

Tribally Approved  
American Indian Ethnographic Analysis of the Proposed East Mormon  
Mountain 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

*Moapa Band of Paiute Indians, Moapa, Nevada*

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## EAST MORMON MOUNTAIN

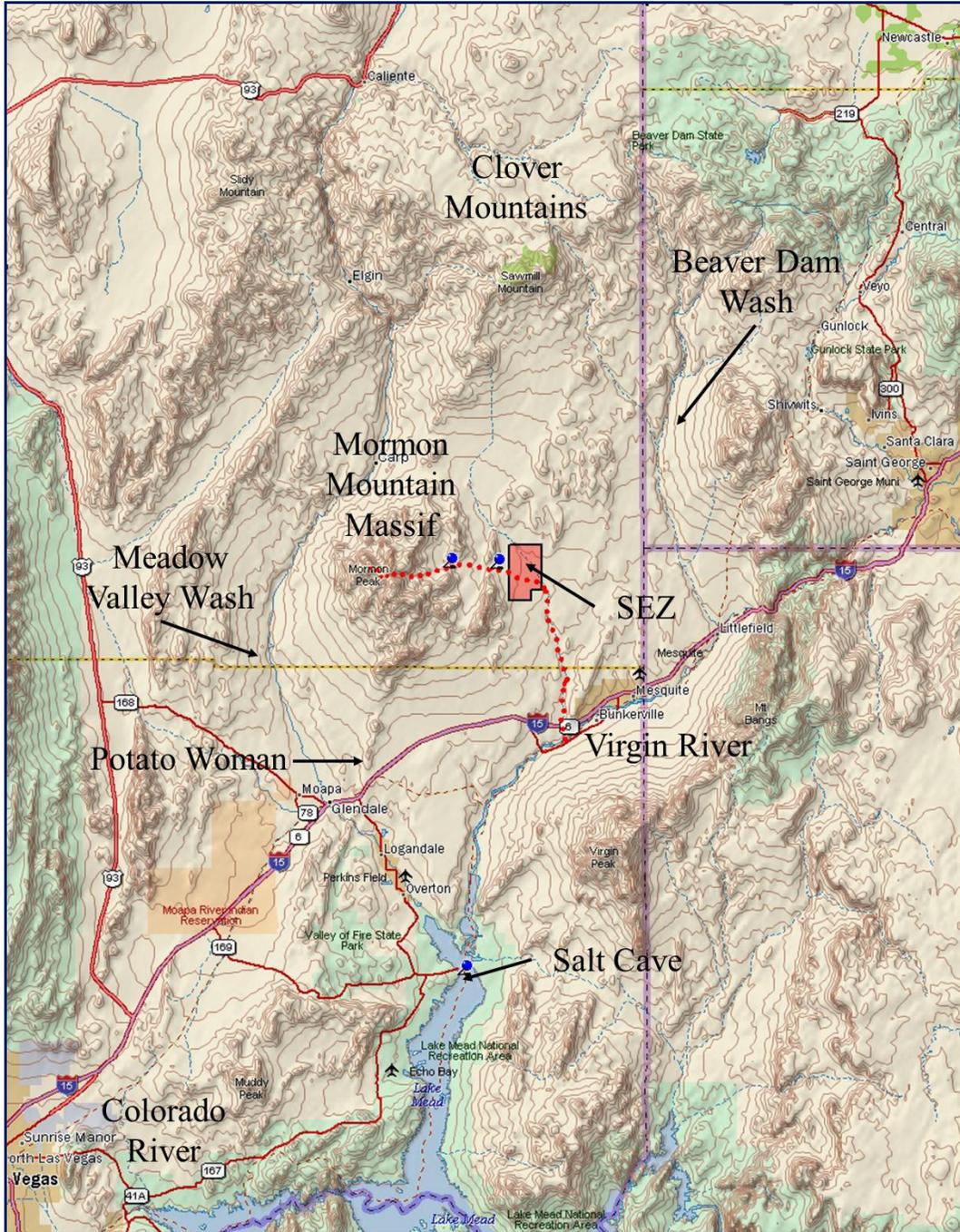
The proposed East Mormon Mountain solar energy zone (SEZ) is in the southwestern portion of the state of Nevada, in Lincoln County (see Figure 1). The proposed SEZ is about 22 square miles and sits approximately thirty-seven miles west of St. George, Utah, thirteen miles northwest of Mesquite, Nevada, and 25 miles northeast of Moapa, Nevada. The SEZ is situated less than ten miles from both the Utah and Arizona state borders.



**Figure 1 Google Earth Image of East Mormon Mountain SEZ (outlined in red) and SEZ American Indian Study Area**

The larger SEZ American Indian study area extends beyond the boundaries of the SEZ because of the existence of cultural resources in the surrounding landscape. The SEZ American Indian study area includes plant communities located directly in the SEZ boundary, geological features and water sources located just outside the boundaries of the SEZ, and trail systems that people used from neighboring or distance communities that pass through the SEZ American Indian study area to reach nearby medicine and ceremonial areas. Southern Paiute tribal representatives maintain that, in order to understand Southern Paiute connections to the SEZ, it

must be placed in context with neighboring places and their associated cultural resources (Map 1).



**Map 1 Mormon Mountains Massif, Associated Water Systems, and Culturally Important Places with the Pilgrim Trail (Puha Po) from Virgin River to Mormon Massif Marked in Red**

### **Summary of SEZ American Indian Study Area Significance**

The lands under consideration in the East Mormon Mountain SEZ American Indian study area were traditionally occupied and used, aboriginally owned, and historically related to the

Numic-speaking peoples of the Great Basin and western Colorado Plateau. People specifically involved in the Solar Programmatic Environmental Impact Statement (PEIS) field consultations were from the Moapa Band of Paiute Indians, who represent the cultural interests of the Southern Paiute people. The East Mormon Mountain SEZ American Indian study area was also studied during previous ethnographic research that involved the Kaibab Band of Paiute Indians, the Paiute Indian Tribe of Utah, the Pahrump Band of Paiute Indians, the Duckwater Shoshone Tribe, and the Confederated Tribes of the Goshute Reservation. Numic-speaking peoples have gone on record 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 American Indian study area because their ancestors were placed here by the Creator. They have lived in these lands since time immemorial, maintaining and protecting these places, plants, animals, water sources, and cultural signs of their occupation.

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 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 twenty 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. Late Pleistocene lakes were 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.

During the Pleistocene epoch, the East Mormon Mountain SEZ American Indian study area differed greatly in climate and ecology compared to its current form. The wetter Pleistocene climate created the Apex Lake, which filled the contemporary Apex playa located southwest of the SEZ and the Moapa River Indian Reservation, with 215 feet of water at its peak (State of Nevada 1972). The lake covered 25 square miles at its maximum depth. To the northwest, over the Arrow Canyon Range, a second lake called Apex North filled the northern Hidden Valley. Apex North reached a maximum depth of 110 feet and periodically spilled over into Apex, connecting the two bodies of water (State of Nevada 1972). The Pleistocene climate allowed for a very different distribution of plant communities, allowing range boundaries to move hundreds of miles south and hundreds of feet down in elevation. Junipers (*Juniperus osteosperma*) and Joshua trees (*Yucca brevifolia*) illustrate the general trend, as macrofossils of these species were found far below their current elevation limit (Mehringer 1965). Pollen from cooler weather trees such as pine (*Pinus*) and fir (*Abies*) indicate their presence in bajada areas, transitioning with sagebrush (*Artemisia*). Cattail (*Typha*) pollen was found throughout the low-lying areas, indicating fluctuating lake levels. Where moist soil was present around springs, salt grass (*Distichliss*) was found. The presence of cypress (*Cupressus*), grape (*Vitis*), ash (*Fraxinus*), cottonwood (*Populus*), and oak (*Quercus*) illustrate the diversity of flora which was present during this period (Mehringer 1965).

Although the environmental setting of the East Mormon Mountain SEZ American Indian study area has changed dramatically over the geologic timescales of Southern Paiute use and inhabitation, the Southern Paiute people have thrived and continue to do so. Countless shifts in the plant and animal communities have been met with constant coadaptation. Traditional ecological knowledge is continually developed and maintained in harmony with the natural setting. Ultimately, the sustainability of the landscape is ensured through the implementation of thoughtful and active management as a part of Southern Paiute sacred ecology.

### **Special Features**

Southern Paiute people have used the East Mormon Mountain SEZ American Indian study area for thousands of years. The SEZ American Indian study area is of great cultural significance to the Southern Paiute people because they believe that the Creator gave these lands to them and that they have a responsibility to maintain cultural connections to the land and resources. The SEZ American Indian study area contains numerous cultural features that contribute to the history and long-term use of this region by Southern Paiute people (see Table 1). Southern Paiute people have

a deeply rooted spiritual connection to the land that weaves stories and songs into the landscape, connecting all elements of the universe.

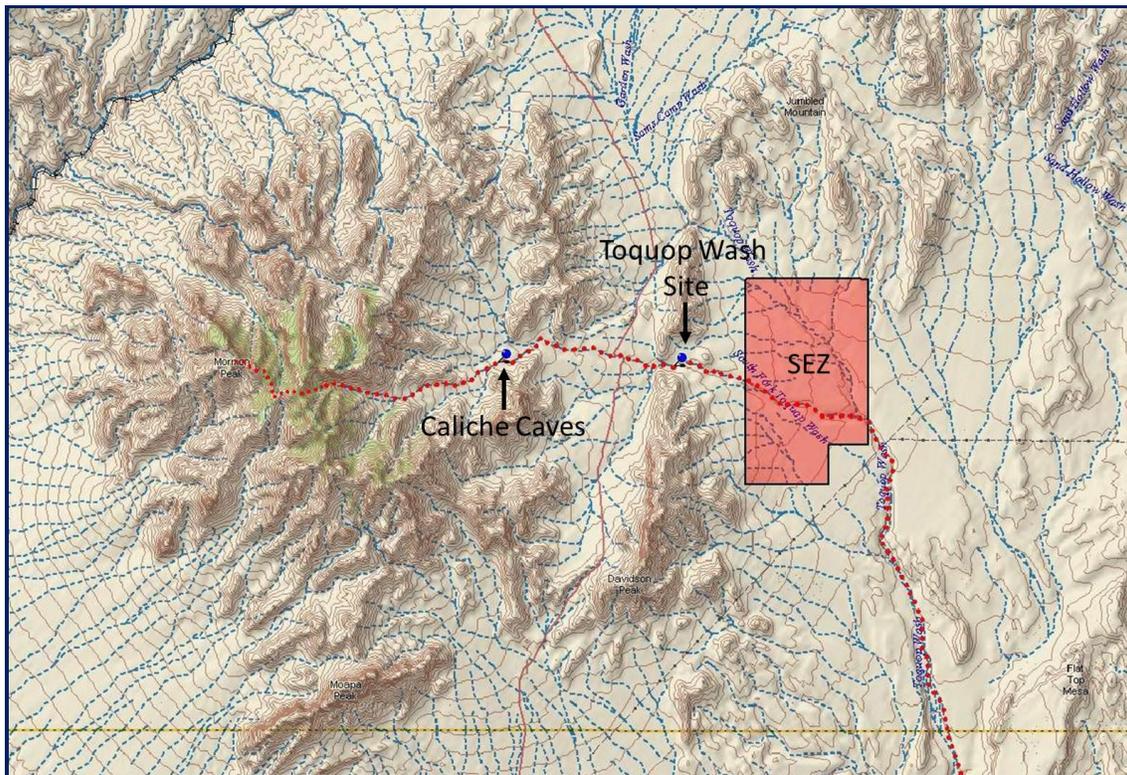
Feature Type	Special Feature
Source for Water	➤ Virgin River, Muddy River, Toquop Wash, South Fork Toquop Wash, Springs
Evidence of Previous Indian Use	➤ Rock alignments, a series of ceremonial grinding slicks, a matate, and rock peckings
Geological Features	➤ Potato Woman, mountain sheep outcrop, high mountains cause orographic lifting filling water table and washes
Source for Plants	➤ Ceremonial plants, medicinal plants, food plants, utilitarian plants. Indian tea, banana yucca, and wolfberry are used for medicine and ceremonies.
Source for Animals	➤ Birds of prey, game birds, migratory birds, predatory mammals, game mammals, small mammals, lizards, snakes, spiritual animals. Big horn sheep, rabbits, horses, snakes, and lizards are all connected to this area. There are stories about the big horn sheep and horned toads here.
Indian History	➤ Region of Refuge, Indian Cowboys

**Table 1 Special Features Identified at East Mormon Mountain SEZ American Indian Study Area**

A central feature of the SEZ American Indian study area is a hydrological path that begins in the high mountains and follows South Fork Toquop Wash and Toquop Wash, which converge in the southeast portion of the SEZ before joining the Virgin River (Map 2). The area’s hydrology is also influenced heavily by the presence of the Mormon Mountains Massif. The massif contributes to the hydrology of the SEZ American Indian study area through orographic lifting and resulting precipitation. The function of the massif continues through the absorption of precipitation, which emerges lower in the watershed as washes and springs. Beyond the South Fork Toquop Wash and Toquop Wash, the Virgin and Muddy Rivers represent central water features in the SEZ American Indian study area due to their role in supplying water and moving *Puha* (power) across the landscape. Water is a sacred resource to the Southern Paiute people and has a diverse meaning and function in ceremony and medicine.

