

Tribally Approved
American Indian Ethnographic Analysis of the Proposed Wah Wah
Valley Solar Energy Zone

Ethnography and Ethnographic Synthesis
For
Solar Programmatic Environmental Impact Statement and Solar Energy Study Areas in Portions
of Arizona, California, Nevada, and Utah

Participating Tribes

Confederated Tribes of the Goshute Reservation, Ibapah, Utah
Paiute Indian Tribe of Utah, Cedar City, Utah

By

Richard W. Stoffle
Kathleen A. Van Vlack
Hannah Z. Johnson
Phillip T. Dukes
Stephanie C. De Sola
Kristen L. Simmons

Bureau of Applied Research in Anthropology
School of Anthropology
University of Arizona

October 2011



WAH WAH VALLEY

The proposed Wah Wah Valley solar energy zone (SEZ) is located in the southwestern portion of Utah and is outlined in red below (Figure 1). The proposed Wah Wah Valley SEZ sits in Beaver County, approximately 50 miles northwest of Cedar City and 34 miles east of the Utah/Nevada state line. State-route 21 runs through the length of the northern portion of the SEZ and provides access to the area.

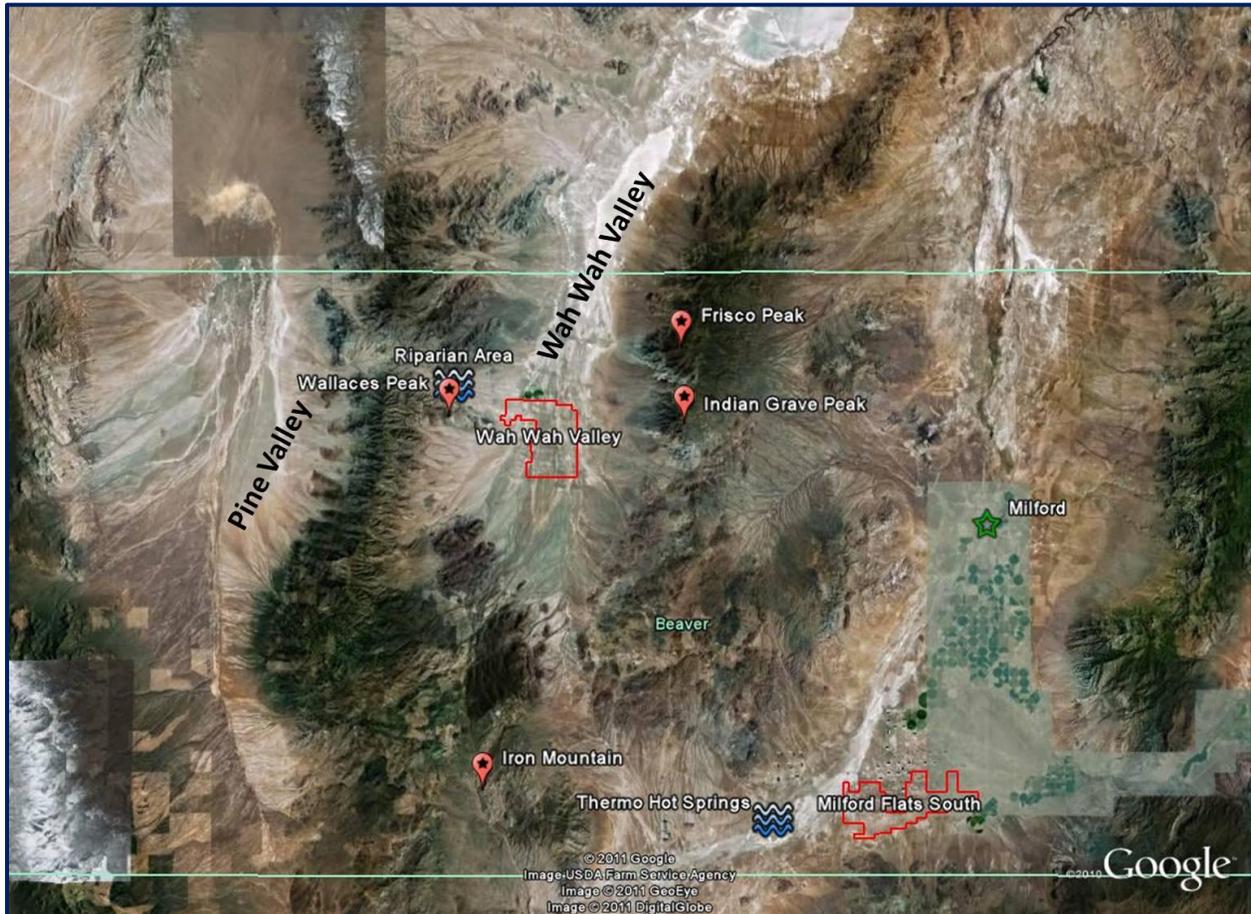


Figure 1 Google Earth Image of Wah Wah Valley SEZ American Indian Study Area

The greater Wah Wah Valley SEZ American Indian study area lies in the Utah Basin and Range province within the Wah Wah Valley. The larger SEZ American Indian study area extends beyond the boundaries of the proposed SEZ because the presence of cultural resources extends into the surrounding landscape. The Wah Wah Valley SEZ American Indian study area includes plant communities, geological features, water sources, and trail systems located in and around the SEZ boundary. The trail systems pass through the SEZ American Indian study area and were used by people from neighboring or distance communities to reach nearby medicinal and ceremonial areas. Native American representatives maintain that, in order to understand their connections to the SEZ American Indian study area, it must be placed in a broader context with neighboring places and their associated cultural resources.

Summary of SEZ American Indian Study Area Significance

Wah Wah Valley SEZ American Indian study area and the surrounding landscape were traditionally occupied, used, aboriginality owned, and historically related to the Numic-speaking peoples of the Great Basin and western Colorado Plateau. The field consultations summarized here are from members of the Paiute Indian Tribe of Utah (PITU) and members of the Confederated Tribes of the Goshute Reservation (CTGR). These Numic-speaking peoples have stated in past projects and stipulate again here that they are the American Indian people responsible for the cultural resources (natural and manmade) in this SEZ study. Their ancestors were placed here by the Creator and they have subsequently lived in these lands, maintaining and protecting these places, plants, animals, water sources, and other cultural signs of their occupation. Numic-speaking peoples have a deeply rooted spiritual connection to the land that weaves stories and songs into the landscape, connecting all elements of the universe.

These Numic-speaking peoples further stipulate that because they have lived in these lands since the end of the Pleistocene and throughout the Holocene, they deeply understand dramatic shifts in climate and ecology that have occurred over these millennia. Indian lifeways were dramatically influenced by these natural shifts, but certain religious and ceremonial practices continued unchanged. These traditional ecological understandings are carried from generation to generation through the recounting of origin stories and by strict cultural and natural resource conservation rules. The involved American Indian tribal governments and their appointed representatives have participated in this Programmatic Environmental Impact Statement (PEIS) in order to explain the meaning and cultural centrality of the natural and culture resources existing in these lands.

The Late Pleistocene ecology of the Great Basin region was rich in fauna and flora. Central to this supportive habitat were wet forested uplands, full grasslands, and long wetlands located along a complex network of streams feeding into medium and large lakes (Grayson 1993). American Indian people hunted, gathered, made trails, and built communities throughout this area. They engaged with this topographically interesting landscape through ceremonial activities. Large mammals, like mastodons, ranged throughout these habitats from the lowest wetlands up to 8,990 feet where the Huntington mammoth remains were found—a subalpine environment in the Late Pleistocene (Grayson 1993:165). While contemporary scholars often focus their studies on charismatic species like the mastodons, dozens of medium sized mammals were also found, including camels, horses, ground sloths, skunks, bears, Saber-tooth cats, American lions, flat headed peccaries, muskoxen, mountain goats, pronghorn antelope and American cheetahs (Grayson 1993:159). Smaller mammals were present as well. Avian species were abundant and occurred in many sizes that ranged from the largest (the Incredible Teratorn with a wingspan of 17 feet and the Merriam's Teratorn with a wingspan of 12 feet—both related to the condors and vultures) to the smallest (humming birds) (Grayson 1993:168). Other birds included flamingos, storks, shelducks, condors, vultures, hawks, eagles, caracaras, lapwings, thick-knees, jays, cowbirds, and blackbirds (Grayson 1993:167). The biodiversity of the land and air was matched by the fish species and numbers in the streams and lakes. There were at least 20 species of fish including whitefish, cisco, trout, chum, dace, shiner, sucker, and sculpin (Grayson 1993:187). The fish species traveled widely across the Great Basin through a variety of interconnected lakes and streams. The massive Late Pleistocene Lake Bonneville was but a

central portion of this hydrological network supporting fish species and by implications, great biodiversity in flora and fauna.

Grayson concluded his analysis with an ecological assessment of the Late Pleistocene natural conditions in the Great Basin region (Grayson 1993:169):

The large number of species of vultures, condors, and teratorns in the Late Pleistocene Great Basin raises a number of interesting ecological questions [...] the fact that there were so many species of these birds here suggests that the mammal fauna of the time was not only rich in species, but also rich in number of individual animals.

Naturally, the American Indian populations were also well supported by this bounty of nature.

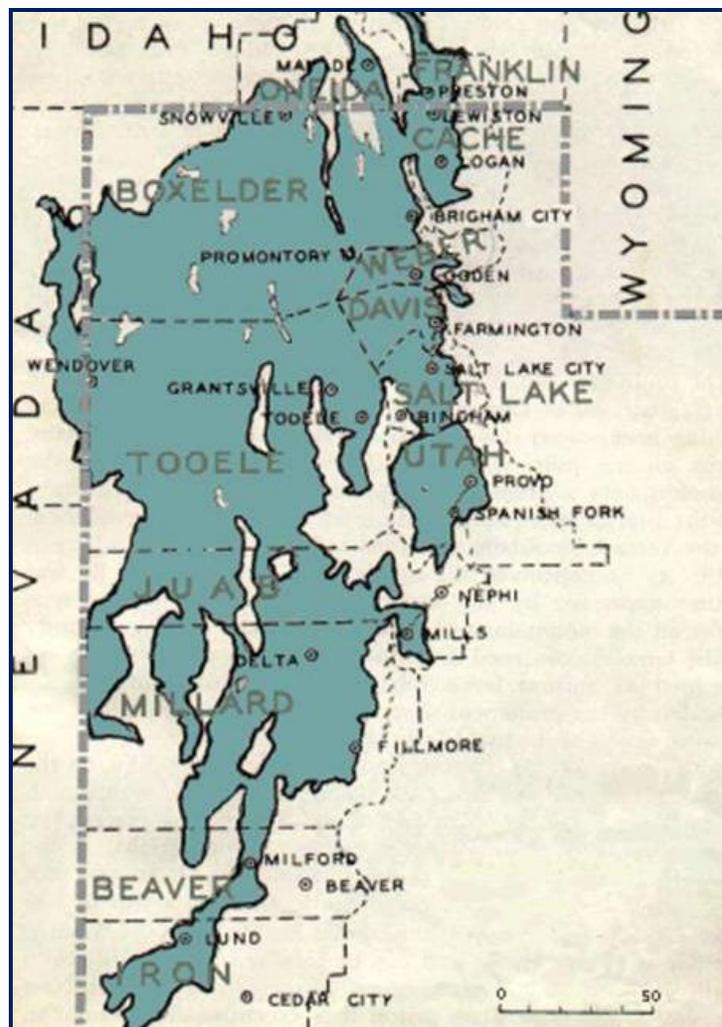


Figure 2 Lake Bonneville

Lake Bonneville represents the predominant Pleistocene water feature in the eastern Great Basin (see Figure 2). At its highest, Lake Bonneville spanned across seven intermontane

subbasins through parts of Utah, Nevada, and Idaho. While Lake Bonneville's contemporary remainder, the Great Salt Lake, has levels of salinity too high to support fish, Pleistocene Lake Bonneville differed. By 26.5 thousand years ago, the lake had risen sufficiently to move past the salinity threshold and support aquatic life such as ostracodes (*Limnocythere staplini*) (Oviatt et al. 1992). Skeletal remains of whitefish (*Prosopium* spp.) and sculpin (*Cottus* spp.), which do not tolerate saline waters, also highlight the suitability of this aquatic environment (Grayson 2011). From approximately 22,000 to 12,000 years ago, during which time the water level reached its peak, coniferous forests surrounded the lake. At this time, Lake Bonneville covered 19,800 square miles with a maximum depth of about 1,220 feet. From approximately 12,000 to 8,000 years ago, the pollen record indicates the transition from large populations of conifers to the xeric desert scrub seen today, such as greasewood (*Sarcobatus* spp.) and shadscale (*Atriplex confertifolia*) (Madsen 2000). Deposits around the lake also demonstrate the most common presence of mountain sheep (*Ovis Canadensis*), musk ox (*Bootherium/Symbos* spp.), and mastodon (*Mammot* sp.). Camels (*Camelops* sp.), horses (*Equus* sp.), and American bison (*Bison* sp.) were found in more limited quantities, and Peccary (*Platygonus compressus*) and ground sloth (*Megalonyx jeffersonii*) were only found to have one specimen each in the area. (Madsen 2000). Pollen sequences and macrofossil records suggest that before 8,000 years ago, the conditions surrounding Lake Bonneville were cooler and wetter than today. At this time, areas now covered with pinyon-juniper woodlands (*Pinus monophylla* and *Juniperus osteosperma* respectively) were more open and covered with brush. By 7,000 years ago, shadscale and sagebrush (*Artemisia tridentate*) communities began to dominate lower elevations, similar to the vegetative communities that exist today.

