

UC Merced

Journal of California and Great Basin Anthropology

Title

Fish Lake Valley in Great Basin Prehistory

Permalink

<https://escholarship.org/uc/item/2qz6b3jf>

Journal

Journal of California and Great Basin Anthropology, 10(1)

ISSN

0191-3557

Author

Rafferty, Kevin

Publication Date

1988-07-01

Peer reviewed

Fish Lake Valley in Great Basin Prehistory

KEVIN RAFFERTY, Division of Anthropological Studies, Environmental Research Center, Univ. of Nevada,
Las Vegas, NV 89154.

FISH Lake Valley, situated in the western portion of the Great Basin (Fig. 1), is a region poorly known archaeologically, although a fairly extensive ethnographic data base is available (Steward 1933, 1938, 1941, 1970). The paucity of archaeological detail became evident during several surveys in the valley, where 17 sites were recorded in a 240-acre area (Rafferty 1984a, 1984b). A single cultural resource overview (Norwood et al. 1980) exists for comparative data, but it is limited to the California portion of the valley. Site records and cultural resource management reports are on file at the Bureau of Land Management office in Tonopah, Nevada.

This paper is an attempt to synthesize available data on the prehistory of Fish Lake Valley in a coherent manner. The intent is to create interest in an area containing archaeological and ethnographic resources that could yield valuable prehistoric settlement and subsistence data with potential for comparison with those available in the Owens Valley, to the west.

NATURAL SETTING

Fish Lake Valley is typical of the basin-and-range province, consisting of a broad, deep, alluvial valley bordered on all sides by sharply rising, north-to-south-trending mountain ranges (Fig. 2). This irregular crescent-shaped area is 45 miles (75 km.) long and 1 to 5 miles (1.6-8.4 km.) wide (Eaken 1950).

The valley receives less than five inches of rain a year. To the west, the White Mountains receive nearly 10 inches of precipitation in the form of rain and snow,

which provides the runoff for six permanent streams that descend to the valley floor. Temperatures average 48.9° F. (9.4° C.), with summer temperatures reaching 90-100° F. (32-38° C.), and winter temperatures often below freezing (Eaken 1950; Hall 1982).

Chiatovich Creek is the largest permanent stream with the greatest annual runoff. Additional water resources include Fish Lake Spring and Marsh in the eastern portion of the valley and a number of seeps and springs in the nearby mountain ranges (Eaken 1950; Rush and Katzer 1973).

To an elevation of 6,500 ft. (981 m.), the valley is dominated by a Desert Scrub or Shadscale plant community (Billings 1951; Lloyd and Mitchell 1973) consisting of big sagebrush (*Artemisia tridentata*), shadscale (*Artemisia confertifolia*), rabbit brush (*Chrysothamnus nauseosus*), some salt grass (*Distichlis spicata*), and rice grass (*Oryzopsis hymenoides*), the latter of which occurs in locally heavy stands. In the southern portion of the valley, creosote bush (*Larrea tridentata*) and Joshua tree (*Yucca brevifolia*) are found; the latter was an important early spring food resource (Steward 1938:64).

A Pinyon Woodland dominates elevations between 6,500 and 9,500 feet (1,980-2,875 m.) (Billings 1951; Lloyd and Mitchell 1973; Hall 1982). In addition to single-leaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*), big sagebrush forms a large portion of this community. The mixed understory includes several exploitable food resources, including gooseberry (*Ribes cereum*), snowberry (*Symphoricarpos parishii*), rice grass, wild rye (*Elymus cinereus*), wheatgrass (*Agropyron smithii*), squirreltail