Along the hydrological path from the East Mormon Mountains through the South Fork Toquop and Toquop Washes are traditional spiritual trails known as *Puha Pos* (Pilgrimage Trails) (Map 2). Distant communities, including those along the Virgin and Colorado Rivers, used these paths to seek power in the mountains. These activities have occurred since Creation. Places where special activities occurred were marked along these *Puha Pos*. This is exemplified by the peckings and paintings that are found in the South Fork Toquop Wash (see Figure 14), the paintings in Caliche Caves, and the presence of artifacts throughout the East Mormon Mountain SEZ American Indian study area. The Southern Paiute translation for rock peckings and paintings is *Tumpituxwinap*, which literally translates as rock story but more closely approximates storied rocks. The process of finding a single term for rock art was difficult

because there are many varieties and no single term completely conveys the diversity of meanings inherent to tumpituxwinap.



**Map 2 Location of Significant Rock Art Sites Along Puha Po**

The importance of ceremonial activity along the South Fork Toquop Wash and Toquop Wash was also supported by the presence of grinding slicks (see Figure 13), holes in the canyon walls for the ritualistic deposition of paint, and the interpretation of an outcrop in the shape of a mountain sheep head (see Figure 12). Moapa representatives also discussed the importance of rock alignments in the SEZ American Indian study area as evidence of past use associated with ceremonial communities.

Within the number of culturally central geological resources stand topographically unique Creator Beings such as Potato Woman, who continues to serve the region and Southern Paiute people. One service she performs is the creation of small brown mountain sheep that occupy various mountain ranges in the area and are believed to be spiritual animals. The presence of an outcrop in South Fork Toquop Wash in the shape of a mountain sheep head bolstered the importance of mountain sheep in the SEZ American Indian study area. Mountain sheep images have been interpreted by Indian people as the normal spirit helper for rain shaman (Stoffle, Toupal, and Zedeño 2002).

During the Moapa field visits, representatives identified 33 traditional use plants and 29 traditional use animals within the East Mormon Mountain SEZ American Indian study area. The presence of these plants and animals add to the SEZ American Indian study area's cultural importance because they are associated with medicine, ceremony, and Creation in addition to

nutritional and utilitarian value. The presence of horned toad and mountain sheep in the SEZ American Indian study area drew particular interest due to their importance in medicine and ceremony. Horned toads are powerful elements of power and healing, while mountain sheep are associated with rainmaking.

In the historical period, the East Mormon Mountain SEZ American Indian study area was utilized as a region of refuge after Southern Paiute people were jarred out of their traditional lifeways by the encroachment of Euro-Americans. Remote ceremonial areas in the mountains, such as caves, served as havens for vulnerable populations. As traditional livelihoods became exponentially more difficult as a consequence of usurpation of water resources and environmental damages from livestock, many Indian people transitioned into wage labor for subsistence. In the East Mormon SEZ American Indian study area, ranching represented a widespread type of work. Indian families who recount their adaptations to harsh 20th century conditions tend to do so with the pride of people who were less victims of the social conditions than persons who overcame and thrived during these times. Places where these victories occurred, such as in Toquop Wash, are places of Indian Historical significance worthy (like other places on the National Register of Historic Places) of preservation for current and future generations.

## **Water**

Water represents an important cultural feature of the East Mormon Mountain SEZ American Indian study area. The Mormon Mountains Massif, about twenty-six miles long from north to south and seventeen miles wide, is central to the Southern Paiute interpretation of the SEZ American Indian study area (see Map 1). The elevation of the Mormon Mountains Massif creates rain and snow falls due in part to orographic lifting of moisture laden storm clouds that move through the area at various times of the year. Consequently, the area is noted for this environmental occurrence related to water production (see below).



**Figure 2 Looking West from Toquop Wash Upstream Towards the Central Mormon Mountains**

The Mormon Mountains Massif, including East Mormon Mountain, transports and absorbs large amounts of spring, snow, and rain runoff. This water emerges lower in the valley as springs and on the open flats, including rocky places in the bottom of Toquop Wash. The Mormon Mountains Massif is dotted with springs on the eastern side, such as Gourd and Peach Springs, which run down into the Mesquite Basin. Both the Toquop Wash (see Figure 2) and the South Fork Toquop Wash cut canyons through the basin and travel the length of the proposed SEZ.

This massif is positioned between and feeds into two large hydrological systems. To the east is the Beaver Dam Wash and Virgin River hydrological system. To the west is the Meadow Valley Wash which joins the Muddy (Moapa) River. The two hydrological systems meet at the traditional Southern Paiute Salt Cave, which became the location of the early Mormon settlement of St. Thomas. The Salt Cave and St. Thomas are now under the waters of Lake Mead, which backs Colorado River water up the Virgin River until the lake reaches the Virgin River hydrological junction.

The SEZ American Indian study area is intersected by two major waterways, the Toquop Wash and the South Fork Toquop Wash (Johnson et al. 2002). These systems drain eastern portions of the massif and other mountains to the north and then flow into the Virgin River. They are thus part of the lower Virgin River watershed, which is in turn part of the larger Lower Colorado hydrological system. Water that feeds Toquop Wash originates at Jumbled Mountain in the north, the southern portion of the Clover Mountains to the northwest, and the eastern portion of the Mormon Mountains Massif. Garden Wash, which also begins in the Clover Mountains, joins Toquop Wash in the Tule Basin. South Fork Toquop Wash originates in the central and highest portions of the Mormon Mountains Massif, from where it flows through a large valley and through a break in the hard limestone that is East Mormon Mountain, subsequently joining Toquop Wash five miles down slope.

### **Evidence of Previous Indian Use**

Water systems that emerge from tall mountains are important places for traditional Paiute peoples. They served as natural trails connecting places of power. Across southern Nevada (north of Beatty, Nevada), a basalt canyon and a massive system of washes serve as travel routes for traditional Indian pilgrims making their journey to the massive volcano which is called today Black Mountain. The washes that emerge from this volcano would have defined Puha Pohs along which pilgrims traveled (Stoffle et al. 2009). Similarly, Toquop Wash is a Puha connector that the Southern Paiute people believe was used to travel to various destinations in the Mormon Mountains Massif. Toquop Wash system connects both East Mormon Mountain (via South Fork Toquop Wash) and the Clover Mountains (via Toquop Wash) to the Virgin River and beyond.

In previous ethnographic studies, Indian people explained that volcanic canyons and the flow of water through these canyons are linked to ceremonial activity and the spiritual importance of the canyons was emphasized by the presence of *ompi* (red paint) along the canyon walls (Stoffle et al. 2009). Similarly, in the South Fork Toquop Wash, *ompi* and black paint are found. The sides of a restriction in the canyon are surrounded by rock outcroppings that have

been covered with ompi, black paint, and possibly yellow paint. One rock outcrop resembled a mountain sheep, which was viewed a sign of the kinds of activities that occurred at this location.

Naturally occurring holes in volcanic rock were used as part of pilgrimage activities occurring in Toquop Wash. Southern Paiute pilgrims would have filled these openings with paint by rubbing the holes with painted fingers. This activity has been documented along other pilgrimage trails in Nevada, particularly along a trail to a large volcano called Black Mountain.

During a 1995 ethnographic study, Southern Paiute elders discussed the importance of using different types of paints and pigments in ceremony. It was noted that all pigment, whether white, red, orange, green, or black, occurs at special locations that are cautiously approached because of their perceived power (Stoffle et al. 1995). An agreement must be made between the person and the mineral used to make paint before it is mined, otherwise the person utilizing the paint would not receive the desired power. Other agreements needed to be reached with the animal whose fat would be used to make the paint (Stoffle et al. 1995). Because of the amount of preparation and power that is involved in the painting and pecking rocks, to do so requires serious consideration. Therefore, when a Southern Paiute later approaches these traditional marks on rocks, they do so with the fundamental understanding that the person who made the marks did so with a strong culturally derived reason (Stoffle et al. 1995).

In South Toquop Wash at the Pecking Site, a number of grinding slicks were also found along a single ridge, with pecked and painted stone panels above them. There were a least eleven positively identified grinding slicks and several more, less distinct grinding slicks were possibility used. There was also a grinding stone found below the ridge. These grinding slicks indicate that a variety of ceremonial activities have occurred over a long period of time at the Pecking Site along Toquop Wash.

## **Geology**

The East Mormon Mountain SEZ American Indian study area (see Figure 3) is part of the Mormon Mountains Massif. East Mormon Mountain is titled *Ma-Ka-Red* in Southern Paiute (Ruuska, Kiefer, and Mallow 2011), which means Brush Mountain. The remaining portions of the Mormon Mountains Massif occur just west across a wide north-south orientated valley. Jumbled Mountain lies north of the SEZ and Flat Top Mesa is to the southeast. The Tule Springs Mountains run along the northeastern boundary and the Beaver Dam Mountains lie across the Nevada border to the east of the proposed SEZ.



**Figure 3 Overview from the East Mormon Mountain SEZ from the Eastern Flank of Mormon Mountain**

The East Mormon Mountain SEZ American Indian study area is located within a large structural basin within the Basin and Range province of Nevada known as the Virgin River Depression. More specifically, the SEZ American Indian study area sits just west of a subbasin of the Virgin River Depression called the Mesquite Basin, which is approximately 19 miles wide and over 62 miles long. The geological makeup of the area is mostly basin fill consisting of a variety of sediments such as, conglomerate, shale, sandstone, limestone, evaporites, volcanic rocks continental and marine deposits of siltstone, gypsum, claystone, and conglomerated rocks. The geological variability accounts for the Mesquite Basin's importance as a producing aquifer (Langenheim et al. 2000). Areas that are volcanic in nature are culturally significant. Southern Paiute people explained that when volcanic material pushes up from deep inside the Earth, the land is being renewed or reborn.

Several thousand feet of marine carbonate rocks in the Mormon Mountains were formed during the Paleozoic Era from sediments deposited in a transitional area between the continental shelf and a miogeosyncline (Rains 1986). The presence of marine rock serves as physical markers on the landscape. A Southern Paiute Creation story says that Southern Paiute traditional territory was once under a vast prehistoric ocean.

In the Mississippian Period, a broad dome that is now the Mormon Mountains was uplifted about 3,000 feet (Tschanz and Pampeyan 1970:82,104). During the Laramide orogeny (Cretaceous – early Tertiary), folding, faulting, and thrusting occurred. The thrust faulting is very complex in the SEZ American Indian study area. Two major thrust plates (Olmore 1971:XI) and unconformities in the Paleozoic section make the structure difficult to understand (Tschanz and Pampeyan 1970:105). Mormon Peak is now 7,414 feet high.



**Figure 4 Potato Woman; View Facing South**

Potato Woman is a long ridge located at the southwestern edge of the Mormon Mountains Massif (see Figure 4). Southern Paiute people associate Potato Woman with Creation and a mountain sheep origin story. Potato Woman's hair touches Interstate 15. Potato Woman is a Creator Being who, according to a Southern Paiute elder interviewed in 1983 during the Intermountain Power Project (IPP) (Stoffle and Dobyns 1983) study, is especially powerful because she is related to two other Creator beings – the *Po-ni* (skunk, *Spilogale putorius*) and the *Un-nam-but* (badger, *Taxidea taxus*). As a Creator Being, Potato Woman has a permanent responsibility for creating a small variety of *Nah-gah* (Mountain Sheep, *Ovis spp.*) that predominate in the Arrow Canyon Mountain Range. This Nah-gah, in turn, has brought, does bring, and will bring songs, stories, and medicine to Indian people.

Potato Woman is known as a powerful geographic feature. In fact, it is so powerful that traditionally, Indian people would not live or camp near her. In 1983, during the IPP studies, a Southern Paiute elder provided a detailed story of a medicine man that spent the night near her. He became sick and only because of his personal power was he able to heal himself. Some of the power of the place comes from unburied spirits caused by an epidemic that killed lots of Paiutes in Moapa Valley. This story was provided to illustrate the power and importance of Potato Woman.