The following Pleistocene map was developed by superimposing images of the Pleistocene Lake Bonneville boundaries onto topographical maps of the Wah Wah Valley SEZ American Indian study area, using image-manipulation software (see Map 1). It is important to note that this map does not present definitive boundaries of this Pleistocene hydrological system. This map is designed to contextualize geographically this hydrological system and its role in the Wah Wah Valley SEZ American Indian study area.



Map 1 Pleistocene Lake Bonneville in the Wah Wah Valley SEZ American Indian Study area
 Adapted from http://geology.utah.gov/online_html/pi/pi-39/pi39pg01.htm

As Lake Bonneville receded over geological time, the edges of the lake remained important as riparian and wetland ecosystems that supported diverse ecological communities of plants and animals, both terrestrial and aquatic. Much of this diversity persisted into the historic period as remnants of the lake’s water finally receded into the boundary of Sevier Lake. The Domínguez and Escalante expedition observed this ecology as they passed through the area in 1776.

Although the environmental setting of the Wah Wah Valley SEZ American Indian study area has changed dramatically over the geologic timescales of Numic use and inhabitation, Numic-speaking peoples have thrived and continue to do so. Countless shifts in the plant and animal communities have been met with constant coadaptation and traditional ecological knowledge is continuously developed and maintained in harmony with the natural setting. Ultimately, the sustainability of the landscape is ensured through the implementation of thoughtful, active management as a part of sacred Numic ecology.

Special Features

The Wah Wah Valley SEZ American Indian study area contains numerous cultural features that contribute to Southern Paiute and Goshute history and long-term continued use (see Table 1). The SEZ American Indian study area extends beyond the boundaries of the SEZ because of the existence of cultural resources in the surrounding landscape. The field consultations summarized here represents the cultural interests of the Southern Paiute and Goshute peoples. This SEZ American Indian study area is culturally important due to the presence of water, plants, animals, geologic features, and associated Indian history. The Wah Wah Valley SEZ American Indian study area is central to the lives of Numic-speaking peoples because they have a deeply rooted spiritual connection to the land that weaves stories and songs into the landscape, connecting all elements of the universe.

During the ethnographic field sessions, tribal representatives identified the Wah Wah Valley SEZ American Indian study area as part of a large ceremonial landscape that contains many traditional use features such as the Wah Wah Springs, volcanic places, and important plants and animals (see Table 1).

Feature Type	Special Feature
Source for Water	➤ Wah Wah Springs, Sevier Lake, Lake Bonneville
Evidence of Previous Indian Use	➤ Extensive waii fields remnant of farming, lithics at Wah Wah Springs
Source for Plants	➤ Ceremonial plants, medicinal plants, food staples (waii/wai), utilitarian plants
Source for Animals	<ul style="list-style-type: none"> ➤ Birds of prey, game birds, migratory birds, predatory ➤ mammals, game mammals, small mammals, lizards, snakes, ➤ spiritual animals, pronghorn antelope
Geological Features	➤ Wah Wah Mountains, Wallaces Peak used for Vision Questing
Indian History	➤ Sevier Lake Farming, Travelers Along the Old Spanish Trail 1829-1849, Forty-Niners and the California Gold Rush 1849, Mormon Settlement 1850s, U.S. Military Conflict 1863, Cattle and Sheep Ranching 1870s, Mining and Boom Town 1871-1910, and Railroads 1880.

Table 1 Special Features Identified in the Wah Wah Valley SEZ American Indian Study Area

Tribal representatives noted that the Wah Wah Valley SEZ American Indian study area has always been a part of the greater Sevier Lake region. Today, Sevier Lake receives most of its replenishing water from the Sevier River. The river begins in a meadow high in the Wasatch Mountains and then drains into Sevier Lake. For thousands of years, Sevier Lake was also filled from the south with water that largely emanated from the high mountain ranges that topographically define the Wah Wah Valley.

Tribal representatives identified the Wah Wah Springs as an important water source in the SEZ American Indian study area. The springs' importance has dramatically increased with the depletion of Sevier Lake and the Wah Wah Playa. Now the springs are the primary water source in the valley. These springs are seen as both a culturally important life force and a spiritual place.

Since the end of the Pleistocene, Indian people have lived and thrived in the abundant lake, river, and riparian habitats of the Wah Wah Valley SEZ American Indian study area. Prior to the arrival of Euro-Americans, the area was a communal borderland between Southern Paiutes and Goshutes who shared farming areas and social relations along both sides of the Sevier River.



Figure 3 Fields of Waii in the Proposed Wah Wah Valley SEZ

Indian people observed that the SEZ American Indian study area contains a wide variety of traditional use plants. In the mountains, areas were identified as rich pine nut harvesting areas. The lowland areas contained expansive fields of an Indian food staple known as Indian ricegrass (*Achnatherum hymenoides*), or *waii* in Southern Paiute and *wai* in Goshute. The Southern Paiute name for this plant, (*waii*), means field. The term “field” is used by Indian representatives to indicate that these types of plants are traditional crops actively managed and cared for by Indian people.

The abundant plant communities in the Wah Wah Valley SEZ American Indian study area support extensive herds of antelope that were the focus of large-scale communal hunts involving different Indian communities. Antelope shamans were important in these organized hunts. They specialized in spiritual and physical interaction with the antelope and were able to draw upon the antelope's *Puha*, (power), in order to select specific ones for the communal hunts. The purpose of these interactions was to assure that the animals were treated with respect and protected.

Volcanic places, such as Wallaces Peak, are considered sacred locations used for vision questing and power acquisition. Numic-speaking peoples believe that volcanic events are moments when *Puha* deep inside the Earth is brought to the surface as a way for the land to renew itself as it moves across the landscape. Underground, *Puha* follows the flow of magma and distributes itself and connects volcanic places over vast distances.

Indian people continued to use these areas in traditional ways until Euro-Americans began settling along the front range of the Wasatch Mountains in the mid-1800s. Soon the Indian irrigated farms along the Sevier River were lost and eventually the major water sources were taken by the non-Indian settlers. The encroachment period continued until the late 1800s when most aspects of traditional life were impossible to sustain. At this time, Indian people shifted to wage labor. They worked in many of the region's mines, built and operated the railroads, and were ranch laborers. This shift is seen as a testament to Indian people's ability to adapt. It is positively discussed today with a cultural interest in how previous generations adapted to new social, economic, and ecological conditions. The celebration of survival is offset by the sadness of having a well-adapted independent traditional lifeway replaced by wage labor in resource extraction activities.

Water

The Numic-speaking peoples who are culturally connected to this valley hold a deep and spiritual attachment to the water of the Wah Wah Valley SEZ American Indian study area. Water is viewed as the most important natural element because water makes life possible for all. The centrality of water in the Wah Wah Valley is demonstrated by its ancient name, which it received from its Native American description as a place of "good clear water" (Van Cott 1990). It is important from a Numic perspective to understand the hydrological system in this region. The flow of *Puha* follows the flow of water across a given landscape and connects places, people, and other elements. As water drains from the mountains, the water and the *Puha* flow into the valley, connecting these sources to the rest of the watershed. Water also holds immense importance in its power to connect near and distant elements. Dry lakes embody this phenomenon by connecting to other dry lakes and all water in the area underground. Water on and below the surface connects to water resources in the mountains and to the rain. Run-off from the surrounding mountains flows into the SEZ American Indian study area. The Sevier River watershed, the Wah Wah Springs, and other streams in the area participate and contribute to the flow of *Puha* in the Wah Wah Valley SEZ American Indian study area.



Figure 4 The Wah Wah Hardpan-Lake Sevier Watershed

The study area was once part of southern end of the large Pleistocene Lake Bonneville. In more recent time Lake Bonneville receded to leave the far smaller Sevier Lake. The intermediate period of this transition is important because it unified the Wah Wah Valley with the Sevier Lake. At that time the Wah Wah Valley Hardpan, currently a playa, was full of water and connected to Sevier Lake in the north (Figure 4). This hydrological connection has important effects on the flow of Paha in the SEZ American Indian study area and reinforces the closeness of the Wah Wah Valley with Sevier Lake. The uninterrupted body of water from Sevier Lake to the Wah Wah Valley also represented an important riparian ecosystem which supported Numic-speaking peoples in the SEZ American Indian study area; fish, waterfowl, and plants all represented key resources (Halmo, Stoffle, and Evans 1993). The lake draws its name from the Sevier River, the central inflow, which in turn derives its name from its Spanish description as severe and violent (Van Cott 1990). Traditionally, the Sevier River represented a fundamental element of Numic-speaking life in the SEZ American Indian study area. The river supported large irrigated agricultural settlements of Numic-speaking peoples on both the north and the south sides. The relationship between Numic-speaking peoples in the area was strengthened by extensive intermarrying which took place during the historic period (Halmo, Stoffle, and Evans

1993). Beginning with direct diversions between 1850 and 1890, non-Indian withdrawals from the river have grown steadily to their current level, wherein the all of the river’s flow is diverted before reaching the terminus in Sevier Lake (Sevier River Water Users Association 2011). Domínguez and Escalante visited the fuller lake during their 1776 expedition. The cartographer for the expedition, Miera, named the lake Laguna de Miera for himself (Van Cott 1990).

The Wah Wah Springs (Figure 5) are important to Numic-speaking peoples because they not only provide a substantial amount of water within the Wah Wah Valley, but they also contain Puha that is associated with springs and that flows through and between them. People make offerings to springs in acknowledgement of this power (Stoffle et al. 2004). Fowler (1992) observed that for the Paiutes of Stillwater Marsh, Puha has and continues to flow through the Earth’s waters. These waters are all connected through underground networks. Shamans (or *Puha’gants*) and spirits travel through these complex systems. Among Numic-speaking peoples, “there is a general belief in a group of water spirits, often in freshwater springs in the desert regions of the American west” (Stoffle et al. 1995:110), who also travel between lakes, streams, and springs by way of this extensive underground water network. Paiute elders explained that springs are important locations for gathering medicinal plants, whose healing properties are enhanced by their location near a spring. The geological, aquatic, and floral aspects of this location combine to form what is still an important sacred milieu for Indian people (Stoffle et al. 1995). Tribal representatives provided a historical memory of Wah Wah Springs and discussed the Indian people who used to live by and utilize this spring for daily life.



Figure 5 One of Six Springs at Wah Wah Springs with Wallaces Peak in the Background

Ecology – Plants and Animals

Ecologically, the Wah Wah Valley SEZ American Indian study area contains a wide variety of traditional medicinal, ceremonial, and edible plants. Waii represents a central food resource found extensively throughout Wah Wah Valley SEZ American Indian study area

(Figure 6). Numic peoples harvested waii in the early summer by utilizing seed beaters before winnowing the seeds into a more condensed form (Kelly 1964; Kerr 1936; Zigmond 1981; Rhode 2002). Seed beating allowed for repeated harvests and maximized the number of ripe seeds gathered, while minimizing damage to the plant (Anderson 2005:129). When the seed beaters hit the waii, only the fully ripened seeds would fall to the ground, leaving the young ones to develop fully. The seeds that were not swept into the collection baskets by the beaters would scatter on the ground to germinate or to provide food for smaller animals. If the seeds were not yet ripe enough, the grass could be charred and then winnowed to release the seeds. The seeds were ground into flour and eaten as pudding, gravy, sauce, or dumplings (Rhode 2002). A blend of waii and sagebrush seeds was commonly eaten with water on hunting trips (Rhode 2002:174-175). Waii seeds are protein rich (US Forest Service 2009) and almost constitute a complete protein. Yielding approximately 120 calories per ounce, the seeds were utilized as a staple, as well as a means of increasing nutritional value of culinary treats (Benfer N.d.). The high nutritional value of waii directly corresponds to its cultural importance as a central food crop.



