Uplands

The number of projectile points and the variety of types they represent is somewhat small for the Western Goose Lake Basin Uplands portion of the Fremont National Forest. Early Types represented include Northern Side-notched, willow-leaf shaped lanceolates, and broad stemmed lanceolate types (Table 19, Figure 23). From these types it would appear that this area was utilized by prehistoric peoples from perhaps as early as 9,500 years ago and most probably by at least 8,000 years ago. Other point types identified in this area include those in the Elko, Rose Spring, and Eastgate series.
FIGURE 22: SELECTED PROJECTILE POINT TYPES FROM THE UPLAND CHEWAUCAN RIVER VALLEY AND DRAINAGE, FREMONT NATIONAL FOREST (KEY TABLE 18).
Table 18: Selected Projectile Point Types from the Upland Chewaucan River Valley and Drainage, Fremont National Forest (Figure 22)

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Location</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gatecliff Contracting Stem</td>
<td>35 LK 1333, T.35S., R.18E., 5415'</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Rose Spring Series</td>
<td>35 LK 1469, T.34S., R.17E.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Rose Spring Contracting Stem</td>
<td>35 LK 1343, T.36S., R.18E., 5210'</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Elko Eared</td>
<td>35 LK 1341, T.36S., R.18E., 5170'</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Elko Eared</td>
<td>35 LK 1326, T.35S., R.18E., 5090'</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Eastgate Series</td>
<td>35 LK 1337, T.36S., R.18E., 5155'</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Eastgate Expanding Stem</td>
<td>35 LK 1332, T.25S., R.18E., 5420'</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Eastgate Series</td>
<td>02-03-CB-1f21, T.36S., R.18E.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Elko Eared</td>
<td>35 LK 1341, T.36S., R.18E., 5170'</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Elko Eared</td>
<td>35 LK 1327, T.35S., R.18E., 5090'</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Pinto Sloping Shoulder</td>
<td>02-03-PP-1F31, T.34S., R.18E.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Elko Side Notched (chalcedony)</td>
<td>02-03-CB-1F20, T.36S., R.18E.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Elko Eared (?)</td>
<td>35 LK 1326, T.35S., R.18E.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Elko Corner Notched</td>
<td>02-03-KC-1F1, T.35S., R.19E.</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Elko Eared</td>
<td>35 LK 1474, T.34S., R.17E.</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Large Stemmed lanceolate</td>
<td>02-03-TP-1F1, T.35S., R.1E.</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Contracting Stem lanceolate</td>
<td>35 LK 1330, T.35S., R.18E., 3075'</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Northern Side Notched</td>
<td>35 LK 1337, T.36S., R.18E.</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Elko Series (?)</td>
<td>02-03-SW-1F7, T.36S., R.18E.</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Elko Eared</td>
<td>02-03-PP-1F32, T.34S., R.18E.</td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 23: SELECTED PROJECTILE POINT TYPES FROM THE WESTERN GOOSE LAKE BASIN UPLANDS, FREMONT NATIONAL FOREST (KEY TABLE 19)
### Table 19: Selected Projectile Point Types from the Western Goose Lake Basin Uplands, Fremont National Forest (Figure 23)

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Location</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Eastgate Series, 35 LK 1454, T.40S., R.17E., 5600'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Rose Spring Contracting Stem, 35 Lk 8909, T.40S., R.17E., 5680'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Rose Spring Corner Notched, 35 LK 1454, T.40S., R.17E., 5380'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Rose Spring Corner Notched, 35 LK 888, T.40S., R.18E., 5380'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Rose Spring Corner Notched, 35 LK 890, T.40., R.17 E., 5680'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Elko Corner Notched, 02-02-BC-P-I2, T.38S., R.17E.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Elko Eared 35 KL 373, T.37S., R.15E., 5200'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Elko Corner Notched, 35 LK 890, T.40S., R.17E., 5680'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Elko Corner Notched, 35 LK 893, T.39S., R.17E., 5250'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Contracting Stem generalized willow leaf, 35 LK 888, T.40S., R.17E., 5380'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Broad Stemmed Lanceolate, 35 LK 891, T.40S., R.18E., 5180'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Elko Side Notched, 35 LK 888, T.40S., R.17E., 5380'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Generalized Willow Leaf shaped, 35 LK 893, T.39S., R17E., 5250'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Northern Side Notched, 35 LK 888, T.40S., R.17E., 5380'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Northern Side Notched, 350 LK 890, T.40S., R.17E., 5680'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Warner Mountains

The number of examples and variety of types of projectile points found in the Warner Mountain portion of the Fremont National Forest is quite small. This makes it difficult to suggest any temporal range for use of this area by prehistoric peoples. Point types that have been found in this area include Northern Side-notched, Elko, Pinto and Cottonwood series types (Table 20, Figure 24). This would suggest possible use of this area perhaps 8,000 to 9,500 years ago.

Table 20: Selected Projectile Point Types from the Warner Mountains, Fremont National Forest (Figure 24)

2. Elko Eared (?), W.G.K. 8-16-78 - Isolated Find, T.40S., R.21E.
5. Pinto Square Shouldered, L.M.M. 9-28-78 - Isolated Find, T.40S., R.22E.
FIGURE 24: SELECTED PROJECTILE POINT TYPES FROM THE WARNER MOUNTAINS, FREMONT NATIONAL FOREST (KEY TABLE 20).
ARCHAEOLOGICAL SUMMARY AND SYNTHESIS

The Fremont National Forest is located in a region which appears, from Fort Rock Basin evidence, to have been inhabited by humans as early as 13,200 years ago. Popularly known as big game hunters, these people have been characterized as migratory hunters of big and small game and gatherers of plant foods. No evidence of these peoples has apparently been found on the Fremont National Forest.

Projectile point evidence, however, suggests that the people of the Western Pluvial Lakes Tradition used and perhaps lived in the Sycan Marsh area, perhaps as early as 11,000 years ago. Oriented towards a lake environment, these people had a more diversified economy than the big game hunting peoples from whom they may have been descended. Small and large game, land birds, and waterfowl were hunted, plants were gathered, and some fish obtained. Lithic evidence for these people was also found in the northern parts of the Forest west of Fort Rock where a cache of large bifaces, large stemmed projectile points, and a notched Great Basin Transverse Point was found.

Projectile point evidence from the rest of the Forest suggests use by prehistoric peoples beginning from 8,000 to 9,500 years ago and continuing into historic times. Five areas with relatively great site diversity have been identified: Sycan Marsh, Yainax Butte, western Goose Lake Valley and uplands, Big Valley, and the upland Chewaucan Valley. While these localities have been subjected to only a minimal amount of archaeological and ethnohistoric study, some conjectures can be made based on the localities' environmental and geographical locations and the archaeological and ethnohistoric records of the general region.
The Sycan Marsh area may represent a sedentary or semisedentary, lake-marsh oriented settlement and subsistence system, evolving from the Western Pluvial Lakes Tradition and continuing to the Klamath who used the area in ethnohistoric times. This situation is similar to those archaeologically theorized for the Surprise and Warner Valleys (O'Connell and Hayward 1972, O'Connell 1975, Weide 1968, 1974). Rock-shelters, housepit village sites, rock rings, and rock cairns have been located in this area, part of which is eligible for the National Register of Historic Places (Bunten 1977).

Near Yainax Butte are located several sites with rock rings, a possible chute and pound hunting site, a cremation site, and two pictograph sites. These sites may be related to the ethnohistoric Modoc in whose territory they are found.

West of Goose Lake rockshelters and a cave site have been located in the Drews Valley, a housepit site located near Dog Lake, and a housepit village and an associated pictograph site located near a former Goose Lake High strand. The location and characteristics of these last two sites suggest similarities with the Lake Abert area where Pettigrew (1980a, 1980b) has suggested a sedentary, lacustrine settlement and subsistence pattern.

In the Big Valley area housepit and rock ring sites have been located. Though this area is the ethnohistorically associated with the Kidutodado or Surprise Valley Paiute, the housepit sites may predate them as the Kidutodado were not known to have used this type of structure.
The high density of archaeological sites previously documented for Coffeepot Flat is also found throughout the upland Chewaucan Valley. No evidence has been found suggesting revisions to Aikens and Minor's (1977:27) conclusion that this was the summer home for people who wintered around the Chewaucan Marsh.

In addition to the rock cairn site located in the Sycan Marsh area and the pictograph site near Goose Lake, additional sites of possible religious or spiritual significance to native peoples, particularly the Klamath, have been found. These include a number of rock cairns and/or rock alignments found on buttes, peaks, mountains, and rims north of the Sycan Marsh.

Archaeological resources found on the Fremont National Forest indicate that the Forest was used by prehistoric peoples as a place for winter and summer villages, stalking of deer and antelope drives, gathering of roots and grass seeds, procuring of obsidian and other raw materials, and for spiritual and religious activities. This archaeological record represents perhaps more than ten thousand years of human activity, from some of the earliest peoples on the North American continent to the Klamath, Modoc, Achumawi, and Yahuskin and Kidutodado Northern Paiute.

HISTORIC OVERVIEW

The following sections present summary information on the history of the Fremont National Forest and surrounding areas and on the historic cultural resources found on the Forest. Table 21 outlines a chronology of historic events up to World War I in the area of the Fremont National Forest. This table and much of the discussion in the following sections is based on material found in Minor et al (1979:137-211) and Bach (1981).
Three main periods can be delineated from Table 21: an exploration period lasting from the early 1800's to about 1855, a period involving Euro-American subjugation of native peoples from about 1855 to 1870 and an era of Euro-American settlement beginning in 1867. From out of this last period can be separated events concerned with the establishment of the Fremont National Forest and its early development and use. These four periods provide a focus for discussion.

Also presented is a discussion of historic cultural resources found on the Forest. This is based on the results of inventories undertaken by the Forest Service and includes a review of recorded sites and isolated finds.
Table 21: Historic Chronology of the Fremont National Forest Area (after Minor et al 1979 and Bach 1981)

<table>
<thead>
<tr>
<th>DATE</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1543-1790</td>
<td>Euro-American Exploration of Oregon Coast</td>
</tr>
<tr>
<td>17/8</td>
<td>Beginnings of fur trade in Pacific Northwest</td>
</tr>
<tr>
<td>1805-1806</td>
<td>Fur trader exploration in Pacific Northwest Euro-American diseases decimate native populations</td>
</tr>
<tr>
<td>1811</td>
<td>Astoria founded</td>
</tr>
<tr>
<td>1821</td>
<td>Fort Vancouver founded</td>
</tr>
<tr>
<td>1825</td>
<td>McDonald McKay Expedition reaches Klamath Basin</td>
</tr>
<tr>
<td>1826-1827</td>
<td>Ogden's Third Expedition in Lake and Klamath Counties</td>
</tr>
<tr>
<td>1829</td>
<td>First Oregon Euro-American agricultural settlement at Champoeg</td>
</tr>
<tr>
<td>1832</td>
<td>John Wouk in Warner Valley, Abert Lake area</td>
</tr>
<tr>
<td>1833</td>
<td>Ewing Young in Goose Lake, Abert Lake area</td>
</tr>
<tr>
<td>1834</td>
<td>Jason Lee founds Methodist mission in Willamette Valley</td>
</tr>
<tr>
<td>1843</td>
<td>Fremont's Second Expedition in Lake and Klamath Counties Reading Leads emigrant party through Abert &amp; Goose Lake areas</td>
</tr>
<tr>
<td>1846</td>
<td>Oregon Treaty establishes 49th parallel as US-Canada border Fremont's Third Expedition in Klamath County Southern Emmigrant Trail (Applegate Trail) opened</td>
</tr>
<tr>
<td>1849</td>
<td>Oregon Territory promulgated Expedition of Captain Warner in Goose Lake and Warner Valleys</td>
</tr>
<tr>
<td>1852</td>
<td>Euro-Americans graze horses from west of Cascades in Klamath Basin</td>
</tr>
<tr>
<td>1853</td>
<td>Massacre of Modocs in Tule Lake area</td>
</tr>
<tr>
<td>1854</td>
<td>Preemption Act</td>
</tr>
<tr>
<td>DATE</td>
<td>EVENT</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>1855</td>
<td>Expedition of Lieutenants Williamson and Abbot Rogue River and Yakima Wars</td>
</tr>
<tr>
<td>1859-1868</td>
<td>Northern Paiute Wars</td>
</tr>
<tr>
<td>1859</td>
<td>Oregon Statehood</td>
</tr>
<tr>
<td>1860</td>
<td>Pyramid Lake Conference of Northern Paiute bands</td>
</tr>
<tr>
<td>1862</td>
<td>Homestead Act</td>
</tr>
<tr>
<td>1863</td>
<td>Fort Klamath established</td>
</tr>
<tr>
<td>1864</td>
<td>Klamath Treaty signed</td>
</tr>
<tr>
<td>1865-1880</td>
<td>Extensive road building in South Central Oregon</td>
</tr>
<tr>
<td>1866</td>
<td>Camp Warner established</td>
</tr>
<tr>
<td>1867</td>
<td>Euro-American settlement begins in Klamath and Lake Counties</td>
</tr>
<tr>
<td></td>
<td>Camp Warner relocated</td>
</tr>
<tr>
<td>1868</td>
<td>Northern Paiute Treaty signed</td>
</tr>
<tr>
<td>1870-1880</td>
<td>Euro-American settlement increases rapidly</td>
</tr>
<tr>
<td>1870</td>
<td>Klamath Treaty ratified</td>
</tr>
<tr>
<td>1871</td>
<td>Malheur Reservation established for Northern Paiute</td>
</tr>
<tr>
<td></td>
<td>Lakeview townsite platted and recorded</td>
</tr>
<tr>
<td></td>
<td>Homes and orchards at Summer Lake</td>
</tr>
<tr>
<td>1872</td>
<td>Oregon Central Military Wagon Road completed</td>
</tr>
<tr>
<td></td>
<td>Campbell and Goose Lake Mining Districts established</td>
</tr>
<tr>
<td>1872-1873</td>
<td>Modoc War</td>
</tr>
<tr>
<td>1873</td>
<td>Camp Warner abandoned</td>
</tr>
<tr>
<td></td>
<td>First School in Goose Lake Valley</td>
</tr>
<tr>
<td></td>
<td>Paisley settled</td>
</tr>
<tr>
<td>1874</td>
<td>Lake County created</td>
</tr>
<tr>
<td>1878</td>
<td>Bannock War</td>
</tr>
<tr>
<td>1882</td>
<td>Klamath County created</td>
</tr>
<tr>
<td>1883</td>
<td>Malheur Reservation abolished, Northern Paiute disperse</td>
</tr>
<tr>
<td>1885</td>
<td>Swamp Land Act land frauds scandal</td>
</tr>
<tr>
<td>DATE</td>
<td>EVENT</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>1885 - 1906</td>
<td>Range wars between stockmen, sheepmen and settlers</td>
</tr>
<tr>
<td>1901 - 1902</td>
<td>First rail line in Klamath County</td>
</tr>
<tr>
<td>1903</td>
<td>First automobile goes through Lakeview</td>
</tr>
<tr>
<td>1905 - 1915</td>
<td>Rapid Euro-American population increase in Lake County</td>
</tr>
<tr>
<td>1906</td>
<td>Goose Lake and Fremont Forest Reserves created</td>
</tr>
<tr>
<td>1908 - 1909</td>
<td>Oregon Valley Land Company land auctions</td>
</tr>
<tr>
<td>1908</td>
<td>Fremont National Forest formed</td>
</tr>
<tr>
<td>1909</td>
<td>First Fremont National Forest Timber Sale</td>
</tr>
<tr>
<td>1910 - 1931</td>
<td>Gilbert Brown Forest Supervisor, extensive building of roads and telephone lines, lookout system and grazing administration established</td>
</tr>
<tr>
<td>1912</td>
<td>Nevada-California Railroad reaches Lakeview</td>
</tr>
<tr>
<td>1933 - 1942</td>
<td>NIRA and CCC work in Forest</td>
</tr>
<tr>
<td>1943</td>
<td>Gearhart Mountain Wild Area established</td>
</tr>
<tr>
<td>1945</td>
<td>Euro-Americans killed by Japanese balloon bomb near bly Coffeepot Flat Range rehabilitation project started</td>
</tr>
<tr>
<td>1946</td>
<td>Cattle replace sheep as primary range animal</td>
</tr>
<tr>
<td>1950</td>
<td>Bly Bomb site dedicated at Mitchell Recreation Area</td>
</tr>
<tr>
<td></td>
<td>Lakeview Sustained Yield Unit established</td>
</tr>
<tr>
<td>1950</td>
<td>Termination of Klamath</td>
</tr>
<tr>
<td>1961</td>
<td>Winema National Forest formed</td>
</tr>
<tr>
<td>1966</td>
<td>Current Fremont National Forest Ranger District boundaries established</td>
</tr>
</tbody>
</table>
EXPLORATION

The first documented visits by Euro-Americans to the Fremont National Forest area are those of Hudson Bay Company fur trappers and explorers. In 1825 the McDonald-McKay Expedition reached Klamath Marsh after having traveled south from Fort Vancouver by way of Willamette Valley, Santiam Pass, and the east side of the Cascades. After reaching the marsh, the party turned back northward due to a lack of supplies and fear of conflicts with the Klamath (Davies and Johnson 1961:XXXIII-XXXIV).

During 1826-1827 Peter Skene Ogden's Third Snake Country Expedition was in the area of the Fremont National Forest. Ogden made a circular route through the region moving west from Malheur Lake in November 1826 to Newberry Crater, then south to Klamath Lake and the watersheds of the Klamath, Rogue and Pit Rivers during winter and early spring; and then in May of 1827 northeast into Goose Lake and Warner Valleys before heading to Harney Lake and east to the Snake River (Elliot 1910:208-220 and Figure 25). While in the Malheur Lake area, Ogden was impressed by the large number of native inhabitants writing in his journal:

It is incredible the number of Inidans in this quarter. We cannot go 10 yds. without finding them. Huts generally of grass of a size to hold 6 or 8 persons. No Indian Nation so numerous as these in all North America (Elliot 1910:208).
Ogden came into contact with the Klamath at Klamath Lake, receiving supplies from them. He apparently also contacted the Modoc whom he reported had "a contemptible opinion of all traders" and whom he characterized as murderers and thieves. Ogden also had considerable problem with the Northern Paiute who repeatedly tried to obtain horses from the explorer's party. His failure to find beaver in the Goose Lake and Warner Valleys was to him quite disappointing.

Additional Hudson Bay Company explorers and trappers followed Ogden including John Wouk's visit to Warner Valley and the Abert Lake area in 1832 and Ewing Young's traverse through the Goose Lake and Abert Lake area on a journey from the Columbia River to the Sacramento Valley in 1833 (Bach 1981:3). In 1843, a party of emmigrants led by Pierson B. Reading passed through the Abert and Goose Lake areas on its way from Fort Hall, Idaho, to Sutter's Fort in Sacramento Valley.

Captain John C. Fremont's second expedition in 1843 and his third expedition in 1846 began the work of the U.S. Army's Topographical Engineers in the Fremont National Forest area. Fremont's second expedition entered the area from the headwaters of the Deschutes River, reaching the Klamath Marsh on December 10, 1843, (Jackson and Spence 1970:584-601). Fremont's route took the explorers from the Klamath Marsh east to the Sycan Marsh, Winter Ridge, Summer Lake, the Chewaucan Marsh, Abert Lake and Christmas Lake (present day Crump Lake) before turning south through the Warner Valley into Nevada about New Years Day, 1844 (Figure 26).
FIGURE 26: EXCERPTS FROM CHARLES PREUSS'S MAP OF FREMONT'S 1842 AND 1843-44 EXPEDITIONS SHOWING FREMONT'S ROUTE THROUGH THE AREA OF THE FREMONT NATIONAL FOREST (JACKSON AND SPENCE 1970B: MAP 3)
Fremont eloquently described his party's crossing through the Sycan Marsh area to Winter Ridge in his journal:

December 15 . . . "Crossing a hard-frozen swamp. . .we entered again the pine forest, in which very deep snow made our travelling slow and laborious. We were slowly but gradually ascending a mountain; and, after a hard journey of seven hours, we came to some naked places among the timber, where a few tufts of grass showed above the snow, on the side of a hollow; and here we camped. . .

December 16 - We travelled this morning through snow about three feet deep, which, being crusted, very much cut the feet of our animals.

The mountain still gradually rose; we crossed several spring heads covered with quaking aspen; otherwise it was all pine forest. The air was dark with falling snow, which everywhere weighed down the trees. The depths of the forest were profoundly still; and below, we scarce felt a breath of the wind which whirled the snow through their branches. . . .

Towards noon the forest looked clear ahead, appearing suddenly to terminate; and beyond a certain point we could see no trees. Rising rapidly ahead to this spot we found ourselves on the verge of a vertical and rocky wall of the mountain. At our feet - more than a thousand feet below - we looked into a green prairie country, in which a beautiful lake, some twenty miles in length, was spread along the foot of the mountains, its shores bordered with green grass. Just then the sun broke out among the clouds, and illuminated the
country below, while around us the storm raged fiercely. Not a particle of ice was to be seen on the lake, or snow on its borders, and all was like summer or spring. The glow of the sun in the valley below brightened up our hearts with sudden pleasure; and we made the woods ring with joyful shouts to those behind; and gradually, as each came up, he stopped to enjoy the unexpected scene. Shivering on snow three feet deep, and stiffening in a cold north wind, we exclaimed at once that the names of Summer Lake and Winter Ridge should be applied to these proximate places of such sudden and violent contrast” (Jackson and Spence (1970:591-592).

Fremont's third expedition in 1846 entered the Klamath Basin from the south and stayed briefly around Klamath Lake. This expedition was recalled to California by Lieutenant Archibald Gillespie with the coming of the United States' war with Mexico. The night Gillespie made contact with Fremont, Fremont's party was attacked by Klamath (Amers 1938:273). Geographic and scientific knowledge of the Fremont National Forest area by Euro-Americans increased significantly as a result of Fremont's expeditions.

In 1846 an exploring party led by Levi Scott and Jesse and Lindsay Applegate set out from the Umpqua and Rogue River Valleys to seek a new route into western Oregon (Minor et al 1979:144-145). Turning east at the base of the Siskiyou's the party made its way to Fort Hall, Idaho, along a route through the Klamath Basin, northeast California and the Humboldt Sink. The same year they led the first emigrant party along this Southern Emigrant Trail or Applegate
Trail into western Oregon. While "never a strongly popular alternative to the Oregon Trail," the eastern portions of the Applegate Trail became a well used route to the Pit River and into California, particularly during the Gold Rush period.

Two different army expeditions passed through the vicinity of the Fremont National Forest in 1849. Lieutenant William H. Warner led a party from the Sacramento Valley in August on an exploring route west of Fort Hall (Movius 1968:34). Attacked in the Warner Basin on September 26, the party suffered three dead including Warner and returned demoralized to California.

As Warner's party left the Sacramento Valley, a second party under the command of Lieutenant G. W. Hawkins was dispatched from Oregon City (Movius 1968:34-35). In addition to a survey mission similar to Warner's, Hawkins' party was to resupply a Rifle Regiment from the east which was waiting at Fort Hall before continuing on to Portland. Hawkins' party was delayed in its journey to Fort Hall by a Northern Paiute attack near the Warner Lakes.

In the summer of 1855, Lieutenant Robert Stockton Williamson and Lieutenant Henry Abbott led another Topographical Engineers' expedition into the area of the Fremont National Forest (Minor et al 1979:146-147). In addition to the railroad survey and mapping mission, this diverse and talented party conducted a variety of scientific investigations of the area.
EURO-AMERICAN SUBJUGATION OF NATIVE PEOPLES

As increasing numbers of Euro-American exploring parties and emigrants passed through the territory of the Northern Paiute, Klamath and Modoc, tensions between these peoples increased beyond the occasional conflicts which had marked the years of their initial interactions (Minor et al 1979:166).

By their persistent efforts to secure horses, the Northern Paiute very early earned a reputation among Euro-Americans as ingenious and skillful horse thieves who put up an "almost fanatical resistance" when caught (Movius 1968: 17-31). Northern Paiute survivors of cholera and other Euro-American diseases linked the introduction of these ailments to the emigrant trains. Little wonder that the Northern Paiute came to harrass, steal from, and attack Euro-Americans crossing their territory.