### **Ecology – Plants and Animals**

The East Mormon Mountain SEZ American Indian study area lies within the Mojave Basin and Range Level III ecoregion, typified by broad basins and scattered mountains, similar to the Central Basin and Range, but lower, warmer, and drier (EPA 2002). Nestled inside the Mojave Basin and Range, the East Mormon Mountain SEZ American Indian study area is defined as a Creosote Bush-Dominated Basins Level IV ecoregion, found between the scattered mountain ranges of the Mojave Desert (Bryce et al. 2003).

Plant life in this region has adapted to the warmer soils and higher evapotranspiration rates in comparison to the Great Basin and Range ecoregions. The predominant land cover type in the SEZ American Indian study area is Sonora-Mojave Creosotebush-White Bursage Desert Scrub. The ground surface varies from nearly barren to moderately dense cover shrubs, primarily creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Other shrubs and cacti can codominate or form low-density understories. If herbaceous species are present, their abundance may be seasonal. Higher elevations have pine trees and associated fauna and flora.

During multiple field visits, Native American representatives identified 33 traditional use plants within the SEZ American Indian study area. Table 2 provides readers with the common, scientific, and Southern Paiute names for each plant identified. The table also identifies plants documented at East Mormon Mountain in three separate ethnographic reports including IPP, Solar PEIS (SPEIS) and Mormon Mountains Oral Histories Interviews (MM) (Ruuska, Kiefer, and Mallow 2011).

Common Name	Indian Name	Scientific Name	IPP 1983	MM 2011	SPEIS 2011
Anderson's wolfberry	u'up	<i>Lycium andersonii</i>	x		x
Banana yucca	uusiv, wiisiv	<i>Yucca baccata</i>		x	x
Barrel cactus	pavio	<i>Echinocactus</i> sp.	x		
Barrel cactus		<i>Ferocactus wislizenii</i>		x	
Beavertail cactus	manav	<i>Opuntia basilaris</i>			x
Big sagebrush	sangwav	<i>Artemisia tridentata</i>		x	
Chokecherry	tonapi	<i>Prunus fasciculata</i>	x		
Creosotebush	yatump	<i>Larrea tridentata</i>	x	x	x
Desert globemallow	tupwiv	<i>Sphaeralcea ambigua</i>			x
Desert plume, Indian spinach	namvit, tumar	<i>Stanleya pinnata</i>	x		
Desert tobacco	koapi	<i>Nicotiana trigonophylla</i> var. <i>trigonophylla</i>	x	x	
Desert trumpet	papakurum	<i>Eriogonum inflatum</i>		x	x
Fremont's dalea, Indigobush	i- <u>era</u> -midja	<i>Psorothamnus fremontii</i>			x
Globemallow	kupinav	<i>Sphaeralcea</i> sp.	x		
Golden cholla		<i>Opuntia echinocarpa</i>			x
Indian tea	yatup	<i>Ephedra viridis</i>		x	x
Hedgehog cactus	usivwuits	<i>Echinocereus engelmannii</i>	x		x
Lichen	timpapsuchicu				x
Joshua tree	tachampi	<i>Yucca brevifolia</i>	x		x

Mojave pricklypear	yuavip, manavi	<i>Opuntia erinacea</i>			x
Moss					x
Nevada Indian tea	tu-tupe	<i>Ephedra nevadensis</i>	x		x
Prickly pear cactus	navump, manavimpi	<i>Opuntia</i> sp.	x		
Rattlesnake weed, Whitemargin spurge	tuvipukaxi	<i>Chamaesyce albomarginata</i>	x		
Sandbar willow	kah-nav	<i>Salix exigua</i>		x	
Shadscale	oavi, kakumb	<i>Atriplex confertifolia</i>			x
Snakelily		<i>Dichelostemma</i> sp.	x		
Skunkbush sumac	shuv, shuvi	<i>Rhus trilobata</i>		x	
Sunflower		<i>Encelia</i> spp.	x		
Turpentine broom		<i>Thamnosma Montana</i>		x	
Utah agave	yant	<i>Agave utahensis</i>	x	x	
White bursage	kutsiav	<i>Ambrosia dumosa</i>	x		
Wild onion	kwichasi	<i>Allium</i> sp.	x		

**Table 2 Traditional Use Plants Identified in the East Mormon Mountain SEZ American Indian Study Area**

During multiple field visits, Native American representatives identified 29 traditional use animals within the SEZ American Indian study area. The presence of animals in an area contributes to the overall cultural importance of an area to Indian people. In Southern Paiute culture, animals factor significantly in songs, stories, and ceremonies. Animals were also important food sources and their fur, bones, and feathers were used in the construction of use items. Animals identified in the following table (3) physically and/or spiritually inhabit the SEZ American Indian study area. This area is a migratory path for mountain sheep, deer, and antelope.

Common Name	Indian Name	Scientific Name
<b>Mammals</b>		
American badger	Unamputsi, Hoon, To-chi-e	<i>Taxidea taxus</i>
Bat	Pacha'ats, Pat-sats, Pah-chats, Pacha'ats	Family Vespertilionidae
Bighorn sheep, Mountain sheep	Naaxa, Nah <sup>ch</sup> , Nahk, Nah-gah, Naax	<i>Ovis canadensis</i>
Black-tailed jack rabbit	Kaam, Kaamæ, Kamuntsi	<i>Lepus californicus</i>
Bobcat	Tukupæts, Tukupits	<i>Lynx rufus</i>
Cougar	Tukumumutsi, Piaruku, Too-koo-puts, To-ko-mo-muts, Too-koo-mo-munch	<i>Puma concolor</i>
Coyote	Yoxovwits, Yoxovutsi, Sængwavi, Tærasænav,	<i>Canis latrans</i>

	Tʉrasinav, Sin-nav, Shin-nah-ab, Tʉrasuna'av, Turahsunav	
Desert cottontail	Tavuts	<i>Sylvilagus audubonii</i>
Desert tortoise	pi`ka(·)·'ay aηA	<i>Gopherus agassizii</i>
Gambel's quail	Akar	<i>Callipepla gambelii</i>
Gray fox	Tavangwaimpitsi, Sin-nants, Tah-vahn-set, Hon-za, Onsi'its, Onsi'ikarum	<i>Urocyon cinereoargenteus</i>
Kangaroo rats	Pi-yu-ah, Tah-we-tat, tom-we-a-tats	<i>Dipodomys</i> spp.
Kit fox		<i>Vulpes macrotis</i>
Mexican gray wolf	Qwin·o·ra	<i>Canis lupus baileyi</i>
Mule deer	Tʉxia, Tuuyi, Tuhi, Tuhuya	<i>Odocoileus hemionus</i>
Pocket gopher	Mʉyʉmpitsi, Mwe-em-puts	<i>Thomomys</i> sp.
Pocket mouse		<i>Perognathus</i> sp.
Porcupine	Yʉngʉmpʉtsi, Ye-hum-puts, Yu <sup>ch</sup>	<i>Erethizon dorsatum</i>
Pronghorn	Wahn-ze, Wongs, Waknch, Waantsi	<i>Antilocapra americana</i>
Red fox	Tavangwaimpitsi, Sin-nants, Tah-vahn-set, Hon-za, Onsi'its, Onsi'ikarum	<i>Vulpes vulpes</i>
Rock squirrel	Skoots	<i>Spermophilus variegatus</i>
Woodrat	Kahts	<i>Neotoma</i> sp.
<b>Birds</b>		
Common raven	Atapʉts, Atakots, Ha-ta-puits, Ah-tah-pah-ki'p, Tah-kwahts, Ah-tah-pwits	<i>Corvus corax</i>
Golden eagle	Mung, Kwanants	<i>Aquila chrysaetos</i>
Roadrunner	Ko cha bo'ki, Oo'ts	<i>Geococcyx</i> sp.
Northern mockingbird	Yamp	<i>Mimus polyglottos</i>
Mourning dove	Iyov, Ayov	<i>Zenaida macroura</i>
<b>Reptiles</b>		
Desert horned lizard		<i>Phrynosoma platyrhinos</i>
Lizards	Pompotsatsi, Moxwia, Sʉxʉpʉtsi, Tsahng-ahv	Various species

Rattlesnake	Toxoavi, Tanakitsi, To-ko-ahv, To-go-av-ve,	<i>Crotalus</i> sp.
<b>Arthropods</b>		
Bumblebee		<i>Bombus</i> sp.
Butterfly		Order Lepidoptera
Tarantula		Family Theraphosidae

**Table 3 Traditional Use Animals in the East Mormon Mountain SEZ American Indian Study Area**

One animal that drew particular interest from the cultural representatives was the Desert Horned Lizard, commonly known as a horned toad (see Figure 5). The horned lizard is a very important animal to all Numic-speaking peoples. Traditionally, the horned lizard was used as a medicine by Southern Paiute doctors and the lizard appears in a Creation story (Laird 1976:115-116). Other Numic-speaking peoples associate the horned lizard with power and medicine. The Western Shoshone also associate the horned toad with medicine and healing. They have a song that describes this relationship. The following is a discussion of that song told by Corbin Harney, a Shoshone religious leader:

*I'm singing about the Mon-tah-gay. In my lingo, it's the horned toad and how important the horned toad for us at one time. It bleeds us and makes us healthy again, like you're sickly and have too much blood in you. It can bring your blood for you and then it can relieve that ay-be feeling you have when you bleed yourself even sometimes...that's the reason I'm singing about him. That he's over his land, he's jumping up and down. So, when you see him, he raises his head up and down. That's a horned toad...that's how important that little creature is at one time but he disappeared but he's coming back now I see. So because we should appreciate him and sing to him, it makes him happy when we sing about the little creature.*



**Figure 5 Horned Lizard Found at Overview Spot**

Another animal that drew particular notice was the mountain sheep; a prevalent in and around the SEZ American Indian study area. Many mountain sheep stories and songs are associated with this area. In Toquop Wash, representatives noted a rock outcrop that was covered in paint and peckings resembled the shape of a mountain sheep. This outcrop faces Mormon Peak, upstream from the wash.

The southern flank of the Mormon Mountains, particularly the area known as Potato Woman, is linked to an origin story for one culturally special variety of mountain sheep. The Mountain Sheep Song (or *Nagahuv iyavi* in Southern Paiute) (Laird 1976:110), is described in ethnographic accounts as, “trails that extend lengthwise from mountain top to mountain top and include the interconnecting valleys” (Ruuska, Kiefer, and Mallow 2011:111). Mountain sheep are believed to be spiritual animals and are symbolic as the normal spirit helper of rain shamans (Stoffle, Toupal, and Zedeño 2002:25). The Mountain sheep carry songs and knowledge. A shaman would be possessed by the spirit of a mountain sheep when visiting spirit caves, and would then travel to places to receive songs and healing power (Stoffle, Dobyns, and Evans 1983).

### **Native American Comments**

The East Mormon Mountain SEZ American Indian study area was visited by tribal representatives during the Solar PEIS Ethnographic Study (see Figure 6-11), the Mormon Mountains Oral History Study (Ruuska, Kiefer, and Mallow 2011), and the Intermountain Power Project (IPP) (Stoffle and Dobyns 1982; Stoffle, Dobyns, and Evans 1983). During the Solar PEIS study, representatives from the Moapa Band of Paiute Indians were interviewed. The IPP study visits occurred in 1982 and 1983 with Southern Paiute tribal representatives from the Moapa Band of Paiute Indians and the Kaibab Band of Paiute Indians. The Mormon Mountains cultural landscape study occurred between 2009 and 2010. During the Mormon Mountains study, 12 interviews occurred with tribal representatives from the Duckwater Shoshone Tribe, the Kaibab Band of Paiute Indians, the Moapa Band of Paiute Indians, and the Paiute Indian Tribe of Utah (Ruusak, Kiefer, and Mallow 2011). The Solar PEIS study visits occurred in March 2011. During these visits, nine interviews were conducted. This total includes three Native American Cultural Resources forms, three rock Ethnoarchaeology – Rock Art forms, and three personal statements from the involved Moapa tribal representatives.

Included in this section is Native American interview information from previous IPP ethnographic studies and the Mormon Mountains cultural landscape study. The IPP research was conducted by members of the current BARA research team who were at University of Wisconsin-Parkside during the 1982-1983 field research. The Mormon Mountains cultural landscape study was a collaborative effort between the BARA research team and researchers at Northern Michigan University.