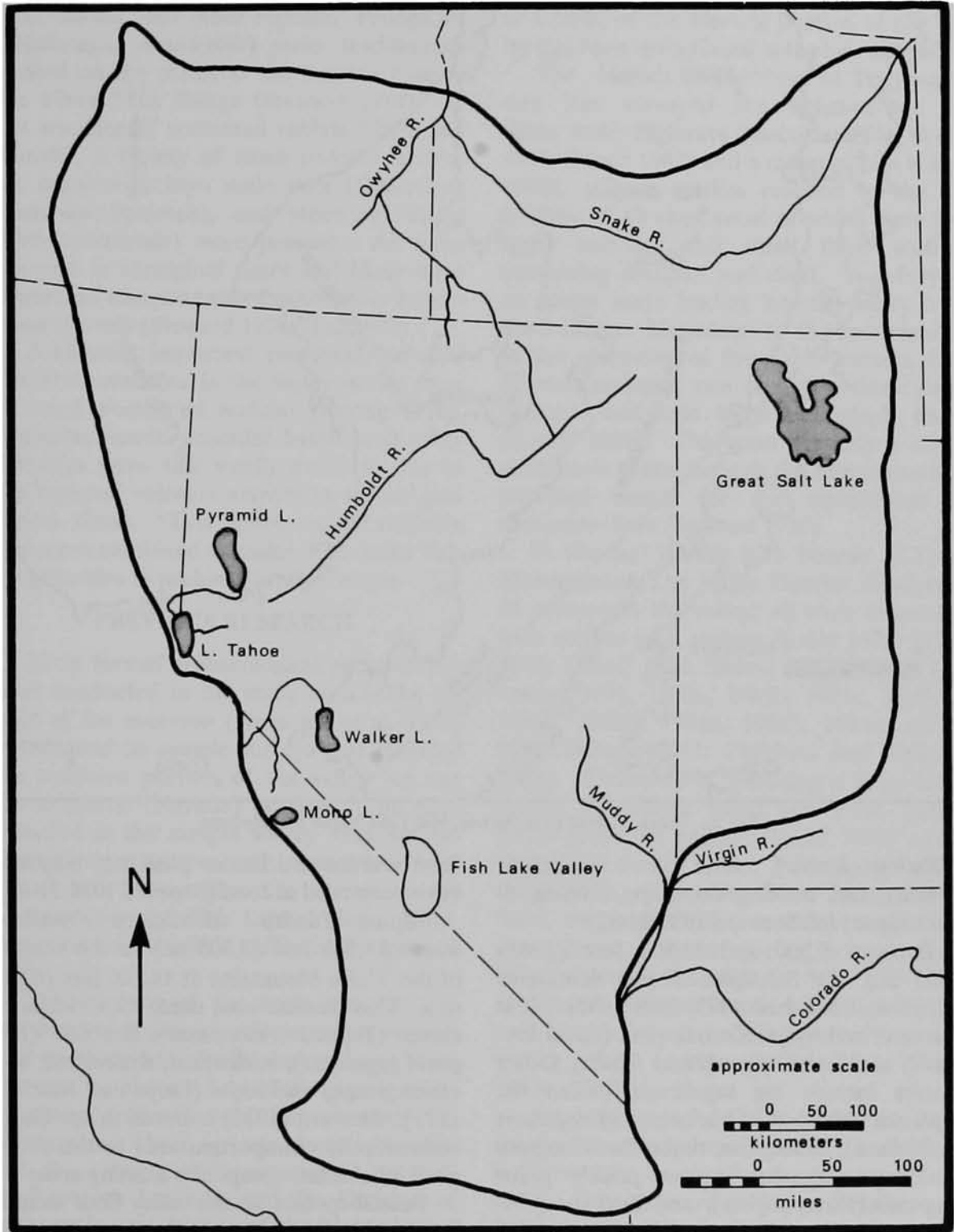


Fig. 1. The Great Basin and Fish Lake Valley.

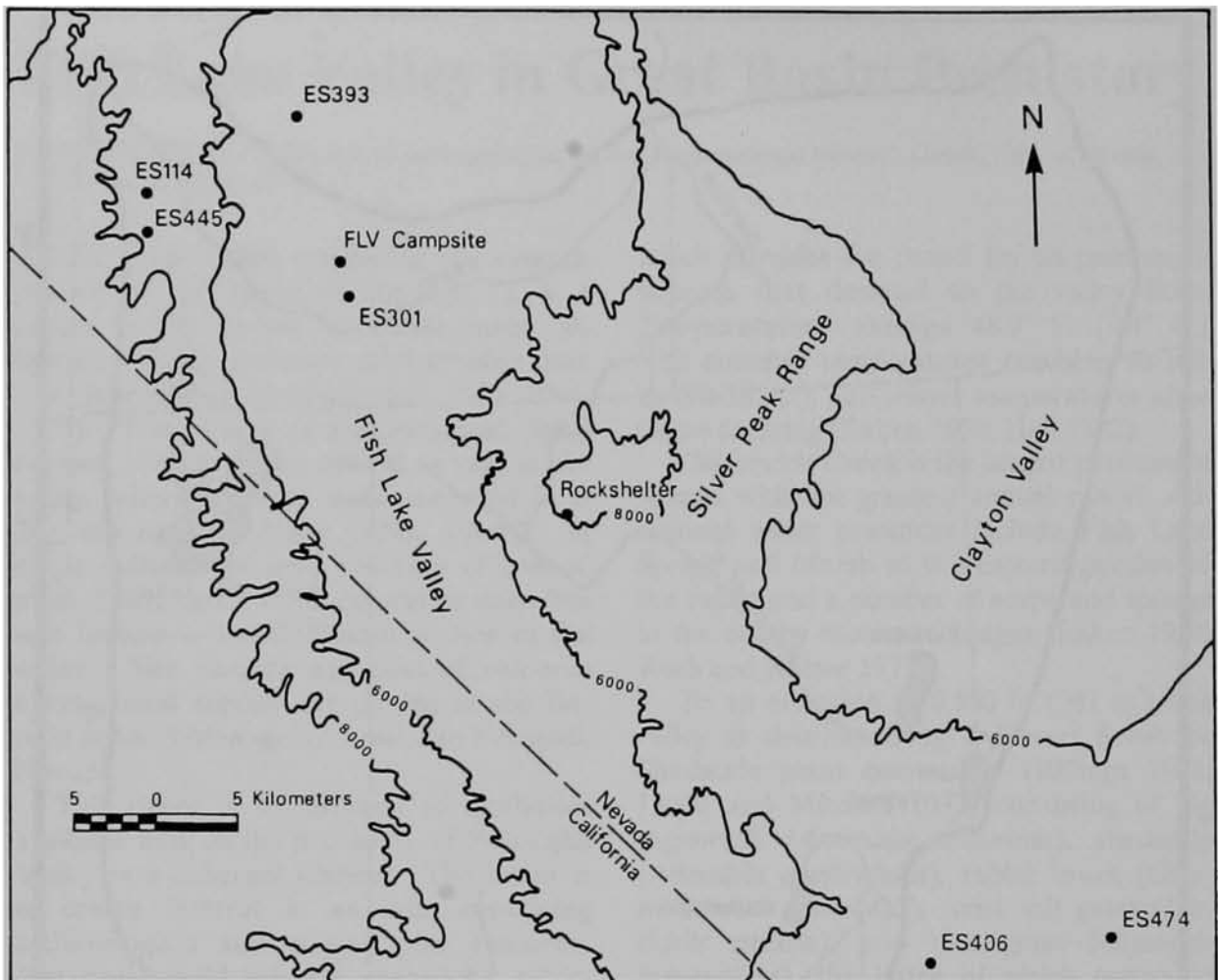


Fig. 2. Sites referred to in the text, Fish Lake Valley and environs.