Among the Modoc, population loss from the Great Basin smallpox epidemic of 1847 and Euro-American emigrants crossing their territory disrupted the traditional Modoc subsistence base (Minor et al 1979:166-167). The Modoc apparently turned to raiding wagon trains in order to survive. A massacre of Modocs at Tule Lake in 1853 by Benjamin Wright's party cemented a sense of hostility between these people and Euro-Americans.

By the early 1860's long-standing warfare with the Shasta and Achumawi had embroiled some Klamath and Modocs in conflicts with Euro-American settlers whom they suspected of aiding their traditional enemies (Stern 1966:35-36). In 1862, Oregon volunteers under Colonel Charles S. Drew entered the Klamath Basin
where Drew had the principal heads of the Klamath-Modoc war faction arrested and executed. This effectively left relations with Euro-Americans at least temporarily, in the hands of the more peaceful faction.

Drew, "a proud and determined" killer of native peoples and an apologist for their extermination in southwestern Oregon, had served in the 1855-1856 war against the native peoples of the Rogue River Valley (Minor et al 1979:147). Partially in response to urgent expressions of concern from the Klamath, Lindsay Applegate dispatched J.W. Perit Huntington to negotiate a treaty with the Klamath and Modoc (Stern 1966:35-42). Applegate was also concerned that Drew, who had established Fort Klamath in 1863, desired to create a conflict which would divert Union troops from the east thus aiding the cause of the Confederacy and "set the stage for secessionist movement in Oregon and northern California" (Minor et al 1979:168).

A treaty was signed with the Klamath, Modoc and Yahuskin Northern Paiute in 1864 (Stern 1966:37-42). Boundaries for a reservation were delineated, but apparently not specific enough to forestall later controversies over their specific locations (Figure 27). A few months prior to the signing of the Klamath Treaty, Elijah Steele, Indian Agent in California, had negotiated a treaty with the Shasta, Klamath, and Modoc ending hostilities in the Pit River area. Believing the Modoc resided primarily in California, Steele also negotiated a treaty with them reserving the Tule Lake area for these people. Because Steele overstepped the authorized scope of his negotiations the treaty was never ratified by Congress, a fact about which the Modoc remained unaware and which would prove to be a source of conflict in later years.
Figure 27: Map of the Klamath Reservation and differing boundary surveys and claims (from Stern 1965:281, adapted from a map prepared by Otis H. Johnson).
Full scale warfare between the Northern Paiute and Euro-Americans broke out in 1860 after a conference of Northern Paiute bands at Pyramid Lake, Nevada (Movius 1968:71-72). In Oregon, volunteers replaced the regular army with the outbreak of the Civil War. Fort Klamath was established in part to serve as one of two winter bases for the army campaign against the Northern Paiute, the other winter base being at Fort Boise, Idaho.

Initial strategic mistakes committed by the Army Regulars were repeated by the volunteers who replaced them including the use of large bodies of troops and abandoning the campaign during winter (Movius 1968:67-97). Early campaigns were inconclusive. Using hit and run tactics involving small groups of up to fifty the Northern Paiute were able to take the initiative against the forces arrayed against them. In 1864, Drew left the Klamath Basin on a reconnaissance eastward to the Owyhee River during which he discovered the winter redoubt of Panina's Northern Paiute in the Warner Valley.

The Euro-Americans gained a final victory over the Northern Paiute with the return of the regular army and the successful campaigns of General George Crook from 1866 to 1868 (Movius 1968:135). Putting unrelenting pressure on the Northern Paiute, Crook had his troops locate and attack villages, track and destroy raiding bands, conduct winter campaigns and severely disrupt the Northern Paiute way of life. During this time Camp Warner was established in the Warner Valley.

Not a believer in reservations, Crook did not negotiate one for the surrendering Northern Paiute (Minor et al 19/9:173). On November 18, Alfred Meacham, Oregon Superintendent of Indian Affairs, met with Osteoe's band at
Camp Warner and secured their agreement to settle on the Klamath Reservation. Many of these people returned to the Goose Lake and Warner Valley areas during the early 1870's.

On the Klamath Reservation the Modoc became dissatisfied, particularly as a result of the demeaning treatment of them by the Klamath, and made an attempt to return to the Tule Lake region which they saw as having been promised to them (Stern 1966:81-84). Some were persuaded to return to the reservation and settled near Yainax with the Northern Paiute and Upland Klamath who were there. Others, under Captain Jack, refused and the Modoc War of 1872 ensued. Waged in large part in the lava beds of the Tule Lake area, the war ended in defeat of the Modocs by regular Army troops after a prolonged series of skirmishes. Leaders of the uprising were hung or imprisoned at Alcatraz and their followers deported to Indian Territory in what is now Oklahoma.

The end of Euro-American hostilities with the native peoples of the Fremont National Forest found the Klamath and the Modoc, with the exception of those deported, concentrated on the Klamath Reservation (Minor et al 1979:174-175). The Northern Paiute who had lived in the area of the Forest were now more dispersed with some on the Klamath Reservation, others at the Warm springs Reservation and others living in the Goose Lake, Warner and Surprise Valleys.

With their military and political subjugation by Euro-Americans, the acculturation process of native peoples to the now dominant Euro-American culture increased.
Traditional social stability weakened with the introduction and nurturance of individualism and self-interest. Age, industriousness, and experience decreased in importance. Kinship bonds came to be more selectively used. While education became a value there were and continue to be clashes between an event-centered, fluid family substructure and an educational routine with hierarchy and discipline.

Reservation life forged the Klamath, Modoc Yahuskin, Paiute and some Achumawi peoples into a more centralized polity. Traditional, diffuse leadership was replaced. Tribal government. became a crucial ingredient in the maintenance of identity in the face of lost shared geographical, physical, cultural and social attributes. (Silvermoon 1982:51-52).

**EURO-AMERICAN SETTLEMENT**

Euro-American knowledge of the Fremont National Forest area increased after the era of exploration as protective escorts from southwestern Oregon accompanied emigrant trains on the Applegate Trail, volunteers and army regulars carried out operations against the area's native peoples. Stock raisers began to seasonally use the Klamath Basin in order to meet the food needs of the growing population of miners and others along the Klamath, Shasta and Trinity Rivers (Minor et al 1979:176-179). Euro-American subjugation of native peoples in the area "opened a vast region to ambitious and venturesome pioneers" and after settlement began in 1867 the governments were established in south-central Oregon.
Grazing land for cattle and sheep was the primary attraction to settlers (Minor et al 1979:179). By 1900 Lake County produced over 26,000 head of cattle and 250,000 head of sheep, with a market oriented south toward Winnemucca to which cattle were driven to rail lines.

A short mining boom occurred beginning in 1871-1872 with the establishment of the Campbell Mining District to the west and north of Goose Lake and the Goose Lake Mining District, later known as the High Grade District, to the east of Goose Lake and extending into California (Minor et al 1979:180-181). Mining activity also occurred in the High Grade District on and off from 1909 to 1934 (Silvermoon 1982:95). The Brattain Mining District was discovered about 1875 and is located about five miles south of Paisley on the east side of the Paisley Hills where the Gaylord mine was dug about 1900 (Minor et al 1979:206). In 1906, the Lost Cabin District, also known as the Coyote Hill or Camp Loftus District, was located north of Plush. Mining, however, was to play only a minor role in the area's economy.

Early logging and lumbering was focused on providing the immediate needs of the Euro-American settlers and the towns, farms and ranches they were building (Minor et al 1979:199-202). Early mills were powered by a variety of means including water wheels, water turbines, steam engines and horse power. Eleven sawmills were established in Lake County or around Goose Lake from 1870 to 1890 while ten sawmills were established in Klamath County from 1863 to 1909 (Tables 22 and 23).
<table>
<thead>
<tr>
<th>DATE</th>
<th>OWNER</th>
<th>TYPE</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circa 1872</td>
<td>Spaulding</td>
<td>water-powered</td>
<td>Six miles southeast of south end of Goose Lake (in California)</td>
</tr>
<tr>
<td>Circa 1870's</td>
<td></td>
<td>muley-sash sweep horse power</td>
<td>Franklin Creek, four miles south of Davis Creek</td>
</tr>
<tr>
<td>1874</td>
<td>Hyronymous Russell</td>
<td>water-powered (32 foot wheel)</td>
<td>Lassen Creek</td>
</tr>
<tr>
<td>Circa 1875</td>
<td>E.W. Joseph</td>
<td>steam</td>
<td>Mill Flat, seventeen miles north of Lakeview on mountain road to Paisley</td>
</tr>
<tr>
<td>1878</td>
<td>O.L. Stanley</td>
<td>steam</td>
<td>Camp Creek, 1/2 mile below George Stephenson summer home</td>
</tr>
<tr>
<td>Circa 1879</td>
<td>&quot;Flintlock&quot; Smith</td>
<td>flutter wheel</td>
<td>Thomas Creek near Hammersley place</td>
</tr>
<tr>
<td>1879</td>
<td>J.M. Russell</td>
<td>Two-ten-horse-power threshing machines; turbine water wheel</td>
<td>Cottonwood Creek, c. three miles west of Cottonwood Dam</td>
</tr>
<tr>
<td>1883</td>
<td>Fuller and Vince Snelling</td>
<td>steam</td>
<td>Headwaters of Cox Creek, c. two miles south of E.W. Joseph mill</td>
</tr>
<tr>
<td>1885</td>
<td>Snellings</td>
<td>steam</td>
<td>McShane Creek, one mile west of Crooked Creek</td>
</tr>
<tr>
<td>1888</td>
<td>Hawkins and Snelling</td>
<td></td>
<td>McShane Creek</td>
</tr>
<tr>
<td>1888</td>
<td>James Metzker</td>
<td>steam</td>
<td>7-Up Ranch</td>
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</table>

<table>
<thead>
<tr>
<th>DATE</th>
<th>OWNER</th>
<th>TYPE</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper Klamath Lake Area</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1863 - 70</td>
<td>U.S. Army or private contractor (?)</td>
<td>steam</td>
<td>East side of Fort Creek</td>
</tr>
<tr>
<td>1870 - ff.</td>
<td>U.S. Army</td>
<td>steam</td>
<td>West side of Fort Creek near Fort Klamath Junction</td>
</tr>
<tr>
<td>1870 - 1912</td>
<td>Bureau of Indian Affairs</td>
<td>turbine</td>
<td>Klamath Agency, 1/4 mile downstream from highway</td>
</tr>
<tr>
<td>1893 - 1899</td>
<td>Bureau of Indian Affairs</td>
<td></td>
<td>Yainax</td>
</tr>
<tr>
<td>1877 - 1907</td>
<td>William S. Moore &amp; (George Nurse?)</td>
<td></td>
<td>West side of Link River below the falls</td>
</tr>
<tr>
<td>1895 - 1903</td>
<td>Jack Cottle</td>
<td></td>
<td>Head of Wood River</td>
</tr>
<tr>
<td><strong>Malin - Merrill Area</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1888-92-93</td>
<td>Jesse D. Carr</td>
<td>steam</td>
<td>Bryant Mountain</td>
</tr>
<tr>
<td>1901 - 1905</td>
<td>William Rhoads</td>
<td>steam</td>
<td>Bryant Mountain</td>
</tr>
<tr>
<td>1905 - ff.</td>
<td>Turner Brothers</td>
<td>steam</td>
<td>Stuckel Mountain and two miles south of Olene</td>
</tr>
<tr>
<td>1908 - 1928</td>
<td>James Warlow</td>
<td>steam</td>
<td>Bryant Mountain</td>
</tr>
</tbody>
</table>
Public land became available to settlers and others as a result of state and federal policies. Extension of the preemption laws to Oregon in 1854 permitted settlers to file claims on unsurveyed land, a right upon which early settlers in the Klamath Basin and Goose Lake Valley based their claims in 1867 (Minor et al 1979:177-178). The Homestead Act of 1862 permitted settlers to purchase up to 160 acres of public land. The State of Oregon received lands, most of which was eventually made available to the public in the Forest's area, as a result of the Organic Act of 1848, granting land to support the establishment of schools, the Morrill Act establishing land grant colleges, and the extension of the Swamp Land Act to Oregon in 1860 (Minor et al 1979:181, Bach 1981:18).

Disposal of the state lands obtained as a result of the Swamp Land Act generated a long, intense controversy. The basis of the controversy lay in the fact that

... no record existed of what might have qualified as swamp lands when Congress passed the law in March, 1860. The stage was set for a wild dash for lands and wholesale corruption in the filings ... 

The controversy over the swamp lands not only involved the federal government officials who alleged that Oregonians and others were filing fraudulent entries for vast parts of the public domain with no return to the United States, the confrontation also involved the actual settlers of the region in years of tedious litigation against the speculators who rushed to secure lands ...
For some in Oregon the Swamp Land Act brought an unparalleled opportunity to obtain lands. In many instances, however, the successful recipients were not settler families but outside speculators or cattlemen with voracious appetites for the public domain (Minor et al 1979:181-182).

Land, much of which was eventually made available to the general public in Lake County after the turn of the century, was also granted to the State of Oregon to aid in the construction of the Oregon Central Military Wagon Road in the 1860's (Minor et al 1979:183). Approval and support for this road was given by Act of Congress in July 1864, partially as the result of political pressure from southern Oregon residents in the Rogue River Valley who wanted to connect Jacksonville with the mining towns of western Idaho (Minor et al 1979:154).

The State of Oregon gave the road grant to a group of Willamette Valley investors who undertook to construct a road from Eugene to Boise (Minor et al 1979:155, 183). A rather indirect route from Boise to Eugene took the road across the area of the Fremont National Forest as it passed through the Sprague River Valley, down Drews Creek, across the north end of Goose Lake Valley and across the Warner Mountains entering the Warner Valley just west of Crump Lake (Table 24). Another early road crossing the Forest was the Yreka to Canyon City Road which passed through the Lost River, Sprague River, Sycan Marsh and Silver Lake areas.
The circuitous route of the Oregon Central Military Wagon Road was the result of simple common business sense on the part of the road's investors.

Since the company was to receive 1,920 acres for every mile of road which it built, the more circuitous the track it laid out, the more land it might receive . . . (Minor et al 1979:155).

The extensive public commitment of a massive land grant to the Oregon Central Military Wagon Road, however, led to the survey and slight development of a route that, of the many roads in the region, probably played one of the least significant parts in the development of transportation (Minor et al 1979:161).

By the 1870's and 1889's major routes had emerged in south-central Oregon with many roads using the same routes as today's highways (Minor et al 1979:150).

The history of railroad development in south-central Oregon between the 1870's and 1911 was characterized by "high hopes and long frustrations" (Minor et al 1979:162). For much of this period the rail lines at Winnemucca provided the focus for livestock exports. East-west routes across the region never materialized. It was not until 1901-1902 that the first rail lines were laid in extreme southwestern Klamath County and not until 1904 that a north bound route was started from California through the Klamath Basin (Minor et al 1979:164).
The years before World War I saw Lake County experience rapid population growth, spurred in large part by the auction by the Oregon Valley Land Company of former Oregon Central Military Wagon Road Company lands (Minor et al 1979:184). In 1909, the company auctioned off 14,000 tracts of land ranging in size from ten to one thousand acre parcels. Most parcels were sold at the minimum price of $200.

Irrigated farming spurred development with the amount of acreage irrigated in Klamath County more than tripling from 1899 to 1919 and nearly doubling in Lake County during the same period (Minor et al 1979:186-188). The Carey Act, passed in 1894 made available to settlers desert lands which the State of Oregon planned to irrigate. The High Desert country of north Lake County experienced a boom which went bust after 1915 as dry farming techniques failed to create a viable cash crop for the region, proposed rail lines and irrigation systems failed to materialize, and climatic cycles shifted into a regime of less effective moisture (Minor et al 1979:192-193). Hatton (1982) chronicles the life of the few families in this high desert region, who "working against odds, survived."

The Silver Lake-Christmas Lake area of north Lake County was also the scene of range wars between 1896 and 1906 (Bach 1981:27). Sheep were slaughtered and in one case a herder killed. Grazing on public lands during this time went unregulated with the result that "herders were each chasing after some favorite ewe." The establishment of the National Forest system and the introduction of range management served to alleviate the tensions precipitating the range conflicts.
<table>
<thead>
<tr>
<th>ROAD</th>
<th>ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon Central</td>
<td>Eugene to Boise via Willamette Pass, Sprague River Valley, Drews Creek, north end of Goose Lake Valley, Warner Mountains and Warner Valley, Crump Lake north east and east to Idaho across Owyhee Plateau.</td>
</tr>
<tr>
<td>Military Wagon Road</td>
<td></td>
</tr>
<tr>
<td>Yreka to Canyon City Road</td>
<td>Enters Oregon near Tule Lake, turns north through Lost River and Sprague River watersheds to Oregon Central Military Wagon Road, north through the Sycan Marsh region to Silver Lake, then continues northeast.</td>
</tr>
<tr>
<td>Warner Valley - Fort Bidwell Road</td>
<td>From Camp Warner (T.36S., R.22E., Sec. 33), south to California along a route west of the Sagehen Hills and along the east side of Big Valley.</td>
</tr>
<tr>
<td>Linkville - Lakeview Road (Linkville -</td>
<td>From Linkville (Klamath Falls) east through the Lost River watershed to Bonanza, northeast to Oregon Central Military Wagon Road in the Sprague River watershed, then along that route.</td>
</tr>
<tr>
<td>Goose Lake Road)</td>
<td></td>
</tr>
<tr>
<td>Lakeview - Adel Road</td>
<td>From Lakeview across the Warner Mountains using part of the Oregon Central Military Wagon Road Route.</td>
</tr>
<tr>
<td>Lakeview - Prineville Road</td>
<td>Lakeview to Prineville via Goose Lake Valley, Chewaucan Marsh, Summer Lake, Picture Rock Pass, Silver Lake, Fort Rock and Christmas Lake.</td>
</tr>
</tbody>
</table>
FREMONT NATIONAL FOREST HISTORIC SUMMARY

In 1892 the first national forest reserve was created with the establishment of the Yellowstone National Park Timberland Reserve (Bach 1981:25). In response to favorable public sentiment expressed by Lake County interests, the Goose Lake and Fremont Forest Reserves were created by the United States Department of Agriculture which had just the year before been given jurisdiction over forest reserves (Bach 1981:25-30). In 1907, the Bureau of Forestry became the United States Forest Service and the resources redesignated as National Forests. On July 1, 1908, the Fremont National Forest was organized from Goose Lake and Fremont Forest Reserves.

The Fremont National Forest's boundaries and districts shifted throughout the years (Bach 1981:31-34). Original districts in 1907 included Warner, Goose Lake, Paisley and Silver Lake. In 1908 and 1909 districts were reorganized and included Warner, Dog Lake, Thomas Creek, Paisley and Silver Lake. In 1910 the Summer Lake District was added. The Forest was reorganized in 1932 into four districts: Warner, Bly, Paisley and Silver Lake. The Warner District had been originally named Lakeview, but the name was changed back to the more familiar Warner name. Drews Valley District was designated in 1946 and the Thomas Creek District in 1957. In 1966 boundaries were readjusted and the current four districts at Bly, Lakeview, Paisley and Silver Lake were designated.

Area of the Forest shifted over the years with area around Yamsey Mountain being added in 1912 and portions of the discontinued Paulina National Forest in the Silver Lake area being added in 1930. Additional boundary changes were made in 1942. In 1961, with the formation of the Winema National Forest from
the former Klamath Reservation, some lands were lost to or gained from the Winema. One specific event which may be reflected in the record of historic cultural resources on the Fremont was the replacement of cloth sign boundaries with metal boundary signs in 1912 (Bach 1981:31).

The original forest reserves were first under the direction of Martin L. Erikson, Inspector in Charge (Bach 1981:35-38). Guy M. Ingram became Supervisor in 1907. District Rangers were Mark E. Musgrove at Warner, William C. Neff at Goose Lake, Jason S. Elder at Paisley and Gilbert D. Brown at Silver Lake. Brown became Supervisor in 1910 and continued in that role until 1931 (Bach 1981:77). The early years of the Forest were marked by several major tasks including reducing stock grazing by fifty percent, posting boundaries, building roads, telephone lines and ranger stations (Bach 1981:39).

During Gilbert Brown's tenure as Forest Supervisor, grazing administration was established on the Forest (Bach 1981:78). In 1910 cattle and horses grazed on the Forest numbered 18,269 head and sheep numbered 106,500 head. By 1930, the number of cattle and horses grazed on the Forest had been reduced to 9,300 head and sheep to 75,000 head. Throughout these early years, drift fences, counting corrals, water developments, salt boxes and salt logs were built (Bach 1981:265). The Chewaucan Stock Driveway was established in 1927.

One of the major reasons for the establishment of the Forest's grazing administration was the great pressure the results of overgrazing of private lands put on Forest lands (Bach 1981:181). In addition, establishment of grazing administration helped reduce the tensions which precipitated the range wars of the turn of the century (Bach 1981:27). A Lake County-wide stockmen's organization was formed in 1920 (Bach 1981:189).
In 1908 and 1909 the Dog Lake Telephone Line was built and the Currier Trail Wagon Road constructed (Bach 1981:60). The Currier Road was the first road constructed on the Paisley Ranger District. Private interests constructed the portion of the road beginning at a crossing of Long Creek at T.33S., R.15E., Section 4 and continuing west to the ZX Ranch at T.33S., R.14E., Section 21 (Bach 1981:96). Many of the early ranger and guard stations were constructed a short distance apart due to the primary dependence on horses for transportation (Bach 1981:78).

Round Pass Lookout was built in 1922 (Bach 1981:207). During excavation for its foundation Jason Elder found a tin receptacle left by members of the 1878 Corps of Engineer's survey party (Bach 1981:182). A telephone line to the Sycan Valley was completed in 1925 (Bach 1981:243).

The first Fremont National Forest timber sale occurred in 1909 (Bach 1981:66). The first large timber sale was in the Crooked Creek area and totaled 3,400 acres (Bach 1981:263). In 1917 the Forest Service organized a logging engineer regiment from the area's population to assist with Forest Service work in France during World War I (Bach 1981:165). In 1919 the C.S. Benefiel sawmill was built on the Chewaucan River five miles south of Paisley and in 1920 a mill was constructed on Cox Creek (Bach 1981:179-185). The Bly area experienced a timber boom beginning about 1929 with extensive railroad logging (Bach 1981:287).

During the early years of the Fremont National Forest a number of people resided on lands, both public and private, within the Forest's boundaries. A census of such persons reported in 1912 showed eighty persons residing within
the Forest boundaries on a year-round basis (Bach 1981:137 and Table 25).

About half resided on public land and half resided on private land. These people included lumbermen, stock raisers, miners, farmers and Forest Service Officers and their families. A much larger number of persons in 1912 used the Forest on a seasonal basis, including over 5,000 estimated day users. Resident use of the Forest continued past 1912, Bach (1981:173) reports an instance of a family homestead in the Dry Creek area from the late 1920's and which was based on fur trapping.

During the depression a number of (NIRA) and Civilian Conservation Corp (CCC) projects were undertaken on the forest (Bach 1981:338-346). Some of these projects were undertaken as erosion control measures as concern increased over the loss of marshes and meadows resulting from the destruction of the Forest's beaver populations (Bach 1981:317). NlKA projects included the construction of drift fences and structures, road maintenance, building driveway corrals and water troughs, and other water development projects (Bach 1981:338).

The CCC was involved with the construction of roads, trails and buildings and a number of range and recreation projects including campground and dugout canoe construction, tree planting, insect and fire control, seed collecting and brush burning (Bach 1981:341). Forest Service district compounds were constructed by the CCC at Paisley, Bly and Lakeview, and campground at Dog Lake, Drews Creek, Happy Camp, Willow Creek, Booth Park and along the Sprague River (Bach 1981:346). Dugout canoes were built for use at Campbell and Deadhorse Lakes. Stock watering troughs were built at numerous locations throughout the Forest.
During CCC construction at the Bly Ranger District compound two Native American burials were encountered, a man and a woman (Bach 1981:400). Material found included an obsidian projectile point, an obsidian knife and a broken mortar. This material was lost to an unknown looter.

CCC camps were established at a number of locations including Camp Ingram on Thomas Creek and Cliff Spring Camp on Silver Creek (Bach 1981:341). Camps were also located at Dog Lake and at Bly. The Bly CCC Camp was the last on the Forest to close, doing so on July 18, 1942 (Bach 1981:468).

In 1939 the first attempt, though unsuccessful, was made to reintroduce bighorn sheep at Hart Mountain (Bach 1981:437). A successful attempt at reintroduction was made in 1950. In 1943 the Gearhart Mountain Wild Area was established (Bach 1981:485).