**Figure 6 UofA Ethnographer with Moapa Tribal Representatives in the East Mormon Mountain SEZ (left) and Figure 7 Interpreting Mountain Sheep Head in Rock at Toquop Wash (right)**

### **Intermountain Power Project Interviews – 1983**

The Cave Hill Valley Area, as it was called in the 1983 IPP study (Stoffle, Dobyns, and Evans 1983:182-183), begins as the IPP Right-of-Way passes along the foothills on the southeast side of the East Mormon Mountains. The study team observed a high density of archaeological sites in the area, notably rock shelters, some of which have been excavated, and others which are relatively well preserved or undisturbed. These were probably used for the storage of wild foods. Three on-site visits elicited concerns from Moapa consultants. Two ethnobotany visits were made to obtain the full range of traditional Indian botanical resources common in the area. The desert tortoise is also prevalent in the area. The East Mormon Mountains, Davidson Peak, and Halfway Wash all received moderate to high concerns scores from survey respondents. The area is considered to be of very high sensitivity.

While participating in the IPP study, a Kaibab Paiute elder shared during an interview that he worked at a cattle ranch in Toquop Wash area. He was especially proud of fixing a critical problem that saved many cattle. The primary windmill that watered the cattle on the ranch broke. It had a pump but that could not be kept running so the cattle were dying. All others tried to fix the problem but were unsuccessful. The ranch owner then turned to Kaibab elder and asked him to fix the problem. The elder provided a permanent fix for the problem and won the praise of the ranch owner and other ranch hands. This event is one told by the elder to document how he (and by implication other Southern Paiutes) successfully adapted to new forms of labor and technologies. Toquop Wash was the location of this event therefore it has historic meaning to Southern Paiute people.

### **Mormon Mountains Oral Histories Interviews**

This area was visited in 2009 and 2010 during the Mormon Mountains Oral Histories study. The Southern Paiute elders indicate that Toquop Wash is culturally linked to other archaeological sites throughout the Mormon Mountains. Such links are evident in oral histories and pictograph panels depicting as many as three forced migrations into the more remote regions

of the Mormon Mountains. Their conclusions concerning Toquop Wash were summarized as follows:

Cultural representatives widely identified this site as being a resting and or camping ground for families en route to or from the mountains. There was very little mention of the significance of the petroglyphs, but pictographs were generally thought of as being a way to convey information, primarily thought to be a map. One elder was able to give insights as to how to read the pictographs. They cited the three parallel lines in Panel 1 as representing a mass migration. These lines are also present at Double Double Shelter. The holes with red ompi around them were caves, or places to hole up, possibly representing hiding places. One of the panels told a story which the elder was able to interpret based on the drawings. One tribal representative stated that it was a story of migration with the four vertical lines signifying a large movement of people. The sole line located to the east of it means someone stayed behind. The small “U” shape located above meant they went into a small valley. The ovular pictograph represented a cave, or destination to which the migration was headed. A splattering of red ompi below the ovular shaped signified to the elder that the person who stayed behind died. The similarity of the black figures with hats on quadrupeds, to those at Hackberry Springs was noted. One elder commented on the similarity of the black pictographs to those at Hackberry Springs, stating that the darker color of paint could be used to demonstrate the darker skin of the people who they were trying to depict, in this case most likely Spaniards or Mexicans (Ruuska, Kiefer, and Mallow 2011:73).

### **Solar PEIS Interviews**

During the East Mormon Mountain SEZ American Indian study area field visit, Moapa tribal representatives (Figures 8-12) were interviewed with two survey instruments – the Native American Cultural Resources form and the Ethnoarchaeology-Rock Art form. The following comments are organized by form and location and reflect the cultural significance of resources associated with the East Mormon Mountain SEZ American Indian study area.



**Figure 8 Moapa Tribal Representative Working on Notes**

### *General Comments*

This short essay was prepared by a Moapa Paiute representative during a follow up field visit that occurred after the initial March 2011 field work. This representative wanted share some additional thoughts about Southern Paiute connections to the SEZ American Indian study area and potential impacts solar energy development may have on Native American resources after returning to the SEZ American Indian study area again.

*We began our day at around 8am. Traveling to the Proposed Solar Energy Site took us approximately an hour and a half. The power-line road from Carp/Elgin road had been graded and was passable in the vehicle that we were driving. We didn't have any good maps in which to check. None of us had ever been on that particular road before. Before we had come to Toquop Wash, we noticed another vehicle on the other side of Toquop Wash on the same road we had proceeded to travel down to the bottom. We waited at the bottom for the other vehicle to pass by us. The enormity of the Toquop Wash was overwhelming. The Toquop Wash must have been one hundred feet high and at least one hundred feet across. Where we were parked we could see a path leading out of the wash – toward the west.*

*After looking around, we proceeded to the eastward direction. We came to a road that we thought would get us closer to Toquop Wash. We stopped and turned back the way we had come. We stopped at a site located in that particular location. We tried a couple of other roads but were unsuccessful on getting closer to the Toquop Wash.*

### Rock Alignments

*We were on our way home but decided to stop and check on some “Rock Alignments.” We had stopped near a meteorological station, which looked to be not in use. I observed an anemometer near the top and the braces that one would place other metering devices on, were near the ground. The gate to the station was open when we arrived so we did not bother it; we also did not enter.*

*The rock alignments were supposedly about a half-mile away. I walked to find them and must have walked about a mile. I didn’t find any “Rock Alignments” but I did find some Rock Rings. There are about a half dozen of them and I would estimate that they were located less than a mile from the Toquop Wash. It is my opinion that they are located near a village. I believe that this village is directly connected to Toquop Wash and may have been used as a ceremonial gathering village.*

### Animals

*Animals that we had observed were chipmunks, centipede, and there were some birds that were singing but were unseen. I think that the reason there was not much wildlife was the time of year and the weather was not the best. I had come across some burrows of some sort but they didn’t seem to be used at the time of our visit. The area that we visited was not quite on the “Proposed Project SEZ.” We were just off of the area that is proposed for destruction.*

### Recommendations

*I feel that a more intensive cultural study should be conducted on this site. I believe that there are a lot more cultural sites and they should be located and be given the utmost protection that is possible. Toquop Wash should be walked/studied along with the edge of the Toquop Wash. It is my opinion that if there were further/intensified studies done at this site there will be more culturally important sites found. I also feel that the Toquop Wash holds a lot of cultural significance to the tribes surrounding this particular geographical area.*

### Recommendations on the other “Proposed Solar SEZs”

*As for the other proposed solar sites, it is my opinion that there was not sufficient time allotted to do a real cultural assessment, other than a “drive-by.” The magnitude of destruction that would impact these sites should trigger a thorough cultural assessment/study. It is my culture that is being impacted/destroyed and my culture cannot be moved to some other area. The only way to preserve my culture would be to avoid impacts/destruction at the site where there are artifacts and medicinal plants, animals, and even stones/earth. My culture teaches us that the earth is a living being and it has purpose.*

*East Mormon Mountain SEZ American Indian Study Area – Native American Cultural Resources Interviews*

During field visits, Moapa tribal representatives were given the option to be interviewed with one of the University of Arizona's (UofA) survey instruments. The following comments were shared during interviews conducted with the Native American Cultural Resources form.



**Figure 9 Tribal Representative with the East Mormon Mountain SEZ in the Background**

- *There would have to be a connection between the Virgin River and how the water flows past the pecking site in Toquop Wash. A friend of mine was saying that there are petroglyphs further along the wash. There would have been a trail that followed the waterway to the sites on the Virgin River. There are around fourteen sites on the Virgin River. They are cultural sites here and you have a bunch over in the Gold Butte area. They might have stayed on trails because of the water. I would say that people would have come from the Virgin River and come up to the Toquop Wash toward the pecking site. When people travel along water, praying along the way is something that happens. You pray for a safe journey. You pray for being allowed to stay in that area. You feed the land. Besides the grinding stones, I'm sure they would leave things to use so they wouldn't have to carry a lot of luggage. Where the two washes meet would also have been important. It would more or less be a gathering point. After seeing the horny toad and all the different little critters out there, I would think that the wildlife would be impacted. Most of the desert animals, coyotes, foxes, rabbits, turtles, snakes, tarantulas, ground squirrels, horny toads, little reptiles, and lizards too, would all be impacted. There might have been mountain sheep on the flat area. I haven't seen any antelope in this area, but I'm sure they're around. Even the bees and butterflies were eating those flowers. From what I understand, people traveling from the Moapa or Overton area would stay along the river. Somebody had mentioned something about the Moapa tribe*

*being known as the river people, so we tried to look into it and all we could find is that they did live along the river. The majority of the tribal members remember that far back, that their history was along the river and they were farmers. To get up to this area, I would guess that they followed the river. I would say that Moapa and the pecking site and more would be connected because even with the Pahrnagat area you have the river going this way. There are salt mines down in the Lake Mead area too. From the mountains to the river along the wash would have been an important path. I think that between the Virgin River and the pecking site would be the way they traveled, along the river.*

- *I know there's a rock alignment down there in the flat area [in the southern part of the SEZ American Indian study area]. I never got a chance to see it because I'm not a hiker, but a lot of the group did go down and look at it and they labeled it as part of the Salt Song Trail.*

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

- *There was a lot of vegetation down there, like the spinach, the tea, and medicines.*
- *What I saw when we were up there and looking out from the height of the ridge is that this is a great view of the land and how pristine it is compared to a lot of places. There are not a lot of utilities – the utilities are far out in the distance. That's what stood out to me about the land areas. The mountains themselves are big. I believe that if you got on top, you could probably see Mount Charleston, which is a holy place for us. The wash itself, where it widened, spoke to me a lot when I was walking there, but I'm not really sure how I can put it down into words. It seemed like all of the people that had been there came to me and they were visiting with me as I was walking. I think that the voices in the wash seemed to be more in the wash than on the outside because when we were on the outside I didn't feel anything anymore. It felt like it was all in that wash area, inside the wash.*
- *Standing on that hill and the view there is so beautiful. There is no way that they can put the solar panels there because it would impact the viewscape.*

When asked if Indian people would have used this area, the Native American Representatives replied:

- *I would say yes.*
- *Yes, they used this area.*
- *Of course they [used Toquop Wash]. Of course they did. It was easier than making your own trail because the river of the natural wash made the road.*

- *Yeah, the people along the Virgin would have used this area.*
- *The area would have been used more for traveling and camping. They might have hunted rabbits. They might have done ceremony or power gathering. Also, they would have gathered food and medicines. From the rock alignments, I know that there was one for shelter because there was a roasting pit.*
- *I would think that they walked up from the Virgin River along the wash. On top of the wash, the flat area, if you really look at it, it is antelope country because it's flatter and there's a lot of feed on it. I think a lot of bigger game animals would use this area. But I think that in the big valley, the watershed area would be more for somebody seeking power. So they would use that as a base camp at the bottom and then go up on top, on top of the mountain because it's so high. I would think that it would take probably a day to hike up there if you were in really good shape because it is pretty steep and rocky and they didn't have any ropes to rappel or stuff like that. They would have to really take a long time. I think that they weren't in such a rush, years ago. They were more connected to the land and to the spirits.*



**Figure 10 Moapa Tribal Representatives Examining the East Mormon Mountain SEZ**

- *There are places up there in the Mormon Mountains. It is believed that the higher you get, the closer you can get to the Creator. We give our offerings; we say our prayers whenever we see there is a need. The only ones that have complete control of knowing, of making it their praying place and blessing place, is a shaman or a spiritual man. His place is kept secret because it's just him. He is of great importance. It's his place. When he leaves his energy and his prayers there, he leaves a part of him there whether he's a good shaman or a bad shaman. His whole being is there. Another Indian would feel those vibes. It's a place of awareness and he [the shaman] left his awareness power there.*

*There are places where your feeling is to get away from there and you would not go there.*

- *Overlooking the solar area from East Mormon Mountain, we saw the indigo bush and other plants. We saw the two horned toads up on the ridge. Plus standing on that hill and the view there, knowing that was a place that probably the guy that watched out for those Spaniards that came over and all those things. It was a lookout place.*

When asked if this place is connected to others, the Native American Representatives replied:

- *Yes, to me they're all connected. Specifically, the river was a main thing, the trails that they made that connected to others, like the one along Toquop Wash. A hideout shelter type place where they wouldn't be spotted. There might be spiritual trails around here because the spirits would really guide people to where they needed to go. They would have traveled along the trails for medicines because I saw some medicines out there, maybe hunting. I think they would stop at certain key areas, especially if it's really rough. I think they used the trail to be more secluded away from the Spanish, like an area of refuge.*