(*Sitanion hystrix*), June grass (*Koeleria cristata*), and needlegrass (*Stipa comata*, *S. thurberiana*) (cf. Steward 1938:21-32).

Between 9,500 and 11,500 feet (2,895-3,505 m.), the Subalpine Forest dominates (Lloyd and Mitchell 1973; Hall 1982). It is characterized by bristlecone pine (*Pinus longaeva*) and limber pine (*Pinus flexilis*). Other species include big sagebrush, Indian tea (*Ephedra viridis*), wild buckwheat (*Eriogonum ovalifolium*), June grass, timberline bluegrass (*Poa rupicola*), needlegrass, prickly phlox (*Leptodactylon pungens*), and fleabane (*Eriogonum clokeyi*). Many of these plants were used by ethnographically known peoples as

food sources and limber pine nuts may also have been used as food (Steward 1938:21-32).

Alpine Tundra dominates elevations above 11,500 feet (3,505 m.) to the summit of the White Mountains at 14,246 feet (4,342 m.). This treeless area contains varieties of clover (*Trifolium monoense*), fleabane (*Eriogonum pygmaeus*), buckwheat, squirreltail, and other grasses and forbs (Lloyd and Mitchell 1973). Steward (1938) believed this to be an economically unimportant area to the aboriginal inhabitants except as a hunting area.

Faunal species on the valley floor include jackrabbits (*Lepus californicus*), pocket gophers (*Thomomys* spp.), and a variety of liz-

ards, snakes, and other reptiles. Pronghorn (*Antilocapra americana*) were traditionally hunted on the plains at the western base of the Silver Peak Range (Steward 1938). In the woodlands, cottontail rabbits (*Sylvilagus nuttalli*), a variety of small rodents, avifauna, carnivores, Inyo mule deer (*Odocoileus hemionus inyoensis*), and mountain sheep (*Ovis canadensis*) were present. All were pursued in aboriginal times and likely were important components of prehistoric subsistence systems (Steward 1938; Hall 1982).

Additional important resources included obsidian, available in the valley in the form of small weathered nodules (Strong 1971). Andesite, basalt, vesicular basalt, and other volcanics were also locally available due to the regional volcanic activity in recent geological times. This spectrum of available resources combined to make Fish Lake Valley attractive to prehistoric populations.

PREVIOUS RESEARCH

Little formal archaeological research has been conducted in the study area. The results of the overview (Norwood et al. 1980) were based on sample surveys that included the southern portion of the valley but not the northern (Nevada) portion. The sites recorded in the sample survey were not defined by type or area so it cannot be determined how many sites are known in the southern part of Fish Lake Valley. Thus, those data are of little utility in the present work.

The majority of the work conducted in the valley consists of cultural resource surveys conducted by the Bureau of Land Management or executed by other organizations satisfying environmental impact study requirements. These agencies include the Nevada Department of Transportation, the Desert Research Institute, and the Division of Anthropological Studies of the University of Nevada, Las Vegas. A total of 3,228 acres,

or 0.52%, of the Nevada portion of the valley has been inventoried in the last decade.

The Nevada Department of Transportation has surveyed the rights-of-way for three state highways (Brooks 1974; Bunch 1980; Bunch 1982) and a material pit (Waloff 1978). These studies resulted in the recording of 19 sites, most of which were isolated artifacts and small lithic scatters containing obsidian and chert. A survey of an access route leading into the valley from the Palmetto Mountains to the east resulted in the recording of five lithic scatters, four isolated artifacts, one campsite, three rockshelters, and one large petroglyph panel (Bunch 1981). This road parallels a major prehistoric route through the mountains and provided access for the exploitation of resources there (Steward 1938).

In the last decade, the Bureau of Land Management, Las Vegas District, conducted 18 surveys in the valley; all were connected with various land actions (Foley 1974; Wirtz 1975; Hatoff 1976; Sallani 1977, 1978; Liebhauser 1979, 1981a, 1981b, 1981c; Rafferty 1980a, 1980b, 1981a, 1981b, 1981c, 1981d, 1982; Jamrog 1981; Childress and Rafferty 1983). Twelve sites, including a large lithic scatter containing Pinto and Rose Spring series projectile points (Hatoff 1976) and a rockshelter in the Silver Peak Range (Rafferty 1980b), were recorded. Isolated artifacts, two small lithic scatters, a grinding stone locus, a roasting ring, a rock ring/lithic scatter association, a "fire pit" with associated prehistoric and historic artifacts, and historic ranch buildings were recorded during other surveys (Miller 1981; Reno 1983a, 1983b).