On May 5, 1945, "the only known instance of fatalities suffered on this continent as a result of Japan's attempt at long-range bombing of the United States" by aerial balloons launched from Japan occurred within the boundaries of the Fremont National Forest on land owned by the Weyerhaeuser Company (Bach 1981:520-523). On August 20, 1950, a monument was dedicated by the Weyerhaeuser Company at the Mitchell Recreation Area at the Leonard Creek site, "America's only World War II continental battleground." The native stone monument bore the names of the six victims of the balloon bomb.

Beginning in May of 1944, the Japanese began launching the balloon bombs "in an attempt to burn ... forests and do other damage" (Bach 1981:522). Another of these balloon bombs was located near the Bald Mountain Lookout on the Fremont

-185-
National Forest on July 24, 1945, and was successfully removed without injuries (Bach 1981:525).

In the years following World War II cattle replaced sheep as the primary grazing animal on the Forest, primarily as a result of limited availability of shepherders (Bach 1981:537). Range conservation efforts in the area received a boost with the establishment of the Agricultural Adjustment Administration in 1936 with responsibility for range conservation on private lands (Bach 1981:420). Rehabilitation of the Coffeepot Flat area began in 1945 and involved a water spreading project from Long Hollow with a concrete core earthen dam, a diversion ditch, culverts and headgates and a series of one and half foot (0.46 meter) deep contour ditches (Bach 1981:508-510).

A short-lived uranium boom was experienced in Lake County during the 1950's and early 1960's (Silvermoon 1982:94-95). The White King and Lucky Lass uranium mines were located northwest of Lakeview on the Fremont National Forest and a processing plant was located in Lakeview. Mining for mercury found in scattered quicksilver deposits in the form of the mineral cinnabar also took place during this time at the Angel Peak Mine near Quartsville.

On October 10, 1950, the Lakeview Sustained Yield Unit was established (Bach 1981:587). Beuter and Olsen (1980) have documented the significant contribution the sustained yield unit has made to the maintenance of a stable economic base for many of the communities dependent upon the Fremont National Forest. The decades since the establishment of the unit have been ones of relative economic and social stability in the Fremont National Forest's Influence Zone, Lake County and the Langell census subdivision of Klamath County (Silvermoon 1982:118-123).
| TABLE 25: Number and Occupation of Persons within Fremont National Forest Boundaries during 1912 (from Bach 1979:13/) |
|---|---|---|
| | Within N.F. Boundaries |  |
| | On | On | Total |
| | N.F. | Private | Land | Land |
| RESIDENT POPULATION (SETTLERS, ETC.) |  |
| Principally lumbermen or millmen | 1 | 1 | 2 |
| Principally stock raisers | 4 | 9 | 13 |
| Principally miners | 2 | 0 | 2 |
| Principally farmers | 8 | 9 | 17 |
| Forest Officers | 5 | 1 | 6 |
| Other occupations | 0 | 2 | 2 |
| Women, children and dependents | 20 | 21 | 41 |
| Total Resident Population | 40 | 43 | 83 |
| NOMADIC POPULATION (LABORERS, CAMPERS, ETC.) |  |
| Logging: driving, scaling, clearing, etc. | 20 | 11 | 31 |
| Grazing: herders, packers, etc. | 154 | 10 | 164 |
| Prospecting: cruising, surveying, etc. | 30 | 8 | 38 |
| Temporary Forest employees | 8 | 0 | 8 |
| Other occupations | 17 | 5 | 22 |
| Campers: Hunting, fishing or berry or nut picking, boating, bathing, climbing, etc. | 334 | 50 | 384 |
| Guests: at houses, hotels, sanitariums, etc. | 0 | 0 | 0 |
| Day visitors: picnickers, wayfarers, etc. | 5121 | 56 | 5177 |
| Other purposes | 84 | 10 | 94 |
| Total Nomadic Population | 5768 | 150 | 5918 |
HISTORIC CULTURAL RESOURCES OF THE FREMONT NATIONAL FOREST

A number of historic cultural resources have been identified on the Fremont National Forest. This section will focus on those resources identified as part of project related inventories. The CCC constructed compounds at Bly, Lakeview and Paisley will not be discussed as Throop (1977:91-100) has given a detailed description of these.

Historic cultural resources reported to the Oregon State Historic Preservation Office (SHPO) have not yet been assigned permanent site numbers. SHPO is beginning the process of assigning permanent site numbers to the approximately 10,000 historic sites which have thus far been reported for Oregon, including Fremont sites. For this overview, the site files of the Fremont National Forest were examined, particularly sale reports from recent surveys. It appears that early Forest inventory projects did not always record historic resources. A total of 170 historic sites and isolated finds were identified (Table 26). These resources are examined on a district by district basis in the following sections. As much as possible the descriptive terminology used on site forms is used to describe these resources. The lack of detailed environmental information on most of the forms precluded meaningful examination of these variables.
Table 26: Number of Fremont National Forest Historic Sites and Isolated Finds Used in this Overview

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>SITES - ISOLATED FINDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ely</td>
<td>37</td>
</tr>
<tr>
<td>Lakeview</td>
<td>13</td>
</tr>
<tr>
<td>Paisley</td>
<td>86</td>
</tr>
<tr>
<td>Silver Lake</td>
<td>34</td>
</tr>
<tr>
<td>TOTAL FOREST</td>
<td>1/0</td>
</tr>
</tbody>
</table>
Bly Ranger District Historic Cultural Resources

Thirty-seven historic sites and/or isolated finds have been identified for this overview on the Bly Ranger District. Eight of these are also located at archaeological sites and have been given permanent archaeological site numbers by SHPO. Site types identified include logging or lumber related sites, grazing related sites, Forest Service or CCC related sites, homesteads, dendroglyphs, dumps and earthen dam, isolated boundary signs and isolated debris (Table 27).

Five logging and/or lumber related sites have been identified on the Bly Ranger District including a railroad bed consisting of a one-quarter mile (402 meters) long line of railroad ties (02-01-241), the remains of a wooden railroad water tower (02-01-237). These towers are recorded as possibly being associated with trains which used to run to the Ewana lumber camp. Also on the district and recorded as sites are the Pelican Bay Lumber Camp used about 1936 (02-01-3/362, 35KL376) and a railroad log loading site (02-01-1/360, 35KL374). These logging and/or lumber related sites appear to be associated with the railroad logging boom centered on Bly during the 1930's.

Three grazing related sites have been identified and include a location with eleven moss covered water troughs possibly constructed by the CCC (02-01-102, 35 KL290), a corral (020-1-380, 35KL388), and a possible sheepherder camp (02-01-284, G-02-01-06). This last site has recorded cultural material including an old stove, a barrel ring, a frying pan handle, broken glass and ceramics, a rifle cartridge, and a three sided shed of rough cut boards and juniper poles.
Thirteen arboglyph sites have also been identified on the Bly District. These are also probably grazing related, most likely the result of sheepherders. The earliest recorded dates of these arboglyph sites include 1893 (02-02-211), 1904 (02-01-1-35U), 1905 (02-01-211), and 1906 (02-01-286). Apparently, no names are directly associated on the same tree with any of these dates.

One old Forest Service guard station has been identified near Mix Up Spring (02-01-2/349, 35KL373). Two homestead sites have been recorded (02-01-2/349, 35KL373; and 02-01-4/363, 35KL377). One site with a fence and gate has been recorded and suggested as associated with a homestead (02-02-1/351). Both homestead sites are located in the Sprague River Valley. One unidentified cabin has also been located (02-01-292). This site consists of a cabin of hand hewn logs with sawed off ends and approximately four by five meters (13 x 16.4 feet) in size. Other material found includes round nails, old stovepipe, and metal and glass fragments.

Four dumps have been located on the Bly District (02-01-229, 02-01-235, 02-01-291, and 02-01-310). Also located were an earthen dam (02-01-285) and an old National Forest root pruning area boundary sign (02-01-234). An unnumbered isolated find reported by Steward (1980a) consists of a Klamath reservation boundary sign.
Table 27:  Fremont National Forest Historic Site and Isolated Find Types

<table>
<thead>
<tr>
<th>HISTORIC RESOURCE TYPE</th>
<th>Bly</th>
<th>Lakeview</th>
<th>Paisley</th>
<th>Silver Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logging-Lumber Related</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-railroad bed</td>
<td>1</td>
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<td>-railroad water tower</td>
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<td>-camp</td>
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<td>0</td>
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<td>2</td>
</tr>
<tr>
<td>Forest Service or CCC</td>
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</tr>
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<td>-fire lookout</td>
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</tr>
<tr>
<td>-guard station, administrative site, work center</td>
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<tr>
<td>Arboglyphs</td>
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<td>Homestead</td>
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<td>0</td>
</tr>
<tr>
<td>Homestead fence and gate</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cabins and other log or wood structures</td>
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<td>Irrigation ditch headgate</td>
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Table 27: - Continued

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<th>Paisley</th>
<th>Silver Lake</th>
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<td>Signs</td>
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<tr>
<td>- NF Boundary</td>
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<td>0</td>
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<tr>
<td>- Prevent fires</td>
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<td>0</td>
</tr>
<tr>
<td>- Center stock driveway</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>- Klamath Reservation Boundary</td>
<td>1</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Concrete foundations</td>
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<tr>
<td>Mining debris</td>
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</tr>
<tr>
<td>Isolated or unidentified debris</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Cave paintings</td>
<td>0</td>
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Lakeview Ranger District Historic Cultural Resources

Seventeen historic sites and/or isolated tinds have been identified for this overview on the Lakeview Ranger District. Three of these sites also have prehistoric components. The low number of these resources identified for the Lakeview District in comparison to the rest of the Forest and consideration of the district's location in one of the more populous areas in the region would suggest that other, as of yet unrecorded, resources exist on the district.

A logging camp site (02-02-Co-H-01), located near Crooked Creek, is recorded as being associated with the Mitchell and Davis Mill operated from 1925 to 1930. This site consists of single plank frame cabins, a collapsed barn and a dump. A lumber mill site (02-02-MI-H1) recorded as being from the 1930's is located in the Mill Flat area. Another lumber mill site (02-02-LE-H1) is located along Loveless Creek. Remains here include scattered debris and a wooden flume. A third lumber mill site (02-02-166) is located northwest of Big Valley and is identified as the Borland Mill.

Only one grazing related site (02-02-RO-P-01, 35 LK1408), a wooden trough at a spring, has been recorded for the Lakeview District. One site with mining debris (02-02-FI-H1) has been located and is estimated to date from the 1940's and 1950's.

One site with old "campground remnants" (02-02-041; 35LKL850) has been identified in the Little Lakes area. A site identified as a hunting camp (02-02-094, 35KL891) has also been located. This site includes an "adze log spring."
One fire lookout site (02-02-RW-H1) has been recorded and consists of a concrete foundation located in the Willow Point vicinity. This lookout is recorded as being used from about 1930 to 1950. A work center site (02-02-RW-H2) has been recorded at Vernon Springs and consists of a concrete foundation. The site is recorded as possibly being from the depression era. An administrative cabin site and guard station site (02-02-RW-H3) is recorded for the Willow Creek area. No cultural material was located at this known guard station location.

One of the more unique site types found on the Forest is a cave site with religious painting (02-02-FI-P4) located on the Lakeview Ranger District. Two paintings were found in a cave, one of a face with a crown of thorns and one depicting a crucifixion. The site was originally given a prehistoric designation; however, the paintings were done in the historic period by one or more of the native peoples still in the area.

One site (02-02-SE-H6) is an old cabin. This cabin was taken apart by vandals in 1981 and later reconstructed by Forest Service personnel. The cabin is a four walled structure of diagonally notched, hand-hewn log construction. No nails were used. The site also has a gravity water system and corral.

Two sites with historic debris (02-02-151 and 02-02-162) have also been recorded for the Big Valley area.
Eighty-six historic sites and/or isolated finds have been identified for this overview on the Paisley Ranger District (Appendix F). One of these is also the location of an archaeological site.

No logging or lumber related sites have been recorded for the Paisley Ranger District. These site types may be located on private lands within the district's boundaries. The most frequent type sites encountered on the district are arboglyphs, with sixty such sites having been recorded (Table 27). Many of these are in the Sycan Marsh-Winter Ridge area although they are found throughout the district, especially in aspen groves and mixed aspen-contier stands at springs, seeps, along waterways, in meadows and along forest-meadow and forest-sagebrush ecotones.

The earliest recorded arboglyph dates in the Sycan Marsh-Winter Ridge area of the District include a possible 1899 (02-03-TR-H9), 1900 (02-03-TR-H11), and (02-03-LN-H4), and 1901 (02-03-LN-H10). Names or initials or drawings associated with these dates include, respectively, "NUC" with a "running W" brand, "R" or "Con Cronin," and "YR (?) Dailey."

In the rest of the District, predominately the Upland Chewaucan River Valley and drainage, early dates include 1901 and 1903 found at several sites. Inscriptions found in aspens at these sites include "James Doherty" and/or "PM 1-22-03" and "Will Bishop, July 26th 1903" (02-03-CC-H4); "Geo Pike, July 11 01" (02-03-CC-H5); "(? ) Maiunan July 15, 1901 (?)" (02-03-CC-H19); "RN Phelps Aug 10 (?) 1901" (02-03-CC-H1); "PM 7:21:0" (02-03-CC-H22); and "1903 Will Kent" (02-03-TP-H2).
In addition to names, initials and dates, some arboglyph sites also have messages and drawings. W. L. Murphy apparently inscribed a particularly terse comment in 1924 with "No Feed Dry Year" (02-03-LN-H22). A perhaps somewhat exasperated Jimmy Fitzgerald may have inscribed a drawing of a donkey with the comments "compliments of Jimmy Fitzgerald, Get Up Your Donkey" (02-03-LN-H21). A particularly satisfied or perhaps wry herder may have written "Home Sweet Home" (02-03-LN-H21) and an enamored one, "Geo Hughes Love Lue" (02-03-LN-H10).

The Irish origin of many of the sheepherders with whom these arboglyph sites are probably associated is well apparent in such sites as 02-03-LN-H8 where a partially undecipherable message refers to the "IRA" (Irish Republican Army) and 02-03-LN-H10 where both J. Brennan and W. Murphy record their affiliation with Newmarket, Ireland.

Arboglyph sites with the name of Clarence Dailey are found throughout the Paisley Ranger District. One site (02-02-TR0H8) has a poetic message of relief, Dailey apparently inscribed after hearing of the surrender of Japan and the end of World War II. It reads as follows:

```
C Dailey
The War Is Over
The Japs Have Surrendered
This Day
Aug 14
1945
The Lights
Goes on All
Over The World
And The
Boys Can
Come Home All
Over The World.
```
Arboglyphs on the Paisley Ranger District are not limited to names, dates and messages. Many of them have drawings including an owl and perching bird (02-03-LN-H3), a human figure (02-03-LN-H6), a heart with the letter "L" inside (02-03-LN-H9), a heart with a face (02-03-LN-H11), a peacock and a naked woman (02-03-LN-H15), and a human figure with a six pointed star (02-03-R-H3). One site (02-03-LN-H24) has a complex drawing of a cabin with a chimney with smoke coming out with a mountain in the background and a creek in the foreground. This site also has a somewhat humorous drawing of a figure of a cowboy with an arrow through his hat.

Also located on the Paisley Ranger District are four sites apparently associated with grazing activity. These include a stock drive trail with a Center Stock Driveway sign (02-03-TR-H14), hand-hewn or fire gouged long water troughs of probably CCC origin at a spring (02-03-LN-H28), and a metal water trough (02-03-GM-IF13). A grazing camp (02-03-LG-H1) with wood plank and metal water troughs, stove remains, a 1936 California license plate, and a developed box spring is located in a stringer to the east of the Sycan Marsh.

Two Forest Service guard stations built or rebuilt by CCC work crews are located on the Paisley District and include Currier Guard Station (02-03-CCC-DE1; 02-03-TR-H12) and Ingram Guard Station (02-03-CCC-DE2). Currier Guard Station also has an old ZX cabin and corrals. Another CCC project on the District is the Happy Camp Campground (02-03-CCC-DE3).

Three hunting camps (02-03-TR-H5, 02-03-TN-H2, and 02-03-LN-H12) and one dump site (02-03-CC-H8) have been identified on the District. One homestead site (02-03-SW-H1) and three cabins and other log or wood structures (02-03-TN-H1,
Dl-12, and 35LK227). These four sites are all located in the Chewaucan River drainage, except for DL-12 which is located near Cox Flat. Only 35LK227, recorded as part of the Coffeepot Flat Project, has a structure still standing and substantially complete.

Also located on the District is a site consisting of an old road bed and telephone line (02-03-TN-H3). This site is in the same general Long Hollow location as a mountain road from Paisley to Lakeview recorded by the original land surveys in the 1880's and marked on microfiche maps at Lakeview District BLM (Silvermoon 1982a:2). The telephone line is apparently part of the system connecting lookouts and guard stations which were built during the early years of the Forest. Another portion of this phone line is recorded as site 02-03-CB-H1.

Another old road bed site (02-03-TR-H6) is located crossing Currier Creek. An irrigation headgate and ditch, probably associated with the Coffeepot Flat rehabilitation project, is recorded as site 02-03-TN-IF31.

Six sites or isolated finds with signs have been recorded. One site (02-03-CB-H2, 35LK1337) is recorded as a "Center Stock Driveway" sign and is associated with metal wire and possible fence posts. This site is probably part of the Chewaucan Stock Driveway established in 1927. One isolated find (02-03-CC-IF16) is an old "prevent fires" Forest Service sign with "Norris Hemmingey (?) June 20, 1914" and "Charles Pike, July 10, 1914" scratched into it. Three isolated finds consist of old National Forest boundary signs of block resist letters on a painted black background (02-03-CC-IF1, 02-02-CC-IF2, and 02-03-CC-IF3). Another isolated find (02-03-PP-IF12) is another National
Forest boundary sign with dates of 1916 and 1920 scratched into it. These boundary signs are apparently of the type which came into use in 1916 to replace the original cloth boundary signs.

Silver Lake Ranger District Historic Cultural Resources

Thirty-four historic sites and/or isolated finds have been identified for this overview on the Silver Lake Ranger District. Two of these are also located at archaeological sites and have been given permanent numbers by SHPO.

Two logging railroad sites have been identified in the northern portions of the District and include a logging spur identified as that of the Shevlin-Hixon Company (02-04-027) and a seven mile long section of a logging railroad bed (02-04-066 or R-2). A concrete pad in the Antelope Flat area is identified as the site of a logging camp (02-04-DT-H1).

An 8.3 kilometer (5.0 mile) long stock drive trail with blazes (02-04-RX-13H) is identified as the Winkelman Trail and suggested as the possible route used by Fremont's party in their descent from Winter Ridge to Summer Lake. Another trail (02-04-PT-H7) parallels Winter Ridge for several miles and is recorded as being "old."

Four water trough sites have been located on the district including hand hewn log troughs at unnumbered sites at Benny Spring, Crooked Creek Springs, and Cronin Well, and log and plank troughs with aspens with arboglyphs (02-04-PT-H1). These last two sites may be the same site recorded twice.
A grazing camp is located at Sherlock Well (02-04-SK-3H) and consists of a
developed well, plank water troughs, and a dump. A grazing camp possibly
associated with cattle grazing is located at Bottle Spring (02-04-016) and
consists of a developed spring, log and plank water troughs, an old pot belly
stove, a corral, a cabin and arboglyphs including one with a date of 1890.

Thirteen arboglyphs (02-04-PT-H1 and 02-04-016) have been assigned to another
type. The earliest arboglyph date recorded is 1890 (02-04-016). Other early
dates include 1894 (02-04-PT-H6) and 1902 (02-04-081 or 35LK913, 02-04-RX-6H,
and 02-04-PT-H2). One arboglyph site (02-04-067 or D-1) is the only one on the
Forest with a arboglyph recorded on a ponderosa pine.

A fire lookout site (02-04-047) is located at McCarty butte and has material
including concrete corner posts for the structure, tin cans, and glass. An
administrative cabin site (02-04-033 or 35LK1287) is recorded for Thompson
Valley. No material is currently surface visible at this site.

Six sites with cabins and other log or wood structures and not classified into
another type are located on the District. These include a log structure and
dump (02-04-Sk-10H), a cabin at the edge of a former lake (02-04-MW-2); an
"outhouse" with associated cans (02-04-CL-H3), and a log structure
(02-04-087). One site (02-04-068) is identified as a possible homestead or CCC
camp and consists of a log structure and a trash dump. Another site
(02-04-010) is identified as the location for the Shanahan Still and a cabin in
the 1930's.
Minor et al (1979:208) provide a summary of the history of Euro-American activity in south-central Oregon which is appropriate to and summarizes the main features of the history of the Fremont National Forest area. This summary leads off by pointing out that south-central Oregon History:

... has within it many of the familiar elements of the history of the American West. From the wandering explorations of fur seekers in the 1820's to the shattered dreams of homesteaders early in the twentieth century, the region has drawn a familiar cast of characters. Indians (sic), fur seekers, government explorers, scientists, soldiers, overland emigrants, cattle drovers and shepherders, settlers, shopkeepers, loggers and lumbermen and miners -- all have played parts in the development of the region.

The limited population and the vastness of the land have played an important part in shaping the region's history. In the Klamath Basin, better water and more forested, the course and tempo of development have been more intense. In Lake County the difficulties of transportation for decades discouraged many forms of economic enterprise beyond the raising of livestock. The distances between resources and markets were often more than the "traffic would bear." The obstacles of determined Indians (sic), sandy and rutted roads, lack of water (except in a few lush and very productive areas), cost of irrigation systems and the holding of exclusive tracts by land companies also shaped the course of human events in the region.
For much of its first seventy years of settlement by Americans (sic) south-central Oregon was "out back of beyond." That insularity and isolation broke down but slowly. The arrival of rail connections in the Klamath Basin in 1909 and into the Goose Lake Valley in 1912 stimulated the changes. The construction of highways after the creation of Oregon's Highway Commission in 1917 helped even more. Yet, the untoward experiences of homesteaders on the High Desert, the often disillusioned purchasers of the Oregon Valley Land Company's holdings and the harsh realities of life east of the Cascades acted in many instances as deterrent to development. Another important factor too, was the millions of acres in the region owned and managed by the Federal Government. The challenges of complying with Government guidelines on timber sales, mineral claims, geothermal site exploration leases, grazing acts, erosion control programs and other management activities all became increasingly to be factors in the course of the history of the area (Minor et al 1979:208).

The Fremont National Forest, organized in 1908, has on lands under its administrations a number of historic cultural resources which reflect many of the themes and actors in the history of the area. These include the numerous campsites of livestock herders with arboglyphs and/or log and wood plank watering troughs, especially abundant on the Paisley Ranger District, and to a lesser extent, on the Bly and Lakeview Ranger Districts. Also on the Forest, particularly on the Bly and Lakeview Ranger Districts, and in the north part of the Silver Lake Ranger District, may be found sites associated with loggers and lumbermen including logging railroads, logging camps, and lumber mills.

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The activities of the Fremont National Forest and the numerous projects undertaken during the Great Depression of the 1930's are reflected by many existing building and facilities still in use including parts of the Bly, Lakeview, and Paisley Ranger District Compounds and guard stations, campgrounds and watering troughs found throughout the Forest. Evidence of early Forest Service and CCC activity is also found in the remains of fire lookouts, work centers, and phone lines.

Evidence of possible homesteads are also found on the Forest as are a variety of other historic uses including mining, hunting, trash disposal, irrigation, and religious activity.
The Fremont National Forest is located in south-central Oregon and covers about 1.2 million acres in Lake, Klamath, and Deschutes Counties. This area is sparsely inhabited and has a stable economy based on ranching and related agriculture; forestry, lumber and wood products manufacturing; and tourism and recreation.

The Forest is located along the periphery of the northwestern Great Basin. Topography ranges from flat to gently rolling lava plateaus to some steep highly dissected landforms. The climate is characterized by light precipitation, abundant sunshine, and extreme temperature ranges. Elevations of the Forest range from about 4,800 to 8,300 feet above sea level. Vegetation includes ponderosa pine, lodgepole pine, and mixed conifer forest types; an open transitional juniper woodland; and a shrub-steppe zone of sagebrush and grasses. About 600 miles of perennial streams and 3,500 miles of intermittent streams are found on the Forest.