Figure 6 Waii in the Proposed Wah Wah Valley SEZ

Traditional management of waii fields yielded large amounts of food for Indian people in the SEZ American Indian study area. Management begins even before ricegrass germination, as Julian Steward recorded Southern Paiute sowing of Indian ricegrass crops (Steward 1938). Indian women actively managed the waii fields by setting small seasonal controlled burns (Stewart 2002). Burned patches are quickly reestablished by the dispersal of seeds from adjacent unburned areas. Newly burned growth begins within three weeks of the burn and demonstrates strong growth characteristics. In addition, rapid post-fire responses indicate that burned plants may also re-sprout new growth directly (US Forest Service 2009).

The Wah Wah Valley SEZ American Indian study area lies within the Central Basin and Range Level III ecoregion. The area is internally drained and constituted by xeric basins, mountains, and salt flats. The SEZ American Indian study area ranges in elevation between 5,250 feet (1,600 m) and 4,640 feet (1,414 m) and Inter-Mountain Basins Semi-Desert Shrub

Steppe and Inter-Mountain Basins Mixed Salt Desert Scrub represent the predominant cover types. These ground cover types are defined by perennial grasses and dwarf shrubs for the steppe environment and open shrublands dominated by *Atriplex* species and perennial grasses for the mixed salt desert scrub. Nested within the Central Basin and Range ecoregion, this SEZ lies within the Shadscale-dominated Saline Basins level IV ecoregion. The SEZ American Indian study area is arid, receiving only 6.77 inches (17.2cm) of precipitation, as measured at Wah Wah Ranch (US Department of Energy, BLM 2010).

During multiple field visits, Native American representatives identified 30 traditional use plants within the proposed project boundary. The following table (Table 2) provides readers with the common, scientific, and Indian names for each plant identified. Ethnobotanical data was also included from the Three Sacred Valleys report, where Goshute consultants identified traditional use plants in the SEZ American Indian study area (Halmo, Stoffle, and Evans 1993).

Common Name	Indian Name	Scientific Name	3SV 1993	Solar 2011
Banana Yucca	uusiv, wiisiv (sp)	<i>Yucca baccata</i>		x
Big Sagebrush	Sangwav (sp) Po'-ho-bi (g)	<i>Artemisia tridentata</i>		x
Black Sagebrush	sangwav, sua'piv (sp)	<i>Artemisia nova</i>	x	
Broom Snakeweed	s'kump (sp)	<i>Gutierrezia sarothrae</i>	x	
Buckbrush	u'nup (sp)	<i>Purshia glandulosa</i>		x
Bud sagebrush	kuh- <u>eeb</u> tah- <u>cun</u> -oh-guah, kuh- <u>wepit</u> -tuh- <u>cun</u> -o- <u>guah</u> (sp)	<i>Picrothamnus desertorum</i>	x	
Chokecherry	tonap, tonopi, tonapi (sp) to'-w-nûmp, toñ'-gi-cip bu'-i-natsu (g)	<i>Prunus</i> sp.		x
Desert Globemallow	Tupwiv (sp)	<i>Sphaeralcea ambigua</i>		x
Desert Saltbush		<i>Atriplex polycarpa</i>		x
Dropseed	postushukunt, pas-tu-shu-kunt, kwakwai (sp)	<i>Sporobolus</i> sp.		x
Fishhook Cactus		<i>Escobaria vivipara</i>	x	
Greasewood	yah-tahmp', tah- <u>uh</u> -be, <u>toh</u> -no-be (sp)	<i>Sarcobatus vermiculatus</i>	x	x
Great Basin Fishhook Cactus	Manav (sp)	<i>Sclerocactus pubispinus</i>	x	
Hairspine pricklypear	Usivuwits (sp)	<i>Opuntia polyacantha</i>		x
Hedgehog cactus	Usivuwits (sp)	<i>Echinocereus</i>	x	x

		<i>engelmenii</i>		
Indian Ricegrass	Waii (sp)	<i>Achnatherum hymenoides</i>	x	x
Indian Tea	Yatup (sp)	<i>Ephedra viridis</i>		x
Mexican Cliffrose	ᠬᠠᠨᠠᠷᠠ, hunap, uhnop (sp)	<i>Purshia Mexicana</i>	x	
Mojave Prickly Pear	yuavip, manavi, manav (sp)	<i>Opuntia erinacea</i>	x	
Nevada Indian Tea	tup, tup yatup (sp)	<i>Ephedra nevadensis</i>	x	x
Orange Lichen		<i>Caloplaca trachyphylla</i>		x
Rubber Rabbitbrush	Sikomp (sp)	<i>Ericameria nauseosa</i>	x	x
Salt Grass	ē'-shū (sp)	<i>Distichlis spicata</i>		x
Ryegrass	ph-hoe-buh wah-hava, sah-wah-havva, wah-havva, saxwanartotsivuaium (sp) o'-ro-rop (g)	<i>Elymus</i>	x	
Sedge	Sambiv (sp) Pa'-ra-wě-ci-gop, pa'-gi-gip (g)	<i>Carex</i> sp.	x	x
Shadscale	oavi, kakumb (sp) suñ, su'-no, ? ka'-nûm-pi (g)	<i>Atriplex confertifolia</i>	x	
Spanish Bayonet		<i>Yucca harrimaniae</i>	x	
Utah juniper	wa'ap (sp) wa'pi, wap (g)	<i>Juniperus osteosperma</i>	x	x
Watercress	ᠷᠠᠮᠠᠪᠠᠨᠠ, ᠷᠠᠨᠨᠠᠬᠠᠨᠠᠨᠠᠷ (sp) si'-bo-i-ûmp, ? pa'-mu (g)	<i>Nasturtium officinale</i>	x	x
Wild Carrot	Wu'-bu-i-nûp (g)	<i>Lepidium</i> sp.	x	

Table 2 Traditional Use Plants Identified in the Wah Wah Valley SEZ American Indian Study Area [sp = Southern Paiute, g = Goshute (Chamberlin 1911)]

The presence of animals in an area contributes to the overall cultural importance to Indian people. All of the animals that live or travel through the valley are used. Many were used as food or for their feathers, bones, and fur. Still others were used in ceremonies or played large roles in songs and Mythic time stories. Animals identified in the following table inhabit the SEZ American Indian study area. In total, 38 animals that physically or spiritually live in the SEZ American Indian study area were identified (see Table 3).

Common Name	Indian Name	Scientific Name
Mammals		
American black bear	Wu'da, tu'wu da tu'mūs su i, tu'mūsh (g)	<i>Ursus americanus</i>
American Badger	Ho'-nah, Hoo'-nah, Hoo-nah, Ho'-nan (sp) U'na (g)	<i>Taxidea taxus</i>
Black-tailed jack rabbit	Kaam, Kaam̄, Kamuntsi (sp) Kūm (g)	<i>Lepus californicus</i>
Mule Deer	Təxia, Tuuyi, Tuhi, Tuhuya (sp) So'ko rri, So'ko rri ūn gu ūm pa (g)	<i>Odocoileus hemionus</i>
Cottontail	Tavitic, Tavutsc (sp) Ta'bo, ta'bo kūm, I'wa ta bo (g)	<i>Silvilagus sp.</i>
Cougar	Tukumumutsi, Piaruku, Too-koo-puts, To-ko-mo-muts, Too-koo-mo-munch (sp)	<i>Puma concolor</i>
Chipmunk	Hoi (g)	<i>Tamias spp.</i>
Elk	Pa'rra hi (g)	<i>Cervis canadensis</i>
Woodrat	Kahts (sp) Ka (g)	<i>Neotoma sp.</i>
Coyote	Yoxovwits, Yoxovətsi, Sənanawavi, Tərasənav, Tərasinav, Sin-nav, Shin-nah-ab, Tərasəna'av, Turahsunav (sp) I'jū pa (g)	<i>Canis latrans</i>
Great Basin Pocket mouse	To'imp (g)	<i>Perognathus sp.</i>
Kangaroo rat	Pi-yu-ah, Tah-we-tat, Tom-we-a-tats (sp)	<i>Dipodomys sp.</i>
Kit fox	Wa'ni, Yi'ba (g)	<i>Vulpes macrotis</i>
Pocket gopher	Məyəmpitsi, Mwe-em-puts (sp) I'a bītc (g)	<i>Thomomys sp.</i>
Pronghorn antelope	Wahn-ze, Wongs, Waknch, Waantsi (sp) Kwa'ri, Pi'ū wants (g)	<i>Antilocapra americana</i>
Porcupine	Yəngəmpətsi, Ye-hum-puts, Yu ^{ch} (sp) Yu'na, Yūn (g)	<i>Erethizon dorsatum</i>
Rock squirrel	Skoots (sp) Kīm'ba (g)	<i>Spermophilus variegatus</i>
White-tailed antelope squirrel	Tava'atsi, Ta-va-run-quits, Ta-bats, Ta-vats (sp)	<i>Ammospermophilus leucurus</i>

Birds		
American Kestrel	Kærin'ang kats, Te-ze-nah-kahts, Kwan-an-tsits (sp)	<i>Falco sparverius</i>
Burrowing owl	Muku'uts	<i>Athene cunicular</i>
Common raven	Atapæts, Atakots, Ha-ta-puits, Ah-tah-pah-ki'p, Tah-kwahts, Ah-tah-pwits (sp)	<i>Corvus corax</i>
Golden eagle	Mung, Kwanants (sp) Pi'a gwi na (g)	<i>Aquila chrysaetos</i>
Great Horned Owl	Moopæts, Moo-oo-put, Mo-o-puts, Moo-e-pwits, Muupæts (sp)	<i>Bubo virginianus</i>
Greater Roadrunner		<i>Geococcyx californianus</i>
Horned lark	Tæranwitsi'tsi, Næva witsi'ts, Te-we-wit-se, Te-rah we-cha-its, Ne-vow-we-tsits (sp)	<i>Eremophila alpestris</i>
Loggerhead shrike	Tah-cho-noint, Tun-dun-nois (sp)	<i>Lanius ludovicianus</i>
Mourning dove	Iyov, Ayov (sp) Ai'wi (g)	<i>Spermophilus variegates</i>
Northern mockingbird	Yamp (sp)	<i>Mimus polyglottos</i>
Red-Tailed Hawk	Ta-ah kwah-nahts (sp)	<i>Grus canadensis</i>
Rock wren	Too-ching-ing, Tæmpikixots (sp)	<i>Salpinctes obsoletus</i>
Turkey Vulture	Wikumpætsi, We-koo-puts, Week (sp)	<i>Cathartes aura</i>
Western kingbird	Chæxæ'uvi, Wahts-koo-its, Too-pe-wats (sp)	<i>Tyrannus verticalis</i>
Reptiles		
Desert Horned Lizard		<i>Phrynosoma platyrhinos</i>
Long-nosed Leopard Lizard	Too-ar-rah, Neu-mah-zing-ahts (sp)	<i>Gambelia wislizenii</i>
Rattlesnake		<i>Crotalus sp.</i>
Arthropods		
Dragonfly	We-wing'-ga-rits (sp)	Suborder Anisoptera
Red Ants	Tu'siev (sp)	Family Formicidae

Table 3 Traditional Use Animals in the Wah Wah Valley SEZ American Indian Study Area
[sp = Southern Paiute, g = Goshute (Chamberlin 1911)]

The pronghorn antelope was identified by tribal representatives as a culturally significant animal in the Wah Wah Valley SEZ American Indian study area. This animal has been part of Numic-speaking culture since time immemorial. Antelope have and continue to play a large spiritual and physical role. Antelope were a staple within the diet of Numic-speaking peoples. An

antelope hunt was a communal event that would occur once or twice a year. During this hunt, numerous camps from considerable distances would come together to participate in the social, spiritual, and physical hunt (Steward 1941). The hunt was lead by an antelope shaman. This shaman trapped the antelopes' souls though songs, dreams, dances, visions, and other spiritual means (Steward 1941). This would enable the shaman to charm the antelope and lead them into corrals where they would by butchered. The meat was then dried and stored for use during the winter months.