Academic research in the valley has been conducted at only two sites, both located on large washes in the northern part of the valley. Both Steward (1929) and Heizer and Baumhoff (1962) recorded petroglyph panels, bedrock mortars, and lithics at 26ES114, and

a village at 26ES393 (Fig. 2).

The research that prompted this paper was the survey of four areas of potential agricultural land that was to be sold by the Bureau of Land Management (Rafferty 1984a, 1984b). Seventeen sites, mostly isolates or loci of fire-cracked rock, were recorded. One exception was a possible campsite, 26ES715, 16.5 acres in size, located on the southern terrace of Chiatovich Creek. Chert and obsidian artifacts, including at least one Eastgate projectile point, were noted at the site (Rafferty 1984a). This may be an ethnohistoric site recorded by Steward (1938).

A total of 45 sites have been recorded in the study area, but no excavations and no systematic survey programs have been conducted in the valley. Because it is adjacent to Owens Valley, and has a good ethnographic baseline data set, Fish Lake Valley is a potential source of synchronic and diachronic data concerning settlement and subsistence patterns and cultural processes in the western Great Basin. This paper is an attempt to organize the existing data into a rough chronological and cultural framework, a necessary step for further research.

CULTURE HISTORY

A simplified chronology has been adapted from Hall (1982), which was a synthesis of research conducted in the Owens Valley and other areas adjacent to Fish Lake Valley. This is a tentative construct that will probably be greatly modified with the incorporation of new data from the study area.

Despite paleoclimatic evidence that a Pleistocene lake may have existed in the valley as late as 12,000 B.P. (Mehring 1977; Norwood et al. 1980) there is no known evidence of a Paleoindian occupation in Fish Lake Valley. The first confirmed evidence of human occupation of the valley dates to the Middle and Late Archaic period (ca. 5,000-1,400 B.P.). The generally accepted

diagnostic artifacts for this period are Pinto and Elko series projectile points. Pinto points have a general use span of approximately 3000 B.C. to 700 B.C. (5,000-2,700 B.P.) (Heizer and Hester 1978). The dating of the Elko series is subject to debate, however. Both Bettinger and Taylor (1974) and Thomas (1981) estimated that the series dated between 1300 B.C. and A.D. 600, while Heizer and Hester (1978) accepted a range of 2000 B.C. to A.D. 1080 (4,000-870 B.P.). Aikens (1970) reported dates ranging between 6400 B.C. and A.D. 1350 (8,400-600 B.P.) from Hogup Cave, Utah, which greatly confuses the issue. These data may suggest that the Elko series had an early origin in the eastern Great Basin, and thus makes the Elko series useless as time markers.

Two sites in Fish Lake Valley can be assigned to this period based on the artifact data. An isolated Elko point was recorded in the valley by the Nevada Department of Transportation (Bunch 1982). The second site, 26ES301 (Fig. 2) is a large (20+ acres) low-density lithic scatter in a dune field south of Chiatovich Creek. Hatoff (1976) noted that the site is in an area where rabbits and grasses could be obtained. Fish Lake marsh is only a few miles to the east of 26ES301 and would have provided a wide spectrum of resources in the past. Elston (1982) saw this period in the western Great Basin as a time of increased winter rainfall, a drop in annual temperatures, and an overall improvement in resource abundance. Mountain sheep may have been more abundant in the western Great Basin (Pippin 1979) and the increased precipitation may have resulted in increased runoff in the local creeks and in the size of the marsh in the valley.

Possible use of the pinyon-juniper woodland in the region is suggested by the presence of two sites in the Palmetto Mountains (Bunch 1981) that contained Humboldt points

that may be coeval in time with the Pinto varieties (Heizer and Hester 1978). One site yielded a single projectile point while the other was a small lithic scatter where specialized resource procurement activities could be pursued. Deer and pine nuts could have been exploited in these mountains. Evidence from elsewhere in the western Great Basin indicates that pinyon-juniper woodlands were exploited at this time (Elston 1982; Hall 1982). Bettinger (1976) originally suggested that this did not occur in the Owens Valley until after 1,400 B.P., a contention that has been supported by data from elsewhere in the region (Pippin 1980). However, Bettinger (Bettinger and Raven 1986) has recently stated that this pattern may have actually originated earlier (ca. A.D. 1) and became archaeologically conspicuous at a later time.

Elston (1982) believed that a change in the regional settlement/subsistence patterns in the early phase of the Late Prehistoric Period (1,400-700 B.P.) was partly a result of technological change and partly a result of environmental changes. The bow and arrow apparently replaced the atlatl at this time, as indicated by the use of smaller Rose Spring and Eastgate points in the region. Additional technological changes include the use of the mortar and huller, emphasis on the production of bifaces, and the increased use of simple flake tools. Elston (1982) attributed this change to an increase in the intensity and diversity of exploited ecozones and resources with a concurrent decrease in big game hunting. This change cannot be documented for Fish Lake Valley with the current data base but should be seen as an area of research for future work.

Other researchers have postulated the probability of even more radical changes in regional subsistence/settlement systems. Thomas' (1982) work at Alta Toquima, a village site situated above 11,000 feet (3,350 m.) elevation in the central Great Basin, led

him to propose a shift in use of alpine areas after A.D. 1000. Prior to that time, alpine zones were used primarily for the procurement of bighorn sheep, as indicated by hunting loci, blinds, and other remains associated with an early hunting complex. Alta Toquima represents a shift to more intensive exploitation of floral resources in alpine zones, at least in the central Great Basin.