From about 15,000 to 7,000 years ago the prehistoric environment of the Forest's area showed a change from late Pleistocene boreal forests and faunal assemblages to floral and faunal assemblages similar to that found today. During this time the climate became warmer. Glaciated and snow covered areas and pluvial lakes on the Forest also disappeared. From 7,000 to 4,000 years ago the climate shifted to a regime of less effective moisture, returning to more modern conditions after that time. Generally, the climatic conditions of the last 4,000 years show the broad wet/dry climatic fluctuations.
characteristic of the present day. Euro-American interference in pristine natural communities has altered them significantly, changing habitats and species composition.

The Forest is located in a region which appears, from Fort Rock Basin evidence, to have been inhabited by paleo-big game hunters as early as 13,200 years ago. Within the confines of the Forest itself, the earliest evidence for human occupation is in the Sycan Marsh area. Here evidence of the people of the Western Pluvial Lakes Tradition has been found. Oriented towards a lake environment, these people had a more diversified economy than the big game hunting peoples from whom they may have been descended. The Sycan Marsh area appears to represent a sedentary or semisedentary, lake-marsh oriented settlement and subsistence system, evolving from the Western Pluvial Lakes Tradition and continuing to the Klamath who used the area in ethnohistoric times.

Elsewhere on the Forest the projectile point evidence suggests use by prehistoric peoples beginning about 8,000 to 9,500 years ago. Five areas with relatively greater site diversity than the rest of the Forest have been identified: Sycan Marsh, Yainax Butte, western Goose Lake Valley and upland Big Valley, and the upland Chewaucan Valley. From about 8,000 years ago on the archaeological record of the Great Basin becomes more complex as people made specialized adaptations to locally available resources. These adaptations have been subsumed under the Desert Culture or the Great Basin Archaic concepts and in the area of the Forest appear to have continued into historic times.
At the time of their contact with Euro-Americans, ethnohistoric records show four native peoples occupying this area: the upland Klamath, the Kokiwas (people of the far out country) Modoc tribelet, the Kidutodado or Surprise Valley band of Northern Paiute, and the Yapatika or Yahuskin band of Northern Paiute. The Achumawi of northeastern California also appear to have used some portions of the Forest. The available ethnohistoric evidence indicates that these native peoples shared many of the same basic cultural traits, each following a semisedentary subsistence pattern. Settlements tended to be seasonal although the Klamath and Modoc settlements tended to be more permanent than the other native peoples of this area. The Northern Paiute peoples emphasized hunting and seed gathering for subsistence while the Klamath had a more specialized subsistence pattern focused on riverine and marsh resources such as wokas and fish. The Modoc has a more generalized pattern including the exploitation of dryland root crops and the hunting of game.

Native populations were decimated by diseases introduced by Euro-Americans. With the arrival of Euro-American settlers and their domesticated plants and animals, drastic changes occurred in the native lifeways. Native biotic communities were destroyed or altered to the extent that the traditional way of life was no longer possible. While many native peoples resisted the intrusions of Euro-Americans into their homeland, the combination of the superior military strength of the Euro-Americans and the means of subsistence resulted in the subjugation of the native peoples in this area.

Euro-American exploration of the Forest's area began in the 1820's and emigrant trains began passing through in the 1840's. Euro-American settlement began in earnest after the Civil War, as did subjugation of native peoples.
The early years of Euro-American settlement involved a cast of characters familiar in the history of the American west, trappers, explorers, soldiers, scientists, emmigrants, cattle drovers and shepherders, settlers, shopkepers, loggers, and miners. During these early years this area was relatively isolated with railroads and highways not ariving until around World War I. A boom-bust growth pattern has characterized much of the historic period, perhaps because settlers were attracted by the beauty and opportunities offered by the region but were unprepared for the harsh realities of life east of the Cascades.

Today, the remains of prehistoric, ethnohistoric native peoples, and early Euro-Americans are found throughout the Fremont National Forest. While specific cultural manifestations of these various peoples are different, in many ways they used the Forest for similar purposes, hunting; procurement of mineral resources; summer and winter habitation; gathering of plant foods; and the peace, solitude, and beauty so often associated with human spiritual rejuvenation.

**Research Directions**

This section presents research questions and approaches which can provide a framework for guiding future archaeological and historical investigations on the Fremont National Forest. The organization for the following sections was derived from that outlined by Minor, Beckham and Toepel (1982). Three areas provide a framework for discussion, archaeological, ethnohistorical and historical research. A number of museum and library research sources have been identified by Minor, Beckham and Toepel (1979:4-7) for an area encompassing the Fremont National Forest.
The Fremont National Forest is located along the periphery of the northwestern portions of the Great Basin. The Forest is located in an upland region which rises from the Great Basin to become, further west, the Cascade Range. The Forest can be seen as a transitional region from the desert-like Great Basin to the more lush Cascades.

Site specific work in the areas adjacent to the Forest has established a great antiquity for human occupation in the area. In recent years, work has been conducted with a more regional focus and with research designs moving from archaeological objectives of mere chronology to identifying prehistoric settlement and subsistence patterns. This shift reflects that taken by North American archaeology during the last few decades. With this shift has come more explicit recognition of the research aims of North American archaeology: 1) defining cultural chronology, 2) reconstructing past lifeways, and 3) explaining cultural process (Binford 1968).

Defining Cultural Chronology

The cultural chronology outlined for the Fremont National Forest area and the chronological evidence presented for the Forest itself provides a means to order the archaeological record as it is presently known in the region. Development of more specific cultural chronology for the Forest and possible subsequent refinement of the regional, northwestern Great Basin cultural chronology will require that several research objectives be addressed as discussed below.
Antiquity of Human Occupation

Earliest evidence of human occupation of the Fremont National Forest is based on the cross dating of projectile point types and yields a temporal range of from 8,000 to 11,000 years ago for the Sycan Marsh area. Evidence from elsewhere on the Forest yields a temporal range from 8,000 to 9,500 years ago. The Fort Rock Basin, adjacent to the Forest, has yielded evidence suggesting occupation as early as 13,200 years ago. What explanation can be suggested for the apparent lag of up to perhaps five thousand years in the use by prehistoric peoples of these adjacent areas?

The apparent pattern of use of the Fremont National Forest area by early peoples may reflect a "settling-in" process as migratory big game hunters, relatively new to the area, increased in numbers, familiarized themselves with the rich pluvial lake environments and became a lake-marsh adapted people. As these people responded to a changing post-glacial environment, they may have familiarized themselves with other areas, particularly where deglaciation improved access and availed themselves of other adaptive opportunities.

Investigating this suggested explanation for the chronological evidence from the Forest requires a comprehensive research design incorporating not only presently known sites but also systematic archaeological surveys. Design components of these surveys need to incorporate the distribution and ages of geomorphic surfaces.
Defining Archaeological Components and Phases

Willey and Phillips (1958) set forth a framework for integrating chronological information on a regional scale which has been adopted by North American archaeologists. They define a phase as:

An archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures . . . spatially limited to the order of magnitude of a locality or region and chronologically limited to a relatively brief interval of time (Willey and Phillips 1958:22).

Phases are manifested at particular archaeological sites by what Willey and Phillips (1958:21-22) term a component. Thomas (1982:231) defines a component as a "culturally homogenous stratigraphic unit within a single site." A component represents a community as a band, neighborhood or village while a phase represents a "society" (Willey and Phillips 1958:49).

Definition of archaeological components and phases in the region in general and on the Forest, in particular, is complicated due to a general lack of sites with subsurface components of much depth and the presence of numerous sites with chronologically mixed material. Also, few sites on the Fremont National Forest have been archaeologically tested for depth, some sites with potential depth have been vandalized, and most surface sites have been stripped of temporally diagnostic projectile points by artifact collectors.
Identification of archaeological components and phases on the Forest requires a more detailed examination of sites found including the determination and selected testing of sites with depth of cultural material. This research needs to be done with a regional design incorporating current knowledge concerning nearby areas including the Fort Rock Basin (Bedwell 1973), Warner Valley (Weide 1968, 1974), Surprise Valley (O'Connell 1975), and the Goose Lake Valley (Hughes 1972, 1977).

Refinement of Projectile Point Typologies

Projectile points are the most temporally sensitive artifacts recovered from archaeological sites in western North America. A fairly extensive range of types have been identified for the Fremont National Forest area and a chronological framework established for them. Some of the projectile points found on the Forest have been identified as to type. Others have not been so identified. Further researching concerning the points already found and those to be located as the result of future field work will aid in placing the Forest in its temporal and regional context. Particular attention should be directed towards possible non-Great Basin types which may be identified by an analysis of untyped points.

Development of Obsidian Hydration Dating

Archaeologists working in the region of the Fremont National Forest have in recent years begun to supplement radiocarbon dating methods with the use of obsidian hydration dating methods. This method has been applied by Layton (1972a, 1972b) in the northwestern Great Basin and Aikens and Minor (1978) in
the Klamath Basin. It is a relative dating method based on the fact that obsidian hydrates or absorbs water to a saturation point along exposed surfaces. The longer an artifact surface has been exposed, the more water it will have absorbed.

Use of obsidian hydration dating methods is complicated by a number of factors. Hydration rates are influenced by varying temperatures and moisture availability as well as the actual chemical composition of the obsidian involved. In addition, the date obtained from an artifact may reflect its reuse at a time significantly later than its initial manufacture. Further research and refinement of methods may alleviate the effects of these factors.

Given the restriction involved with obsidian hydration dating, it can best be used in the initial stages of developing a cultural chronology for the Forest particularly in assessing the integrity of stratified sites, testing for artifact reuse, and defining assemblages. In addition, it may be possible to use the method at small surface sites to determine the relative length of their temporal use.

Reconstructing Past Lifeways

Reconstruction of past lifeways requires a shift in focus from individual artifacts to the contexts in which they are found, from artifacts to inclusion of nonartifactual contents of archaeological sites, and from examination of single sites to a regional orientation which will encompass sites representing the entire range of activities carried out by prehistoric peoples. In
addition, reconstruction of past lifeways carries with it a shift from viewing culture as that which people share to viewing culture as systems which people have developed so that their societies are equipped to adapt to their social and natural environments.

Reconstruction of past lifeways requires examination of a wide range of archaeological data so that inferences can be made concerning the technology, economy and settlement patterns of prehistoric peoples and the environment in which they lived. Research questions and approaches needed to carry out this examination are discussed below.

Paleoenvironmental Reconstruction

One of the most critical components in reconstructing past lifeways is research into the nature of environment during prehistoric times and the changes that environment underwent through time. Several investigative avenues are available for this effort.

Palynology (pollen analysis) can aid in the discernment of long term climatic trends. Research in the areas adjacent to the Forest, beginning with Hansen's (1947a, 1947b) pioneering work, has enabled a fairly general hypothetical outline of prehistoric environmental change for the Forest area to be presented in this overview. Further, Forest-specific research is needed to test and refine this hypothetical outline. Such research could include incorporation of pollen analysis in any site specific research or evaluations which may take place as well as research which is not site specific.
Paralleling palynological research, as a means of investigating prehistoric environmental changes on the Forest, is research into the formation and change of geomorphological features of the Forest. In particular, attention needs to be directed towards determining the extent and duration of glaciation; the life cycles of lakes, marshes, and meadows; and the cycles of soil aggradation and degradation, especially during altithermal times.

Site-specific environmental information can be obtained by flotation analysis. This analysis involves examination of plant microfossils which float to the surface when soil samples from archaeological sites are separated in water (Struever 1968). These botanical remains can yield information on the types of plants found in the immediate area during the past, the plants utilized by prehistoric occupation, and perhaps the seasonality of site occupation.

Information concerning environmental conditions at the time of Euro-American contact can be obtained from an examination of records of the original Government Land Office (GLO) surveys of the area which took place during the early years of Euro-American settlement. These records are available on microfiche at the Bureau of Land Management in Lakeview. In addition, information concerning environmental conditions during the early contact years and time of Euro-American settlement might be obtained by an examination of early explorer's journals, letters, and other records of early Euro-American settlers, many of whom have descendants still living in the area.
Resource Availability Studies

An examination of the nature and distribution of subsistence resources in the Forest's natural environment can help establish the geographic and seasonal availability of faunal and floral resources. This will aid in gaining an understanding of prehistoric subsistence patterns, although of course, environmental change variables need to be considered in extending resource availability studies temporally.

Some progress in resource availability studies on the Forest has been made with Styskel's (1977:56-57) description of the flora and fauna of the Coffeepot Flat vicinity. Additional descriptions are needed for other areas of the Forest. Also, game trails and summer and winter game ranges need to be identified as well as microclimates which might affect the availability of subsistence resources. Obsidian and crypto-crystalline silicate lithic sources also need to be identified.

Delineating Settlement and Subsistence Patterns

A number of settlement and subsistence models, as discussed earlier, are available for interpretation of the nature of activities carried out at archaeological sites on the Forest. These models also contain various site typologies which might be used to refine the typology presented in the Overview.
In delineating settlement and subsistence patterns represented by the Forest's archaeological record it is critical that sites be reexamined so that a more detailed site typology can be developed which would include distinctions between permanent, seasonal and temporary habitation sites and single and multipurpose task sites. In addition, this typology needs to include consideration of environmental settings of the sites.

Although a large number of sites have been located on the Forest, this sample is the result primarily of surveys done in conjunction with ground disturbing projects. The environmental settings of these project areas need to be compared with the total range of environmental settings on the Forest in order to assess how environmentally representative is the sample of Forest sites. The scientific reliability of the research designs for these project based surveys also needs to be assessed. Additional survey work may be required as a result of these assessments.

Settlement and subsistence models are by their nature regional models; as such, it may also be necessary in delineating settlement and subsistence patterns reflected by the Forest's archaeological record to integrate research done in adjacent areas.

**Determination of Site Activities**

In reconstructing past lifeways it is necessary to determine the activities carried out at different localities by the prehistoric hunter gatherer peoples who used the Forest. Current ethnographic and archaeological evidence
indicates that the activities of these peoples varied through space and time. Evidence for making inferences about these activities can be found in stone tool assemblages, cultural features, and faunal and floral remains.

Stone tool or lithic assemblages are the most common form of archaeological evidence found on the Forest. A functional analysis of lithic assemblages on an intra- and inter-site level will aid in determining site activities. As a first step diagnostic artifacts recovered by cultural resource personnel in accordance with the Forest's collections policy need to be analyzed. Further controlled surface samples need to be obtained from a representative sample of sites found on the Forest. Because of years of widespread artifact collecting by amateurs and hobbyists, it may be necessary to focus lithic analysis on casual flake tools as was done for the Coffeepot Flat area by Aikens and Minor (1977:1-2).

Cultural features found at archaeological sites offer additional evidence for determining site activities. On the Fremont a number of sites are recorded as having rock features. More careful description of these features is needed to determine activities carried out at these sites. Other cultural features include rock art and depressions attributed to housepits.

Faunal and floral remains provide the most direct evidence for the subsistence practices of prehistoric peoples. Because of the relatively semiarid climate of the Forest, it is likely that organic materials may have been preserved at archaeological sites, particularly those with vertical deposition. It is crucial that sites with deposition be identified, tested, and protected.
Explaining Cultural Process

The explanation of cultural process has begun to be a focus of research in areas adjacent to the Forest in recent years. This explanation is concerned with "understanding the dynamic cause-and-effect relationship of how prehistoric cultures evolved relative to one another and how these cultures changed with respect to the natural environment" (Minor et al 1982:51) attributed to Binford (1968:14-16). Among the objectives of archaeological research directed toward delineating cultural processes are the following:

Cultural Continuity and Change

At the time of historic contact the Fremont National Forest was being utilized by the Klamath, the Modoc, the Yahuskin and Kidutodado Northern Paiute, and the Achumawi. Archaeological and linguistic evidence suggests that the distribution of these peoples at the time of historic contact was only a relatively recent configuration of perhaps six hundred to a thousand years. A number of researchers have suggested continuity between the basic artifact forms and settlement and subsistence practices reflected by the archaeological record over much of the northwestern Great Basin and the ethnographic Klamath. Indeed, it may be speculated that the Klamath ancestral groups may extend back to the people of the Western Pluvial Lakes tradition.

A number of research questions concerning cultural continuity and change in the Forest area need to be addressed. How far back in time can be the direct ancestors of the Klamath be traced? Are these people descended from the late
glacial inhabitants of the area? When, how and why did Klamath ancestral groups abandon parts of the northwestern Great Basin? Was there an ebb and flow of these people from and back into the northwestern Great Basin? What is the relationship of this hypothetical movement to trend towards climatic regimes of less effective moisture during the mid-Holocene? When did the Northern Paiute peoples come into the area? Was their interaction with the Klamath, or their ancestors, one of peaceful coexistence or conflict?

Stylistic or functional changes in material culture and changes in subsistence strategies reflected by the archaeological records may indicate prehistoric population movements. Identifying these changes requires a closer examination of the sites found on the Forest.

Changes in Prehistoric Subsistence Strategies

Ethnographic evidence indicates that the Klamath, Modoc, Achumawi, and Northern Paiute differed in the subsistence strategies they followed. Hypotheses concerning population movements of the ancestral Klamath, such as those posted by O'Connell (1975:50) and Petigrew (1980:64-65), are based primarily on house type evidence, site locations at marshes and lakes subsistence inferences drawn from artifact types and temporal changes in floral and faunal remains.

Determining subsistence strategies reflected by the archaeological record will require attention to the recovery of floral and faunal remains from archaeological sites and determination of past environments. These research directions have been discussed previously.
Development of Trade Networks

Ethnographic evidence indicates that the Klamath were directly involved in the Chinook trading network. Archaeological evidence also indicates that obsidian from the vicinity of the Forest was perhaps traded to adjacent regions. Indeed Hughes (1977:74-76) suggests that the Goose Lake area and in particular the Burrell Site (CA-Mod-293), may have been inhabited by peoples whose economy included the manufacture of large obsidian blades "for export to groups on the northwest coast of California." A similar situation may have existed elsewhere in the Forest's vicinity, particularly near the Tucker Hill, Yamsey Mountain and Frog Mountain where obsidian deposits are known to be found.

Trace element analysis of obsidian, through which the original source of obsidian can be identified, offers perhaps the best means to study the development of trade networks. Artifacts recovered from the Forest need to be subjected to trace element analysis. In addition, where this has not yet been done, trace element analysis of obsidian deposits found on the Forest need to be done and the results made available to researchers in other areas.

Changes in Prehistoric Social Organization

In many areas of North America the expansion of trade networks and the rise of social stratification have been related to one another. Some evidence has previously been discussed which suggests that the integration of the Klamath with the Chinook trading network during the years prior to Euro-American contact may have led to increased social stratification among these peoples.
Burial patterns are also taken as an indicator of social stratification. If found on the Forest, analysis of burials may aid in determining changes in prehistoric social organization. Further, changes in mortuary practices, particularly whether burial or cremation occurred, may also aid in the determination.

Archaeological evidence which has been taken to indicate prehistoric population movements may also indicate in situ changes in social organization, particularly where housepit type structures were replaced by wickiup type structures. In general, though, current knowledge of the sites found on the Forest is insufficient to suggest what changes in social organization they may reflect.

ETHNOHISTORICAL RESEARCH QUESTIONS AND APPROACHES

Understanding the ways in which native peoples used the area of the Forest during the historic period can be aided by ethnohistoric research concerned with the distribution of native peoples, interregional contacts, religious-spiritual activities, place names, oral history, the acquisition of the horse, the impact of Euro-American trade, the acculturation process, the use of the Klamath Reservation, and visual records. For the Klamath, Stern's (1966) work is an important summary source which has addressed many of these questions. Works concerning other peoples are less comprehensive although Ray (1963) and Kelly (1932) concern much useful information on the Modoc and Kidutodado Northern Paiute, respectively. Primary sources include field notes of ethnographers and linguists who have worked in this area, the records of the
Klamath Reservation, and numerous historical material in published and manuscript forms, many of which are listed in the historic bibliography in Minor et al (1979). Additionally, archaeological work on the Forest may reveal sites with historic components which may shed light on the use of the Forest by native peoples during the historic era.

Distribution of Native Peoples

A general outline of the distributions of native peoples in the Forest's area has been presented in this overview. Additionally, it has also been suggested that the distributions at contact time represent only an isolated static instance in what can be viewed as a dynamic changing distribution over time. One area which deserves attention is the reported instances of overlapping territory between the Klamath and Yahuskin Northern Paiute in the Sycan Marsh, Chewaucan Marsh and Upper Chewaucan River Valley areas. This overlap may be reflected in the archaeological record.

Interregional Contacts

Questions concerning the interregional contacts among native peoples require examination of the extent of contact between groups and the mechanisms by which that contact was sustained. These questions include determining the extent of intergroup contact, whether through trade, travel or intermarriage among the peoples inhabiting the Forest's area and those living elsewhere as well as determining the ways in which intergroup relations changed as a result of historic contact with Euro-Americans.
Religious-Spiritual Activities

The religious and spiritual practice of the Klamath, Modoc, Northern Paiute and Achumawi have been examined in this overview. It is important that these practices be related to the archaeological resources found on the Forest in order to determine which if any sites have a religious or spiritual significance to native peoples. In addition, the manner in which religious views and practices affected the way native peoples perceived and used their natural environment needs to be examined.

In order to interpret and protect significant sites and resources associated with native religious and spiritual practices, it is necessary to gain an understanding of those practices. Such interpretation and protection is required by the Indian Religious Freedom Act of 1978. A study focusing on these questions would aid in fulfilling the legal obligations of this act. Examples of such studies include Miller's (1975) study concerning native peoples of northwestern California and Beckham, Toepel and Minor's (1982) study concerning the Siuslaw National Forest.

Place Names

A study of place names derived from native terms may yield information useful in locating areas of religious, spiritual, mythical and historic importance to native peoples. Many of the ethnographic works concerning peoples of the Forest's area contain discussions of place names. McArthur (1983) is a fairly comprehensive source for place names and their origin in Oregon. Additional
ethnogeographic information might be found in ethnographic field notes, archives connected with the Klamath Reservation and as a result of oral history research.

Oral Histories of Native Peoples

Numerous descendants of the native peoples who originally used the Forest are still living in the general area. Oral historic research with these people may yield information concerning pre and postcontact use of the Forest. Such a study will also aid in identifying areas of cultural or religious significance to native peoples.

Acquisition of the Horse

A number of references to the acquisition of horses by native peoples can be found in the ethnographic record and the records of early explorers in the region. Acquisition of the horse by various peoples is also apparently related to the fluctuating state of territorial boundaries and intergroup conflict just prior to and after Euro-American contact. Questions concerning native acquisition of the horse include determining when various peoples acquired the animal and how that acquisition affected their mobility and lifeways. For the Northern Paiute in particular, a question to be examined concerns whether the horse was initially used as a means of transportation or as a source of food and, if the latter, what factors were involved in the shift to the former use. In addition to ethnographic and historic sources, research concerning acquisition of the horse might be aided by examination of faunal material recovered form archaeological sites of the contact period.
Euro-American Trade Impacts

Research concerning the effects Euro-American trade had on the culture of the native peoples in the Forest's area involves a review of historic literature including that of the Hudson Bay Company and investigations of archaeological sites with historic components. A number of questions can be addressed concerning the types, origins and method of adoption of trade items by native peoples. An identification and examination of archaeological sites with historic components on the Forest may aid in comparisons of the impact of Euro-American trade on the different peoples of the area.

Acculturation

Native peoples of the Forest's area were acculturated to the dominant Euro-American culture to varying degrees and divergent directions (Silvermoon 1982:51-52). This acculturation process has been examined by different ethnographers including the excellent work on the Klamath by Stern (1966). Archaeological sites with historic components on the Forest might yield information concerning this process, particularly sites located in the Upper Sprague River area and the Deadman Canyon area. The former area was the territory during the Reservation years of the more traditional Upland Klamath tribelet, the Modoc, Yahuskin Northern Paiute and the Achumawi. The latter area was used by off-reservation Northern Paiute in the late nineteenth century. Acculturation research also involves an examination of historic records, reservation records, government documents, diaries of early settlers and early newspapers.
HISTORICAL RESEARCH QUESTIONS AND APPROACHES

Historical research directions suggested for the Fremont National Forest involved historical archaeology, oral history and the examination of documentary material existing for the general area. Specific historical archaeological tasks include the development of a site typology, an evaluation of sites and the development of a dendrochronological (tree ring dating) sequence for the Forest. Oral historic research is of critical importance to be undertaken in light of the mortality of informants. Documentary material which can be examined includes journals, diaries, personal letters, business accounts, photographs, scrapbooks, published accounts of local writers, court records, vital statistics, deed records, newspaper files, government documents and reservation records.