**Figure 11 UofA Ethnographer and Moapa Tribal Representative Discussing Cultural Landscapes**

- *I don't think the area would be so much used by others because this would be closer to the Virgin. I think that in Moapa and the Gold Butte area, they had similar stuff there, so you really wouldn't have to go too far unless you needed something really special from this area. Then you would travel to there, because there are a lot of holy places around, places of power. It's like with the plants; the holy places, these places of power, will call to you and tell you, "You come to me. You need my help, so you come to me." Places of power closer to Moapa would probably be the other side of the Mormon Mountains and the Arrow Canyon range, both. The other thing too is that with the Moapa people, they weren't just in Moapa. They were in Gold Butte, by the lake, and other places scattered, even all the way down the Colorado River. They were brought to Moapa before they*

*made the reservation. Gold Butte is just south of where the Virgin and the Muddy River converge. Now it's a lake, but it was probably a river back then. Moapa people thought of both sides of the whole hydro-system from the Muddy River, up to Pahrnagat, and at least to White Rock Narrows as home because the Gold Butte area is just south of the Mormon Mountains, which is the eastern part of that basin. We probably had the largest concentration of Paiute people in the Southern Paiute territory.*

- *You could see Bunkerville Mountain. That could have been a special place for prayers and thanks giving and blessings because of seeing that mountain. Potato Woman is right there and those highest peaks that you can't see...again, a spiritual place. [A Moapa Paiute tribal representative's] father said that if you want blessings, if you want/have special needs, that is where you go. That's just down from the foot of Potato Woman.*

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

- *Yes, people would have used the water to cook with, to bathe with, to drink, to cook up the medicines, and for ceremonies.*
- *Yes. Using water is not just an everyday use like for drinking, or cleaning, or whatever you want, but I think that an extra special use of the water would be when medicine men or people seeking power would use that water. To me, that makes it a little more special than just a regular stream in the middle of the desert, or something like that. The water that comes from the earth is thought of having power in itself. I believe that where these waters come out of these springs, where they come out of the ground, that power comes from other places, anywhere in the west and in the east. I think all these waters that come from underground are connected someplace, almost like if you wanted to look at the interstate system of the United States. I believe that these streams and stuff are connected like that.*
- *Like I was saying before, my grandpa said that you could dig down and get water, possibly by those washes you would probably find some water. You can do it out in the desert by a cactus. The Virgin River and washes were also sources.*
- *People were attracted to this area partly because it had water. I would think that the water would primarily be the springs at the base of the mountains because the springs were year-round springs. It didn't depend on much of anything else. It was there.*
- *You're in a desert. Any time there's water, it's a special place. And you know all the Indians, we knew where all the best places were—the trees, the water, the mountain—because it's in our blood, we're a part of the Mother Earth... We have that sense because we have that kinship with Mother Earth; it sometimes never leaves us.*

When asked to evaluate the condition of water from the SEZ American Indian study area, the Native American Representatives replied:

- *A little sandy, the condition was fair. I'm sure they would have to strain it in order to drink it, but I know that when you boil it sometimes, it'll settle on the bottom and you can get it off the top.*
- *I think that it's pretty good. Especially since they're not really super disturbed. At the part we saw yesterday you don't see a lot of damage. They haven't really dug it up to make where they have guzzlers that come out of the streams. They haven't done any improvements on it, so it's more natural. That's why I think that they're in pretty good condition that we'd see.*

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

- *Not that I know of, other than the Southern Nevada Water Authority starting to drain it. You can see how many little washes are there; there's a lot of water and I think the main thing is going to be the impact on the wildlife and the vegetation.*

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

- *Yes, they would have used them for food, drink, medicine, ceremony, to bathe...for making shampoo.*
- *Indian spinach, tea, medicines, and the yucca plant for the shampoo and the gel to protect your skin from the sun.*
- *I think that plants play a role, yes, but not necessarily the primary role. The indigo bush was interesting.*
- *The purple [Indigo Bush] are for coloring maybe for baskets, maybe for a mixture of a paint of some kind. Who knows if they didn't use that in some of that gray writing to make the black paint? The smell of it was so medicinal.*
- *I'm not such a plant person. Yes, anywhere there's water [there are plants]. Plus the people brought [plants] in. You know how they say we weren't agriculture people but we were! So you took those seeds; you took them and they were very precious to you. You took where ever. If you lived down here in Bunkerville during the cold winters because it's storming up there and it's snow up there cause we seen the snow—you hold on to those seeds and maybe plant them in a little area away from the trampling four hundred people coming across the desert. So you probably tried to plant them up there too and there were special plants up there. There had to be because of the water. And different plants go to different areas. They were used for different things. There was eye medicine but the plant wasn't there anymore because the wash washed it out. Well, it takes care of its own too. If it's not used and picked, I don't think it will be there anymore for us.*

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

- *They look good to me. They were happy because of the rain. They were still hanging in there, even the barrel cactus that are half burned up.*
- *I think they were pretty good. Especially the indigo bush, since it was so close to the road.*

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

- *Not right now, but the solar project would impact them.*
- *I think that if we had more traffic along that road those plants along that road would deteriorate.*
- *It likes it when we go there. It wants us to have this [plants] but if we're not up there doing it anymore, it's gonna be lost too. Naturally lost, just like the eye medicine. So can you imagine when industrial things comes in, how more lost it's gonna be? Because Earth's gonna say, "You people aren't grateful anymore. You used to come up here and you used to use me. This used to be a place of respect that you paid homage to. What happened to you people?" So when you put that in there it's gonna be more lost because we're not gonna be up there taking advantage of the beauty either. Makes me emotional.*

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

- *Yes, they would have interacted with them for food; sometimes I think they can use the snake venom for medical uses, ceremonies, clothes, tools, and probably other things. A long time ago, people used the horny toad for medicine. My grandpa talked to the snakes, and just let them know that they're going to use this and then let them go; that it's ok.*
- *The antelope are important in the flats and the mountain sheep in the mountains. I would think that they would also come up for animals like lizards because some people use these animals for their power, like a lot of people say about the mountain sheep or they say about eagles and stuff like that. These animals could do the same thing because each animal has its own role in the world. These animals could have that type of role and importance to people. Some animals like the horned toads were also used for medicine and other things.*
- *Coyote, foxes, a lot of lizards. We didn't see any hawks but they're there. We saw the quail. Rattlesnakes and red racers probably. Those squirrel guys, jackrabbit, cottontails. Because, remember when the white man first saw us, they saw the women are naked below the waist with the rabbit furs all over them. So they were cheap. That's what their*

clothing was made of. So there probably had to be an abundance of rabbits, right? Of course [Mountain Sheep] because Pahranaagat is just over the hills of Mormon Mountain. We're on the east side. On the west side, Pahranaagat isn't that far... and even sometimes, maybe, possibly a couple of deer that had wandered down from the Shivwits Range because they're up there.

- *This is my feeling and the feeling I get from the land; if you wanted a special gift, whether it's singing or maybe talking to the animals or something like that, you would go do like a vision quest type thing, like high in the mountains. And it's the old thing; sort of like be careful what you ask for, you might get it. There's spirits of the mountain, the spirits of the big horn sheep, there's spirits of the red tail fox... They can like you. They can want to be part of your life.*

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

- *Yesterday when we went out, I felt that they were pretty happy breathing the fresh air. The ground was a little damp. It was good. The butterflies were flying around. Squirrels were out and about.*
- *The few that we saw looked healthy. Their condition is ok.*

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

- *Not at the moment. I mean, even with the plant that didn't hurt them. The animals can just move out of the way, start a new home.*
- *Not right now, but if there is some type of, I would call it destruction of their home, there would be impacts. And I think, even without being on the site itself, but up in this area where we are you can see some old tortoise dens. So, I believe that there are desert tortoises down there. There's a good possibility for them to be down there on the site. The desert tortoise, they do like that softer earth. It's easier to dig into.*
- *The solar panels would impact the little animals, the horned toad. When he hears whatever those machines when they shift to a different position to follow the sun, they're gonna have some kind of vibration. Maybe no, I don't know. I've never been around them. But they're all gonna change and those little animals are gonna be looking and blinded by those damn panels. Not too healthy. Because it's their place because they showed themselves to us. That was a message right there saying, "Hey I live here! And you're gonna take my land from me, my place." Maybe if we would have stayed long enough even more would have come out.*

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

- *Yes, you need to use them to live. Even to hunt you have to prepare and gather. Camping, you'd use fur for blankets or shelter, I would say. Also, ceremonies would be conducted most likely. I would say, for medicines too, like I said, from the snakes and other animals.*
- *The rock art, rock alignments, and tools were there. When I was sitting there, there was this little rock and I got a piece of wood and I was rubbing it in there like this and it made a sharp point on it. So I can imagine they had tools in those areas left.*
- *In a future study, there needs to be a future study to go out to the alignments and see where they are and for us to try to interpret them. I also know about the stick in the rock. The only thing I know is that it was found when they did the Toquop Energy Center. They really didn't think it was anything at first, then they went back and looked at it more because some people thought that maybe just somebody stuck it in the rock. There was an archaeologist with them that worked on the project that thought it was more than just a stick in the rock because this archaeologist had worked in Arizona and had seen other things like that. The people there said that it was something of importance; that's why that stick was like that. It wasn't just somebody prying a hole and putting a stick in it. It could have been a place of power. I'm not really sure because I haven't seen the place.*

When asked to evaluate the condition of the SEZ American Indian study area, the Native American Representatives replied:

- *The condition of the peckings and other resources is fair.*

When asked if there is anything affecting the condition of the SEZ American Indian study area, the Native American Representatives replied:

- *The people are affecting them. There was nothing affecting the rock alignments when we saw them – they were just going to leave them where they were. I didn't really hear anything back on it. Access roads, guns, and ATVs also affect the site. Like I said, down in the [Lobanile] trails they had shot a petroglyph with a shotgun.*
- *Like we talked about earlier, the exhaust from the vehicles going by does have an impact and it would have a greater possibility of deteriorating faster.*

When asked if Indian people would have visited or used the geological resources in the SEZ American Indian study area, the Native American Representatives replied:

- *Yes, I'd say that the washes, mountains, and other resources would be used for seeking knowledge/power, communicating with other Indians, ceremony, communicating with spiritual beings, teaching other Indian people, territorial marking, and other things too.*
- *I've seen a couple of caves. Caves, some people say that they use them for spiritual reasons or for shelter.*

- *My opinion is that if people were going up there, they would use some of the caves that were up there because I've seen some good size caves when I was walking down in the wash, just below the top of edge of the higher area out of the wash. So I would think that they would use some of those caves for stuff.*
- *That pretty, orange... Beautiful! To me it looked like the side of an Indian, the nose. You know how they always have us with the big nose? But then [another tribal representative] says up here, it looked like the big horn and when [a UofA Ethnographer] and I stood back, you could see the big horn on that. Wasn't that cool? And the color! I wonder what kind of rock that was (Figure 12).*



**Figure 12 South Toquop Wash Pecking Site Mountain Sheep Head on Limestone Constriction**

When asked to evaluate the condition of geological resources in the SEZ American Indian study area, the Native American Representatives replied:

- *Other than the roads that were just made out there – I'll say one positive thing about the ATVs: they stuck to the road and didn't go off. I didn't really see too much damage out there. I would say good condition over all.*
- *They're looking pretty good. They're in pretty good condition. Once again I think it's because there's not that much intrusion by non-natives right now.*

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

- *It's trying to grow back. I guess that everything was, to me, yesterday everything was happy. I would say good.*
- *I think the overall area looks in pretty good condition. One of the only things that I have a concern with is the cattle grazing for right now. It's pretty heavy and the cattle do a lot of destruction – trails where they eat and trample everything into the ground.*

When asked if there is anything affecting the condition of this SEZ American Indian study area, the Native American Representatives replied:

- *The access roads are affecting it, but people are staying on that road.*

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

- *Stop the Southern Nevada Water Authority from taking the water because it's going to affect all the water below and this is part of below*

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

- *To protect the plants, if they're going to put that solar in, I would say to try to move the plants to a safer environment.*

When asked for recommendations for protecting animals in the SEZ American Indian study area, the Native American Representatives replied:

- *They need to collect the animals and move them to a safer environment.*

When asked for recommendations for protecting traditional use features in the SEZ American Indian study area, the Native American Representatives replied:

- *I know my grandpa traveled from Arizona, to Utah, to Nevada like that. Maybe he came through as a child. They left offerings. Every time we went somewhere he'd always leave offerings. To protect those things, don't build there.*

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

- *We need to protect all that because the Virgin River wouldn't get any water and those farm areas wouldn't have a good crop.*

When asked for their recommendation for protecting the SEZ American Indian study area, the Native American Representatives replied:

- *Not to build on this area.*
- *Seriously look somewhere else – somewhere else, where the land has already been pretty much disturbed. This is not so much disturbed as other areas where there are developments. What solar will do, it'll take away a lot of the vegetation and it's gone. And then you have the chemicals coming off from the solar panels themselves when it rains. It's never when you have to clean them off.*