Thomas (1982) noted that Steward recorded the presence of house ruins and stone rings in the White Mountains between 10,000 feet (3,050 m.) and 13,000 feet (3,960 m.) in elevation (Steward 1941:233, 334-335). Bettinger (1985) has conducted research in the areas of the White Mountains discussed by Steward and has recorded ten villages similar to Alta Toquima. One of these has been intensively excavated, test excavations have been conducted at other of these sites, and surface collections of artifacts were conducted at these sites. Lichen dating of these sites places the majority of them between A.D. 1275 and A.D. 1585, although there are some dates from some sites that are earlier and later in time than this span. These data may represent a pattern shift in the Owens Valley region similar to that in central Nevada. An important topic for future research in the Fish Lake Valley region would be to continue to search high altitude areas on the east slope of the White Mountains for additional manifestations similar to those already reported. The occurrence of such sites in alpine settings and dating after A.D. 1000 in the Fish Lake Valley region may support the argument for a Great Basin-wide shift in exploitation patterns and may lend support to the Numic invasion hypothesis (cf. Bettinger and Baumhoff 1982; Bettinger 1985).

Based on the artifactual evidence, three sites from the Fish Lake Valley can be dated to the Late Prehistoric period (Fig. 2):

26ES301, which contained Rose Spring points (Hatoff 1976); a campsite adjacent to Chiatovich Creek (Rafferty 1984a); and a campsite in the nearby Palmetto Mountains that contained at least one Rose Spring point and other obsidian and chert lithic debitage (Bunch 1981). Many of the lithic scatters in the valley may date to this period but more data are required to examine this possibility.

The Late Prehistoric and early Historic periods (1,400-100 B.P.) are marked by the introduction of Desert Side-notched and Cottonwood Triangular projectile points and Owens Valley Brown Ware ceramics into the region. The settlement/subsistence pattern remained similar to the previous period, but it has been suggested that the advent of irrigation agriculture employing wild plants may have had its beginning in this time in the Owens Valley, particularly after A.D. 1000. Bettinger (1975) suggested that the decline in big game hunting in the Owens Valley was a result of scheduling conflicts created by the adoption of agriculture, and Bouey (1979) suggested that the impetus to adopt agriculture was population pressure in the Owens Valley. It must be pointed out that these suggestions have no firm data to back them, and that the earliest starting date for native agriculture in the Owens Valley, based on historic records and ethnographic evidence, is the 1820s (Lawton et al. 1976). Quite a bit more research is needed in this regard. Given the proximity of the Fish Lake and Owens valleys, and the ethnographic evidence of some limited native agriculture in the Fish Lake Valley (Steward 1938; Lawton et al. 1976), the resolution of the time depth problem may have implications for future research into late settlement/subsistence patterns in Fish Lake Valley.

During the Late Prehistoric period the so-called "Numic expansion" is hypothesized to have taken place; this presumed event in

the linguistic prehistory of the Great Basin is accepted as fact by a number of archaeologists (cf. Bettinger and Baumhoff 1982 for a summary of the problem). A number of researchers have disagreed, arguing that there is no linguistic or archaeological evidence that this event ever occurred, or that it occurred in a manner different from that hypothesized by the expansionists. Many researchers suggest that proto-Numic populations have resided in the Great Basin for at least the last 5,000 years (Goss 1977; Aikens and Witherspoon 1986). The recognition, in the archaeological record, of the settlement/subsistence pattern that Steward (1938) claims was the hallmark of Shoshoni residence in central Nevada has been cited by archaeologists and others as evidence of *in situ* development of Numic peoples in the Great Basin (Thomas 1971, 1973; O'Connell 1975; Bettinger 1978; Hall 1982; Rafferty and Blair 1984). This controversy over the reality of the proposed movement of Numic peoples into the Great Basin is destined to continue as a focus of debate and research in the Great Basin for many years to come.

One anomaly in Fish Lake Valley, and indeed in all of Esmeralda County, Nevada, is the nearly complete lack of ceramics on sites recorded in the region. Only one potsherd is known from Fish Lake Valley, although there is one other site in the Silver Peak Range east of the valley that supposedly contains ceramics, but this site has not yet been officially recorded. Considering the nearby presence of the Owens Valley and the fact that Steward (1933, 1941) reported that ceramics were both used and manufactured by ethnographically known groups in Fish Lake Valley, their absence in the archaeological record is a dilemma. The absence of ceramics may be due to poor early site records that did not report ceramics, nonrecognition of this class of data by archaeologists, and/or the activity of vandals.

The largest contributing factor may be the lack of systematic survey and artifact collection programs for this area.

Basic ethnographic documentation for this region was provided by Steward (1938). He stated that the Fish Lake Valley Paiute differed in only minor details from the Owens Valley groups. Their sociopolitical organization was less complex than the Owens Valley groups, in that their basic social unit was the nuclear family, accompanied by one or two relatives.

Steward reported that in 1870 the population of the Fish Lake Valley consisted of 100 people, distributed among eight villages, and that each of the villages had one to four associated satellite camps. Six villages were situated on streams near their emergence from the White Mountains, while two were located near springs. As in the case with the Owens Valley, each was more or less permanently occupied except during the summer and fall seed and pine nut gathering.