Place Names

A study of historic place names, best done in conjunction with a study of native place names, can aid in identifying areas of historic importance and developing a more detailed history of the Forest. Place name research in Oregon has been carried out by Lewis L. and Lewis A. McArthur over the last sixty years including publication of the new 1983 edition of Oregon Geographic Names. In addition, Professor William Loy of the University of Oregon has embarked on a place name project which will eventually include the entire state (Minor et al 1982:126). Place name research involves a compilation of all place names, relationships between Euro-American and native peoples' place names, and whether a place name typology can be developed.
Homesteading and Subsistence Living

In the early years of the Fremont National Forest, a number of people lived within the Forest's boundaries, making a living as farmers, stock raisers, trappers, miners and loggers. Research questions concerning homesteading and subsistence living on the Forest can focus on a number of topics including the following:

1. When did Euro-Americans begin to settle in the Forest? What factors influenced this settlement? When and why did these permanent residents abandon their homes?

2. How did these people make their living and to what extent were they self-reliant? What was the nature of their lifeway? Did it differ from people who chose to live in lower elevation basins?

Agriculture and Ranching

The large number of arboglyph sites located on the Fremont National Forest provide a data base for reconstructing the lifeways of early shepherders and cattle drovers. Analysis of these sites, including text excavations at selected sites, archival research focusing on grazing administration records, oral history research, and examination of the wide variety of historic documentation of early settlers will aid in this effort. Among the research questions which may be addressed include the following:
1. What was the pattern of use of the Forest by early shepherders and cattle drovers? Were any of these people year-round residents of the Forest? What was their lifeway? What factors explain the nationalities represented by arboglyph names, specifically were there territorial differences between Irish and Basque shepherders?

2. Can an arboglyph typology be developed? What are the artistic or aesthetic features of these arboglyphs? With what other cultural material are arboglyphs associated?

Logging and Lumbering

Logging and lumber related sites found on the Forest offer research potential for understanding early forest and lumber practices. Archival research, historical archaeology and oral histories may aid in this effort. It may also be possible, through the use of archival research, field surveys and dendrochronology (tree ring dating) to identify early timber sale areas and/or logging locations on the Forest. The Bly Ranger District offers particular potential for researching early railroad logging. Among the research questions which may be addressed include the following:

1. When did logging activity begin to occur on the Forest? When did logging and lumbering activity for export begin to occur? What factors influenced early logging activity and the location of mills? Did practices change with the establishment of the Fremont National Forest and, if so, how?

2. What was the lifeway of early loggers in the Forest? How did the development of transportation networks affect this lifeway and logging practices?
Mining

While mining activity on areas of the Forest, particularly south of Paisley and east of Goose Lake, is indicated in the historic record, only one site with mining debris has been located on the Forest and this site is estimated to date only from about 1940 to 1950. Archival research, oral histories and further field work may aid in identifying areas and specific sites where mining activity occurred. Similar research questions to those for other natural resource based activity in the Forest can be addressed concerning mining. These include questions concerning the time range for such activity, the lifeways of the people involved and the factors affecting the activity.

Transportation and Communication

The development of transportation and communication systems in the Forest's area had a significant effect on settlement and economic activity. Early exploration and road building activity laid the framework for later development. Among the research questions relating to this area are the following:

1. What is the location of the various early roads identified in the historic record? How were these built and by whom? What was their importance to early activity in the area?

2. How did road development in the early twentieth century affect economic activity on the Forest and the activities of early Forest Service personnel? What is the relationship of early roads to trails used by native peoples, stock grazers and Forest Service personnel?
3. What were the early means of communication on the Forest? How have communications systems evolved and how did these changes affect economic activity on the Fremont?

The Nature of Community and Folklore

Lifestyles and values of "non-native traditional or long-term residents" of the Forest's area have been previously examined (Silvermoon 1982:44-46). A more detailed examination of these characteristics needs to focus on the relationship of these people to the Forest itself. Among the research questions which can be addressed include the following:

1. How did early settlers view the Forest and what importance did it have for their lives? Were and are areas of the Forest identified with particular families or kin groups? What was the nature of community for persons who made their homes within the Forest's boundaries? How did they relate to persons from other areas?

2. Does the area in which the Forest is located have a recognizable, regional folklore? How does the Forest fit into this folklore?

The National Forest

Historic cultural resources on the Fremont National Forest include those associated with the Forest's early years and depression era work programs. Analysis of these resources, archival and documentary research, and oral
histories will aid in understanding the early history of the Fremont National Forest and the relationship of the Forest to the surrounding area. Specific research questions which can be addressed include the following:

1. What was the lifeways of the early Forest Service personnel? How did their relative isolation affect their lives? How did they relate to other residents of the area?

2. What types of depression era work programs were undertaken on the Forest? Of what importance were these to local communities and the area's economy? What was the lifestyle of participants in these programs and how did they relate to the local population? Did any become permanent residents of the area?

MANAGEMENT DIRECTIONS

This overview has focused on providing the basis for an understanding of the cultural resources found on the Fremont National Forest. These cultural resources are fragile and "nonrenewable." When sites are destroyed or completely deteriorate, a part of humanity's story is lost forever.

Historic preservation laws and regulations have charged Federal agencies, including the Forest Service, with the responsibility for managing cultural resource properties on lands they administer (see Appendix E). Cultural resource management involves the application of management skills to achieve legislated goals of preserving important aspects of our cultural heritage. A sound cultural resource management program requires three components, identification and inventory of cultural resources; evaluation, assessment of
significance, and determination of the impact of projected undertakings on cultural resources; and protection of the resources or, if necessary, mitigation of adverse impacts on cultural resources.

The following section reviews the Forest's cultural resource management program to date and examines some management approaches which can provide a framework in which suggested research can be conducted which meets legal requirements for the identification, protection, preservation, and enhancement of these resources. Today's cultural resource managers, especially those desiring to maintain professional standards, face a difficult challenge in developing an effective inventory, evaluation, and protection program within budgetary imperatives limiting efforts to legal necessities.

The management approaches to be suggested seek to address issues and problems in a realistic, achievable way. These approaches are not inclusive of all that could be done nor what, under ideal conditions, ought to be done. They can be grouped into five general areas:

1. standardization of records and filing procedures,
2. improving the orientation of cultural resource personnel to the Forest and increasing the cultural resource awareness of other personnel,
3. improving inventory methods and the data base,
4. conducting resource impact studies, and implementing actions to avoid or mitigate adverse impacts, and
5. protection of cultural resource sites through public involvement programs.
A REVIEW OF EFFORTS TO DATE

As was common elsewhere, a problem with early cultural resource management efforts was the inability of some professionals to see themselves not only as archaeologists interested in resource protection, but also as one of several support functions to timber management efforts, the major revenue source for fulfilling the multiple use mission of the Forest Service. Conversely, other personnel did not understand legal compliance requirements. This led to an obstructionist view of archaeology and discouraged cooperation among all personnel to achieve the full range of agency objectives.

Professionals hired in the last few years have been experienced, not only in legal compliance processes but also in Forest Service procedures. Cultural resource awareness trainings for nonarchaeological personnel have also been conducted. While both of these have helped to improve working relationships, a continuing need exists for cooperation and understanding between archaeologists and other personnel.

In the previous discussion on the research background of the Forest's cultural resource management program, several issues and concerns were indentified including the inconsistent and incomplete documentation of resources, the inconsistent and varying filing procedures of the various districts, and the failure to file a full range of reports with the Oregon State Historic Preservation Office, especially during early years. The hiring of more professional personnel during recent years has also helped to prevent a continuation of these problems. However, corrective measures remain to be taken for the deficient records from the early years of the program.
A review of cultural resource reports filed with the Oregon State Historic Preservation Office through 1982 has revealed that about two-thirds of the reports concerned timber sales. The remainder involved road or building construction, silvicultural projects, land exchanges, and water development and other range projects. It appears that not all potential land-disturbing projects have had the necessary cultural resource attention on all Districts. Apparently there is a lack of understanding concerning the effects of the full range of land management activities on cultural resources. This is particularly apparent in the lack of reports dealing with range allotments, prescribed burns, and fire suppression activity.

Because the Fremont National Forest is large, and a low volume of timber is harvested, and entire project areas are surveyed, it is prudent and feasible early in the timber sale design process to select site avoidance as the preferred management option. The Forest has, in this way, been relatively successful in protecting sites from timber management activity. Site avoidance is not practiced for range allotments and there is no data to assess what disturbance cattle grazing causes.

What makes the success in avoiding timber management disturbance of sites possible also hampers other aspects of the cultural resource management program. Budget allocations are made at the regional level for each Forest, primarily on the basis of two variables, timber harvest volume and the amount of acres needing to be surveyed to generate that volume, rather than the number of known or predicted cultural resources in an area.
Site avoidance works against developing an in-depth data base by reducing budgetary needs for evaluation, mitigation, and data recovery efforts. Through 1982 the Forest had inventoried 442 archaeological sites. Of these, 358 have been classed in this overview as lithic scatters, mostly obsidian, with no visible surface ground stone materials. Practically no subsurface testing, controlled surface collection, or evaluation has been done to refine this lithic scatter class into more specific and meaningful categories.

Site avoidance has decreased practicality as more and more timbered areas, especially those easily accessible, are deleted from cutting unit consideration. To alleviate this conflict between timber and cultural resource values, Region 6, the Oregon State Historic Preservation Office, and the Advisory Council on Historic Preservation have developed a Programmatic Memorandum of Agreement (PMOA) to "streamline the process for identifying, evaluating, preserving, and/or mitigating impact to lithic scatter sites" for Forests east of the Cascades (Keyser 1984:13-15). Implementation of this PMOA may be hindered by the current lack of understanding of the full range of lithic scatter site types.

Disturbance of sites by artifact collectors is a serious problem, deeply rooted in the recreational traditions of local residents. Some justify their actions by citing the failure of University of Oregon archaeologists to bring back for local viewing material recovered from this region as early as 1935. It was not until 1982 that an Oregon State Museum of Anthropology traveling exhibit came to the area with some of this material.
The collections policy implemented on the Fremont in 1982 was a preventive measure against the theft of diagnostic artifacts. Under this policy locational information is recorded and artifacts collected as sites are surveyed. However, given the large number of sites, many of them outside active project areas, additional measures to prevent site disturbance by artifact collectors need to be taken.

The Sycan Marsh area has been shown to be associated with the Klamath, the Yainax Butte area with the Modoc, and the Big Valley area with the Surprise Valley Paiute. All three of these areas have a significant number of sites including some with apparent religious significance. In recent years attempts have not met with much success to involve the Klamath and Surprise Valley Paiute with a historically demonstrable traditional or religious interest in cultural resources of the Forest in the planning and management of those resources.

Contacts have usually been general, by writing, telephone, or in person. Bly Ranger District, much of whose area was once part of the Klamath Reservation, regularly sends Environmental Assessments to the Klamath Tribal Council.

STANDARDIZATION OF RECORDS AND FILING PROCEDURES

An important first management task in the standardization of the Forest's cultural resource records is defining of specific environmental, archaeological, and historic terms to be used on forms and in reports. This is essential if meaningful summaries and analysis of resources are to be made. It is essential if projected computerization of the data base is to be anything more than "garbage in, garbage out."
Environmental terms need to be consistent with the Forest's Soil Resource Inventory (Wenzel 1977), plant association guides (Volland 1976, Hopkins 1979), TRI system resource mapping, and stream type classifications. Uniform definitions of environmental features such as ecotone, ridge, sagebrush scabland, knoll, hill, and terrace need to be articulated. Consistent metric and nonmetric terms for describing the physical dimensions, shape, and area of a resource also need to be identified.

Archaeological terms need to be descriptive; functional terms ought to be applied only if based on an adequate analysis or if specifically identified as supplemental speculation. As the majority of sites consist of lithic material, it is important that descriptions of this material include type of material, approximate number and type of items, density of material, and variety of items. As many sites exhibit only flakes so that various types of flakes can be identified and site functions inferred. In this regard publications on lithic technology such as that by Crabtree (1972) can be useful.

Historic terms also need to be descriptive and functional terms applied only if appropriate. Specific, consistent terminology is crucial for refining site taxonomies, especially for prehistoric sites, into manageable and meaningful types. In addition, it is important in the definition of archaeological and historic sites as opposed to isolated finds. For historic resources it would seem helpful to develop special site form attachments which direct a recorder to specific, easily answerable questions about specific features or aspects of the resource.
If the cultural resource data base is to be of use to planners and land managers, consistent filing and records maintenance procedures need to be implemented which will enable easy retrieval of locational information. As long as projects are active, filing site forms by project area with the inventory report does not significantly hinder that easy retrieval. However, once projects are inactive, this method of filing has a diminished usefulness. For long-term use an additional file, organized by legal location and cross-referenced with the active and inactive project file, is important.

EMPLOYEE ORIENTATION AND AWARENESS SESSIONS

Most of the Forest's inventory work is currently conducted by temporary, seasonal employees. Prefield orientation sessions could serve to acquaint them with site descriptors and filing systems, the inventory plan and survey strategies, anticipated ground-disturbing projects and the nature of their impacts, the prehistoric and historic knowledge of the area including research questions discussed in the Forest's Overview and Lithic Scatter MOA. In addition, these sessions could give an opportunity for cultural resource personnel from the various districts to share concerns, ideas, and resources. Sessions such as these will aid in the efficient integration of these seasonal employees into the Forest's cultural resource management efforts.

In addition, by including a cultural resource awareness session in the general orientation sessions conducted for all seasonal employees, an increased understanding between cultural resource and other personnel can be fostered. An awareness session can also help acquaint personnel with the cultural resource
program, its legal basis, and procedures to follow if a resource is encountered. Awareness may be raised of the fragility of the resource base and the need to preserve it for future generations as a link to our past.

In order to also increase cultural resource awareness among permanent employees, information sessions can be supplemented with opportunities for them to participate in resource planning and evaluation. This interdisciplinary approach will again, stretch limited resources and encourage cooperation and mutual support. In addition, these employees and cultural resource personnel ought to be made acquainted with the procedures in the Forest Service Manual in Title 2300 - Recreation Management which deal with cultural resources.

IMPROVING INVENTORY METHODS AND THE DATA BASE

The purpose of a cultural resource inventory is to identify and locate cultural resources within a project's area of impact and to provide scientifically valid data from which to predict the extent of undiscovered resources in the project area and similar areas. An adequate inventory program is not complete until enough information has been obtained to evaluate sites and choose the appropriate level of management attention for each, i.e., documentation, surveillance, interpretation, National Register placement, extensive study, or mitigation and data recovery.

An important first step in improving the current cultural resource data base is a review of site forms and inventory reports in order to identify area or site specific deficiencies. These forms and reports need to be examined for both their scientific validity and their reliability for making intelligent
management decisions. Where deficiencies are identified for previously surveyed areas it may be necessary to either increase monitoring of the area if a project is still in progress or to resurvey them when new projects are planned for the area.

Additional information for poorly documented sites could be efficiently retrieved by training nonarchaeological personnel to perform selected cultural resource management tasks. One way to do this would be to give cultural resource technician training to at least one member of each field crew such as brush disposal, trail maintenance, timber cruising, and P-line crews. Personnel responsible for contract compliance and implementation of contract clause C6.24 which calls for a halt to ground disturbing activity if a cultural resource is encountered would also seem to potentially benefit from receiving cultural resource technician training. All these trained nonarchaeological personnel could also aid in the monitoring of ground disturbing activity necessary to refine the inventory plan.

During field inventories, when a site is encountered information retrieval ought to be approached with the awareness that the site is unlikely to be revisited soon. Where appropriate, preliminary subsurface testing can be undertaken to ensure proper identification of a site as a lithic surface scatter. Further, a small, random surface collection from a selected variety of sites will, if properly analyzed, provide at least minimal information for refining the overly broad site typology presented in this overview. These procedures will aid in the selection of management options and implementation of the proposed lithic scatter PMOA.
An underutilized inventory tool is the use of aerial photographs. While current aerial photographs are often used as field maps and for identifying environmental features, the potential for using aerial photographs for site detection has largely been ignored. Sites can often be identified because their environmental features have different reflectance characteristics which show as shadow, crop, soil, and/or snow and frost marks (Lyons and Avery 1977).

In addition, there exist earlier black and white aerial photographs of the Forest, some from the 1930's. These may reveal not only historic features now obliterated but also archaeological site signatures in areas which were at that time not yet disturbed. Many of these early aerial photographs are held by the University of Oregon's Map Library and the U.S. Army Corps of Engineers. Obtaining some for use in inventories may prove to be highly beneficial.

Just as a prefield orientation session for cultural resource personnel can aid in management efforts, a postfield "debriefing" can also be useful. At these debriefings cultural resource personnel could discuss survey methods and results, summarize the information obtained, and suggest recommendations for the next field season and revisions to the inventory plan. Publication of summary results of each field season by the Forest or in an appropriate professional journal will help keep personnel abreast of current data, aid in the eventual update of this overview, and perhaps interest the scientific community in the Forest's resources.
RESOURCE IMPACT STUDIES

Land management activities have a variety of impacts on cultural resources, many of them not understood or anticipated by land managers. This may help explain the apparent lack of survey reports for projects other than timber sales discussed previously for the Forest. Administrative studies of the effects of land management activities on cultural resources can help increase that understanding and provide information directly relevant to the Fremont. These studies could be done with adjacent Forests or the Lakeview District BLM to minimize costs.

Timber harvest has, of course, been recognized as having a significant impact on cultural resources. Plog (1981:25) identifies the greatest timber harvest impact as the construction of haul roads and landings with the movement of heavy equipment across ground surfaces and the skidding of trees a lesser, though still significant source of direct impact. Wildesen (1978) points out, however, that the relative impacts of alternative harvest methods are not fully understood. One means to begin to assess these relative impacts would be to conduct a comparative study of disturbed sites in areas which have had only one specific harvest method used. Once these relative impacts have been identified, it may be possible to identify harvest methods for some already disturbed sites which will not significantly increase the disturbance.

For the nearby Winema National Forest, Thompson, Wilke, and Lindeman (1979:153) suggest that extensive sheep and cattle grazing causes a "localized and severe ground disturbance" around springs, corrals, and other areas where animals
gather as well as a dispersed impact caused by trampling on soils. This would
seem to suggest the need to identify specific protective measures for sites
located in the vicinity of water sources for grazing animals.

because extensive areas of the Fremont are open to grazing animals it is
important that the impact of this activity on sites be assessed so that
appropriate preventative, protective, or mitigative measures can be taken. One
way to do this might be to isolate sites or portions of sites from grazing
animals and, over time, compare these areas to nonisolated sites.

The effect of fires on cultural resources has in recent years been an area of
increasing research. Eisler, Parella, and Spencer (1978:47-50), in a study
done for the Ochoco National Forest, identify four fire-related agents
affecting cultural resources. Lithic material can be thermally fractured by
the heat of the fire, stumpholes can cause vertical displacement of surface
material, and a reduced ground cover can increase vulnerability of a site to
vandalism. Fire control activities such as fire line construction and
establishment of staging areas can cause site disturbance.

Plog (1981:28) suggests that "whenever possible" an archaeologist should be
present during fire suppression "to reduce the impact of the activity of
cultural resources to the degree feasible given more immediate and pressing
concerns of fire suppression." One way to accomplish this is to train
archaeologists so that they can be called upon to assist with fire suppression
activity as well as to train selected fire personnel as cultural resource
technicians. In addition, archaeologists can be added to the resource team.
It is also important to note that postfire rehabilitation procedures and prescribed burns may also affect cultural resources. A variety of recent research has addressed the effect of prescribed burns on cultural resources including Welch and Gonzales (1982), Manuel (1980), and Kelly and Mayberry (1979). It would seem that for postfire rehabilitation projects and prescribed burns cultural resource inventories are as necessary as they are for timber sales.

Recreational use of the Forest can also impact cultural resources either through Forest Service initiated activity such as trail and campsite construction as well as the activity of artifact collectors and site vandals. Potential impact from trail and campsite construction can best be addressed by conducting inventories prior to these activities. Addressing the activity of artifact collectors and vandals presents a greater problem.

While it is apparent that artifact collectors and vandals are impacting cultural resources, the exact nature of that impact has not been determined. In this regard an administrative study may prove useful which addresses the extent of, characteristics of, and control techniques for site disturbance by artifact collectors and vandals.

Williams (1979:104-118) cites the need for a law enforcement program which is integrated with an educational or interpretive program and which stresses a positive approach rather than a hard-line, authoritative one. Among approaches offered are an on-site information and interpretive program informing visitors about cultural resources and related laws and regulations, posting of regulative and interpretive signs where the presence of cultural resources is
obvious, and maintaining or creating difficult access to unprotected resources by such methods as road closures and the erection of natural barriers including piled brush or live vegetation. Also proposed are meetings with local law enforcement and judicial officials in order to explain the Forest Service view of vandalism and to urge their cooperation in using a consistent approach to the apprehension and prosecution of individuals involved in cases under their jurisdictions.

PUBLIC INVOLVEMENT PROGRAMS

While an administrative study of the effects of cultural resource vandalism and the development of a cultural resource law enforcement plan are important tasks, it may be more important and fruitful to develop an interpretive program involving the public in cultural resource management planning efforts and making available to them displays and other information. Plog (1981:52-53) points out that

"Preservation and conservation will ultimately be based in a concerned local community that sees efforts to protect the forest's resources as an integral part of maintaining the community."

Plog identifies three main components of such an interpretive program as an awareness program, a display program, and interpretive archaeology.
Some effort has been made in recent years in developing and implementing an awareness and a display program. These efforts need to be expanded. One means to expand these programs is to develop formal cooperative agreements with the area school districts, the libraries in Lakeview and Paisley, and the Schminck Memorial Museum in Lakeview. These agreements would be aimed at developing and providing forums for presenting to the public booklets, pamphlets, and/or slide and tape programs on the Forest's cultural resources. Printed material can be distributed at agency offices, campgrounds, and other public places. Contacts with local schools, church groups, and service clubs may show these organizations to be interested in hearing about the Forest's program. Cultural resource displays at the various districts can also make available material for public viewing. These efforts are critical if the cooperation of the general public is to be obtained for protecting cultural resources.

One of the best points to begin an interpretive archaeological program may be historic sites, especially arboglyph sites. Arboglyph sites are a product of the area's early history and in many cases are the product of the direct ancestors of people living here today. By focusing on these resources, which in a sense are preadaptive for local appreciation and preservation support, it may be possible to foster in the local population a greater understanding and commitment to the preservation of cultural resources.

It's possible that a volunteer program could be developed, perhaps through local high schools, to aid in the thematic evaluation of arboglyph sites. Once evaluated, selected sites could be integrated into the recreation and trail system.
Funding for this thematic evaluation could come from project funds for activities which may potentially disturb these sites, i.e., cattle grazing, precommercial thinning and timber harvest, water development projects, and regeneration of aspen groves for wildlife. Support could also involve appropriate nonarchaeological personnel such as soil scientists and silviculturists.

As some arboglyph sites have archaeological components, their evaluation may also result in improving the prehistoric data base. Further, since these sites are located in relatively wet areas, subsurface testing which occurs could also retrieve core or column samples for later analysis and reconstruction of prehistoric environmental conditions. Analysis of arboglyph sites may also help in the reconstruction of environments before aggressive fire control. The combining of differing management and research needs in this manner is one creative way to stretch limited resources to accomplish a variety of tasks.

Just as arboglyph sites may be a point to involve the Euro-American public in the Forest's cultural resource management program, archaeological sites of possible spiritual significance and/or traditional interest may be a point to which native peoples may respond positively and become involved in the Forest's program. These sites include the rock cairn sites north of the Sycan Marsh and the marsh sites themselves which may be associated with the Klamath, the Yainax Butte site complex which may be associated with the Modoc, and the Big Valley area which may be associated with the Kidutodado or Surprise Valley Northern Paiute.

Specific inquiries to the appropriate representatives and organizations for these native peoples may get more of a response than the general inquiries.
which have been attempted in the past. This approach involves a commitment to develop a management plan for the Sycan Marsh, Yainax Butte, and Big Valley areas as well as for the complex of rock cairn sites north of Sycan Marsh.

A locally based volunteer program will not only aid in increasing public support for the purposes of the Forest's cultural resource management program. It will also help stretch limited resources to accomplish more than might be done in the absence of such a program. Such a program may be particularly beneficial if based in the schools given Plog's (1981:53) observation that "the education of the next generation is a more productive path to protecting the forest's resources than changing the behavior of this one."