When asked if Indian people would want to have access to the SEZ American Indian study area, the Native American Representatives replied:

- *Yes, they would want to come here for spiritual reasons.*
- *Yes I would. I would really like to come back here and not just spend an afternoon or a day, but two or three days. Not right in the area, but close by where we can go there, where we can spend more time on the ground there because I think there are a lot of things that are out there that you can't actually see in one or two days. There are experiences out there that you can get from being out there.*

When asked there are any special conditions that must be met for Indian people to use this place, the Native American Representatives replied:

- *The medicines need to be protected there.*
- *The trip would be for religious purposes, educational purposes, cultural purposes; not just recreation. It would be a learning type of experience. We would need the area closed off for some isolation. I would prefer digging a hole rather than port-o-potties because now what I would see in the learning is that you're not just learning about the area, you're learning how they lived back then. You're not driving one of these eighteen-wheel buses out there and calling it camping, that type of experience. I think of getting back to nature.*

When asked for overall comments on the SEZ American Indian study area, the Native American Representatives replied:

- *Not to build, keep the ATVs on the designated roads, protect the vegetation, the wildlife, and the petroglyphs.*
- *The need to spend more time on-site is evident. I believe that this site is very large and requires more time for a more comprehensive study to take place. Then new recommendations may be given, until comprehensive study has taken place whatever recommendations given are given with a minute amount of studying being performed at*

*this very large and culturally important site. Time constraints allowed only for a glimpse of the vastness of the potential impacts to the land and the cultural sites. I'm positive that if this site were given the proper amount of time and attention that there would be more culturally sensitive material and sites found. This site should have at a minimum an EIS performed. True tribal consultation should be initiated.*

- *It is my opinion that the allotted time for this particular site visit was way too short. I wanted to get out and venture out on the land itself. I believe that since we had spent a very short time there, we have missed some important issues and sites. The follow-up visit was not much longer due to the threat of rain. On our second visit we encountered people driving on the road and some others who were riding ATVs. Some sites that I had visited were the "rock rings site". I counted approximately a dozen rock rings. I believe that the site was approximately 1/2 - 1 mile from the Toquop Wash rim. I would be more satisfied if I could spend more time on site, 2-3 days because of the enormity of the site.*

#### *Toquop Wash – Ethnoarchaeology-Rock Art Interviews*

Toquop Wash (South Fork Toquop Wash) is located in the East Mormon Mountain SEZ American Indian study area. Tribal representatives believed that this place is connected to the other features in the SEZ American Indian study area and it is part of the larger Mormon Mountains cultural landscape. Tribal representatives were interviewed using the Ethnoarchaeology-Rock Art form.

When asked if they knew that this place was here, the Native American Representatives replied:

- *Yes, we've been here*
- *Yes we did.*
- *Yes.*

When asked if, in their opinion, these panels were made by Southern Paiute people, the Native American Representatives replied:

- *Yes, they were made by the Moapa people.*
- *Very closely related. Ancient ones, and I believe a work of art, and writings, I think you have to have a talent for that. Probably anybody can start doing it, but having the patience to sit there and do that and have it last and stay. I think different settlements and groups of people that came, there was always one that was the best hunter, the best rock writer, and that's what their task was. It might not look specialized to us now, it might look like children's artwork, but if that's all you had to work with and it's still here today, that's a talent. That's a gift.*
- *Yes they were. There are similar petroglyphs in Pahrnagat.*

When asked if Southern Paiute people traditionally visited or used these panels or panels like this, the Native American Representatives replied:

- *I think so.*
- *Maybe.*
- *Yes.*

When asked what the place would have been used for, the Native American Representatives replied:

- *The site would have been used for ceremony and seeking knowledge and power, because I feel a lot of stuff coming out of here ... communicate with other beings. It could be a marker.*
- *I think it was a way of telling whoever was coming this way a story, like anything else. When I was here, maybe this is what he's saying on the rock, "When I was here, there was an abundance of mountain sheep, deer in this area. If you follow this wash and you'll find the source of the big stream. When it's cloudy get out of the wash." I think it was a message of telling people what was here and what to expect from this land. That's my personal belief. People look at them and they think that they're professing something – I don't understand why everybody always relates it to spiritual. I'm not too sure about that word anymore. I like "awareness," that we're very aware. We're close to mother earth and spiritual is a non-native word as far as I'm concerned. This was a good place for making them more aware of their surroundings, of what to expect. That's my personal feelings. If you were a shaman, it would be spiritual, but how would we know that? Because you don't put that stuff – that's something that he knows. He's not going to give it away to you and me. It's too personal. It's between him and his way of healing. We don't give away our way of healing. I don't think he would advertise it, but that's my feeling.*
- *The site would have been used for ceremony, seeking knowledge/power, communicating with other Indian people, communicating with spiritual beings, teaching other Paiute people, marking territory, mapping, paying respects, and other things. They would have gathered medicines here. People could have made tools here too because we found tools here.*

When asked what kind of name they would give to this panel, the Native American Representatives replied:

- *Keep it the same, I guess.*
- *There is a large one that is similar to the Big Horn Sheep, so that's what I would call it. I don't the Paiute name for it but there probably is one. Toquop means fire.*

When asked which gender visited or used these panels or panels like these most often, the Native American Representatives replied:

- *I suppose both, but men more than women.*
- *I think it was a man thing then and I think it still is. But it's passed down generation to generation to family. From what I see – I imagine women can do it, but I think that men just specialize in it.*
- *Both men and women would visit this panel or panels like these (Figure 13).*

When asked if Paiute people currently visit or use these panels or panels like these, the Native American Representatives replied:

- *Yes they visit them. They would use them now for teaching. I would use this kind of a place more of a ceremony type thing, where you would come up and pray. I think communicating with other Indians is not like communicating with people from Shivwits. What I would have communicated with is like when I was walking around today, communicating with Indians that have been here already. The people who came before us, those that are no longer here in this world, but they're still here in spirit. I can feel their spirit – I actually hear them walking around, following me around.*



Figure 13 Rock Peckings and Paintings at South Toquop Wash Limestone Constriction

- *Yes, meditate, learn, get close to your mother. Approach her respectfully and she'll teach you. She'll help you as long as you're asking in a respectful manner, in a good way. I believe this place is like that. Everyone's needs are different. What they ask for, they*

*better be careful because they might get it. You have to be sure of yourself. Not only that, but you have to be prepared. It takes a long time to get where people that specialize in certain things: rock writing, maybe the little boy that did it he always had a mat for drawing pictures in the dirt and it developed into rock right?*

- *Yes we do. We came here in 2006 with the Bureau of Land Management and we found eye medicine. This panel and others like it are used for teaching other Paiute people, marking territory, mapping, paying respects, and other things.*

When asked which gender visits or uses these panels or panels like these most often, the Native American Representatives replied:

- *Both.*
- *Both men and women.*

When asked about stories and legends associated with these panels or similar panels, the Native American Representatives replied:

- *I think there are but I don't know any right at hand.*
- *Potato Woman, that's close to here; the woman who gave birth to the bighorn sheep. I believe bighorn sheep would be unique to this area. They're probably different than the rocky mountain bighorn sheep, but not that much. Mainly it would be just for this area only because of the legend I've heard giving birth to this area. Creator made that sheep through her through with conception type thing, to be for this specific area. Those are my thoughts. To make sure they would fit the rock, the terrain, and be able to go long distance to find the water. The streams were probably already here. He adapted them before they were even created.*
- *I am sure that there are some stories connected with this area. There are a lot of stories about Big Horn Sheep in this area. People keep it in their family and their tribe. The elders and my parents told me. People that don't have an open mind get lost in the desert by themselves. A naked woman would appear as a naked woman would lead a person away way out into the desert and then they would die out there. She was a spirit and is connected to the bighorn sheep.*

When asked if these panels or similar panels were connected in any way with panels elsewhere, the Native American Representatives replied:

- *They are connected in the sense that they are – I don't think they're telling you where other panels are, but they're pretty much the same as other panels. So for the marker stuff, they tell you what's here and I think that's what these were about. I believe that all these places where people have gone to are connected from a trail going from one place to another for one reason or other. If you come up here to get mountain sheep, you would*

*stop and you would pray like we did this morning. If you're coming up to hunt, you would pray that you have a good hunt—that those things would come to you. If you're coming up here for power you, want those people to know that you're coming here and you want them to come to you, to be present because you want their help for some reason. You pray for that here. I think there would be other stopping spots with peckings along the way on a journey to hunt or on a journey to get power or vision.*

- *I think it's unique to the area of the land, again terrain. The pecking that looked like a water baby, that's just right across the mountain range over here, which is one of the mountains, to Pahrnagat, and they're from that area. Who knows if the stream, Toquop wash, they're not up there in that spring from where the water comes from. Or maybe whoever did that was over in Pahrnagat area and has a story to tell, and that's what stuck in his mind, water babies. Because you've never seen one before, right? It would be so hard to interpret. It's just like interpreting somebody's painting.*
- *These panels are connected to other people because they are a map to show the way to go and how to get back. Most peckings are somehow connected to other peckings.*

When asked if archaeology sites are connected with these panels, the Native American Representatives replied:

- *I believe there are because these sites, when you come up to pray you bring stuff to the site where they're going to pray to get their power. Where they have some spirit come to help them, they're going to leave something there for that person, that spirit. They would have done that, but they may not be here now because people have probably taken those things away because they don't know what they really are. If Indian people were going to reuse this area for hunting or seeking power in a traditional way, and move along the trail from one place to another, I would leave an offering, because that's what you're giving to whatever you're seeking. It's like when you go out to the desert, you give an offering, and you do that all the time because you're praying for that desert to help you, to come to you. You're probably asking more from the mountain here than you would if you're going out in the desert.*
- *If you follow the wash down, there is a rock alignment that might be connected to this area.*

When asked if plants are connected with these panels, the Native American Representatives replied:

- *Yes, in some way they are connected. Plants like Indian tobacco would probably mean that there's more power, more that somebody that knows what they're looking for could get here. They would know that that's here, that this is a place where you can find that good power for you.*
- *Yeah, because of the grinding slicks (see Figure 14). People mix their poultices different ways, their berries, and when Indian tea was traded, maybe it was a powder. Maybe they*

*used it as a potion to get rid of cough or cold, or whatever. It depends on who was the doctor and how he used it. If you were just going to drink it, it's simple. You'd just break a branch off, do a little offering, take a little branch, throw it in the boiling water. But if you were going to trade it or whatever, trade it to whoever, you ask, you spoke, and maybe that's what another tribe used, in a different way. Not everything is used in the same form by everyone. It's easier for them to carry it and trade it, because Indian people were trading, horse traders right? When that stuff dries, because I've got two different kinds, types of tea, Indian tea from two different places sitting on my table at the base. When it dries it gets brittle and breaks off. It's hard to wrap it up and carry it and keep track of it when it does that. Drinking it in a powdery form – similar to tea bags – it would be easier to do that. However, they measured a trade. Maybe they had the plant right here and the plant in dried form.*



**Figure 14 View of Lower Grinding Slicks Looking Upstream Towards Mormon Mountains**

When asked if animals are connected with these panels, the Native American Representatives replied:

- *Yes, I really like that one with the mountain sheep head. I think that really means something and when I was down in the wash, seeing those two lizards fight, that kind of made me think of how much more this area is than just a pecking site.*
- *Yes they are. There are bighorn sheep, rabbits, horses, snakes connected to this area.*

When asked if minerals are connected with these panels, the Native American Representatives replied:

- *Yes I do. The paint that's on the panels, it could have come from somewhere else, but to me, if it came from here in this area, it would be stronger because that's like you're gathering up your power to do something, maybe to heal somebody or to help something that's not going right. The more that you can get out of this area because of the strength and the spirit in this area, the stronger you would become to help whatever you're trying to do. If you're trying to heal, then you would have more power to heal.*
- *Yes they are.*

When asked if water is connected with these panels, the Native American Representatives replied:

- *Yes, water is a great power in itself.*
- *Yes, especially looking at the map – how big this wash is and where it goes, to the Virgin River, and down to Lake Mead – eons ago, this wasn't a regular stream. It was disturbed and it's a wash now, a dried up wash. Maybe the source dried up. With the earth shifting and moving like she does, it could have got pushed a different direction, different place. Streams naturally dry up, because of some reasons. But also because people abused her, and misused her, and grandmother doesn't appreciate that – they didn't show enough respect to her. That's the thing about the connectedness of Indian people with the earth. We have a close relationship with her, so before we even go to an area, pick a plant, or take anything, we always give our thanks and our respect to her. If people forget that it's just not nice. You don't fool with Mother Nature.*
- *Because of their location the panels would have to be connected to Toquop Wash.*