Evidence of Previous Indian Use

The Wah Wah Valley SEZ American Indian study area includes volcanic mountains and buttes. Tribal representatives identified these areas as culturally significant and potential areas where people could visit to acquire Puha. They also added that, given the prominent volcanic landscape features, there is a high probability that offerings such as pieces of worked obsidian, chert, jasper, and broken pottery would be found on top or around some of these places. The offerings would have been used as a means of establishing a relationship with the volcanic feature and thanking it for assisting in the obtainment of Puha. These types of places exist throughout traditional Numic territory and are linked to pilgrimage ceremonies and trails. The Wah Wah Valley SEZ American Indian study area embodies this phenomenon and represents a complex cultural resource containing numerous archaeological materials such as offerings.

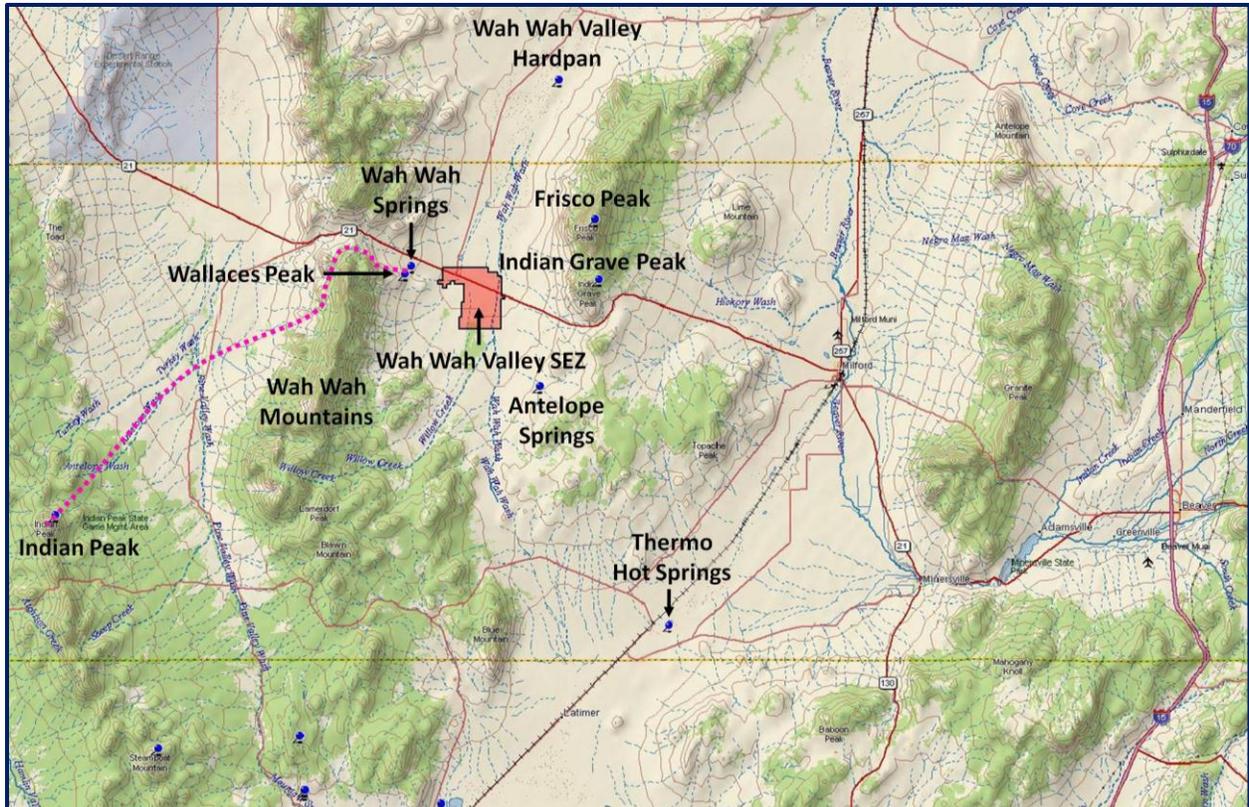


Figure 7 Wallaces Peak and the Eastern Side of the Wah Wah Mountains in the Background with Volcanic Boulders in the Foreground

Geology

The proposed Wah Wah Valley SEZ is located in the Wah Wah Valley, between Sevier Lake Valley to the north and the Escalante Valley to the south. The SEZ is bordered by the Wah Wah Mountains on the west and the San Francisco Mountains on the east. The Wah Wah Valley is a sediment-filled Basin and Range physiographic province located in southwestern Utah. The

exposed sediments are predominately lacustrine and are associated with ancient Pleistocene Lake Bonneville. Alluvial fan deposits are prevalent along the south, east, and west edges of Wah Wah Valley. The Valley is a north to south trending basin that is about 320 miles² (830 km²). It has elevation levels ranging from 5,250 feet (1,600 m) to less than 4,640 feet (1,414 m).



Map 2 Pilgrimage Trail from Wallace's Peak and Wah Wah Springs to Indian Peak

During the Tertiary period, there was extensive volcanic activity in southwestern Utah (see Figure 7). The volcanism in the area shifted in composition from calc-alkaline ash flow tuff eruptions to basalt and rhyolite lava flows around 23 million years ago. During this time, extensional faulting in the eastern Basin and Range physiographic province started. Places that contain the presence of volcanic activity are considered sacred and powerful locations. In the Wah Wah Valley SEZ American Indian study area, tribal representatives identified Wallace's Peak as a powerful volcanic place (Figure 7). They believed that people traveled along a special designated trail to visit the peak for vision questing and power acquisition ceremonies (Map 2).

Numic-speaking peoples believe that volcanic events are moments when Puha deep inside the Earth is brought to the surface as a way for the land to renew itself or be reborn. Volcanism is also a way for Puha to be distributed across a landscape. Above ground, Puha follows the flow of water and distributes itself across a landscape. This distribution occurs similarly below the surface, where, deep down below the aquifers and the underground rivers, Puha follows the flow of magma. As Puha moves through underground channels, it distributes itself and connects volcanic places over vast distances.

Indian History

The Wah Wah Valley SEZ American Indian study area is historically special to the Numic-speaking peoples who occupied these lands since Creation. Numic-speaking peoples believe that the Creator placed special features in these lands to support, heal, and protect all humans. The SEZ American Indian study area remained under Numic-speaking peoples' control, use, and management during much of the historic period, but their control over these lands greatly diminish due to a number of forces including explorers, diseases, foreign settlers, construction and operation of national transportation systems, and mining. A more complete discussion of these factors is provided in the Ethnographic Comments that appear later in this analysis. In brief, the major periods divided by factors of encroachment are (1) Sevier Lake Farming, (2) Travelers Along the Old Spanish Trail 1829-1849, (3) Forty-Niners and the California Gold Rush 1849, (4) Mormon Settlement 1850s, (5) U.S. Military Conflict 1863, (6) Cattle and Sheep Ranching 1870s, (7) Mining and Boom Town 1871-1910, and (8) Railroads 1880.

Native American Comments

The Wah Wah Valley SEZ American Indian study area was visited by tribal representatives from the PITU in November 2010 and CTGR in August 2011 during the Solar PEIS Ethnographic Assessment. Wah Wah Valley was also discussed during an interview concerning the Intermountain Power Project (IPP) in 1982, conducted by Richard Stoffle. The IPP study visits occurred with elders from the Indian Peaks Band of Paiutes and the Kaibab Band of Paiute Indians. The below text contains the Native American responses that were shared with members of the University of Arizona ethnographic team about the Wah Wah Valley SEZ American Indian study area.

Intermountain Power Project Interviews

The following text is relevant to Indian life in the Wah Wah Valley SEZ American Indian study area and was shared by a Paiute family (husband from Indian Peaks Reservation and the wife from Kaibab Indian Reservation) during the 1982 IPP interviews conducted by Richard Stoffle. Also present was a male elder from the Kaibab Indian Reservation. The interview focused on potential impacts of the IPP 500 KV power line and its associated access road on places and objects of traditional importance to Paiute peoples. Portions of the interview shared here are focused on Indian life in the historic period when the isolation of the Indian Peaks area, which included nearby valleys such as Wah Wah Valley, was being broken down by diseases and direct intrusion by Euro-Americans, their animals, and their industries.

What I would say is Indian Doctors, nowadays they call it Indian Doctor you know, the one that saves (them people). In the early days they call that Indian (a) Puha'gant, and that was the name of the doctor - yeh, the doctor was a spiritual doctor. They most likely had quite a few of them – like I said they had four of them over in that area (near Indian Peaks area) one time. There was one who was over the others and these doctors communicated at night through dreams. [They would warn everybody of trouble.] If one doctor over here dreamed and then he would

communicate out to somewhere else. They (Puha'gant) would do this to save people from lots of bad thoughts – maybe a bad sickness or disease. Or maybe some people – like white people – settlers come. They already know it. They already know what's taking place.

They (the Indian people) had to challenge 'em or lost their homesteads to 'em. The white people would push them (the Indians you know) out of the way and build at nearby water - a meadow or a real nice little place like that.

Indian people had their own gardens at that time. They had their own farms and grew corn and squash that I know of. That's what I hear from that old man who used to tell me. He said in that long ago time they don't have to have money. Use to have it planted over there in those little ditches and where that water is, plants grow. The old man said, "In that time we just lived in a good place, but right now you have to have money." But at that time, say the old man, what the God prescribed for you - you could get it right there. You go around the side of that mountain over there (Indian Peaks) and get your food like a lot of wild seeds and wild berries and everything like that. At that time, he said, there was deer up there and all around the area. They (the Indian people of that time) were given that way by the Creator – they were given a way they could handle their self. They didn't need anybody and they had their gardens and their plants – like the medicine plants.

There is antelope in Pine Valley, even today. In those days they had antelope and along in my days when I was a little boy – around maybe 7 years old. I seen a lot of antelope and my dad and some of those people over there used to go out on horseback and bring in some antelope. They might have shot them with rifles but they had fast horses so they could have roped them too. Before that time they shot them with bow and arrow. We were used to the antelope – the antelope were there all the time.

When I was young my dad was a farmer – he died at 88 - at that time people lived at Indian Peaks. Dad also worked at the Union Pacific too – laying track – and at Wah Wah Summit and Newhouse Reservoir. Lots of Indians worked there then. Wah Wah is not the Indian name – my uncle used to tell me the Indian name is Uwipa, which means Big Old Pine or Big Red Pine – it has big cones. This is an area with pine nuts which is a very rich food. If we get a good tree we might get a 100 pounds of nuts. Lots of trees will give you 50 to 75 pounds of nuts.

The white people cut down the pine trees to burn in the coke ovens especially near the Frisco mines. Eventually my dad went to work for the Commissary of the Frisco mines. My dad worked for the Commissary by taking care of the farm for Douglas Ryan at Wah Wah Summit and Wah Wah Springs. Mama was there too. Me and my sister traded off living with Mama and Dad at Wah Wah Summit and living with our grandparents at Indian Peaks. My dad was not a sheep man, he took care of the farm.

Must be careful not to disturb the land. Lots of Indian lived up there and many are buried up there. These graves should not be disturbed. Whoever put that person there, he was put there forever – you know until he turn into ground or something like that. You know he's there for a purpose and he has the right to stay. He aint gonna go move any more.

After the previous IPP interview, the male elders from the Kaibab Indian Reservation and from Indian Peaks Reservation traveled with two ethnographers to attend a meeting with the tribal council of the Confederated Tribes of the Goshute Reservation in Ibapah, Nevada. While traveling along Highway 21 from Cedar City to Ibapah, two Paiute elders shared further observations regarding the Wah Wah Valley SEZ American Indian study area. It was observed that there were so many antelope in the area that the state has posted highway warning signs. Traditionally, antelope were not only available in these valleys, they were abundant. The size of the antelope herds at this time is especially interesting given the very large commercial sheep herds that grazed all the valleys.

According to both elders, there is especially good pine nut gathering areas on the east side of the San Francisco Mountains. Both men and their families had gathered in the area, which they called Grandpa Peak (officially named Grampian Hill) located just above the Frisco Mine area and north of Highway 21. As the road leading from Highway 21 to the historic Frisco Mine area was passed, they pointed out where the Indian workers lived.