For a volunteer program to be effective clear job descriptions and roles need to be defined and accomplishable tasks identified. To get such a program started it may be best to begin at a Forest-wide level with one specific project in mind. Incentives to potential volunteers could include not only such intangibles as work experience of potential value for later employment, but also such tangible items as school credit and a small amount of money in the form of per diem. In an area such as the Fremont National Forest, a small amount of money may be quite an incentive given the high teenage unemployment rate.

Once a first year pilot program is completed, it can be evaluated and if deemed relatively successful, refined and expanded for additional years. Involving the public directly in cultural resource management efforts will help foster a view that the Forest's resources are an important part of the local community's heritage available to the public while at the same time deserving of protection.
A CULTURAL RESOURCE MANAGEMENT SUMMARY

This overview has offered several approaches for improving the Fremont National Forest's cultural resource management program. These supplement existing practices and are designed to address issues and problems in a realistic, achievable way. They include the following.

1. Standardization of records and filing procedures:
   a. defining specific environmental, archaeological, and historic terms to be used in recording resources
   b. developing cross-referenced cultural resource files, one by project area and one by legal location.

2. Expansion of employee orientation and awareness programs:
   a. conduct prefield orientation sessions for all cultural resource personnel, especially seasonal employees
   b. including cultural resource awareness sessions in the general orientation sessions given to seasonal employees,
   c. provide opportunities for permanent employees to participate in cultural resource planning and evaluation
   d. acquaint permanent employees and cultural resource personnel with the cultural resource provision of Title 2300 of the Forest Service Manual.

3. Improve inventory methods and the data base:
   a. review site forms and inventory reports to identify scientific or management deficiencies,
   b. train nonarchaeological personnel in selected cultural resource management tasks so that, while in the field performing other tasks, they can aid in the retrieval of missing site data and the monitoring of projects,
c. during initial inventory of sites retrieve as much information as possible and, where appropriate, conduct preliminary subsurface testing and make small, random surface collections of artifacts,
d. expand the use of aerial photographs for site detection and obtain early black and white photographs of the Forest for that purpose,
e. conduct postfield "debriefing" sessions for cultural resource field personnel to aid in the refinement of the inventory plan, survey methods, and to summarize results.

4. Conduct resource impact studies with adjacent or nearby Federal land-managing agencies:
   a. a comparative study of the effects of differing timber harvest practices on cultural resources,
   b. a study of the effects of grazing on cultural resources,
   c. a study of the effects of fire suppression activity, postfire rehabilitation procedures and prescribed burns on cultural resources,
   d. a study of the extent of, characteristics of, and control techniques for site disturbance by vandals and artifact collectors.

5. Conduct inventories for all land management activities including timber, range, recreation, and fire.

6. Develop a law enforcement program which is integrated with an educational or interpretive program and which stresses a positive approach.
7. Develop formal, cooperative cultural resource awareness and display programs with local school districts, libraries, and museums.

8. Develop public involvement programs including a volunteer program:
   a. begin a thematic evaluation of arboglyph sites, using these sites as a point to gain the interest of local communities in their past,
   b. begin a thematic evaluation of specific archaeological sites or localities with spiritual or traditional significance to the Klamath, Modoc, and Surprise Valley Paiute and use these resources as a point to gain the interest of these native peoples in the Forest's program.
Appendix A Northern Paiute Ethnography (from Minor et al 1979:90-102)

The sociopolitical organization of the Northern Paiute is best described as being of the band type at "the family level of integration" (Service 1962:64). These bands did not exist as political entities, but were simply a loose association of a number of family groups occupying the same general region. The composition of these bands was fluid, and families moved from band to band as they desired. Steward (1939:261) made the following observations on the nature of Northern Paiute bands:

There was no native band concept connoting true solidarity among members of a political or territorial division. They agree that land was not owned by any group, that the population was fluid, and that political control was minimal, never extending over the inhabitants of a well-defined territory: in short, that the main bond between families was association in more or less the same area.

Twenty-one Northern Paiute bands have been identified by Steward (1939). Bands were frequently named after local foods or geographical landmarks which were for some reason considered remarkable by neighboring groups; hence, Northern Paiute bands included, among others, the Wadadokado (Wada-Seed Eaters), the Koa'agaitoka (Salmon Eaters), the Atsakudokwa tuwiwarai (Red
Butte Dwellers), and the Sawawktodo tuviwarai (Sagebrush Mountain Dwellers). Steward (1939:262) concludes that "the emphasis...is clearly upon the territory rather than upon any unified group of people occupying it." When a family or group moved to a new locality, it acquired a new name derived from their new habitat.

Given this native pattern of nomenclature, it is not surprising that apparent contradictions in group names and boundaries have been recorded. A band may be addressed by more than one name by its neighbors or several bands may be referred to by the same name. Also, since well-defined boundaries between bands did not exist, it is expected that the various maps of Northern Paiute band territories based on information from native informants will not necessarily coincide. In particular, Stewart's map (1939:126) does not agree in detail with Blyth's distribution of Oregon Paiute bands (1938:396). Steward (1939:262) suggests that "it will never be possible to make a final map of bands for the greater part of the Northern Paiute area" simply because bands did not exist as separate social and political entities and because a standard nomenclature for bands was not in use by all the Northern Paiute.

Stewart (1939:1941) discusses seven aboriginal Paiute bands whose ranges may have fallen within the Lakeview BLM District, and Blyth (1938) lists five groups which roughly correspond with some of the bands Stewart mentions. These groups and their
territories are briefly described below (also cf. Kelly 1932:72-73).

(1) The Hunipuitoka (meaning unknown to Stewart) or Walpapi, also known as the Canyon City Indians, occupied an area encompassing about 7,000 square miles, which included the Crooked River Valley and the upper reaches of the John Day River to the north of the Lakeview BLM District. It is interesting to note that the term Walpapi is derived from the Klamath term walpapis, which is a translation of the Paiute hunipuitoka (Stern 1966:288, note 55). The boundaries for this group are given by Stewart (1939:131) as follows (cf. Wheeler-Voegelin [1955]):

The boundary . . . starting at Pauline Mountain (Twin Buttes) in Deschutes County, runs North through Jefferson County to the Wasco County line where Highway 97 crosses; thence east to the John Day River, up the river to North Fork, then up the North Fork to the Blue Mountains; thence south along the Blue Mountains to the head of the Malheur River; thence southwesterly along the divide between the John Day and the Malheur drainages to Pauline Mountain, the place of beginning.

Stewart mentions that this area may have been occupied by more than one band. Blyth located two groups within this area. The first group, the Wa'dichi'tika (Juniper-Deer Eaters), inhabited

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the area between Bend to the south and Gateway to the north. Their range included Prineville in the east and Mount Jefferson to the west. Portions of this band customarily wintered at Bend and along the northern bank of the Metolius River. The second group mentioned by Blyth were the Hu'nipwi'tika (Root Eaters). These people appear to be the same as those referred to by Stewart. Blyth designates their winter camps as centering around Canyon City Creek, the town of John Day, and the John Day valley to the west. They inhabited areas as far west as Dayville and as far south as Seneca and Izee. Blyth was uncertain as to their northern and eastern boundaries but indicated that the group ranged as far east as Baker. Although the central territory of this northernmost Northern Paiute band does not lie within the Lakeview BLM District, it is possible, given the customary wide range of travel, that some band members occasionally wandered into the study area.

(2) Directly south of the Root Eaters, Stewart places the Wadatoka (Blyth's Wada'tika), or Seed Eaters. Stewart estimated that their area covered 5,250 square miles, including the drainage areas for Harney and Malheur River. Blyth cites this group as wintering in Silver Creek, Harney, Diamond, Blitzen, and Catlow valleys in Harney County. Hampton, located on the toe of Deschutes County, was given by Stewart as the northwesterly extent of this band's territory.
(3) The heart of the Lakeview BLM District was probably occupied by the Govatoka (Crawfish Eaters) or the Yahuskin according to Stewart, or the Yapa'tika (Yappa Eaters) according to Blyth. This group was centered in the vicinity of Paisley in Lake County, west of the seed Eaters and south of the Juniper-Deer Eaters. According to Stewart, the band covered 5,000 square miles within the region of Silver, Summer, and Abert lakes. This group traveled as far north as the Paulina Mountains region which was the southerly range of the Juniper-Deer Eaters.

Some confusion exists regarding the identity of the group or groups referred to as the Yahuskin Snakes, Stern (1966:288, note 54) summarizes the problem as follows:

An able exposition by Erminie Wheeler-Voegelin (1955) holds that the Yahuskin Snakes of the treaty were a pick-up band of Indians from the Surprise-Warner valleys area, with whom Colonel Drew [in charge of getting the Klamath Treaty of 1864 signed by the tribes] had made contact, and that the group subsequently designated by that name were the Upper Klamath. The latter view accords with that previously advanced by Nash (1937), p. 386. There are, however, grounds for maintaining the view that they comprised a small band of Paiute, drawn chiefly from the Silver-Summer-Abert Lake region, living together with the Upland Klamath [cf. Stewart 1939:132].
(4) Just to the south and east of the Crawfish Eaters were located the Kidutodado (Woodchuck Eaters) of Stewart's account or the Gidi'tika (Groundhog Eaters) which are mentioned by Blyth and appear to be the same as Kelly's Gidutikadu (1932). Blyth's only comment on this band was that they resided "southeast of the Wada Eaters, and [were] separated by the plateau to the southeast of Catlow Valley" (1938:404). Stewart gives a much more detailed account, particularly concerning territorial boundaries (1939:135):

Except for minor points, the Kidutodado boundaries given to me agree with those reported by Kelly [1932]. Starting at the north end of Goose Lake, the line runs northeasterly along the summit of Warner Range about 60 miles; thence, skirting the north edge of Warner Valley, goes about 30 miles southeast before turning south to follow the Lake County-Harney County line about 50 miles to the Nevada-Oregon state line; thence it continues in a southwesterly direction about 50 miles to the south end of Long Valley; thence it goes about 30 miles westerly past the south end of Lower Lake to the south end of Warner Range; thence northerly it follows the crest of Warner Range 60 miles before dropping down to touch Goose Lake near Fandango Creek.
This particular band's territory included some 5,000 square
miles including the eastern slope of the Warner Range, Surprise
Valley, California, and Warner Valley, Oregon. Additional
hunting territory was comprised of a section of desert in Washoe
County, Nevada. An exhaustive ethnographic account of this
group is presented by Kelly (1932).

(5) Approximately 2,600 square miles of desert in the Steens
Mountain region was occupied by the Tsoso'odo tuviwarai (Cold
Dwellers). Interestingly enough, Blyth shows this region to be
unoccupied according to her informants.

(6) East of the Woodchuck Eaters and south of the Cold Dwellers
resided the Aga'ipaninadokado (Fish Lake Eaters) or Maodokado
(Wild Onion Eaters). Their core territory began at the
Oregon-Nevada state line in Washoe County, California, and
extended south to include approximately 2,800 square miles of
desert and mountain land. Blyth's informants also indicated
that this region was unoccupied or common territory of
surrounding bands.

(7) The last band whose territory might have been included in
the Lakeview BLM District are the Atsakudokwa tuviwarai (Red
Butte Dwellers) of McDermitt, Nevada. According to Blyth, a
band named the Gwi'nidi'ba (meaning unknown) occupied the
vicinity of Denio and McDermitt, Nevada to the south of the Wada
or Seed Eaters. The territory of this band, like the Fish Lake
Eaters, lay primarily in Nevada, but it is quite likely that portions of Oregon were utilized at one time or another. The band's range probably extended over 2,700 square miles south of the Oregon-Nevada border.

Subsistence

Each band's territory centered upon a core area from which most of the subsistence resources could be obtained. The extensive, sterile, dry stretches surrounding the productive spots were not necessarily recognized as belonging to a certain band. Rather, several bands may have made mutual use of the more barren areas. However, bands did recognize possession of certain productive tracts such as lakes, streams or hunting grounds which they established primarily through regular use. Other bands were free to hunt and gather in those areas, but they always did so with the understanding that they were visitors.

The general scarcity of foods in the region was such that the population of the Northern Paiute had an average density of one person for every ten to twenty square miles, depending on the locality. The distribution of food sources required that each family be, for the most part, a self-sufficient economic unit. In order to make the best use of the desert's scattered food resources, the Northern Paiute families moved about frequently in their search for food.

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After a long cold winter when stored food supplies were becoming low or had disappeared, the Northern Paiute searched the stream banks, lake edges and low hills for the first green plants of spring. The stems or leaves of many of those plants, such as thistle and squaw cabbage, could be cooked or eaten raw as "greens." With the coming of summer, seeds of many plants began to ripen in the moist hills. Many people left their winter villages in small groups of one or two families and sometimes trekked great distances to collect the tiny seeds. Occasionally, families traveled thirty or forty miles if word reached them that there was an abundant crop to be found in that area. Seeds of innumerable species of grasses in the desert provided much of the Northern Paiute diet. These grasses included common fescue, wheat grass, Indian rice grass, and bluegrass. Seeds of the cattail, rushes, and sunflowers were also sought. The Paiute collected sagebrush seeds as well, but because the seeds were so bitter they were only collected when there was little else to eat.

Seeds were collected by knocking them off the stalks into conical baskets with basketry seed beaters; they were then winnowed and sometimes parched in basketry trays. In order to be eaten, the seeds were ground into flour on stone metates or were boiled in pots to make a mush. Stored seeds were cached in pits, baskets, bags, and available caves and rock crannies located as near as possible to the winter village so that they would be easily accessible during the bleak winter season.
Later in the summer, edible roots, bulbs and berries were gathered from the moist grounds near springs, lakes and streams to add to the winter stores. Wild onion, camas, arrowroot, cattail root, tiger lily bulbs, bitterroot and tule were among the roots dug with a simple digging stick to be baked, boiled, or dried and stored. Serviceberries, gooseberries, currants, raspberries, and wild cherries were gathered to be eaten immediately or dried and stored for winter. In addition, sugar was found in the reeds which grew in marshy areas.

With the coming of winter, the desert plants became less fruitful, and the Northern Paiute settled down into villages consisting of two to fifteen families which were located near a reliable source of water and the food caches of stored seeds, roots, and berries. Although plant foods provided most of their diet throughout the year, the people welcomed the addition of fresh fish and game, particularly in the wintertime. In the higher elevations, deer, pronghorn antelope and mountain sheep were occasionally taken by individual hunters during the year. The Hart Mountain area was known as a particularly good hunting area for sheep and antelope. Communal drives for deer or antelope were occasionally organized by several families of a band and directed by game shamans. Such large-scale hunts could only take place on an average of every twelve years in the same general area due to the low population of the larger game animals in the desert. Snares, nets, traps, and blinds were
used by hunters to catch small game, such as squirrels, field mice, gophers, raccoons, rabbits, chipmunks, porcupines, and an assortment of birds. Fish and waterfowl constituted an integral but small part of the Paiute diet. Fishermen caught trout, suckers, salmon, and minnows in lakes and streams, using fish nets, weirs, rock dams, elongated fishing baskets of willow or tule, harpoons, fish arrows and lines with bone hooks. Waterfowl, including mud hens, ducks and geese, were taken in occasional communal drives and were also stalked by individual hunters. Caterpillars, ants, crickets, and insect larvae added variety to the general diet when they were in season.

Although the population of the Northern Paiute had an average density of only one person for every ten to twenty square miles, ideally the desert could probably have supported many times as many people except for several limiting factors. First, the plants which provided the much-needed seeds and roots were widely scattered across the countryside, limiting the efficiency with which they could be gathered. Second, the seeds of various plants could be gathered for only a few days to a couple of weeks before the seeds fell off the stalks and could no longer be collected for food. Consequently, most seeds ripened and fell before the inhabitants had a chance to gather them. Third, due to erratic rainfall in the region, the seed yield varied considerably from year to year and sometimes failed to support even the tiny local population. In the event of a severe food shortage, the families of a band split up to visit friends and
relatives in more productive areas. Sometimes, however, food was scarce in many places, and the people starved.

Material Culture

The seminomadic Northern Paiute had to keep their possessions to a minimum. Because they did not have horses until after contact times, they had to pack everything on their backs. As a result, they carried only essential baggage on their wanderings. Tools for butchering, food processing, and woodworking were often fashioned on the spot from available cobbles and abandoned when the immediate task was completed. Countless "activity areas" of this sort, hundreds or thousands of years old, are still found in the desert today. Favorite grinding tools or other bulky or heavy items which the owner wished to keep were probably stored at the winter camp to which the owner returned year after year.

The limited number of material items made and used by the Paiute shows how frugally these people used plants and animals for purposes other than food. Bone and horn were used to fashion spoons, dippers, stirrers, knives, knife handles, awls for punching holes in skins, drill tips, and arrowheads. Wood was used to make cooking implements, drillshafts, arrowshafts, and bows. Obsidian, a natural glass so frequent in eastern Oregon, made knives, scrapers, and arrow points, whose freshly chipped edges were sharper than surgical steel. Willows and tule provided the materials for fashioning the seed beaters and
baskets used in food gathering. Since the Northern Paiute did not make pottery of any kind, they wove watertight pitched ollas or bottles for carrying precious water on their long treks through the desert. Watertight unpitched baskets were also used for cooking. Red-hot stones were taken from the fire and stirred in a basket partially filled with water to boil meat, seed meal, or other food (Lowie 1924:225). Shredded sagebrush bark, which was always in abundance, proved useful for weaving bags, blankets, and sandals. The lower stems and roots of the rabbitbrush provided an ever-available supply of chewing quids. Numerous other plants were used for concocting poisons, treating ailments, and making rope.

Weapons of the Northern Paiute included a three-foot sinew-backed bow of juniper or serviceberry, with a sinew or vegetable fiber bowstring. Arrows were made of various woods and were generally about 2 1/2 feet in length. Stone, bone, and horn points were made and attached to arrowshafts with sinew. Arrow poison was sometimes used in hunting. To straighten arrow shafts, a hunter used his teeth, a grooved stone slab, or a perforated horn. Stone headed clubs were used, but atlatls and darts were not in use at the time of Euro-American contact. Slings were used only as toys and not for serious hunting.

Women usually wore knee or shinlength dresses of deer, antelope, or mountain-sheep skins, which were often decorated with paint, Olivella shells, or bone beads. The men generally wore nothing
except skin headbands and belts, although they did don skin shirts, fur leggings, and fur hats to keep warm in the winter. Robes and capes for keeping out the cold were twined from vegetable fibers and furs or were made from a patchwork of hides. Although the Paiute usually went barefoot, they sometimes wore moccasins of skin or sandals of shredded bark or tule and rushes.

Shelter

The Northern Paiute constructed several forms of shelter according to their needs. For temporary or summer camps, they often formed a crude windbreak or sun shade out of brush. A circular domed wickiup with a frame of bent willows covered with grass, tule, brush, or mats was used both in summer and in winter. These dwellings were usually six to eight feet high and eight to fourteen feet in diameter and had grass-covered floors. A tripod-fountain house, with three supporting poles tied at their intersection like a teepee with similar covering, was also sometimes constructed in both summer and winter. Occasionally, caves served as temporary dwellings. Wickiup-type sweat houses big enough for as many as four people were built and heated by pouring water over hot rocks; sweat houses were used for curing sicknesses as well as for ritual cleansing and praying (Stewart 1941:377-379).
Sociopolitical Organization

Since the organization of the Paiute was very flexible, there were no rigid social proscriptions. Leaders led with the consent of the entire group and had little authority. Leadership was not inherited but depended upon personality and experience. Special "chiefs" each organized and led different activities, such as dances and rabbit, antelope and waterfowl drives. There were no definite rules for marriage, except that one could not marry a blood relative. Marriage residence was also optional, although matrilocal residence (living with the wife's family) was preferred. Both polygny and polyandry occurred, but apparently the practices were not frequent (Park 1937, Stewart 1941). The sororate, a practice where a man married his dead wife's sister, and the levirate, where a widow married her husband's brother, were also practiced.

Religious Beliefs

Rituals were exceedingly limited and religion served as an integrating factor only to a minor degree. The primary religious figure among the Paiute was the shaman. Shamans were mature men or women who had acquired shamanistic power in a dream. In the dream, power was bestowed by one or more spirits in the form of an animal or natural phenomenon, such as thunder, lightning or the moon. Shamans received several power-bestowing dreams from their guardian spirits during their lifetimes and
sometimes went on long lonely retreats in quest of such visions. The shamans were highly respected and feared for their powers, which allowed them to cure diseases, wounds and snakebites, control the weather, and foretell the future. The people believed that a shaman could punish them supernaturally with sickness or death if they did something wrong, so the presence of the shaman served as an effective form of social control. Shamans who misused their power and caused innocent people to die, however, were killed as a menace to the group.

The Paiute conceived of death as the loss of one's soul. When death occurred, the body was usually painted, adorned and wrapped in a blanket for burial. The usual method of disposing of the body was by burial in the ground, especially on rocky hillsides or talus slopes, and covering the grave with stones to protect it from wild animals (Lewis 1906:190, Stewart 1941:412). Bodies were also placed in caves or rock clefts which were then blocked with stones (Lowie 1924:282). The deceased's house was usually burned, and personal property was destroyed, buried, or taken by relatives.

Among the native traditions of the Northern Paiute are stories of a people called the "Old-time" Indians, who occupied the desert land before the Paiute came to live there. The Paiute claim that the "Old-timers" were the ones who made and left all the stone mortars and pestles which are now found in the Paiute country. They also say that the petroglyphs or rock carvings
which occur in the area were done by the "Old-timers" (or by Coyote, an important mythological figure) and not by the Paiute (Stewart 1941:418). Kelly (1932:186) records a Groundhog-Eater informant as stating that the Klamath originally held Warner and Surprise valleys until the Paiute "got the best of them" and drove them out long ago. According to this informant, the Klamath erected wall-like structures for protection which were "just high enough so a person can sit behind them and shoot over the top." Interestingly, there is some archaeological and linguistic evidence to indicate that the Paiute have been in eastern Oregon for less than a thousand years.

Trade

Since the Northern Paiute were somewhat removed from the trading centers along the Columbia River, trading was not a major activity, particularly in precontact times. A Deer-Eater Paiute informant is reported by Suphan (1974a:64) as saying that "the Paiute traded regularly with the Tenino living at Sherar's Bridge, giving buckskin and roots for salmon and horses." Anastasio (1972:136) notes that roots and elk meat were traded to the Plateau people by the Great Basin groups. In addition, from the archaeological evidence it is known that the obsidian from Glass Buttes and the surrounding area was traded as far away as British Columbia.
Historic Contact

Subsequent to the advent of Euro-Americans in the Northwest, the northern boundary of Paiute territory changed rapidly in response to the movements of neighboring native groups. During the 1700's, Paiute territory probably extended further northward to include the present day Warm Springs Indian Reservation. The Northern Paiute traditionally were a peaceful people for whom warfare was practically nonexistent, but there is evidence of friction between the Sahaptins and the Paiute. Ray (Ray et al., 1938:391) describes the nature of this conflict as follows:

Sahaptin informants declare that from the time immemorial conflict has existed with the [Northern Paiute] . . . Neither side ever attempted to wrest territory from the other. Marauding parties carried away moveable property, but the main object of warfare was the attainment of glory . . . In these contests the [Northern Paiute] often pushed as far north as the Columbia River, . . . but the invaders never remained long and in no case established permanent camps.

Before 1800, these raids, specifically between the Northern Paiute and the Tenino, were made on foot and required several days of travel. After the turn of the century, however, the balance between the two groups began to shift in favor of the
Tenino. The northern group, situated along the Columbia River trade route, acquired the horse and new weapons from Euro-Americans, which gave them a definite advantage over the Paiute, who had not yet adopted the horse. Consequently, the Tenino began to push south into the area of the present day Warm Springs Reservation, which originally was Paiute country.

After the Tenino were settled on the Warm Springs Reservation in 1857, the Northern Paiute took the opportunity to raid the Tenino in return. During this time, the Paiute also apparently raided the Klamath on occasion (Stern 1966:23). By this time, the mobility of the Paiute had been greatly increased due to the acquisition of the horse sometime during the mid-1800's. The Northern Paiute raids continued for about ten years and even extended past the signing of two treaties in 1864 and 1865 (refer to Wheeler-Voegelin [1955] for a complete account of the treaty process). The Northern Paiute were eventually subdued and persuaded to move onto reservations. The Paiute moved to several reservations, including the Klamath Reservation (which was terminated by law in 1954), the Warm Springs Reservation and the Burns Reservation in Oregon, as well as several reservations in Idaho and Nevada.