Steward (1938:Fig. 7) located these villages in the valley. It has been suggested (Stewart 1941) that rock rings measuring five or more meters in diameter were the base walls for brush shelters in both the ethnographic and archaeological records. There are two, and perhaps three, locations in Fish Lake Valley that may correlate with both Steward's and Stewart's data on village locations (Fig. 2). These sites (26ES114, 26ES393, and 26ES445) are associated with lithic debris, grinding stones, and bedrock mortars. Two of these sites (26ES114 and 26ES393) also have petroglyph panels.

Site 26ES114 is along Rock Creek in a well-watered and protected area. One-half mile south of that site is 26ES445, on the north bank of Chiatovich Creek near the foot of the White Mountains. This site includes several rock rings greater than three meters in diameter (Miller 1981). Site 26ES393, north of the previous two, also is

at the base of a ridge and adjacent to a semipermanent stream or wash bed. This site includes nine rock rings each four to five meters in diameter and associated with ashy midden, lithic flakes, artifacts, and other cultural debris.

Sites such as these have been used for over 3,000 years in west-central Nevada (Turner et al. 1984). They also fit Steward's (1938) criteria for the optimal location of winter camps: water, sufficient wood nearby for house building and fuel, location in canyon mouths by the edge of the mountains, and accessibility to pine nuts and other seeds. These sites, given available information, could have been occupied at any time in the last 3,000 years.

Four other sites may also date to this time period (Fig. 2). Two hunting stations located in the Palmetto Mountains have Cottonwood Triangular points (26ES466 and 474; Bunch 1981), and a rockshelter (26ES559) has Cottonwood Triangular and other "late" points (Rafferty 1980b). Another site on the southern bank of Chiatovich Creek near the center of the valley yielded at least one Eastgate point and seems to be situated near the spot in the valley where Steward (1938) claimed that a man grew irrigated crops.

The data from these sites fit into the fragmentary ethnographic pattern (Steward 1938) and the general archaeological pattern of Great Basin hunter-gatherer lifeways (Thomas 1971, 1973). Winter villages, hunting stations, and crop manipulation and irrigation practices all may be reflected in the Fish Lake Valley data. As with the preceding periods, more data are required to better understand late prehistoric/protohistoric lifeways.

Fish Lake Valley was first settled by Anglo-American farmers in the late 1860s, and a borax works was built in the valley in 1875 (Steward 1938). Agriculture has remained the mainstay of economic activity,

although some mining does occur. There are remains of early ranching activities at the base of the White Mountains (Miller 1981), but the historic period in the valley is not well documented.

CONCLUSIONS

Adjacent to the better-known Owens Valley, Fish Lake Valley, which has seen far less historic and modern land use modifications, could serve as a natural laboratory for examining how related peoples (Numic) created similar but variant adaptive strategies to deal with dissimilar environments.

To further research in the valley the following procedures should be implemented: (1) a stratified random sampling survey should be designed and executed to elicit data concerning site variability and distribution within and between environmental zones; (2) existing records should be updated for known sites ("villages") not resurveyed in the recent sample surveys; (3) detailed surface collections should be made at selected sites to elicit data on site types, functions, and chronology and; (4) test excavations should be undertaken at a sample of sites to recover more detailed data on settlement/subsistence patterns in both a synchronic and diachronic manner.

Fish Lake Valley has the potential to reveal much concerning human adaptability in the Great Basin. It is hoped that this paper will encourage research in, and expand our knowledge of, this important region.

REFERENCES

- Aikens, C. Melvin
1970 Hogup Cave. University of Utah Anthropological Papers No. 93.
- Aikens, C. Melvin, and Y. T. Witherspoon
1986 Great Basin Numic Prehistory: Linguistics, Archaeology and Environment. In: *Anthropology of the Desert West, Essays in Honor of Jesse D. Jennings*, Carol J. Condie and Don D. Fowler, eds., pp. 7-20. University of Utah Anthropological Papers No. 110.
- Bettinger, Robert L.
1975 *The Surface Archaeology of Owens Valley, Eastern California: Prehistoric Man-Land Relationships in the Great Basin*. Ph.D. dissertation, University of California, Riverside.
1976 *The Development of Pinyon Exploitation in Central Eastern California*. *The Journal of California Anthropology* 3(1):81-95.
1978 *Alternative Adaptive Strategies in the Prehistoric Great Basin*. *Journal of Anthropological Research* 34(1):27-46.
1985 *Lichen Dating of Alpine Villages in the White Mountains, California*. *Journal of California and Great Basin Anthropology* 7:202-224.
- Bettinger, Robert L., and Martin A. Baumhoff
1982 *The Numic Spread: Great Basin Cultures in Competition*. *American Antiquity* 47:485-503.
- Bettinger, Robert L., and Christopher Raven
1986 *The Great Basin in California: The Inyo-Mono and Surprise Valley-Honey Lake Regions*. In: *Current Status of CRM Archaeology in the Great Basin*, C. Melvin Aikens, ed., pp. 67-96. Reno: Bureau of Land Management Cultural Resource Management Series No. 9.
- Bettinger, Robert L., and R. E. Taylor
1974 *Suggested Revisions in Archaeological Sequences of the Great Basin in Interior Southern California*. Nevada Archaeological Survey Research Papers No. 5: 1-26.
- Billings, W. D.
1951 *Vegetational Zonation in the Great Basin of Western North America*. *Union Internationale des Sciences Biologiques, Series* 139:101-122.
- Bouey, Paul D.
1979 *Population Pressure and Agriculture in Owens Valley*. *Journal of California and Great Basin Anthropology* 1:162-170.
- Brooks, Richard A.
1974 *Archaeological Survey of the Proposed Decalite Cutoff from U.S. 6 Southeast*