When traveling to the west side of Wah Wah Valley on Highway 21, the Indian Peaks elder pointed out where he and his family lived at Wah Wah Springs when he was young. The ranch was called *The Commissary* during the time when the Frisco Mine was in full operation. Still visible was the little ranch house where the elder was raised. It had a large stone foundation, about a dozen trees on the south side, and is located about a mile off Highway 21. Also visible was the garden area located around the ranch house. These were the gardens his father tended to.

The elders observed that the Wah Wah Valley was full of wild horses. According to the Kaibab elder who was famous for catching and breaking wild horses, the horses were a special breed that was much taller and stronger than the typical wild horse. The Kaibab elder pointed out that Indian people made money catching, breaking, and selling the wild horses. This interview documents that the Wah Wah Valley area was lived in and used by Paiute peoples from great distances, including the Kaibab Paiutes who came over to gather pine nuts and break wild horses.

Solar PEIS Interviews

Tribal representatives from PITU and the CTGR visited the Wah Wah Valley SEZ American Indian study area during the Solar PEIS Ethnographic Assessment. The Solar PEIS study visits occurred in November 2010 and August 2011. During the two field sessions, 11 interviews were conducted. This total includes the completion of four Native American Cultural Resources Forms and seven personal statements from the involved tribal representatives (Figures 8, 9, and 10).



Figure 8 CTGR Representatives in the Proposed Wah Wah Valley SEZ American Indian Study Area

The interview data presented in the following sections have been divided by ethnic group. This division is intended to strengthen the Native American interpretations by providing each ethnic group with equal space and opportunity to share their own cultural concerns and recommendations. The following comments are interpretations that were made during these field visits and reflect the cultural significance of resources associated with this SEZ American Indian study area.

Confederated Tribes of the Goshute Reservation Solar PEIS Interviews

When asked to describe the geography of this area or elements which stand out, the Native American Representatives replied:

- *Somebody lived on this land. I'd say that it's an Indian land.*
- *Here, this spot right here. The reason I think, is because that, part of my family had lived here when it was a Commissary for Mining and just them taking a part in that operation, I feel a lot of peace and I imagine the food sources that they had, you know, their Native food. I see, like I said, the thistle coming up. I'm sure that there was some wild onions that they ate and potatoes...and then we saw that elk, and then I thought oh my goodness, well, put it all together, they must've had...they must've lived off of the fat of the land. Little did they know that one day that this place would be different, if that happens. You know, just looking at it, how they must've felt when they stepped out and they looked down the valley. Changes that will happen if this is the chosen part here.*

When asked if Indian people would have used the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *This could have well supported people here, whatever plants here, the spring, possibly some wildlife. We've seen one anyway, an elk.*
- *I'm sure they did, I think so. Because I'm sure that there's like, I don't know, if there are pine trees up here. They must've been up here looking for pine nuts, camping out, because there were a lot of people, they used to go out and camp out during pine nut season, harvesting pine nuts.*
- *This would be a good spot to live, probably in the summer. They'd have to go back in the winter.*
- *The way they used to use this land is, like I said, this is another room in their home. Another valley is another room. They roamed that area like nomads, they called them. When things are ready to be used, they come through here and go to another place for whatever that land produced there. That's the way the old people used this land. They do it just like, stayed here, come through here, and use what's here. they already know what plants are here or wildlife. And they come harvest those things, plants and wildlife. That's the way this place was—they used this land that way. But there's plants here, there's springs, possibly willow. Pine nuts I think is one of their main sources of food. They used something that's already growing here. They had wild potatoes at the time, carrots, and wild onions. That's mainly what they done, they'd hunt for food. They'd know where there's food and go to that place.*
- *People would come here at times for things like the harvesting of plants and animals, whatever the land produced today. There are traditional dances for that. Possibly they came from a long ways away. When I was young, the people down there, they used to go up to Goshute country. That's a couple hundred miles. Yeah they do travel. Of course they don't come right back. They stay there for a week or something, you know, a couple of weeks. Goshutes and Paiutes were friendly towards each other because they had intermarriages. Same way with the Shoshones. They come to their harvest dances and they all get together and pray for the coming year.*
- *They must have had good eating, with this waii and the animals.*
- *I'm sure they did because of the springs here. I think they were like self-supporting kind of thing. I'm sure at that time that was just the thing to do because of the distances from the nearest town. And I was looking at those stone buildings over there, I wonder if maybe they use that for storage, you know, storing things because of the distances, kind of like a cellar. I'm sure that's what they used it for, to keep something cool, preserving something.*
- *When they were talking about that hot springs down there, because most people use mineral springs for healing purposes, like the Puha people, the medicine, the shamans,*

they use that area for that because of the mineral springs. I'm sure that there was a lot of Indians who came by here for that.

- *Yes, that volcano, I imagine that was used for visions, or fasting.*
- *They probably had their women and children camping up here, near the spring.*
- *Some of the new generations would like to visit this spot, I guess. Somebody lived here at the commissary, sure liked to use his hands, work with his hands, create something with his own hands. He could create those buildings.*
- *Wah Wah possibly used as a site of refuge for Goshute peoples from massacres in Pine Valley and Spring Valley.*
- *Wah Wah possibly used as a meeting place, seen as a central point for this area. It's right in the middle of everything. It's half way to everywhere. They probably set the camp up here, near the foothills, not too far of a distance from the spring.*
- *The volcanoes were used for fasting, to gain power and the hot springs were used for healing.*

When asked if the Wah Wah Valley SEZ American Indian study area is connected to others, the Native American Representatives replied:

- *Yeah that place (Indian Peaks), it's usually based on harvest and dances. They thank our creator for food that they use that summer and they pray for the coming year. That's what those dancers were about—they were very close to Mother Earth. They communicate in some way through those traditional dances, those harvest dance, and things like that. They had the rain and water and snow dances. They pray for rain at that dance and snow so they'll have enough that next year; the next crop of food. That's what those dances meant to them.*
- *I would think so. And again, I'm sure there's a trail going that way (to Indian Peak). I would think that this site is one of the places they would stop along the trail because that's (Wah Wah springs) originally where Minnie and Carl lived. Carl was originally from Kaibab, but Minnie, was from Indian Peak. Maybe it was connected to Southern Paiute. I think so. Goshute and Shoshone must've been, because my mother's grandmother's grandfather is the one that roamed around this area. And like I was saying to her, he must've been a womanizer, I said geez, he must've walked a long ways or maybe he rode a horse. His name was Cane, his Indian name was... it means Cane, like a cane you walk on.*
- *I'm sure, how it comes around like that, probably different trails.*

When asked if Indian people would have used water in the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *There must have been a spring around here somewhere. They probably used these stone buildings for coolers, to keep things cold. Usually they'll have a spring underneath them.*
- *They'd probably had to carry water; I don't know how they do it, really. They lived near the springs. They might have had hot water in the barrels, like we used to do a long time ago. Before there were barrels, they used a willow water jug. They'd boil that sap and get a round rock, like syrup around and around it, until it gets hard inside. Hold the water, it's a water jug.*
- *They knew where the springs were at. A long time ago, there were more springs than now. So those Indian trails only went where you'd find water and you didn't have to go too far out of your way to find water from the trail. Water on the reservation started drying up in the 1950s.*
- *I think Indian people would have to clean the springs out. They'd have to clean them. Usually you'd find a dead rabbit in there and that would have to be cleaned out. Or birds. They would have to have a reason to keep their springs cleaned out for whoever came through.*
- *That's usually what they did. They camped near the springs.*

When asked if there was anything affecting the condition of water in the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *This one, down here that they built the cinder blocks around, I feel that that one's destroyed, because what was the point of the cinder blocks around it? Water isn't meant to be trapped like that, it should be free-flowing. Water is important to our people and for that to be trapped like that...it's stuck right there. There may be water coming in, going through pipes, but it should be free-flowing, the way it was put there to be.*
- *When water is trapped like that, it's not allowed to carry anything (Puha). It affects the power (Puha) of the water.*
- *You shouldn't play with water because one day you'll have to pay for water.*

When asked for recommendations for protecting water sources in the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *I think having the solar, it will impact this land, and this land is probably important to Indian people. They probably came here for ceremonies and things, and for the solar panels to be there, it would interfere with spirits that are still there. We can't see them but we know they're there and that's just interfering with their land, and with what*

they're still here doing. I've always been told that we can't see what's going on, but there still old people practicing their ways. Somewhere around here the spirits are still within their ways, from a long time ago.

- *If they pipe the water from Northern Nevada into Las Vegas, it's going to dry up even possibly this spring here. All this water is all connected together, if they piped it, it's going to dry up some areas and then it could be like that dustbowl, that's what it's going to become.*
- *Where are they (the solar panels) going to get their water to get that going here? Because if they pipe it, this water's going to dry up and then they won't have the water to cool their panels.*

When asked if Indian people would have used the plants in the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *Sagebrush, it's for a cold. Boil the sagebrush and make a tea. It's a cold medicine.*
- *I saw some thistle; they must have made a pot of soup with that, just down the road here. I wonder if they have wild onions up here too. Yum!*
- *Possibly they'd have mostly apples, plums. They're the easiest to grow I guess. Peaches and them other groups, I don't know, I don't see much way out here. Mostly just apple and plums.*
- *We saw watercress in that spring and that tulle reed.*
- *I saw a walnut and plum tree.*
- *Yes. The whole area is full of this ricegrass – waii.*
- *There are food plants here.*
- *I think a large field of Indian ricegrass is important to Indian people. I know one committee member was eating some a little earlier.*
- *Our people ate the thistle – they taste like celery. My grandma used to get it and eat it.*
- *They used sagebrush for smoking, blessing with.*
- *People used to eat watercress, and my mom still eats watercress. It's a good food source.*
- *The waii is an earlier harvest. This is like late spring. Each harvest depends on the rain and the moisture but this is food.*

- *We have a big pine nut harvest in September. When you hear the cicadas it means that the pine nuts are ready. My mom said that people would go all over around this area. There are a bunch of pine nuts over by Pioche. Fandangos were a time when everybody would bring their pine nuts and they would sell them or give them away and have all kinds of things. They would have gravy and then all these women would find their mates. They'd all go off in pairs and marry off. I guess they would call them different clans.*
- *You have to let the Indian Tea dry before you steep it. It's green right now, you have to let it dry, I think. They picked the wild mint that grows along the water. They pick it and then they let it dry, then they use it for medicinal purposes. They take it every so often to cleanse themselves. They drink a lot of it. Asthma runs in my family so my dad would go to a medicine woman. I read that Shoshone Indians have a medicinal root of some kind for birth [...]. When you go to any one of our mountains, you're going to take some sort of offering. I don't have anything to offer, so I'm not taking anything.*

When asked for recommendations for protecting plant sources in the Wah Wah Valley SEZ American Indian study area,, the Native American Representatives replied:

- *The elk and stuff that's living here, they won't be able to get water because this is where the elk was going, to go get water.*
- *Maybe we haven't met people who come and use these springs still for praying in healing, but they might not want to let people know, that this is where they come to do that. That's the bad thing about doing this study is that some people, you know, might not want to come out and say what they use those spots for, just kind of a general idea, if they'll even give you that.*

When asked if Indian people would have used the animals in the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *There were lots (of rabbits) many years ago. That's what the Indians used to live on. Rabbit and deer.*
- *They have a couple of places for up in Spring Valley that they used to drive rabbits into. It was the same way with the antelope. You'd have a corral over the top of the hill with wings that come to the corral, just on the other side of the hill. That hill would hide the corral.*
- *Deer, antelope down the valley probably, elk.*
- *I don't know if elk is planted or it's original. I imagine that area we stopped as earlier as a place to scout, look down, to see where the antelope were coming. That place just stands out to me; I could just imagine it when we were standing there, all the antelope going by and crazy Indians jumping out.*

- *I think elk was planted, near Ely, that area, White River Mountains, and our mountains have deer too. I think that the main one would be deer and little rabbits.*
- *They would've used the animals for their skin, the buckskin of the deer and the rabbits, they made blankets out of them, they're so warm. You have to use 200 or more rabbits and you have to skin them a certain way, you have to dry it, then you roll it, and then you put them together. There are rows and rows of rabbit skin woven in.*
- *They use the animals to feed people after doctoring, they usually have a feast after doctoring. That's part of ceremony. They would partake of all the natural foods that they have. They use deer horn for tools. They used every part of it. The ribs would be used as tools.*