Appendix B Klamath-Modoc Ethnography (from Minor et. al., 1979:102-118)
Although the Klamath-Modoc peoples were distributed in ethnographic times over one-third of the area encompassed by the borders of the Lakeview BLM District, only 6 percent of the actual 5,250 square miles of BLM land in the district was occupied by Klamath-Modoc speakers. A majority of the territory is presently privately owned or under the jurisdiction of the U.S. Forest Service.

From the archaeological evidence it appears that the Klamath Basin has been occupied for at least 10,000 years by peoples who were the forerunners of the ethnographic Klamath-Modoc (Cressman 1956). Situated on the southeastern flanks of the Cascades, the Klamath-Modoc were bordered to the south and west by the Achumawi, Shasta, Upper Takelma, and Southern Molala. Their neighbors to the north and east were the Northern Paiute. Because of their strategic position along the earliest travel routes between the middle Columbia River and California, historical journals contain more references to the Klamath-Modoc than to their neighbors. Such historical accounts include Abbot (1857), Ogden (Elliott 1910), and Fremont (1845).

Ethnographic and linguistic researchers did not arrive until much later. The first ethnographer to visit Klamath country was Albert S. Gatschet (1890), who conducted ethnographic and linguistic research there in 1877. Subsequent studies of the Klamath and Modoc were made by the botanist Frederick B. Coville (1897, 1902), and ethnologists George A. Dorsey (1901), S.A.

Ray's presentation (1963) of the Klamath and Modoc stresses the differences between the two groups to the point of placing the Klamath in the Plateau culture-area and the Modoc in the California culture area. However, Stern (1964:676) suggests that "many of the differences noted by Ray between the Klamath and the Modoc seem rather the selective tribal emphases upon a common cultural capital." The Klamath emphasized fishing to a greater extent than the Modoc who preserved a less specialized subsistence pattern. This emphasis seems to correspond to the greater availability of fishing areas in Klamath as opposed to Modoc territories. This brief summary of the Klamath and Modoc will treat them as two closely related aspects of the same basic lifeways.

Language

Klamath and Modoc are two closely related dialects of the same language and have been described as being perhaps no more different than "the English of New England and that of Virginia" (Voegelin, cited in Rigsby 1965:77). The two dialects were initially grouped into a distinct linguistic stock called Lutuami (Hale 1846). Later Gatschet (1890) as well as W.E. Myers, a linguist working with Edward S. Curtis, noted
resemblances between Klamath-Modoc and languages to the north. Subsequently, Klamath and Modoc have been classified together as the Klamath-Modoc language isolate; their distant similarities to the languages spoken by the peoples along the Columbia River and across much of western Oregon is indicated by the inclusion of these languages into the Penutian language phylum (Sapir 1929; Jacobs 1937; Voegelin and Voegelin 1964, 1965). The inclusion of Klamath-Modoc within the Penutian phylum seems to be supported by lexical resemblances as observed by Aoki (1963). On the other hand, Rigsby (1956:252-253) has argued that such resemblances are due to recent borrowing of linguistic elements rather than to a common ancestor language. Although the genetic relationship of Klamath-Modoc remains unclear, the fact that the two dialects share elements in common with linguistic groups to the north indicated that they have been in extensive and direct contact with each other at some point in the past. Tegsby suggests that shared numerals, for example, may stem from recent trading contacts at The Dalles; the more remote lexical links may indicate a more distant Penutian affiliation.

The origin of the term "Klamath" remains obscure despite numerous guesses involving different derivations. The term was first used by Ogeden in 1826 who apparently learned of the "Clammitte" from the Columbia River tribes before reaching the Klamath territory. Gatchet suggested that the term was of Yurok origin, but Kroeber thought it was derived from Athlamet which
was the Kalpuya term for Chinookan, as originally proposed by Hale (Theodore Stern, personal communication).

According to Spier (1930:1), the Klamath called themselves maklaks ("men") and referred to other tribes by directional or locality names. The Modoc were known as moadok ("south people") or moadokkni ("southerners"). The Pit River peoples, also to the south of the Klamath, were called the moatuwas, also derived from the stem moas which means "south"). The peoples to the north were generally known as yamokkni ("northerners") (Spier 1930:2-3).

 Territory

The territory occupied by the Klamath-Modoc has been well-defined by Spier (1930:8-10) and Ray (1963). The Klamath settlements centered around Upper Klamath Lake and Klamath Marsh as well as along the Williamson River and its tributaries. They utilized a much greater area from the open deserts and broken lands to the north and east which were occupied by Northern Paiute, to the Cascade watershed in the west and the Klamath Valley to the south. Klamath territory probably did not extend as far north as the headwaters of the Deschutes River. The Klamath ventured further east in the summer to make use of the resources found in and around the Sycan River, the Sycan Marsh, and Yamsay Mountain. That they probably went as far east as Chewaucan Marsh, between Summer and Abert lakes, is indicated by

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the derivation of the name from the Klamath term tcuwaken, meaning a place where arrowhead (arrowroot or wapato) was gathered (Spier 1930:10).

The territory of the Modoc is delineated by Ray (1963:xii) as follows:

The tribal territory of the Modoc was roughly foursided, permitting the boundaries to be described in terms of the cardinal directions. The western line was that of the Cascade Divide, extending from the summit of Mt. Shasta northward to within two or three miles of the present California-Oregon border. The northern boundary ran from this point northeasterly to the region of small lakes south of Quartz Mountain, and southeasterly to Goose Lake, again at the Oregon-California border. The boundary emerged from the lake at its southern extremity, then followed a southeasterly direction to Mt. Shasta. Goose Lake was shared with the Yahuskin Paiute and the Achumawi. Only a part of the western shore was the territory of the Modoc.

Klamath-Modoc Tribelets

The Klamath and Modoc were divided into several areal subdivisions known as tribelets (Spier 1930:21, Stern 1966:19,
Ray 1963:204ff). Spier notes that all groups were "readily defined by the [geographical] districts they occupy, the names of which they bear" (1930:21-22). These tribelets appear to be strictly geographical units, rather than subdivisions based on any dialectal or cultural differences (Stern 1966:19). Ray (1963:203) makes the following comment regarding the nature of the tribelets:

These divisions were strictly geographical, not ethnic nor political except quite incidentally. The minor cultural differences which distinguished one group from another were the consequence of response to the physical environment, either in terms of the resources available or the configuration of settlements and their positions with respect to ceremonial centers and neighboring tribes.

Feuds frequently occurred between tribelets but never between settlements of a single such subdivision. These raids were carried out much like warfare with foreigners or non-Klamath — property was destroyed and slaves were taken. When threatened by outsiders, however, the tribelets banded together for protection.

Five Klamath tribelets are distinguished by Spier who also gives the general location of 62 major village sites (1930:12-21). The Klamath divisions are as follows:
(1) The Klamath Marsh - Williamson River group (aukckin) -- Spier records 29 villages for this group which outnumbers all the other groups together. The settlements were primarily located along the southern margin of the Klamath Marsh and along the lower Williamson River.

(2) The Agency Lake group (kowacdkni) -- Only one winter village site was recorded for this tiny group on the north shore of Agency Lake. Spier mentions that this group may be a splinter group of the Klamath Marsh peoples (1930:23).

(3) The Lower Williamson River group (dukwaikni) -- Five villages identified with this group are located at the mouth of the Williamson River on the north end of Upper Klamath Lake.

(4) The Pelican Bay group (gumbotkni) -- Ten sites are mentioned on the west side of Upper Klamath Lake and on the marsh north of the lake which were occupied by this group.

(5) The Klamath Falls group (iulonkni) -- These southern-most Klamath occupied a large area along the east shore of Klamath Lake in the vicinity of Klamath Falls where 17 sites are recorded by Spier. During the summer, families of this group frequently moved to the marshes west of the lake or to Lost River.
A sixth Klamath group is alluded to by Spier (1930:13) and is set forth by Wheeler-Voegelin (1955:118) and Stern (1956b:242, 1966:19):

(6) The Upland Klamath of the Sprague River Valley (no native designation given) -- Although Spier mentions these people in connection with the Klamath Marsh group, he notes that the towns were widely distributed far upriver, quite unlike the extremely close settlements of the people near the marsh. Roots were dug along the Sycan River, and the Sycan Marsh was used as a summering place.

The Modoc were comprised of three tribelets whose territories are defined by Ray (1963:202-203), (c.f. Stern n.d. for a different interpretation of group names):

Modoc tribal territory was divided into three geographic areas and the residents of each area were known by a distinctive name. The Gumbatwas were, literally, "people of the west." The root of the name was the word for west; the point of reference was Tule Lake. Thus, all Modoc living west of line following the ridge between Lower Klamath Lake and Lost River Valley, to the northwestern corner of Tule Lake, then through the lake to its southeastern corner, then southeastward to the southern tribal boundary, were Gumbatwas.
All tribesmen living to the east of this line, except for the lower valley of Lost River, were Kowiwas, literally, "people of the far out country," referring to their remoteness from the more concentrated population centers of the lower Lost River Valley and the Lower Klamath Lake region. Many of their villages were located on the far reaches of Lost River, east of Lost River Gap (now Olene, Oregon) with a heavy concentration in Langell Valley. Apparently the name of the river was different on the two sides of the gap, the designation (Kokiwat) in the Gumbatwas area being derived from, or giving its name to, the divisional population.

The Modoc of Lost River Valley from the gap to Tule Lake were Paskanwas, which means "river people," possibly a name derived from that of the lower river.

Forty-seven village sites and ritual centers are plotted by Ray within Modoc territory. Both Klamath and Modoc villages tended to be clustered about lakes and rivers where there was a plentiful source of water and fish.

Subsistence

Much like the Northern Paiute, the Klamath-Modoc moved about on an annual subsistence round in response to local food resources
availability. The primary difference between the subsistence patterns of the two groups was the greater abundance of food resources which were available to the Klamath-Modoc. Consequently, group territories were smaller and settlements were occupied for longer periods of time in the Klamath-Modoc region than in the more arid areas occupied by the Northern Paiute.

As winter drew to a close, the inhabitants of the winter villages prepared to move to other locations along the rivers and lakes where the spring fish runs, which usually occur in March, could be easily caught and dried. Stern (1966:11-12) describes the activities which no doubt took place in the early spring:

At the spot on the [Sprague River] where Gmukamps ["Earth Maker"] first instituted the tradition, the Klamath observe the first sucker ceremony, which ensures propitious run. On the lower reaches of Lost River near present-day Olene, there is a famous fishing station, where Modoc and many Klamath congregate for several weeks, catching and drying an estimated fifty tons of fish. On a stream tributary to the upper Sprague, the teeming run of small suckers draws upland Klamath, Modoc, and Paiute and gives to the nearby settlement, the easternmost of the permanent villages of the Klamath, the name "Sucker-fishery." Others make their way to stone
weirs, built, it is said, by Gmukamps himself, or to the lakes to fish with a variety of dip nets, gill net baskets, the two-pronged harpoon and the multibarbed spear. At night, men set forth in canoes upon the lake to fish by torchlight. Set lines are put out infrequently. While the men catch the fish — suckers, salmon, and trout — their wives work ceaselessly, splitting them and laying them in the sun to dry.

As the fish runs began to abate, families moved to the digging grounds of the flats and meadows to collect important root crops, primarily camas, epos (or ipos, Carum sp.), arrowroot, and yans or segon lily (Calochortus sp.). Tule and cattail roots were also gathered along with wild celery, mosses, and the eggs of waterfowl. Small game was continually hunted, and occasional fishing continued. The Modoc began stalking antelope and mountain sheep, as well as deer, during the latter part of the summer. Additional fish runs in August and September provided additional opportunities to increase the stores of dried fish. As summer wore on and fall began, the higher elevations of the region were occupied as the women picked berries and gathered a wide variety of seeds, including wokas (pond lily seeds). Detailed discussions of the fish, animals, birds and plants utilized by the Klamath and Modoc and the techniques by which they were procured and prepared are presented in Coville (1897, 1902), Ray (1963, Appendix II), and Spier (1930:144-169).
While the Klamath and Modoc made use of the same resources, they emphasized different foods according to what was most abundant in their region. The Modoc relied more upon hunting than did the Klamath whose primary food was fish. Also, the most important plant food of the Modoc was epos (*Carum oreganum* Wats.), while wokas (the seeds of *Nymphaea polysepala*) was of primary importance to the Klamath. These minor differences in food utilization should be seen as resulting from local environmental variation and not as indicating different cultural traditions.

In October, as winter began to settle in the basin, the people returned to their winter villages and their caches of dried fish and meat. The earth lodges were rebuilt and firewood was gathered in preparation for the long cold winter. In December, the winter run of trout appeared, and more fishing was undertaken in the streams and open lakes. Fishing continued on a smaller scale throughout the winter by fishing through holes in the ice. Hunting of deer and small game was also pursued through the winter. The people sustained themselves during these lean months by relying on their caches of meat and fish and on occasional fresh fish and game. If spring was late in arriving, the people sometimes resorted to eating hides, lichens, or the tender new cambrium layer beneath the bark of young ponderosa and lodgepole pines. Nowhere, however, is there
any mention made of people starving because food was scarce at any time. In this way, the Klamath-Modoc were more fortunate than the Northern Paiute.

Due to the semisedentary nature of the Klamath-Modoc villages and the regularity with which the sites were revisited, the inventory of material items was significantly greater among the Klamath and Modoc than among the Northern Paiute. Although many tools were fashioned for immediate, short-term use from available cobbles or flakes, many other items were the result of many hours of painstaking labor. The following brief presentation of the types of implements, clothing, and shelters made and used by the Klamath and Modoc is derived primarily from Barrett's study (1910) of Klamath-Modoc material culture. His information has been supplemented by Spier (1930:144-217).

The most distinctive stone implements of the Klamath are thin, flat metates and two-horned mullers which were favored for grinding wokas seeds. Lava mortars and cylindrical pestles were also used for grinding seeds but were less common. Hopper mortars were used by the Modoc, but not by the Klamath. Although Barett (1910:247) mentions stone axes and adzes in conjunction with the Klamath-Modoc, Spier (1930:172) states that he knew of no such stone tools. The general lack of large stone chopping and cutting tools from archaeological deposits (Cressman 1956) favors the information given by Spier. Shaft straighteners consisted of a flat-bottomed stone with a single groove ground across the top of a doughnut-shaped stone. Net
sinkers were round stones, three to four inches in diameter, which were each encircled by a groove about which a cord was tied to join the weight to the net. Knives, scrapers, arrow points, and spear points were primarily made of obsidian. Small anthropomorphic sculptures called **henwas** were used by shamans and were believed to have special powers. The Klamath County Museum in Klamath Falls, Oregon has an impressive display of these figures. Roy L. Carlson has described what is known of **henwas** and other stone sculpture of the region (1959). Many stone utilitarian items such as bowls, Mortars, manos and metates were decorated by the Klamath.

Bone and horn tools included elkhorn wedges, bone awls, large bone points for fish spears, fish hooks, and elkhorn adze blades which were lashed to wooden handles. Bone knives were often used to separate the inner and outer bark of pine trees. River shells were sometimes used to make sharp cutting knives. **Dentalia** were used for ornamentation.

Woodworking was an undeveloped art to a great extent. The most ambitious woodworking project undertaken was the building of a canoe. The typical canoe, preferably made from a ponderosa pine log and hollowed by fire, was a "clumsy-looking, trough-like affair, with blunt ends, heavy and long" (Spier 1930:169). Most canoes were only eight to ten feet long and 18 to 24 inches wide, but some were as large as 35 feet long and three feet wide. Wood was also used for the planks of the earth-lodge roof and for carved figures of spirits made by shamans (Spier
Canoe paddles were made of juniper. Wokas gathering staffs consisted of a long pole to which a bundle of 18-inch-long wooden prongs were tied at one end. These poles were pressed against the roots of the wokas to gather the plants.

Hardwood mauls, used in conjunction with antler wedges for woodworking, are reported by Spier (1930:171). Digging sticks were about three feet long and were usually made of mountain mahogany or serviceberry. Wooden spoons and buckets of lodgepole pine bark were also made.

The basketry of the Klamath-Modoc was twined into both soft and rigid items from tule, cattails, and swamp grasses. The wide variety of basketry which was manufactured includes the following inventory (Spier 1930:178):

There are really only four or five types of basket from a structural standpoint. Twined bowls, hats, gambling or sifting trays, and circular baskets, all in close twine weave; burden baskets of all forms and storage baskets, in open twine, are simply variations of one structural procedure. The second type, comprising seed beaters, ladles, and winnowing baskets, are open twine construction based on rigid warps bent into a loop. Triangular fans and trays, two-handled baskets, canoe-shaped receptacles, fish traps, and cradles, all of open twine, constitute a
class differing but little from the last. The fourth group is the twined flat bag. Each of these groups merges structurally into the others, largely as variations in form demand. But the fifth type, the water basket, is built on an entirely different principle, namely, coiling.

Mats of tule and grasses were also woven to be used as bedding and house coverings. Rafts were quickly constructed by lashing bundles of tules together. Cordage was fashioned from nettle bark and flax fibers and made into nets. Three-strand ropes were braided from grasses, tule, hide and nettle fibers.

Cradleboards were constructed of willow sticks and tules. Babies were padded with soft tule bark and wrapped onto the cradle with fur or cordage. Flattening of the forehead was customarily accomplished by tying a stuffed buckskin sack across the child's head and onto the cradle. Hrdlicka's informants noted that "the Klamath regard a long head, i.e., a non-deformed head, with derision. They say it is slave-like, that their slaves had such, and that a man with such a head is not fit to be a great man in the tribe. Deformed heads are called "good heads"" (Hrdlicka 1905).

Weapons of the Klamath-Modoc included three-foot bows with sinew backing, wooden clubs, spears, body armor of hide or tules, and in rare cases a hide shield. Arrows had wooden or reed shafts and were kept in tule quivers.
Clothing was optional during the warm summer months, but was required in winter. Apparel included sagebrush bark or skin skirts for women and skin aprons and leggings for men. Twined basketry hats were frequently worn in all seasons "because they were considered decorative and as protection from sun in summer, cold in winter, and chafe of the forehead tumpline by which burdens were carried" (Ray 1963:164). Summer moccasins were made of skin, while winter shoes were woven from tule or sagebrush bark. Winter robes were made of skin, fur, or feather strips or woven of tule or swamp grass.

Shelter

Several different forms of shelter were constructed by the Klamath-Modoc according to their activities and needs. Spier (1930:197-206) and Ray (1963:146-163) describe the following house types in detail:

(1) The winter earth lodges were dismantled every spring, probably to air out the circular house pits which were between two and four feet deep. The Modoc tended to construct deeper house pits, while the Klamath preferred more shallow ones. The conical roofs of the houses were supported by log beams and rafters. Tule mats were placed over the rafters and covered with earth to insulate the lodge. Occupants and visitors entered the lodge through the smokehold in the roof. The lodges were rebuilt with new timbers in the late fall before the snows
fell. Several families often occupied a single dwelling which could be as large as 35 feet in diameter.

(2) The summer houses were smaller in size and were rebuilt every summer. No pit was excavated for the floor of the house, and mats formed the only covering for this type of dwelling.

(3) Dome-shaped cook houses were often constructed next to the winter earth lodges. Bent willow poles formed the frame which was covered with mats to form a circular enclosure about ten feet in diameter. In addition to being used as cook houses, domed huts were also used to store bulky materials, such as floor grass, matting materials, firewood, extra mats, and metates. Occasionally these huts were built for summer habitation. Although these structures were intended for cooking, storage, or summer use, elderly persons who had difficulty climbing in and out of the earth lodges sometimes used abandoned cook houses for winter shelter.

(4) Two kinds of sweatlodges, commonly known as summer and winter lodges, were both utilized at all times of the year. The "summer" lodge was a dome-shaped mat-covered affair which was blanketed with grass to hold in the steam. The "winter" lodge was somewhat smaller and was covered with sticks, bark, grass and dirt. Stones were heated in a fire outside the lodge and then rolled into a hollow in the sweathouse floor. Sweathouses might have been used jointly by men and women.
Miscellaneous house forms include menstrual huts where women were isolated during menses and childbirth, and mourners' sweatlodges which closely resembled the winter earth lodge.

Sociopolitical Organization

Klamath-Modoc social activities can be divided into three realms: warfare, religious affairs, and domestic affairs. Accordingly, the leadership offices of war chief, shaman, and leader or chief corresponded to each of these realms (Ray 1963:3). Each was restricted to his specific sphere of activities and had no authority in other matters. The functions of the war chief and the shaman were specialized and obvious. The domestic leader was responsible for keeping peace within the community and maintaining good relations with other communities. Oratory, haranguing, arbitration, casual advice, and leadership by example were the principal means by which the leader fulfilled his obligations to the community. Leaders held their positions with the consent of the group and had little power. A village might have one or more leaders depending on its size; some tiny villages had no leaders and followed the example of a larger neighborhood village within the same tribelet. The basic qualities sought in a leader were oratorical ability, wealth, and size of household, the latter of which was an indication of the number of people over which he had domestic control.
Although there were wealth differences among the Klamath-Modoc, there was no formal class stratification. Wealthy men were accorded prestige as indicated by the fact that the same term was used for chief and wealthy person (lo'ki). The attitude of the Klamath-Modoc toward the poorer folk is depicted by Stern (1966:17):

A poor man is 'like a slave'. The impenurious aged, lacking kinfolk to provide for them, are no better. Yet the myths do not depict the lot of the poor and the orphan as inalterably fixed: by dint of striving they may win their way to spiritual power and to material afluence, thereby gaining the esteem of their fellows.

Slaves, which were frequently taken in raids against opposing tribelets or neighboring tribes, were treated as inferior to the rest of the population. Lost slaves were sold or traded at The Dalles in exchange for a variety of trade goods or horses. Slaves sometimes married into the group by which they were taken, but some stigma remained throughout the rest of their lives. Much of the information on the practice of slavery among the Klamath indicates that the taking of slaves was rare or nonexistent prior to Euro-American contact. Ray states, however, that "Modoc tradition held that the taking of slaves had always been a tribal practice" (1963:145).
The force of public opinion and familial pressures, in addition to the prestige of leaders and checks imposed by rival villages, served as forms of social control. Differences between rival villages often grew into feuds which were joined by the kin groups of both parties if the disputes were not quickly settled.

Religious Beliefs

The shamanistic complex was the central focus of Klamath religion. According to Spier (1930:93),

Klamath religion centers so largely in shamanism that it may be permissible to describe the whole in terms of shamanistic practices, the spirits with which they are concerned and the acquisition of supernatural powers . . . The religion is only weakly developed. Power is sought from a host of spirits whose characteristics are not sharply defined. These are predominantly birds and animals, winds, lightning and the like, and a handful of anthropomorphic beings. They are however definitely localized in many instances and partly identified with the figures of mythology. But there has been no attempt to marshal the spirits into an ordered pantheon. Relations to the spirits have no ethical implication. The belief in a land of the dead, too, stands apart from the
spirits and their functions. It has solely a folkloristic existence, for it little concerns the actions of the living.

Both men and women could be "called" in a dream by the spirits to become shamans. After communing several times with the spirits and receiving their powers and support, an inaugural dance of five days duration was given by the initiate as a means of announcing to neighbors and nearby villages that the new shaman was ready for public practice. Shamans were primarily responsible for curing diseases and wounds, but they also acted occasionally to call back lost souls, control the weather, foretell the future, and locate lost or stolen objects. Some of the more common spirits which lent their powers to all shamans were Eagle, Fish Hawk, Frog, Pelican, Crow, Rattlesnake, and the ghost spirit (Ray 1963:46). The status of the shaman is clearly stated by Spier (1930:107):

It is clear that the shaman is the most important individual in Klamath society, taking precedence over rich men, the chiefs. Shamans' houses are the largest in the village and they have at least as much property as wealthy laymen. Invariably my informants spoke first of shamans in describing outstanding individuals.
Although the acquisition of supernatural powers was restricted to shamans, all individuals embarked on crisis quests several times during their lives. The purpose and format of such quests were as follows (Ray 1963:77):

Certain crises in the life of the individual were occasions for observance of a quest involving fasting, isolation, strenuous artificial activities, and ritual bathing. The occasions for such ritualization were puberty, the birth or death of one's child, and consistent and serious losses in gambling; also, occasionally, chronic illness, or the death of one's spouse. The basic ritual pattern was identical for all ... The framework of the ritual was a quest in which the individual wandered about the woods and hills in areas isolated from human settlements. That which was sought in the quest was a prophetic and satisfying dream. This was achieved by engaging in energy-consuming but economically worthless activities [such as piling rocks], followed by a short period of sleep.