When asked if the surrounding land and topography are connected with these panels, the Native American Representatives replied:

- *I don't believe so. I believe that it's part of the reason, but I don't think it's a major factor.*
- *Hackberry Canyon, there's a place up here and I'm not sure where it's at exactly, where we saw the biggest agave roasting pit. That was so big and the rocks around it...I can't even describe it, but it was big, really big size. If it was that big, can you imagine the crop with it, how many people were taking care of her, how many people it took to gather the agave, to roast it? There were many people who probably all got together as family and they knew when it was time for the agave to get ripe and to be picked. I bet it was time for gathering, just like festivals happening at certain times of year, if you knew what always grew in abundance, so you invited people to come and attend these. That's how you got the numbers. Me and [a Paiute woman] wanted to do that, get people together to do it, and do it that old way, and maybe one of those pits and see what it turned out like, and camp out and do that. After seeing the pit that big, you know there had to be a lot of people involved. How would a dozen people use it? That would be a lot of work. This was basically used all the time by different families, Utah people, people from Pahrump area, they all came up here and did all that – the ancestors of these people. This is their land.*
- *Yes they are. This is a secluded area. That's (the seclusion) important.*

When asked if Indian people who are not Southern Paiute used these panels, the Native American Representatives replied:

- *Yes, I believe that they would. Other Paiutes would come over to use this area. I'm not sure if Hualapai would come all the way over here, but maybe. I remember when my dad used to tell me stories about when Hualapais used to raid Moapa, so I don't think it's that far-fetched to come over here for something. They would mostly just pass through, rather than use it for a spiritual place.*
- *I think they allowed it if they knew them. I don't see why not if you came here and treated the place and people with respect. But there are some tribes that are hostile to each other. There are stories about where maybe one tribe was fighting against each other, so it's written down in their history and it was told.*
- *Hualapai, Chemehuevi Paiutes, and Mojave could all have traveled through here. This would have been a shared place for traveling.*

When asked if Indian people who are not Southern Paiute used these panels before, after, or at the same time as the Paiutes, the Native American Representatives replied:

- *Paiutes have always been here.*
- *Just like getting up here in the spring, summer, to get away from the heat down below. Agave roasting time. Of course a big getaway from the Spaniards, right. Just to cool off, like a summer home. It was traveled a lot. When it's cold and blustery, I don't know if they'd make this trek up here. I've been here in February, even in March, my gosh it's colder than the dickens up here. It's still our kind of winter. The wind is our wintertime. It's cold to visit the panels. When they were here, they were here, they probably visited, but I don't know about making special trips up here. I imagine some people did, for special reasons or occasions, or maybe young men having the ceremony of wanting special gifts, or just trying to get close to creator, coming up here on the highest peaks, to become a man, type thing. Not knowing too much about ceremony, but usually your body is prepared for it, maybe through paint, maybe through drinking of certain herbs to make you strong, giving it to the mountain as gifts. Visiting was probably the whole ceremony of doing the agave picking thing, giving thanks. They probably had songs too! Songs, for planting seasons, and get together, people just naturally celebrate and give thanks, some music and dance, ceremony. It seems like they would if there's a lot of them together, they're sharing a meal, they had a good crop. Wouldn't you be full of joy and happiness? Time to meet other people from different areas, your family, sort of like reunion. Maybe people trading each other's daughters or whatever, looking for husbands for their family. I'm just saying that because it's a social gathering.*
- *Other people used these panels before and after.*

When asked if there is a special time of year during which these panels or similar panels are used or were used in the past, the Native American Representatives replied:

- *I would think that if you're looking for medicine and stuff like that, I would see it used at the solstices because that's when they usually have power connected to those times of year.*
- *If they did come to pay homage and respect to it, I think it could happen anytime when they did pass, before they moved on. Maybe there were certain rules set up about what time you could do that.*
- *This area would have been used at specific times of the year. Probably the winter because that's when most people get sick. The plants here would have been used at a specific time too.*

When asked if there is a special time of day/night during which these panels or similar panels are used or were used in the past, the Native American Representatives replied:

- *I would think that if they're doing it for medicine, it might be more at night because the spirits actually travel around in the stars.*
- *If you're paying homage, or even a blessing, and you're doing it respectfully, there's a thing about doing it first thing in the morning before you start your day. Following the ritual, it probably was. Most ceremonies, that's how you do a ceremony; everything is done the same way all the time because that's how creator told you to do it.*
- *Ceremonies would be held at night, but they would have also used this site during the day.*

When asked if any specific peckings or paintings needed to be discussed, the Native American Representatives replied:

- *The shape of the mountain sheep did, but they were all interesting. The most visual to jump out and catch my eye was the mountain sheep. I think that the mountain sheep, the way it looked, it looked like it was coming right out of the ground. That kind of reminded me of the creation stories where we came out of the ground, walking as humans. So to me that makes me think more of how our people had talked about our legends and stuff, where they more come alive in my mind, in the way I think.*
- *I like the panel with the sun-looking one, the sun and the water baby one. There was also one that looked like a bug; what kind of bug, I don't know. Maybe that type of bug was in abundance here and he was a danger to everybody, so that's what was on the guys mind when he drew it. It was interesting about the water baby, but like I said, how he knew it was a water baby, I don't know. I just took it as looking like some of the stuff in Pahranaqat. It looked like a man.*

When asked what Indian activities or events occurred at this place, based on the rock art seen at this place and on the ground, the Native American Representatives replied:

- *Ceremonies would have occurred here and gatherings.*

When asked if this place has a personal meaning to them, the Native American Representatives replied:

- *Yes, I felt that the people were here with me while I was walking around and I could hear them speaking or maybe chattering, not so much speaking where you can hear the words, but you can hear them. More like muffled or something. When I was walking around, I could see the shadows dart back and around in my wider field of vision and I felt really good.*
- *This site is becoming more significant to me. I feel closer to it seeing it a second time.*

When asked to evaluate the overall importance of the place to them, the Native American Representatives replied:

- *The importance of the site to me is high.*
- *High importance – this is the second time I’ve come here and realizing how many settlements were around here at one time and just knowing how many of our ancestors were around here and how they mistook us for being nomadic and migratory, when we were farmers, and then got backed off because the Spaniards were coming, trampling and stuff. We decided not to trust them of course, and anyone else, and then history saying, “Oh, those Paiutes are nothing but walking around in rabbit skins and women are bare breasted and they just live off anything and they’re all dirty and filthy and blah, blah, blah.” Not making us look human, when we were hunters, gatherers, AND farmers. We knew where the best watering holes were. We did farm and trade what we grew, and knowing how many people were here at one time and making us believe that we weren’t but a drop in the bucket, eating lizards and jackrabbits, and blah, blah, blah. When you think of how many people were here and what they did to us and learn the history, we have to teach our families and our people that it wasn’t that way. That’s what the whole history of the Indian people has gone to; the dogs. They made us feel that way. It takes a lot of inner strength to be able to live out here. Imagine what it does to you as a person, having to be uprooted from your place where you lived before, in peace and harmony, and agriculture, and having to flee your home, and not knowing that way of life anymore, and struggle from the desert. We didn’t choose to live this way, that’s the thing. How many of the Paiutes know that history.*
- *The importance of the site is high to me.*

When asked if the style of the peckings/paintings influence the cultural significance of this rock art, the Native American Representatives replied:

- *I think that it's here; that's the most important part. Like I said earlier, I think that the people are still here, so I think they're still watching it and I know they come back. The peckings mark where the people are.*
- *Yes it does.*

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

- *The condition of the site is fair.*
- *What little there is, it's fair. Without it being visited and no one of their old blood ancestors are still around here and not coming up to see it, I bet it gets lonesome for us. Deep down it knows us. To come up there, even just to, maybe not to touch, or talk, or feel, or just knowing, maybe needing a new one to kinship with; with us, and us with it. Just learning to be more appreciative of who we are.*
- *The current condition of this site is fair, in my opinion.*

When asked if there are human activities affecting the condition of the place, the Native American Representatives replied:

- *Yes, those people driving by—seven ATVs drove by. Even though they didn't stop, I think what really impacts it is the exhaust. The exhaust gets on the panels and that deteriorates it faster.*
- *Look what just went by, about ten ATVs. They're having a good time, but they don't know any of this history and it doesn't mean anything to them. They have a different perspective about the desert. I'm not saying they couldn't be taught, but that's their way of expressing themselves.*
- *Yes they are. The access road cuts right through here. People get out here and touch stuff.*

When asked for their recommendations for protecting the panels from human activities, the Native American Representatives replied:

- *I like to see the road closed off, but I don't think that's too possible. I really don't think there's much they could do except to close the road off. They could relocate the road.*
- *Monitoring and having stewards every now and then. Look at this road, how close it goes to here. That will always be used, I believe. Whatever they're doing down there, I don't know, but it could be monitored.*
- *Cutting off the access road would help to protect this area. They need to block off this area, but when they fence things off, it attracts people.*

When asked if there are natural elements (wind, rain, erosion) affecting the condition of the panels, the Native American Representatives replied:

- *Not so much natural stuff. I think it's more human stuff.*
- *The flood wash – what happens when the rain comes down from the mountain, it has to go someplace. Toquop Wash, right, this will always be here, unless the earth shifts again and it turns a different direction, but this is always going to happen and it's going to erode away. The last time I was there, there was a lot of dry, little islands, and plants growing there, and one of the ladies, the senior citizens said that there was eye medicine there. With the rocks, when the floods come down, it's going to move the rocks. Who knows where the seeds went. There might be an abundance of the eye wash down there, further on down the road. That's what's going to change it. It's going to change itself because it's a wash. Water naturally goes down the wash.*
- *Yes, flooding, but there doesn't need to be anything done to protect the panels from the water.*

When asked for their recommendation for protecting these panels from natural elements, the Native American Representatives replied:

- *You should protect. That's a tough one because what are you going to do, drill it out and put it into museums? It would be hard to change this wash; this wash is famous and on a map famous. How would we change the course now?*

When asked to share anything else about the importance of these panels or similar panels that hasn't been mentioned, the Native American Representatives replied:

- *The lizards – when I saw the lizards something came over me. It made me feel good. It made me feel that those two guys are the reason why we come up here to fight to save things like this. Those people are our people and we need to help them. Without us helping them, they would be lost forever due to development. The other thing was I remember when my dad told me about snakes, how you don't kill them because they'll come back and haunt you. He told me that when you come upon a snake, you talk to it and I've done that before. When I saw those lizards rolling around, fighting, they stopped and they were running away and I spoke to them and they stopped. They stayed around right out in the open for quite some time, maybe a minute or so—a long time for a lizard knowing that something else is there. I think that when they say, "Well you're practicing a culture that's old. We don't see it doing any good," I see that it does still work. It still fills people with part of our culture and that's why I save new people. Because you talk to them and they listen to you. I've even seen rabbits do that on the reservation. I'll yell at them, tell them to wait and they'll wait, and I'll talk to them and they'll look at me like they know what I'm saying. So I believe that our culture is not something that we practice, something that's mythical, but something that's out there, that you can touch if you have that right frame of mind and have that right spirit. Those animals know that.*

- *It's still kind of untouched in a way, coming back and just seeing what the water and the wash has done to itself. I don't mean it in a bad way, but maybe it won't be safe to come here anymore because that wash is going to change. It wasn't that far in here, just a little bit, we don't know how much it's going to storm and change and how close to this. Look at some of the panels which [a UofA Ethnographer] said were falling and aren't there anymore. It's like a puzzle piece. They're coming down and they're taking care of itself.*
- *There's going to be a lot of traffic to build the panels. What direction are they coming from? Anything where you're going to build something, the first thing you do is clear off the land and anything underneath there's going to be bulldozed and upturned no matter what. So, of course the panels would change it. It's going to change the habitat of the animals that live there in the first place. Everything's going to change. I don't know how close these solar panels are going to be to this wash, but it's kind of silly to put it at the base of the wash.*
- *We need to protect this area and cut off the access road.*
- *I feel really close to this area this time. Last time was more of a tourist stop. This time there were little animals around me and we talked about the area and I really felt a closeness.*
- *People would want to use the plants here today and the cows make a big impact.*
- *If solar was put in this area, the trail to other spiritual sites would be broken.*
- *We need to preserve as much as possible because everything is disappearing. This is everyone's history and once it's gone we can't get it back.*

### **Ethnographic Comments**

Southern Paiute connections to the East Mormon Mountain SEZ American Indian study area are complex. This region has been used by Southern Paiute people since Creation. This region is located along the Southern Paiute song trail to the afterlife and it has been used by Southern Paiute people for pilgrimage and ceremony. During Euro-American encroachment, Southern Paiute people turned to the Mormon Mountains region for protection. During the contemporary period, Southern Paiutes also used this area for cattle ranching. This section highlights the multiple layers of Southern Paiute use and connections to the East Mormon Mountain region. It is important to understand that while through time activities shifted, the cultural significance and spiritual connections of this region have remained.