When asked to evaluate the condition of these animals and their habitat, the Native American Representatives replied:

- *The rabbit population is down because of the drought. I think that's what it is.*
- *The solar energy panels would drive away the animals. They probably graze in that area because it's flat and I think it would cause them to move farther away and they might even die out.*
- *Especially if they want to use that herbicide, animals would die from eating it. They'll put the herbicide in an area with high winds and in an old dry lake bed...If it rains a lot, it'll go into the lake bed. Their idea is not so smart.*
- *The non-Indians of the area have been doing poaching and not treating the animals with respect.*

When asked if anything is affecting the condition of the animals or habitat, the Native American Representatives replied:

- *I guess it's because of water drought.*

When asked if Indian people would have used this site and/or artifacts, the Native American Representatives replied:

- *In order to make things that will last, like those still standing on the corrals over there, them kind of corrals are built to last. So somebody that lived here liked to work with his hands to make it last, they say. And pure place to live. That's what I see when I look at all this. Somebody has wandered, ordered orderly things, laid out in order [...] I like orderly places. Yeah, you can't find them anymore though. There's too many and the population is not like this, by themselves here. He likes things in order, not just all messed up. Not right on top of each other but like this, laid out, in order. That's the kind of person who was living here a long time ago.*

- *Looking for pine nuts, camping out near springs, gardens because of the springs, using hot springs for healing purposes, volcano used for visions or fasting.*

When asked for recommendations for protecting geological features in the Wah Wah Valley SEZ American Indian study area, the Native American Representatives replied:

- *The solar panels would ruin it (the mountains). Just coming here, if you went up the mountain for a vision, you'd have those panels sitting down there, just staring at you.*
- *They put off a light of reflective light, so if someone was to, you know, maybe someone still uses that site, you know, to pray, they might climb that volcano and look this way and right in their view would be the solar panels. How are you going to pray when something's reflecting that much light off, distracting you from what you're up there to do.*
- *The solar would draw away some of the puha from the place. It'd be you know, like if you're trying to pray and the tv's on. That's the way I see it.*
- *It would just be a form of distraction.*

When asked to evaluate the condition of the site, the Native American Representatives replied:

- *It's probably like it's in fair condition. Could be better with more moisture.*

When asked if there is anything affecting the condition of the site, the Native American Representatives replied:

- *Lot of moisture, lot of snow, lot of rain. But now today, no hardly rain, no hardly water, no hardly snow! The earth moved a little bit, I guess. That's why the earth spin too fast, that's why the days go by fast. As soon as you know, you're waking up and it's already morning time. Used to be, a long time ago, slow and now it's fast. Earth is turning fast. The center shifted, you know. That's why the snow went back east and I say that they stole our snow.*

When asked for recommendations for protecting plant sources on the site, the Native American Representatives replied:

- *Ricegrass; that should be protected in some way for future use. In the past, it probably lived out there for thousands and thousands of years. It can hold the same thing in the future. The younger generations have to learn how to use these Indian foods because they are very healthy foods that should be protected. The water some way, improvements for the springs. Develop those springs some way for future use. The pine nuts up here hold the same food source for generations to come. As far as the minerals go, Indian people can't – there's probably no more gold here or there, or silver. It's all been taken out, so that's the only thing that I know of right now for the future.*

When asked for their recommendation for protecting this place, the Native American Representatives replied:

- *Probably just rebuild this place up.*
- *There might be graves in Indian Grave Mountain. It's not so important to find them but it's important that they should be left alone. They should be left alone, whoever is buried there. I don't know who.*
- *Get the cows off, so a lot of the Indian tea could grow back.*
- *I think the volcano needs to be looked into deeper and if it has significant use to any tribe. I think that needs to be recognized. You know if people have ceremonies at certain times then they ask that nothing come through, like at Devil's Tower.*
- *I'd like to see this place protected because my family is connected here. I would like to preserve the natural food sources here, just leave the water alone, this place will maintain itself. If they keep messing with the water up north, this place is going to go to ruins.*
- *The BLM should highly consider the protection of spots that have significance to Native Americans, the Goshute tribe, the Shoshones of this area.*
- *This was our country before anyone was here. We were here first, we lived on this land, in these areas. It's not the same anymore, but what's left here, we should really work hard on preserving it and teach some of our young people what the land was used for. They need to learn a little bit more about their history.*

When asked if Indian people would want to have access to this place, the Native American Representatives replied:

- *The problem now is there isn't enough moisture to make any improvement. And the BLM's purpose is to see that all these lands produce healthy plants and the productivity of the land, but you'd have to have moisture in order to do that. I'd like for Indian people to work for the BLM, would be to get together with the BLM to see what we can do but the problem is that, the lack of moisture is what the problem is at the present time.*
- *Indian people would like to come to this place, it's peaceful out here, and it's calming.*

Paiute Indian Tribe of Utah Solar PEIS Interviews

The following comments were made during a brief scoping visit in November 2010 by representatives from the Paiute Indian Tribe of Utah. Due to a massive dust storm that formed over the study area, tribal representatives could not visit important cultural areas however; they expressed concern for traditional plant and animal resources in the study area. They also

discussed the importance of Indian trails that crossed throughout the SEZ American Indian study area and this place's importance as a part of Southern Paiute and Goshute history. They discussed that the Frisco Mountains were a hub for mining activity in the late 19th and 20th centuries and Paiute peoples were often employed by mining companies as laborers.



Figure 9 PITU Representatives with UofA and SWCA Ethnographers in the Wah Wah SEZ American Indian Study Area

- *The old Frisco Gold Mine is in this area. It was being used in the 1800s until it caved in and they had to shut it down. I think they hired Paiutes to work in that mine at one time.*
- *We headed west from Milford along the old highway to Baker and Wah Wah Ranch. We saw a dust storm blow up in the valley from above. When we stopped, there were lots of plants like Indian tea, Indian ricegrass, small cottontail brush, desert rose (buckbrush), cedar trees, and pinyons.*

Ethnographic Comments

Throughout traditional Numic territory, there are thousands of places connected through songs, oral history, human relations, ceremony, and trails (physical and spiritual). These connections create synergistic relationships between people and place. The following ethnographic comments are provided to help contextualize the major features of the Wah Wah Valley SEZ American Indian study area. This section covers the major themes that were highlighted by tribal representatives that connect the landscape to the past and to contemporary Indian people.

Plant Management

An intimate knowledge of plant genetics has been suggested as a major *cultural focus* of desert-dwelling Indians (Anderson 1956; Shipek 1970). In order to maximize available resources, Numic-speaking peoples developed an adaptive strategy (Bennett 1976:273) involving both seasonal movement in pursuit of the total spectrum of flora and fauna and cultivation of crops using flood plain, oasis, and riverine irrigation and dry farming techniques. This wide ranging semi sedentary, *transhumant adaptive strategy* (Stoffle and Evans 1976), when combined with plant and animal husbandry, produced an environmental carrying capacity that actually exceeded that produced by Euro-American strategies of full-time farming and ranching. This strategy effectively utilized extensive desert tracts and supported dense populations of American Indian people. The systematic and annual management through patch ecology burning of Indian ricegrass in the Wah Wah Valley SEZ American Indian study area constitutes an example of such semi-domesticated horticulture that resulted in increased carrying capacity that supported large numbers of people.

Cultural Significance of Antelope

The pronghorn antelope has been part of Numic-speaking culture since time immemorial. Antelope have and continue to play a large spiritual and physical role. Antelope were a staple within the diet of Numic-speaking peoples. An antelope hunt was a communal event that would occur once or twice a year. During this hunt, numerous camps from considerable distances would come together to participate in the social, spiritual, and physical hunt (Steward 1941). Religious specialists called antelope shaman guided the spiritual dimension of this event and the relationship between Indian people and antelope.

Antelope Shamanism

Numic-speaking peoples have historically documented complex spiritual and physical relationships with animals. Antelope shamans represent one aspect of this complex relationship and have been discussed in numerous Numic ethnographic literatures. The ethnographies of Kelly (1932), Steward (1938; 1941), and Park (1938) provide information about ritual actions associated with hunting antelope. Although antelope shamans were culturally widespread throughout Numic territory, the ritual accounts were varied and the actual ceremonies were dependant on the shaman, the hunt, and the band of people. One account by Steward (1938:108) explains that “antelope shamans received their powers through dreams” and were able to conduct successful antelope hunts based on the outcome of the dreams. Antelope hunts were communal practices and were directed by shamans who sang for five nights. Groups of 40 to 50 men and women helped corral the animals for capture (Steward 1938:128). Following the antelope drives, the meat from the kills was shared by all of the participants (Steward 1938:163).

A number of ritual technologies were employed in the charming of antelope. Antelope songs were sung to charm the antelope into giving its life to the hunters; “moving closer to the goal of antelope charming, the shaman sings, ‘the antelope are coming; I sense them coming through the canyon’” (Kelly 1932:83). Participants also used ritual paraphernalia made out of parts of an antelope’s body, such as gourd rattles constructed from the hoofs of antelope and

hides from antelope fetuses (Vander 1987:49-50). These ritual use items were used to manipulate and influence the antelope. A second method for charming antelope entailed mimicking antelope-like behaviors. Kelly (1932:83) notes that the Surprise Valley Paiute dramatized the antelope hunt by singing, dancing, and making the sounds and movements of an antelope.

The performance dimensions of antelope shamanisms are accompanied by the physical dimensions of antelope knowledge, which have not been discussed at any length within the anthropological literature. Information is now emerging that suggests that Indian people in the Great Basin domesticated antelope herds living in proximity to their villages. The Western Shoshone of Fish Lake Valley reportedly participated in such activities. Contemporary Numic-speaking peoples have indicated that the domestication process would begin when the antelope were young. A religious specialist would take a young antelope and then familiarize the animal with human beings. At a later point, this domestication process could be used to coax a herd of antelope to a particular place.

Antelope as a Food Source

The antelope played a significant role in the large game diet of Numic-speaking peoples. By 1900, the encroachment and mismanagement of land by nonnative people drove antelope to the brink of extinction. Fencing, habitat loss, overgrazing, and unregulated hunting were all contributing factors (Utah Division of Wildlife Resources 1999). The toll of this dwindling staple meat was documented as early as 1856 when Brigham Young commented on the condition of the Paiute Indians in northern Utah.

When we came here, they could catch fish in great abundance in the lake in the season thereof, and live upon them pretty much through the summer. But now their game has gone and they are left to starve. It is our duty to feed...these poor ignorant Indians; we are living on their possessions and in their homeland (Jennings 1959:100).

Later in 1859 while exploring the Great Basin, Captain J. H. Simpson noted that the Goshute Indians could no longer hold annual antelope hunts because of the diminishing size of the herds. Antelope was the largest game animal that the tribe hunted at the time (Simpson 1876). Losing this staple meat that was crucial for survival during the winter months strained the already failing native diet and helped to continue starvation and malnutrition throughout Numic-speaking populations.

The proposed Wah Wah Valley SEZ encompasses over 1,500 acres of critical antelope habitat and an additional 200,000 in the Wah Wah Valley SEZ American Indian study area. In order to maintain the Wah Wah Valley SEZ, it will be fenced off, the land in and around it razed of plant life and treated to prevent re-growth. Water will have to be taken from nearby springs and underground water sources to maintain the solar panels. This combination of land management mirrors the conditions that contributed to the almost extinction of antelope just a century ago.

Indian History

Indian people have a history like all peoples. Their history however, has largely been carried down through time via oral accounts. This is so because those who controlled writing and publication for much of this time dominated the narration of events. Indian history can be considered to begin as soon as impacts of Europeans arrived in Indian Country. For the people of Utah, this began with Virgin Soil Epidemics that are estimated to have first occurred by 1600s, but was certain by the mid to late 1700s.

Indian people in the Wah Wah Valley SEZ American Indian study area were subjected to encroachment pressures beginning with the start of the historic period. The first European documents recording the presence of Indian people in the Great Basin region and western Colorado Plateau was in 1776 as a consequence of the Domínguez and Escalante expedition. Indian history continues to be produced today as events of cultural importance occur to Indian lands, resources, and the people themselves (Stoffle et al. 2008).

As a result of the intrusion of Europeans, significant spiritual impacts occurred. Numic epistemology holds that Puha has diminished gradually since Creation in quality, quantity, and availability. This change has occurred because humans have at various times treated it improperly and have failed in upholding their responsibilities in the relationship they have with this interdependent system. Indian people believe that a very rapid loss of Puha occurred after European encroachment (Stoffle et al. 2008).