The remains of these vision quests, in the form of vision quest mounds or piled stones, are abundant in the upland regions of the Klamath Basin and may still be found today.
The sweat house was an important part of the crisis quest. Prayers were most frequently made in the sweat lodge, where spiritual and bodily cleansing also took place. Shamans sometimes performed curing ceremonies in the sweat lodge.

Death was conceived as the departure of one's soul. The universal practice for disposing of the dead among the Klamath-Modoc was by cremation. Corpses were sometimes transported for long distances so that they could be cremated at the regular cremation place of the paternal relatives. The cremation site was usually located a short distance from a group of settlements (Spier 1930:71-76, Ray 1963:113-122).

Mythology was an integral part of Klamath-Modoc culture and characterized the world view of the people. Studies of Klamath-Modoc mythology include those made by Barker (1963b), Clark (1953), Curtin (1912), Gatschet (1879), Spencer (1952), and Stern (1953, 1956a, 1963).

Intertribal Relations and Trade

The historical record of the interactions between the Klamath and Modoc and other native groups presents a complex picture (Anastasio 1972). The earliest recorded raids against the Klamath were made by the Sahaptin speakers of the middle Columbia River region in the early 1800's who, equipped with guns and horses obtained through trade further north, began to take Klamath slaves (Ray et al. 1938). Before midcentury,
however, the Klamath and Modoc were raiding other neighboring tribes in turn, particularly the Shasta and Achumawi, for slaves to be traded at The Dalles. A general view of intertribal relations is offered by Spier (1930:24-25):

Besides the close bond with the Modoc, normally friendly relations are maintained with the Molala across the cascades, the Watankni (Warm Springs people) of the Deschutes, and the Wishram-Wasco at The Dalles. Warfare is directed toward all other directions. Raids are exchanged with the Shasta several days' journey down the Klamath River, the Upland Takelma on the Rogue River, and the Northern Paiute (Snake) of the desert to the east. The Klamath fight the Kalapuya and take horses from the Warm Springs Indians.

Spier (1930:24-25) also mentions that the Sahaptins, Cayuse and Shasta had been known to raid the Klamath for slaves, but such raids apparently were quite rare.

That a profit motive was responsible for these raids is made clear by Chiloquin, one of the Klamath leaders at that time:

When the Snakes [Northern Paiute] made war on us that made us keen to fight other Indians and we made war without provocation on the Pitt Rivers, Shastas and Rogue Rivers, but they never made willing war on us.
Those wars lasted a great many years. We found we
could make money by war, for we sold the provisions
and property captured for horses and other things we
needed. It was like soldiers nowadays who fight for
money. We made war because we made money by it and we
rather got to like it anyhow. The snakes provoked us
to make war on them. (Cited in Stern 1966:23)

The Modoc rarely journeyed to trade at The Dalles as the Klamath
usually acted on their behalf in trading at The Dalles. Items
exchanged by the Klamath at The Dalles included slaves, Pit
River bows and beads, and lily seed (wokas) which were swapped
for horses, blankets, buffalo skins, parfleches, beads,
dentalium, dried salmon and lamprey eels (Spier and Sapir
1930). Buckskin clothing was also a popular item of trade at
The Dalles during later historic times.

Historic Contact

The Klamath-Modoc first felt the effects of Euro-American
contact indirectly through the raids staged against them by the
Sahaptin speakers to the north in the early nineteenth century.
Shortly thereafter, the effects of white contact were more
clearly seen in the form of guns, horses and other trade items
obtained from The Dalles. The acquisition of the gun and the
horse led in turn to an emphasis on warfare and the consequent
accumulation of foreign wealth. Leaders and war chiefs began to
take on more importance in the communities than the shamans.
The arrival of the white settlers was a time of upheaval for the Klamath-Modoc. The settlers displaced the native occupants, taking many of the choicest areas and turning their livestock out to browse on the camas, kous and berries which were mainstays of Klamath-Modoc subsistence. After a while, the land could not support the traditional lifeways of the natives.

The misappropriation of their lands and the degradation to which the aboriginal inhabitants were subjected by the white settlers led to raids between the two. Eventually, these disputes escalated to the Rogue River Indian Wars of 1851-1856, which involved the Klamath, Modoc, Shasta, Takelma, and several other neighboring groups (Beckham 1971, Sutton and Sutton 1969).

The Treaty of 1864 led to the removal of the Klamath and Modoc to the Klamath Reservation northeast of Upper Klamath Lake within the boundaries of the Lakeview BLM District (Beckham 1977, Johnson 1947, Stern 1956b). The disillusionment of the Modoc with reservation life was expressed in the brief Modoc War of 1872-73 (Murray 1959, Riddle 1914, Powers 1877, Stern 1966). Changes which drastically affected the material culture, sociopolitical structure and religious belief system of the Klamath-Modoc have been discussed by Stern (1966) and Zakoji (1953). One of the most significant movements to sweep through the Klamath and Modoc was the nativistic Ghost Dance religion which was introduced in 1871 by a Paiute (DuBois 1939; Nash 1937; Spier 1927b, 1935). The Klamath Reservation was
terminated by law in 1954; the process of termination and the
life of the Klamath and Modoc before and after 1954 is throughly

Appendix C Achumawi Ethnography (from Minor et al 1979:131-135)

To the south of the Shasta and Modoc peoples and west of the
Northern Paiute lived the Achumawi or Pit River Indians of
northern California. Ethnographic accounts of Achumawi culture
include those by Kroeber (1925:305-317), Merriam (1926, 1928),
Kniffen (1928), and Angulo (1926, 1928). The most up-to-date
and all-encompassing summary of the Achumawi is presented by
Olmsted and Stewart (1978) from which most of the following
summary is taken.

Language

The language of the Achumawi belongs to the Palaihnihan family
of the Hokan phylum of North American Indian languages (Olmsted
1964, 1965, 1966). The only other member of the Palaihnihan
family is the language of the neighboring Atsugewi people. The
Achumawi and Atsugewi have sometimes been jointly referred to as
the Pit River Indians. The appellation was derived from the
practice of the local inhabitants of digging pits along the
river for the purpose of trapping deer.
The tribal designation is drawn from the Achumawi term for "river people" (azuma-\textit{wi}), which originally was used to refer to one tribelet of the Achumawi (Olmsted 1966). Anthropologists and historians later applied this term to all who spoke dialects of the Achumawi language. The Klamath called the Achumawi blaykni ("uplanders") and mo watwa s ("home in the south") (Barker 1963a:63, 242, 544; Powell 1891:97; Gatschet 1890:269).

Territory

The variable nature of Achumawi territory is emphasized by Olmsted and Stewart (1978:225):

The Achumawi or Pit River Indians had a varied material culture in response to the great variation in elevation, climate, and vegetation of their homeland. In the west Mount Shasta (14,162 feet) and Lassen Peak (10,466 feet) served as the northwest and southwest corners of Pit River Indian territory. The eastern boundary separating the Achumawi from the Northern Paiute was marked by the Warner Range with a half-dozen peaks ranging from 7,843 to 9,934 feet above sea level. Twenty peaks over 6,000 feet elevation were scattered over the Pit River interior area, breaking it into many district valley and stream systems. From the high of over 14,000 feet, Achumawi
territory descended to sections of Pit River canyon below 2,000 feet elevation. Most of the valleys and plains vary in elevation between 3,500 and 5,500 feet.

Concomitant with the great elevational variation, Achumawi lands included many life zones and vegetation types in and around the swamps, lakes, rivers, springs, meadows, mountains, grasslands, and recent lava flows. The diversity offered by the land provided a rich subsistence base for the Achumawi.

Ethnographic Lifeways

The diverse subsistence potential offered by the land was well utilized by the Achumawi. Goose Lake, in the northeast corner of Achumawi territory, and Eagle Lake to the south were both used for fishing. In addition, about 50 miles of salmon streams and 150 miles of streams containing bass, catfish, lamprey, pike, suckers, trout, minnows, crawfish and mussels were also utilized (Olmsted and Stewart 1978:225). Basketry traps, dip-nets, gill-nets, and seines were used for fishing (Curtis 1924:136-137).

Ducks, geese, mudhen, swans, cranes, grebes, pelicans, coots and other waterfowl were netted in their swampy breeding grounds. The swamp lands also provided tules, which were used as food and for twining mats, shoes, cloaks, floor and house coverings, and rafts.
The grasslands provided an abundance of vegetable foods and fibers and insects. Squawroot (*Perideridia* spp.), camas, brodiaea bulbs, tiger-lily bulbs, wild onions, and other bulbs were gathered during the summer to be dried and stored for winter. Milkweed (*Apocynum*) fibers were twisted into string which was used in making nets and cordage. Young clover and thistle plants were best when eaten in the early spring. A variety of wild grass seeds were collected in the fall with baskets and seed beaters. Some of the tougher grasses were woven into baskets and were used as roofing thatch for winter houses. Basketry was also twined from willows as well as grasses. The grasslands were frequently burned in the late fall in order to stimulate the growth of seed and berry plants and also to drive deer and collect insects.

The wooded areas of pine and juniper were most important as hunting areas, where sage hens, grouse, jack rabbits and deer were plentiful. Some game animals, such as the mountain sheep, elk, and antelope, were found only in the higher elevations. Game animals were not hunted solely for their meat; hides were made into shields, robes and blankets, shirts, caps and quivers, while hooves became rattles. Antlers were fashioned into tools such as chisels and arm shaft straighteners. Other animals hunted were: bear, badger, coyote, beaver, chipmunk, fox, groundhog, marten, mink, skunk, otter, mountain lion, mole,
porcupine, rats, raccoon, turtles, squirrel, wildcat, weasel, and wolf. In addition to game, the forests provided pine sap sugar and a variety of berries and nuts (acorns, pinon pine nuts).

Summer huts took the form of conical or hemispherical tipis which were covered with tule mats (Curtis 1924:137). More substantial winter dwellings were large semisubterranean houses about 15 feet square. Wooden poles and cross beams served as a framework upon which grass, tule and bark were placed and then covered with a heavy coat of earth (Curtis 1924:138-139).

Due to the abundance of obsidian deposits in the region, many arrow points, spear points, knives and scrapers were made from the volcanic glass. Bows were usually made of yew, mahogany or juniper, while arrowshafts were made from many different woods.

The Achumawi were organized into autonomous political units or tribelets, which Kroeber (1932:258) defined as "groups of small size, definately owning a restricted territory, nameless except for their tract or its best-known spot, speaking usually a dialect identical with that of several of their neighbors, but wholly autonomous." Although the tribelets had well-defined and separate territories, they were bound through intermarriage and their common language.
The Achumawi maintained close, friendly ties with the Atsugewi to the south with whom they frequently intermarried. Relations with the neighboring Shasta, Yana and Northern Paiute were limited to occasional amiable encounters while hunting along territorial borders or to infrequent trading sessions. The Modoc, however, frequently raided the Achumawi for slaves and loot (Stern 1966:19, Olmsted and Stewart 1978:231).

The religious beliefs and closely associated practices of folk medicine as employed by the Achumawi have been discussed extensively by Angulo (1928). Achumawi religion centered about the concept of the tiniho-wi ("guardian spirit" or "medicine"). This supernatural power brought good luck in hunting, fighting, gambling and curing. The ziki?=wa lu ("doctor" or shaman) was highly respected due to the powers bestowed by his tamakomi, which was "power" or "medicine" even stronger than a tinihowi. The shamans were called upon to cure sicknesses, heal wounds, counteract poisoning by another shaman, and call back wandering souls. In such cases, if the shaman failed, the patient died. The dead were usually taken to a nearby spot and cremated without ceremony.

Historic Contact

Unlike many other groups, the Achumawi have continued to occupy their precontact territory to the present day. Nonetheless, white contact has had a considerable impact upon the Pit River Indians. In addition to dramatic cultural changes, the Achumawi
have undergone a drastic decline in population over the last 100 years. Kniffen (1928:299) calculated that the Pit River Indians originally numbered 3,000 prior to the arrival of the Euro-Americans. In 1936, the number had diminished to about 500 (MacGregor 1936). Despite their depleted numbers, the Pit River Indians are one of the largest Indian groups in California and are an active force in current American Indian affairs (Olmsted and Stewart 1978:235).
Appendix D  Fremont National Forest Cultural Resource Reports on File at the Oregon State Historic Preservation Office as of September 1982

SHPO FILE
NUMBER

1160 Anonymous
1979 Environmental Assessment — Deschutes/Fremont/Winema Land Exchange with Weyerhaeuser Company (proposed) with report on the Sycan Marsh Archaeological District, Fremont National Forest

171 Bunten, Hugh, (Jr.)


170 Burtchard, Greg C.
1978 Archaeological Inventory of Twelve Proposed Drill Locations on the Fremont National Forest, T.40S., R.16E.

799 DeCarufel, David


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<tr>
<th>Year</th>
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<tr>
<td>1979f</td>
<td>Proposed Spring Developments, Silver Lake Ranger District, Fremont National Forest, T.27-31S., R.11-16E.</td>
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<tr>
<td>1979g</td>
<td>Buck Creek Pond Project, Silver Lake Ranger District, Fremont National Forest, T.29S., R.13E.</td>
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<tr>
<td>1979h</td>
<td>Wart and Trapper Timber Sale, Silver Lake Ranger District, Fremont National Forest, T.26S., R.11-12E.</td>
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<td>1979i</td>
<td>Pole Butte Timber Sale, Silver Lake Ranger District, Fremont National Forest, T.40S., R.16E.</td>
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<td>1979j</td>
<td>Cultural Resource Surveys, Thompson Valley Administrative Site, Silver Lake Ranger District, Fremont National Forest, T.30S., R.14E.</td>
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<td>1979k</td>
<td>Silver Timber Sale, Silver Lake Ranger District, Fremont National Forest, T.30S., R.13-14E.</td>
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<td>Bear Flat Fence, Silver Lake Ranger District, Fremont National Forest, T.28S., R.11-12E.</td>
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<td>1980b</td>
<td>Brattain &amp; Sycan Fence Construction, Silver Lake Ranger District, Fremont National Forest, T.31S., R.14E.</td>
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<td>1980c</td>
<td>Pond Development #9, Silver Lake Ranger District, Fremont National Forest, T.31S., R.13E.</td>
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<td>1980e</td>
<td>McCarty Spring &amp; Pond Development Site, Silver Lake Ranger District, Fremont National Forest, T.26S., R.12E.</td>
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<td>Rim Pond Development, Silver Lake Ranger District, Fremont National Forest, T.31S., R.16E.</td>
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4166 1982 Honey Timber Sale, Lakeview Ranger District, Fremont National Forest, T.36-37S., R.13-14E.

Cooper, Larry

3267 n.d. Horseglaides West Boundary Fence, Bly Ranger District, Fremont National Forest, T.33-34S., R.13-14E.

Jesperson-Zukosky, Michelle

3937 n.d. Power Timber Sale, Bly Ranger District, Fremont National Forest, T.37S., R.11-12E.

Kaiser, John

3546 1981 Ashcraft Timber Sale, Lakeview Ranger District, Fremont National Forest, T.40S., R.18E.

3547 1981 Roo Timber Sale, Lakeview Ranger District, Fremont National Forest, T.40S., R.17E.


4163 1982 Dog Lake Proposed Work Center Site, Lakeview Ranger District, Fremont National Forest, T.40S., R.17E.

4164 1982 Purple Sage Timber Sale, Lakeview Ranger District, Fremont National Forest, T.40-41S., R.16-17E.

4165 1982 Last Straw Timber Sale, Lakeview Ranger District, Fremont National Forest, T.40S., R.15-16E.

4166 1982 Honey Timber Sale, Lakeview Ranger District, Fremont National Forest, T.36-37S., R.21-22E.

4167 1982 Tull Thinning Sale, Lakeview Ranger District, Fremont National Forest, T.36-37S., R.20E.
Silvermoon, Jon M.


3551 1981b Pup Timber Sale, Paisley Ranger District, Fremont National Forest, T.34S., R.18E.

3552 1981c Cannonball Timber Sale, Paisley Ranger District, Fremont National Forest, T.36S., R.18-19E.

3553 1981d Cranium Timber Sale, Paisley Ranger District, Fremont National Forest, T.33S., R.15E.

3554 1981e Short Timber Sale, Paisley Ranger District, Fremont National Forest, T.32-33S., R.15-16E.


3958 1982a Gem Timber Sale, Paisley Ranger District, Fremont National Forest, T.34S., R.15-16E.


4142 1982c Cross Timber Sale, Paisley Ranger District, Fremont National Forest, T.32-33S., R.14-15E.

4168 1982d Teepee Timber Sale, Paisley Ranger District, Fremont National Forest, T.36S., R.17E.

4169 1982e Fawn Timber Sale, Paisley Ranger District, Fremont National Forest, T.36S., R.18E.

4170 1982f Cub-O-Coffee Timber Sale, Paisley Ranger District, Fremont National Forest, T.33-34S., R.17E.

4171 1982g Swamp Skyline Timber Sale, Paisley Ranger District, Fremont National Forest, T.33-34S., R.18E.

4172 1982h Long Trim Timber Stand Improvement, Paisley Ranger District, Fremont National Forest, T.32-33S., R.15-16E.

Steward, Keith

1947 1980a Dicks Timber Sale, Bly Ranger District, Fremont National Forest, T.33S., R.13E.

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<td>n.d.</td>
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<td>Gooch Timber Sale, Bly Ranger District, Fremont National Forest, T.37-38S., R.13-14E.</td>
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<td>Spodue Timber Sale, Bly Ranger District, Fremont National Forest, T.34S., R.12-13E.</td>
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**Walton, Patrick**

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**Wilson, Bob**

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Appendix E
Historic Preservation Laws and Regulations
(from Zukosky and Stutesman 1983)


Provides for the protection of historic or prehistoric remains or any object of antiquity on Federal lands; establishes criminal sanctions for unauthorized destruction or appropriation of antiquities; and authorizes scientific investigation of antiquities on Federal lands, subject to permit and regulations. Paleontological resources also are considered to fall within the authority of this Act (FSM 2361.1).


Authorizes the establishment of National Historic Sites and otherwise authorizes the preservation of properties of national historical, archaeological significance; provides the basis for the designation of National Historic Landmarks; establishes criminal sanctions for violation of regulations pursuant to the Act; authorizes interagency, intergovernmental and interdisciplinary efforts for the preservation of cultural resources; and other provisions (FSM 2361.1).

Provides for the recovery and preservation of historical and archaeological data, including relics and specimens, that might be lost or destroyed as a result of the construction of dams, reservoirs, and attendant facilities and activities (FSM 2361.1).


Declares a national policy of historic preservation defined in the Act as the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture, including the encouragement of preservation on the State and private levels; directs the expansion of the National Register of Historic Places (National Register) to include cultural resources of State, local, and national significance; authorizes matching Federal grants to States and the National Trust for Historic Preservation for acquisition and rehabilitation of National Register properties; establishes an Advisory Council on Historic Preservation (ACHP); provides direction in Section 106 for Federal Agencies to follow in the event and undertaking affects a property on, or potentially eligible for the National Register. As amended, the
Act authorizes the Secretary of the Interior to withhold from disclosure to the public locational information on National Register listings "whenever he determines that the disclosure of specific information would create a risk of destruction or harm to such sites or objects" (P.L. 94-458, 90 Stat. 1942) Section 106 of the National Historic Preservation Act is implemented by regulations issued by the ACHP (36 CFR 800) (FSM 2361.1).


Declares that it is the policy of the Federal Government to preserve important historic, cultural, and natural aspects of our national heritage. Compliance with NEPA requires consideration of environmental concerns during project planning and execution. Procedural requirements of NEPA are implemented by regulations issued by CEQ (40 CFR 1500-1508) (FSM 2361.1).


Amends the Reservoir Salvage Act of 1960 to extend provisions and provide a mechanism for funding for the protection of historical and archaeological data at dams to involve any alteration of the terrain caused as a result of any Federal construction project or Federally licensed activity or program (FSM 2361.1).
Public Buildings Cooperative Use Act of 1976 (90 Stat. 2502) and Executive Order 12072 "Federal Space Management".

The Act encourages adaptive use of historic buildings as administrative facilities for Federal agencies and activities; the Executive Order directs Federal Agencies to locate administrative and other facilities in central business districts (FSM 2361.1).

American Folklife Preservation Act of 1976 (P.L. 94-201; Stat. 1129.)

Establishes an American Folklife Center within the Library of Congress "to preserve and present American folklife". Section 2 of the Act identifies and defines the national attitude toward the preservation and enhancement of American folklife historical and cultural terms. Defines American folklife as meaning the traditional expressive culture shared within various groups in the United States: familial, ethnic, occupational, religious, regional; including such elements of culture as custom, belief, technical skill, language, literature, art, architecture, music, play, dance, drama, ritual, pageantry, and handicraft (FSM 2361.1).

Establishes a policy of the United States protection and preservation for American Indians of their inherent right to freedom to believe, express, and exercise their traditional religions. The Act directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices (FSM 2361.1).


The Act clarifies and defines "archaeological resources", prohibits the removal, sale, receipt, and interstate transport of archaeological resources obtained illegally from public or Indian lands; provides substantial criminal and civil penalties for those who violate the terms of the Act; authorizes confidentiality of site location information; authorizes permit procedures to enable the study of site location information; authorizes permit procedures to enable the study and investigation of archaeological resources on public and Indian lands by qualified individuals. Supplements but does not replace the Antiquities Act of 1906 (FSM 2361.1).
NHPA of 1966 and makes Executive Order 11593 law (FSM 2361.1).

Other Acts such as the Multiple-Use-Sustained Yield Act of 1960
(74 Stat. 215), the Wilderness Act of 1965 (78 Stat. 890), the
476), the National Forest Management Act of 1976 (90 Stat.
2949), the Federal Land Policy and Management Act of 1976 (P.L.
94-579), and the Public Rangelands Improvement Act of 1978 (P.L.
95-514). Establish National Forest management direction and
thereby may affect cultural resource management activities (FSM
2361.1).

Executive Orders and Presidential Memorandum

Executive Order 11593, Protection and Enhancement of the
the Federal Government shall provide leadership in preserving,
restoring, and maintaining the historic and cultural environment
of the Nation; directs Federal agencies to ensure the
preservation of cultural resources in Federal plans and programs
and contribute to the preservation and enhancement of
non-Federally-owned sites; directs Federal agencies to locate,
inventory, and nominate to the National Register all properties
under their control or jurisdiction that meet the criteria for
nomination; directs them to exercise caution during the interim
period to ensure that cultural resources under their control are not inadvertently damaged, destroyed, or transferred before the completion of inventories and evaluation of properties worthy of nomination to the National Register; and directs the Secretary of the Interior to undertake certain advisory responsibilities in compliance with the order (FSM 2361.1).


36 CFR Chapter 11 Forest Service, Department of Agriculture (261.9 g.h. prohibitions).

The following are prohibited:

(g) Digging in, excavating, disturbing, injuring, destroying, or in any way damaging any paleontological, prehistoric, historic or archaeological resource, structure, site, artifact, or property.

(h) Removing any paleontological, prehistoric, historic, or archaeological resource, structure, site, artifact or property.
Oregon State Law

ORS 97.745 Prohibited Acts.

1. Except as provided in ORS 97.750, no person shall willfully remove, mutilate, deface, injure or destroy any cairn or grave on any native Indian. Persons disturbing native Indian graves through inadvertence, including by construction, mining, logging, or agricultural activity, shall at their own expense reinter the human remains under the supervision of the appropriate Indian tribe.

2. No person shall:

   a. Possess any native Indian artifacts or human remains taken from a native Indian cairn or grave on or after October 1979, in a manner other than that authorized under ORS 97.750.

   b. Publicly display or exhibit any native Indian human remains.

   c. Sell any native Indian artifacts or human remains taken from a native Indian's cairn or grave.

ORS 97.750 Permitted acts; notice.

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1. If such action is necessary to protect the burial from imminent destruction, and upon prior notification to the State Historic Preservation Office and to the appropriate Indian tribe in the vicinity of the intended action, a professional archaeologist may excavate a native Indian cairn or grave and remove material objects and human remains for subsequent reinterment under the supervision of the Indian tribe.

ORS 97.760 Civil action by Indian tribe or member.

1. Apart from any criminal prosecution, an Indian tribe or enrolled member thereof shall have a civil action to secure an injunction, damages or other appropriate relief against any person who is alleged to have violated ORS 97.745.
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