### **Salt Song Trail**

The Salt Song Trail is a sacred song trail to the Southern Paiute people that encompasses parts of Nevada, California, Arizona, and Utah (Stoffle, Toupal and Zedeño 2002). The Salt Song is part of a ceremony known as the Cry, during which the deceased person's soul is guided to the afterlife. It is denoted by specific topographic features and spiritual place. The trail extends

over a thousand miles (Stoffle et al. 2004). The summary of one Paiute man's account of the Salt Song boundaries is as follows:

...the song is connected as far north as Duck Valley, Nevada with the Shoshone people, and down to Parker, Arizona with the Chemehuevi. He located Lower Deer Creek as being in the middle of the song trail and therefore connected to all other parts (Stoffle et al. 2004:117).

The Salt Song Trail traverses through and around the Mormon Mountains. In a paper analyzing the findings of the Mormon Mountains Oral Histories Study, head ethnographer Alex Ruuska (Ruuska, Kiefer, and Mallo 2011:3) concluded that:

The Mormon Mountains are considered to be places of power that have been sought out by Numic ritual specialists in both pre- and post-colonial times. This worldview is iterated in ancient oral traditions that name distinctive physiographic features in the landscape with origin stories relating to Standing Rock and Potato Woman. The ancient cultural connections to this region are further articulated through placement of archaeological sites along the Salt Song Trail, a sacred ritual path that it is believed to link the known physical world with the world of spirit (Carroll 2005). This ancient trail demarcates the aboriginal territories of the Southern Paiutes and is coupled to nodal sites throughout the traditional homelands.

This song trail guides the soul throughout Southern Paiute territory. This song trail is arguably the most important song trail in the Southern Paiute world, in that every person will eventually walk it. In a previous Environmental Impact Statement (EIS) conducted along the Toquop Wash area, multiple Southern Paiute tribes expressed concern that the Salt Song Trail would be damaged by the industrially development in this area (BLM 2003).

### **Pilgrimage Trails**

Southern Paiute people use their cultural knowledge to understand the logic behind how and why different kinds of places are located throughout a particular landscape by reading the land for cultural indicators of Puha. The locations of places can be predicted based on a number of factors such as topography, geologic composition, the presence of natural resources, and the place's reference to other features. These factors are understood from a particular society's epistemology. From a Southern Paiute perspective, this place logic is linked to the distribution of Puha across their traditional lands. Because Puha mimics the movement of water, it flows from the point of Creation to every corner of traditional Southern Paiute territory. When Puha is dispersed, it clusters in certain areas such as narrow and constricted places, stone water tanks, mountain peaks, caves, and at the point of convergence of hydrological systems (Stoffle, Zedeño, and Halmo 2001). Puha is also found at places associated with volcanic activity such as hot springs, basalt lava flows, and volcanic mountains. The presence of volcanism indicates that Puha has traveled to the surface from deep inside the Earth, causing the Earth to be renewed.

Pilgrimage trails can be predicted by using Southern Paiute place logic. For example, because people follow pilgrimage trails to powerful destination, the trail must follow the natural flow of Puha, which mimics the flow of water. A pilgrimage trail passes by water sources, places of volcanic activity, and through narrow and constricted spaces, all locations of concentrated Puha. By following these trails, pilgrims travel to isolated places far away from their communities and people.

Isolation, concentration, and viewsapes are important factors in pilgrimage trails. The place logic for pilgrimage activities, like vision questing, is a personal learning experience that needs to be free from outside influences. Pilgrimage involves being separated from normal society through food and water restrictions and ritualized instruction from experienced shamans or *Puha'gants*. The concentration of Puha in constrictions or springs creates powerful places that can teach. The Puha of the surrounding landscape is an essential part of the learning experience. Pilgrimage trail places are locations with specific visible features and the land teaches the individual by strengthening the connection the pilgrims have with their surrounding environment (Carroll et al. 2006).

Southern Paiute representatives interviewed during the Mormon Mountains Oral History study and Solar PEIS ethnographic studies discussed how they believe places like Toquop Wash were located along a trail system that connected Southern Paiute communities along the Virgin River to ceremonial places in the Mormon Mountains. The trail began at the junction of the wash and the river and follows the wash past the South Toquop Wash Site to Mormon Peak.

## **Indian History**

Indian history is defined as events, people, and processes that are viewed today as important to contemporary and future Indian assessments concerning who Indian people are and how they arrived at their current social, cultural, and personal situations. In this ethnographic discussion two dimensions of Indian History relevant to the SEZ American Indian study area are discussed. These are (1) the use of the Mormon Mountains Massif as a Region of Refugee due to Euro-American stress and (2) the role of Indian Cowboys in the area as a component of adaptation to wage labor dominated society.

### *Regions of Refuge*

In the historic period, the Mormon Mountains area was a region of refuge. A *region of refuge* is a term that was defined by anthropologist Gonzalo Aguirre Beltrán to describe places with dual economies consisting of a national and a local sector, resulting from colonialism wherein the national sector dominates the market and the local sector is comprised of isolated, closed communities (Beltrán 1979). These local sectors were arranged as refuge regions by isolating these areas, both physically and socially, from the mainstream of the national society. These areas contain close communities of peasants, most of whom were indigenous peoples. The indigenous communities were subjected to massive changes under colonization and Beltrán explained that these communities could have both internal and external resistances to the cultural changes that were occurring during this period. The stability of the hinterland as a safety region served as a form of resistance and protection from these forced changes (Beltrán 1979).

Throughout southern Nevada, native people took refuge in areas that were traditionally used during certain times of the year, by specific people, for specific functions – like initiated persons on a vision quest. When forced away from traditional farming villages and oasis riverine use areas by Euro-American encroachment (physical, animal, and disease), Southern Paiute people sought out residence in isolated ceremonial areas, thus altering their traditional use protocols for these ceremonial areas. They enveloped themselves in their most powerful places, seeking protection from outside encroachments.

During the period of colonization and encroachment, Southern Paiutes shifted from their agricultural centers to their hinterland for protection from and resistance to Euro-American expansion. Places in the hinterlands had permanent sources of water and Puha. As explained by a Southern Paiute religious leader interviewed during a previous ethnographic study in southern Nevada:

People would worship on the mountains but would leave this area after a few days and go back to their settlements where agriculture was possible. After invaders came along and took their family area, they moved into the mountains for protection and because they had no choice. That was their last bit of land and if they lost it that was that (Stoffle et al. 2004:83).

Intense encroachment began in southern Nevada in 1829, with the official opening of the Old Spanish Trail that linked together the trading centers of Los Angeles and Santa Fe. Large caravans carrying woolen goods and massive herds of cattle traveled twice a year along this Indian trail system. This massive influx of people and Old World animals caused major environment damage to springs and Southern Paiute farms. The trading caravans also brought with them European diseases, which caused numerous Native American casualties. Members of Paiute communities had to adapt to these large scale social and ecological perturbations (Stoffle et al. 2008).

In the mid to late 19th century, another influx of people began flow into southern Nevada. Unlike the Old Spanish Trail traders, the new Euro-Americans, mostly Latter Day Saints Mormons, actively appropriated Southern Paiute traditional lands. As part of this process, the settlers took control of prime agricultural lands along the major water ways such as the Virgin and Muddy Rivers, thus pushing Southern Paiutes off of the remainder their traditional farms. As a result, Southern Paiute people turned to powerful places within the mountainous regions of their traditional territory for protections.

In the Mormon Mountains study, for example, Southern Paiute elders positively identified Tinaja Cave as a region of refuge. According to Southern Paiute oral histories, caves in the Mormon Mountains region were specifically sought out because the Puha of the caves could protect the most vulnerable individuals from capture, enslavement, or disease (Ruuska, Kiefer, and Mallow 2011).

The use of regions of refuge to seek protection from disease outbreaks by the Moapa Paiutes was documented in the 1930s. Anthropologist Isabel Kelly (1936:160) noted that,

“shortly before the Mormons came into the Muddy Valley (ca. 1860) there had been a serious epidemic.” This epidemic spread to Moapa through the Saint Thomas area. Due to the large number of deaths, the survivors were unable to perform traditional funeral ceremonies, including the burial of the deceased. According to Kelly, the survivors were fearful of becoming ill, so they “fled to the hills” (Kelly 1936:160). It should be noted that prior to Euro-American encroachment, Southern Paiutes did not have a mechanism for properly treating the pathogens themselves or the carriers of the disease. By “fleeing to the hills” the survivors moved either purposely or *de facto* to the places where the powerful life force of Puha is understood to concentrate and where many doctors had engaged in ritual activities to receive healing songs, helper spirits, or other forms of power (Ruuska, Kiefer, and Mallow 2011).

### *Indian Cowboys*

Despite waves of initial encroachment, Southern Paiute people continued to hold on to traditional areas and use patterns, from gathering plants to conducting ceremonies. By the late 1880s, however, most of these places were destroyed by exotic grazing animals and the annexation of the best water sources by non-Indians. The last massive ceremonial response to encroachment was the Ghost Dance movement of 1890 (Stoffle et al. 2000; Carroll and Stoffle 2005; Carroll, Zedeño, and Stoffle 2004). The Ghost Dance was a coordinated ceremonial efforts to balance the world and gain spiritual and ceremonial control over forces of change. The magnitude and ferocity of this event stimulated the U.S. Congress to outlaw all American Indian ceremonies (Crum 1994). Ceremonies that continued into the 20th century would either be held as social events or hidden in regions of refuge. As the non-Indian populations in the west grew and expanded, Indian people increasingly lost their ability to produce their own food and to control their own settlement patterns. With mine camps and ranches emerging in traditional lands, Indian families gravitated towards labor camps (Stoffle and Dobyns 1983) where both men and women worked for wages. By the end of the first quarter of the 20th century, most Indian foods and housing were acquired by cash from or exchanged for with the Euro-Americans. This began a period that continues to characterize Indian life today as they became enclave minorities in the United States.

The Mormon Mountains Massif became a region of wage labor for Southern Paiute families that lived on stock ranches, especially along the flanks of the mountains. The IPP and MM interviews involved families who had either directly worked as Indian Cowboys or had grandparents who did. In a 1983 IPP interview, an elder from Kaibab recounted his efforts to support his family by working on ranch in Toquop Wash area; isolated from his family and community. While there, he described with pride his ability to resolve ranching problems better than other ranch hands and even the owner. One event centered on a stock well supplied with water from a windmills and a gasoline powered electric pump. The latter continued to break in this isolated area, threatening the lives of the nearby stock. The problem was resolved by the Kaibab elder.

Indian families who recount their adaptations to harsh 20th century conditions tend to do so with the pride of people who were less victims of the social conditions than persons who overcame and thrived during these times. Places where these victories occurred, such in Toquop

Wash, are places of historical significance, worthy (like other places on the National Register of Historic Places) of preservation for current and future generations.

### **Potential SEZ American Indian Study Area Impacts – Tribal Recommendations**

During the March field visits, tribal representatives expressed concerns pertaining to the current environmental and cultural conditions of the East Mormon Mountain 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 East Mormon Mountain SEZ American Indian study area will adversely impact the identified special features (see Table 1).
- Tribal representatives consider the cultural resources in the East Mormon Mountain SEZ American Indian study area to be important for understanding their past, their present, and their future. They stipulate that these resources will always be culturally important to Southern Paiute 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 tribe believes that the East Mormon Mountain SEZ should be managed as a spiritual cultural landscape. To accomplish this goal, Southern Paiute tribal representatives should be brought together with Bureau of Land Management (BLM) to develop an integrated cultural landscape management plan.

- The BLM should control access to roads, restrict ATV usage, and monitor cattle grazing in the East Mormon Mountain SEZ and SEZ American Indian study area in order to protect the cultural and spiritual importance of this SEZ.
- Tribal representatives stated that they would like to be involved in a co-management relationship with the BLM in order to oversee the protection and maintenance of the vegetation, wildlife, and all cultural resources in the East Mormon Mountain SEZ American Indian study area.
- 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:
  - The Virgin River
  - The Muddy River
  - South Fork Toquop Wash and Toquop Wash
  - Potato Woman
  - East Mormon Mountain
  - Caliche Caves
  - Mormon Mountain Massif