- to SR-3A. University of Nevada, Las Vegas: Archaeological Research Center, Museum of Natural History, ARC Report 2-1-3.
- Bunch, J.**
 1980 Esmeralda County District 5 SR 264(3A) Betterment, WO 20730. NDOT-036-80B. Report on file at the Nevada Department of Transportation, Carson City.
 1981 Esmeralda County District 5 Betterment, SR 266(3), WO 20 730. NDOT-036-81B. Report on file at the Nevada Department of Transportation, Carson City.
- Bunch, P.**
 1982 SR-733, District 5 Betterment, WO 20730. NDOT-052-82B. Report on file at the Nevada Department of Transportation, Carson City.
- Childress, William T., and Kevin Rafferty**
 1983 Wallace Reservoir Site and Wright Water Ditch. Cultural Resource Report 5-1024 (N). Report on file at the Bureau of Land Management, Las Vegas.
- Eaken, T. E.**
 1950 Preliminary Report on Ground Water in Fish Lake Valley, Nevada and California. Carson City: Office of the Water Engineer, Water Resources Bulletin No. 11.
- Elston, Robert**
 1982 Good Times, Hard Times: Prehistoric Culture Change in the Western Great Basin. In: *Man and Environment in the Great Basin*, David B. Madsen and James F. O'Connell, eds., pp. 186-206. Society for American Archaeology Papers No. 2.
- Foley, James**
 1974 Dyer, Nevada, Equipment Yard. Cultural Resource Report 5-55N. Report on file at the Bureau of Land Management, Las Vegas.
- Goss, James**
 1977 Linguistic Tools for the Great Basin Prehistorian. In: *Models and Great Basin Prehistory: A Symposium*, Don D. Fowler, ed., pp. 49-70. Desert Research Institute Publications in the Social Sciences No. 12.
- Hall, Matthew C.**
 1982 Report on an Archaeological Survey in Upper Queen Canyon in the Northern White Mountains, Esmeralda County, Nevada. Report (ARR-05-04-237) on file at the Inyo National Forest, Bishop.
- Hatoff, Brian**
 1976 Hartman UTA, N-5835. Cultural Resource Report 5-299P. Report on file at the Bureau of Land Management, Las Vegas.
- Heizer, Robert F., and Martin A. Baumhoff**
 1962 Prehistoric Rock Art of Nevada and Eastern California. Berkeley: University of California Press.
- Heizer, Robert F., and Thomas R. Hester**
 1978 Great Basin. In: *Chronologies in New World Archaeology*, R. E. Taylor and Clement W. Meighan, eds., pp. 147-199. New York: Academic Press.
- Jamrog, John C.**
 1981 White Wolf-Stateline Well. Cultural Resource Report 5-925P. Report on file at the Bureau of Land Management, Las Vegas.
- Lawton, Harry W., Philip J. Wilke, Mary De-Decker, and William M. Mason**
 1976 Agriculture Among the Paiute of Owens Valley. *The Journal of California Anthropology* 3(1):13-50.
- Liebhauser, William J.**
 1979 N-24694: R & PP Dumpsite. Cultural Resource Report 5-587N on file at the Bureau of Land Management, Las Vegas.
 1981a Fish Lake Valley Sanitary Landfill, N-24965. Cultural Resource Report 5-774N on file at the Bureau of Land Management, Las Vegas.
 1981b 12.5-KV Areal Powerline. Cultural Resource Report 5-760N on file at the Bureau of Land Management, Las Vegas.
 1981c Buried Telephone Line N-32365. Cultural Resource Report 5-865N on file at the Bureau of Land Management, Las Vegas.
- Lloyd, R. M., and R. S. Mitchell**
 1973 A Flora of the White Mountains, California and Nevada. Berkeley: University of California Press.