Irrigated Agriculture

Irrigated agriculture represented an essential subsistence strategy for Numic-speaking peoples in the Wah Wah SEZ American Indian study area. Farming in the SEZ American Indian study area was centered on Sevier Lake and Sevier River, where abundant water supported agricultural villages. The riparian ecosystem of Sevier Lake also provided fish, waterfowl, and plant resources to further support Numic-speaking communities. This traditional farming was observed by Mormon settlers at the time of initial contact (Halmo, Stoffle, and Evans 1993). Numic-speaking connections to farming in the SEZ American Indian study area continue through the historical period to family histories. Family stories of irrigated Indian gardening and farming were told as additional supports during times of low income. One respondent on the Intermountain Power Project explained that his father cared for the farm at Wah Wah Summit and Wah Wah Springs (Stoffle and Dobyns 1982).

Travelers Along the Old Spanish Trail 1829–1849

During the Mexican national period, caravans of pack mules with loads of woolen goods produced in New Mexico were driven from Abiquiu, New Mexico to San Gabriel, California over what was to become the Old Spanish Trail. This trade trail was described as follows:

Between 1829 and 1848, the Old Spanish Trail was the primary land route between the two provincial outposts of Abiquiu and Los Angeles. During these

years, it was used extensively by Mexican and American traders who traded New Mexico woolen goods for California-bred horses and mules (Stoffle et al. 2008:2).

Herds of animals were moved from California to New Mexico in herds of up to 4,000. Few records survived these early periods to describe the interaction between Indian people and Hispanic herders and traders. Some documentation point out that Santa Fe and Abiquiu, New Mexico were places where Indian people were sold into slavery. It can thus be assumed that relations were unfriendly. By the opening of the Old Spanish Trail trade route in 1829, conflict, encroachment, and disease had taken their toll, allowing travel to California to become possible (Stoffle et al. 2008:265).

Utes and other affiliated tribes received gifts in exchange for safe passage along the Old Spanish Trail. Due to the depletion of grass, game, and water, the caravans were resented so theft of woolen goods, herds of horses and mules, and other articles was common (Simmons 2000:48). One of the most daring drives of horse theft on the Old Spanish Trail was led by Ute Indian Chief Walkara (Simmons 2000; Roubidoux 1999). Walkara teamed up with two mountain men, Pegleg Smith and Jim Beckwourth, in 1835.

The most famous expedition involved an intricate strategy in which different groups of Utes simultaneously drove off choice herd from various sources they had pinpointed previously as ripe for the taking. The group was pursued, and a skirmish took place at California's Cajon Pass [...] Walkara's men captured their pursuers' mounts to augment the remaining herd and made it home with at least 2,000 horses" (Simmons 2000:49).

Thousands of Spanish horses were driven across the Old Spanish Trail into southwestern Utah, legally purchased or stolen, and became what is known today as Spanish mustangs. During the 1950s, this horse population declined and a small herd survived. These horses are known as Sulphur horses and are incredibly unique. These horses are probably the only horses in existence that represent the Spanish horses of colonial Southern California and are descended from the pure Spanish horse to become the wild Spanish mustang (Roubidoux 1999).

The wild horse herd developed in the Escalante Desert after escaping from the stolen Ute herd that was driven to central Utah and probably traded to Colorado. Initially, the farms and gardens of the Paiutes were damaged by the wild horses, so the latter were generally driven or shot and eaten. However by 1900, Europeans had encroached on most Paiute farming areas and subsequently shifted their economy to the emerging ranching way of life. To make this transition, the Paiute males learned to capture and ride the wild horses. Extra horses were broken to ride and either sold or traded, contributing to the economy of the Paiutes. Horses also enabled Paiutes to travel greater distances in shorter times for trade and activities of various ceremonies.

The Forty-Niners and the California Gold Rush 1849

In 1849, the United States acquired the lands of present-day California, Nevada, Utah, Arizona, New Mexico, and Texas following the signing of the Treaty of Guadalupe Hidalgo. These lands were of great interest to the United States because they offered a wealth of natural

resources and access to shipping ports on the Pacific Ocean. The Federal Government began to develop policies that would make these lands accessible to the general public, which affected the Indian people in the SEZ American Indian study area. Individual citizen initiatives, however, quickly outran national policy planning when sawmill workers near Sacramento discovered gold in the millrace in 1848. The Gold Rush began when the word spread throughout the country that gold had been discovered in California. By the spring of 1849, 40,000 to 50,000 people emigrated westward to California. While some took to ocean routes to reach the West Coast, many traveled overland along established trails and wagon roads. Some overland emigrants from the southern states traveled across northern Mexico or followed the wagon roads opened by Mormon military battalions (Cooke 1878; Coutts 1961). Most overland travelers followed the central route ascending the Missouri and Platte Rivers and crossing the Rockies to Mormon Salt Lake City. It was estimated that 10,000 to 15,000 were thought to have traveled through Salt Lake Valley in 1849 and an equal number in 1850 (Arrington 1958:68). Then most of the emigrants crossed the mountain passes in the Sierra Nevada Range, directly to the gold region of California. Others detoured south very near the SEZ American Indian study area through Goshute and Pahvant Southern Paiute territory to Cajon Pass and southern California. This particular route offered the advantage to late-start travelers because it remained snow-free during the winter when deep snows make the passes in the high Sierra Nevadas impossible to travel (Stoffle and Dobyns 1982).

The surge of emigration intensified the Euro-American pressure on traditional resources throughout traditional Numic territory. Some areas experienced continued and often increased pressure put on resources that started during the Old Spanish Trail period. Some areas that once experienced indirect impacts during the Old Spanish Trail period now saw direct effects on resources due to the large volume of non-Indian travelers. Suddenly Indian people living in these newly impacted areas had to compete for wild plant and animal resources with the massive steady stream of migrating travelers.

The Southern Goshutes division suddenly found itself confronted by emigrants traveling south from Salt Lake City to the lower Sevier River. Goshute peoples appeared to have attempted to trade with these new travelers who tended to camp along the river to allow their draft and riding animals to graze. The Goshutes (or as there are sometimes referred to as in the literature, the “Snake Indians”) traded horses for firearms (Young 1998:64). Some historians have argued that these Indian traders were not Goshute peoples, but members of Chief Walker’s raiding band exchanging horses for guns. Ethnographic research suggests otherwise. These Indian people were identified as the “Snakes”, a term applied to Shoshone/Goshute peoples during this time. The Indian people were located along the Sevier River; a major agricultural center for Goshute peoples.

By mid-October in 1849, Forty-niners recorded no Native Americans along the lower Sevier River. Evidence suggests that Goshute peoples moved away from the now highly used wagon road through their territory because the new emigrants brought social and environmental problems that were forced upon the Indian populations.

Goshute peoples moved away from the wagon road because it became extremely dangerous along and around the road. The dangers created a major security issue. Plant and

animal communities were greatly diminished by California bound travelers thus it was difficult for Indian people to access their traditional resources. For example, a Mormon in one of the wagon trains recorded Euro-American hunting behavior on Chalk Creek (currently Fillmore, Utah). Emigrants discovered a number of jackrabbits hiding under some sagebrush and they unleashed their dogs to flush out these animals. As the rabbits sprinted out from the bushes, “the rifle balls began to fly in every direction,” (Pratt 1998:72-73). The hunters slaughtered about a hundred jackrabbits and numerous sage hens. The large-scale slaughter of game animals likely led to a rapid depletion of food sources, which sufficiently handicapped Native American hunters.

By the time this documented shooting incident occurred, Pahvant Southern Paiutes had also moved away from the wagon road. While passing Chalk Creek, the Forty-niner who documented the shooting commented that Southern Paiutes were located along the creek’s headwaters (Pratt 1998:73). The wagon road veered eastward crossing Pahvant Southern Paiute territory and east of the Mineral and Black Mountains. As the travelers continued to move along the wagon road, they continued their mass shooting of game animals (Pratt 1998:75).

The Euro-American travelers also documented catching fish as they passed through present-day Utah. Pratt (1998:74) documented that one traveler caught a two pound trout along the Beaver River in late October 1849. There was a dam along another portion of the river that was likely used by Southern Paiutes for irrigation management of their agricultural fields that once surrounded the river. At the location of the dam, the Forty-niners caught large trout that weighed up to five pounds. When the party traveled through the Little Salt Lake area, Pratt (1998) noted the presence of numerous animal species such as geese, ducks, jackrabbits, and sage hens. He also recorded that the Indian people in the area at this time were friendly and visited with the Euro-American travelers. Later travelers did not mention meeting any Native Americans along the wagon trail at Little Salt Lake.

The massive migration by Euro-Americans often spread contagious Old World Pathogens to Native Americans. These diseases spread rapidly throughout Indian communities causing major population loss. In 1848, prior to the start of the Gold Rush, emigrants were already leaving the east coast of the United States for Oregon by taking the Oregon Trail. This route ascended the Platte River and in 1848, emigrants transmitted measles to the Snake Indians who then in turn they passed it on to the Plains Crow (Denig 1961:185). During the second summer of Mormon emigration, some of the contingent crossing to Great Salt Lake Valley appeared to have carried measles and took the sickness with them to their new outpost in Provo on Utah Lake. By 1849, the measles spread into the surrounding Ute communities (Anderson 1942:101). Given the highly contagious nature of this virus, it is likely that Goshute and Southern Paiute communities were impacted. There is indirect evidence in the ethnographic and ethnohistoric literature that suggests that this measles epidemic reached the Kaibab Paiutes and decimated their population (Euler 1966:90).

The start of the Gold Rush also brought a massive cholera outbreak that greatly affected Indian people across the United States. During this time, many non-Indian people were ill with cholera in most of the American cities and those who headed west towards California had ill persons in their traveling parties. The sanitary conditions in these wagon trains allowed cholera

to continue to spread to new, susceptible people along the trail for long periods of time. The continued spread of this disease reached the western portion of the continent. Along the route, the infected Euro-American travelers contaminated the water supplies of various Native American groups, thus causing a major loss of lives. The spread of diseases likely contributed in Goshute and Southern Paiute peoples moving away from the wagon road. They probably contacted whatever disease was being carried by the individual pack trains and suffered an unknown number of deaths. Some of these diseases like cholera hit these communities about a decade earlier, but the Indian people had retained knowledge of the symptoms and deadly nature of these illnesses that allowed them to develop coping strategies (Stoffle and Dobyns 1982).

As a result of the diseases and the increased levels of danger along the wagon road, Indian people sought refuge in other areas. When Southern Paiutes pulled away from the road, they moved to nearby highland areas in the Escalante Desert-Needles Range to the west and Colorado Plateau to the east (Stoffle and Dobyns 1982). Indian Peaks has been an area that has been repeatedly discussed as a region of refuge (see below). Indian Peaks was an isolated area that was a great distance from the trails and roads to California. In the upland areas in and around Indian Peaks, Southern Paiutes had a wide variety of food and medicinal resources that were untouched by Euro-American encroachment. Most importantly, the Indian Peaks area had a stable water source that could support people and agriculture. Regions of refuge are discussed later in this analysis.

Mormon Settlement 1840s-1850s

Mormon colonization began shortly before the mass influx of emigration to California. It should be noted that prior to the Gold Rush, their settlement was limited. Between 1847-1848, Mormons began settling in the Salt Lake Valley and began subsisting the food stuffs brought with them on their journey and on wild plant and animal resources and by the end of that year they expanded their settlements to Weber Valley, north of Salt Lake City.

By the spring of 1849, Brigham Young dispatched a party to establish Provo at Utah Lake, south of Salt Lake City (Arrington 1958:84). The economy in these communities was unstable. Few of the Mormon settlers had been financially well off prior to moving to Utah, while many had lost their property during their persecutions in Illinois and elsewhere. The trans-Plains emigration in itself limited the types and amounts of goods they could transport to their new communities. As a result, the colonists struggled along with a few clothes, building homes with limited tools, and surviving on wild foods and gardens.

When the Forty-niners started passing through the Mormon communities, they brought with them much needed supplies, livestock, building materials, iron, and wagons. Some emigrants who traveled by wagon to California, planned to profit by outfitting others particularly the Mormon settlers who would, in turn, trade grain and vegetables for goods (Stoffle and Dobyns 1982). The Mormons, who arrived between 1847 and 1848, acquired a wealth of goods between 1849 and 1850. As a result, the centrally directed Church of Jesus Christ of Latter-day Saints was able to well equip its own arriving immigrants and outfit them with wagons, livestock, tools, and clothing and sent these new colonists out to establish communities beyond the Odgen-Salt Lake City-Provo region.

Brigham Young and other Mormon leaders were keen to the possibilities of increasing profits and expanding and strengthening the boundaries of Zion. They planned to establish a Mormon Corridor of settlements from the Salt Lake City region to the Pacific Coast so they could establish their own seaport. They envisioned that these towns would continue to profit from overland migration as the original settlements did during the Gold Rush. They also planned to establish Mormon communities along the boundaries of the United States and Zion.

The development of permanent Euro-American settlement along the Mormon Corridor, combined with the continued overland travel along the national wagon road, impacted the nature of Native American land use in and around this route forever. These new communities were established at the primary water sources through this region and ultimately the settlers pushed the remaining Indian people away from their traditional agricultural fields and communities. Many of the new settlers lacked previous experiences with Indian people and viewed them as hostile. This view made Indian resource use dangerous. Mormon settlement also disrupted the major Indian east-west trail network between the eastern mountain and plateau areas and led to a reduction of traditional Indian use. Because of the reduced resource use areas and the loss of access to key water sources, Indian people found themselves working in labor gangs in these Mormon communities where they earned, begged, stole, or were given food.

The Founding of Deseret 1859

In 1859, Mormon colonists began to move away from the corridor to begin farming in the Sevier River delta. They named their community Deseret (Day and Ekins 1951:436-437). The Mormon advance into the delta region discouraged later Indian utilization of traditional resources. The farming development in and around Deseret started a process of individual acquisition of title to public domain lands in the delta. Twelve years after the founding of Deseret, the town constituted an economically attractive station for the planners of the Utah Southern Railroad.

U.S. Military Conflict 1863

In 1863, Euro-Americans severed and terminated much of the Goshute-Southern Paiute connections and use of the lower Sevier riverine oasis. On October 5, 1863, Treaty Commissioner James Duane Doty, the former Utah territorial governor, was able to make a “verbal treaty” of peace “with the remaining portion of the southern bands who were connected with the Pahvant [Southern Paiute] tribe,” (Doty 1865a:175). Doty explained that their willingness to agree to peace stemmed from military action against the people closest to the Pahvant. According to Doty (1865a:173), “the largest portion of those bands have been killed by the troops during the past season.” The number of Goshute casualties was unknown but the commissioner estimated that the number was greater than 100 people (Doty 1865b:175).

From the scarce information available in the government reports in the 1860s, one can assume that prior to United States military conquest, the Goshutes consisted of two divisions. A southern division of unknown size lived part of the year along the Sevier River delta (Larson 1952:126). They obtained a broad range of foods in considerable abundance such as fish, buffalo, tule, roots, and maize and they also engaged in trade with the neighboring Southern

Paiute. The southern division of Goshutes also danced social dances with their Paiute neighbors and engaged in joint ritual activity. The young people also courted and married across groups. A northern Goshute division lived around the southern portion of the Great Salt Lake Basin, from Skull Valley, to Deep Creek Valley on the Utah-Nevada border. The northern division survived military action in 1863 while people of the southern division did not (Stoffle and Dobyns 1982).

Cattle and Sheep Ranch 1870s

During the 1870s, cattle and sheep ranchers began to heavily graze the Wah Wah Valley SEZ American Indian study area. The grazing of the land, accompanied by the necessary fences, water retentions, and other ranching related activities directly correlated to “the long-lasting changes in vegetation, scars on the landscape, soil erosion and changes in water runoff” (Murdock and Welsh 1971:2). This excessive overstocking of land continued unhindered until the Taylor Grazing Act in 1934, however, habitual practices allowed overstocking to endure. The extent of the harm of overgrazing practices can be seen in the area as early as 1928, where 84% of sheep out of a herd of 5,000 starved in the nearby Pine Valley (U.S. Dept. of Interior 1956).



Figure 10 CTGR Representatives at Wah Wah Ranch

Overgrazing not only led to the decimation of native plant and the overgrowth of invasive noxious plants, but to the destruction of vital food sources for native people and wildlife. Compounding the problems of overgrazing were the waterworks, fencing, and roads used to support the herds of cattle and sheep. Due to “unnatural water diversion and land manipulation, the vegetation has been altered, often with a complete change of dominant species in many areas in Pine and Wah Wah Valleys” (Murdock and Welsh 1971:15). The practice of siphoning water into pipes, troughs, and storage tanks for livestock not only altered the natural dispersion of native plant species, but also resulted in a dramatic decrease in water available for the wild animals.

The dwindling supply of food sources greatly affected the Numic peoples in the area. Food and medicinal plants such as Indian ricegrass, black sagebrush, bud sage, and winterfat were the plants most readily eaten by foraging livestock. This not only interrupted crucial plant use for native people, but it also starved and drove off the wild game that they depended on for food, clothing, tools, and medicine. Over grazing transformed the fertile valley into an area that could not support Indian people's traditional lifeways. Once grazing was restricted throughout the Wah Wah Valley SEZ American Indian study area, the land was returned to a healthier state.

Mining and Boom Town 1871 – 1910

Mining related impacts in the Wah Wah SEZ American Indian study area centered on activity in the San Francisco Mountains. Organized and large scale mining began in 1870 when the Cactus Mine was discovered. By 1871, the San Francisco Mining District was formed. This district included both flanks of the San Francisco Mountains and was established by local groups of miners to manage mining activity and keep records of claims (2003 Utah Recorder). The district produced high grade silver, lead, gold, and zinc. The territory became famous in 1875, when two workers at a galena mine in the district discovered a large and solid vein of ore, which came to be known as the Horn Silver Lode (Butler 1913, Ege 2005). The \$2.54 million in profits stimulated activity in the area, leading in part to the development of the town of Frisco, northeast of the mine and the town of Newhouse, west of the Frisco Mountains in the Wah Wah Valley. During the height of mining activity, Frisco had a population of approximately 4,000 people. The five charcoal kilns at the Frisco mines quickly depleted the surrounding timberlands (Notarianni 1982). The mines became dependent on the surrounding Wah Wah and Pine Valleys for lumber. These sources, however, could not sustain the mines and within a decade, smelting in the Frisco Mining District ceased because the cost to import charcoal became exponential. The mining district was also dependent on the Wah Wah Valley for meat and other products (Murdock and Welsh 1971).

By the end of the 19th century, Frisco had become the remnants of a boom town, and by 1900, the population had fallen to 500. Five miles west of Frisco along the, the town of Newhouse first established itself as Tent City. The population of Tent City rose and fell with the fate of the Frisco Mining District and by the end of the 19th century just a few settlers remained in the Newhouse area, primarily to graze the valley. This changed in 1900 when the town was bought and built up by Samuel Newhouse. An opera house, park, hospital, and hotel were all part of the new development. The water was supplied to Newhouse from the Wah Wah Springs and was piped from the west to the eastside of the valley. The development of the town made it temporarily feasible to reopen the Cactus Mine. This reopening sparked a population growth in both Frisco and Newhouse. The boom was short lived however, and just a decade after the buildup, the Cactus Mine was depleted. During this time, overgrazing had also impeded the grazing industry in the valley. By 1921, Newhouse was completely abandoned.

Many mining districts, including the original mines in the Frisco Mining District, were founded and discovered with the often forced help of Numic-speaking peoples. It was their intimate understanding of their traditional territory that allowed them to be knowledgeable about such places. The mountains surrounding the Wah Wah Valley have all been heavily mined. One tribal consultant remembered learning about a traditional Native American silver mine in the

area that was only known to Indian people. He was made to promise that that he would never tell non-Indian people the exact location of this mine. He explained that that there has been a general distrust in prospectors and miners based on past negative experiences.

Miners had little tolerance and respect for the Numic-speaking peoples living in the Wah Wah Valley SEZ American Indian study area and their culturally important resources, however, the non-Indian mining companies tended to depend on Indian people for labor (Reeve 2006). It was these interactions at the mining camps that made up most of the relations between non-Indian and Indian people during this time (Reeve 2006). The huge influx of people that accompanied successful mining operations in the region created serious cultural and physical problems for the Numic-speaking peoples who depended on the various traditional resources in the area. This was apparent to even non-Indians, as this report from the Commissioner of Indian Affairs shows:

Gold and silver are discovered in many portions of the territory among large bands of Indians who have recently had undisturbed possession of the country [...] Miners drive away game and cut down pine-nut trees, upon which the Indians subsist (CIA 1865:142).

This invasion happened at an exorbitant rate, with all wood resources disappearing within five years. Other resources, such as food sources for people and animals alike, also followed this pattern.

Railroad – 1880

The transcontinental railroad finished crossing Utah in 1869. This date is a benchmark in Utah history, marking the end of the Pioneer Era (Strack 1994:450; Seegmiller 1998:381). The rail line was introduced to Frisco in 1880 by the Southern Utah Central Railroad, a Union Pacific company. By 1887, the Horn Silver Lode had disappeared and of the rail's offices in Frisco were closed by 1887. "The Utah Central road has closed its Frisco freight, ticket and telegraph offices, as they don't pay. Trains will run up there from Milford just the same, but all the clerical work will be done either at Milford or by the conductors," (Editorial 1887). By 1931, regular service to Frisco ceased.

The buildup of Newhouse and the reopening of the Cactus Mine was enough to induce the primary investor, Samuel Newhouse, to build a \$100,000 rail extension from Frisco to Newhouse (Editorial 1904:20). This was completed in 1904, but again, the appeal of Newhouse quickly dissipated with the exhaustion of ore from the Cactus Mine. By 1925, the town of Newhouse had been dismantled and the railroad's only traffic was tank cars of water for the local sheep ranches. In 1937, the rail extension was removed.

Railroads had to build extensive waterworks to supply themselves and were faced with the problem of operating over a vast, waterless landscape. Water was diverted from springs to support railroad construction, maintenance, operations, and steam locomotives. The development of these extensive waterworks allowed for increased transportation and urban progress (Orsi 1991:46, 49). Towns grew around the train stations at places like Modena, Beryl, Lund, and

Milford, Utah. The development of the railroad became important for shipping, tourism, farming, and mining in the area.

Potential SEZ American Indian Study Area Impacts – Tribal Recommendations

During the field visits, tribal representatives expressed concerns pertaining to the current environmental and cultural conditions of the Wah Wah Valley SEZ American Indian study area. During interviews, they provided management recommendations for Native American resources and for potential solar energy development.

Solar Recommendations

- Tribal representatives believe that solar energy development in the Wah Wah Valley SEZ American Indian study area will adversely impact the identified special features.
- Tribal representatives believe that the cultural resources in the Wah Wah Valley SEZ American Indian study area are important to understanding their past, their present, and their future. They stipulate that these resources will always be culturally important to Indian people.
- Tribal representatives believe that the culturally significant places mentioned in the above text should be considered for tribal declarations as Sacred Sites (Executive Order 13007) and nominations as Traditional Cultural Properties (Bulletin 38) to the National Register of Historic Places.

Bureau of Land Management Recommendations

The consulting tribes believe that the Wah Wah Valley SEZ American Indian study area should be managed as an integrated spiritual cultural landscape. To accomplish this goal, PITU and CTGR tribal representatives should be brought together with the Bureau of Land Management (BLM) to work out an integrated cultural landscape management plan.

- Tribal representatives state they want to be involved in a co-management relationship with the BLM in order to harvest and traditionally manage the fields of Indian ricegrass and other important traditional use plants in the proposed Wah Wah Valley SEZ and the SEZ American Indian study area. They believe that managing, harvesting and consuming traditional foods will have positive health and cultural impacts for Indian people.
- Tribal representatives state they would like the BLM create an interpretation program for Frisco Mine, highlighting the history of Indian workers at the mine.
- Tribal representatives believe that the culturally significant places mentioned in the above text should be considered for tribal declarations as Sacred Sites (Executive Order 13007) and nominations as Traditional Cultural Properties (Bulletin 38) to the National Register of Historic Places.

- The consulting tribes desire to be formally contacted on a government to government basis whenever projects or proposed land management actions occur on and/or near the following topographic areas:
 - Wah Wah Springs,
 - Sevier Lake,
 - Sevier River,
 - Wah Wah Mountains,
 - Wallaces Peak,
 - San Francisco Mountains,
 - Indian Peak