- Mehring, Jr., Peter J.
 1977 Great Basin Late Quaternary Environments and Chronology. In: Models and Great Basin Prehistory, Don D. Fowler, ed., pp. 113-168. Desert Research Institute Publications in the Social Sciences No. 12.
- Miller, Brian
 1981 Arlemont Land Exchange, Davis Ranch. Report (05-04-84) on file at the U. S. Forest Service, Bishop.
- Norwood, Richard E., Charles S. Bull, and Ronald Quinn
 1980 A Cultural Resource Overview of the Eureka, Saline, Panamint and Darwin Region, East-Central California. Cultural Resources Publications in Anthropology-History. Riverside: Bureau of Land Management.
- O'Connell, James F.
 1975 The Prehistory of Surprise Valley. Ballena Press Anthropological Papers No. 4.
- Pippin, Lonnie C.
 1979 Bighorn Sheep and Great Basin Prehistory. In: The Archaeology of Smith Creek Canyon, Eastern Nevada, Donald R. Tuohy and Doris L. Rendall, eds., pp. 332-361. Nevada State Museum Anthropological Papers No. 17.
 1980 Prehistoric and Historic Patterns of Lower Pinyon-Juniper Woodland Ecotone Exploitation at Borealis, Mineral County, Nevada. Desert Research Institute Social Sciences Center Technical Report No. 17.
- Rafferty, Kevin A.
 1980a Fish Lake Valley USFS Administrative Site Withdrawal. Cultural Resource Report 5-691N on file at the Bureau of Land Management, Las Vegas.
 1980b McAfee Springs-Macaroni Springs Water Pipeline. Cultural Resource Report 5-696P on file at the Bureau of Land Management, Las Vegas.
 1981a DLE N-29833. Cultural Resource Report 5-814P on file at the Bureau of Land Management, Las Vegas.
- 1981b DLE N-22022. Cultural Resource Report 5-812P on file at the Bureau of Land Management, Las Vegas.
- 1981c DLE N-21720. Cultural Resource Report 5-813P on file at the Bureau of Land Management, Las Vegas.
- 1981d Bell Telephone Communications Site N-32141. Cultural Resource Report 5-902P on file at the Bureau of Land Management, Las Vegas.
- 1982 R/W 35352, Buried Bell Telephone Cable. Cultural Resource Report 5-1005P on file at the Bureau of Land Management, Las Vegas.
- 1984a A Cultural Resource Investigation of Three Desert Land Entry Act Applications, Fish Lake Valley, Esmeralda County, Nevada. Las Vegas: University of Nevada, Division of Anthropological Studies, Environmental Research Center, DAS Report 5-76-2.
- 1984b A Cultural Resource Investigation of a Desert Land Entry Act Application, Fish Lake Valley, Esmeralda County, Nevada. Las Vegas: University of Nevada, Division of Anthropological Studies, Environmental Research Center, DAS Report 5-73-3.
- Rafferty, Kevin, and Lynda Blair
 1984 Billy Goat Peak: An Investigation and Reinterpretation of Virgin Anasazi and Paiute Prehistory and Ethnohistory. Las Vegas: University of Nevada, Division of Anthropological Studies, Environmental Research Center, DAS Report 2-5-9.
- Reno, Ronald L.
 1983a An Archaeological Clearance of Eleven Geothermal Test Wells in Fish Lake Valley, Esmeralda County, Nevada. Report on file at the Desert Research Institute, University of Nevada, Reno.
 1983b An Archaeological Clearance of Six Geothermal Test Wells in Fish Lake Valley, Esmeralda County, Nevada. Report on file at the Desert Research Institute, University of Nevada, Reno.
- Rush, Eugene, and T. L. Katzer
 1973 Water Resources Appraisal of Fish Lake Valley, Nevada and California. Carson

City: Nevada Division of Water Resources, Water Resources Reconnaissance Series Report 58.

Sallani, Werner

- 1977 N-13190. Cultural Resource Report 5-350N on file at the Bureau of Land Management, Las Vegas.
- 1978 Communications Site N-19619. Cultural Resource Report 5-396N on file at the Bureau of Land Management, Las Vegas.

Steward, Julian H.

- 1929 Petroglyphs of California and Adjoining States. University of California Publications in American Archaeology and Ethnology 24(2).
- 1933 Ethnography of the Owens Valley Paiute. University of California Publications in American Archaeology and Ethnology 33(3).
- 1938 Basin-Plateau Aboriginal Sociopolitical Groups. Bureau of American Ethnology Bulletin No. 120.
- 1941 Culture Element Distributions: XIII, Nevada Shoshone. University of California Anthropological Records 4(2).
- 1970 The Foundations of Basin-Plateau Shoshonean Society. In: Languages and Cultures of Western North America: Essays in Honor of Sven S. Liljeblad, Earl Swanson, ed., pp. 113-151. Pocatello: Idaho State University Press.

Stewart, Omer C.

- 1941 Culture Element Distributions: XIV, Northern Paiute. University of California Anthropological Records 4(3).

Strong, Mary F.

- 1971 Desert Gem Trails. Mentone: Gem Books.

Thomas, David H.

- 1971 Prehistoric Subsistence-Settlement Patterns of the Reese River Valley, Central Nevada. Ph.D. dissertation, University of California, Davis.
- 1973 An Empirical Test for Steward's Model of Great Basin Settlement Patterns. *American Antiquity* 38:155-176.
- 1981 How to Classify the Projectile Points from Monitor Valley, Nevada. *Journal of California and Great Basin Anthropology* 3:7-43.
- 1982 The 1981 Alta Toquima Village Project: A Preliminary Report. Desert Research Institute, Social Sciences Center Technical Report Series No. 27.

Turner, Arnie L., Peter F. Matranga, and Thomas Hal Turner

- 1984 Analysis of Two House Structure Sites in the Anchorite Hills of Central Western Nevada. Paper presented at the biennial meeting of the Great Basin Anthropological Conference, Boise.

Waloff, Kurt

- 1978 Tonopah-Goldfield M. and T, EA 70875. Report (NDOT-048-78P) on file at the Nevada Department of Transportation, Carson City.

Weide, David

- 1982 Paleoecological Models in the Southern Great Basin: Methods and Measurements. In: *Man and Environment in the Great Basin*, David B. Madsen and James F. O'Connell, eds., pp. 8-26. Society of American Archaeology Papers No. 2.

Wirtz, Howard

- 1975 Geothermal Leases N-8421, N-8428, N-8429, Fish Lake Valley, Esmeralda County, Nevada. Cultural Resource Report 5-133N on file at the Bureau of Land Management, Las Vegas.

