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

Participating Tribes

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

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

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October 2011

ESCALANTE VALLEY

The proposed Escalante Valley solar energy zone (SEZ) is located in Iron County, Utah (Figure 1). It is approximately four miles south of Lund, Utah and ten miles east of Beryl, Utah. The SEZ is situated in the Escalante Valley, which is a large, southwest-northeast trending valley in the south-central portion of the Escalante Desert.

Figure 1 Google Earth Image of the Escalante Valley SEZ Outlined in Red and SEZ American Indian Study Area

The Escalante Valley SEZ American Indian study area extends beyond the boundaries of the SEZ because of the existence of cultural resources in the surrounding landscape. The Escalante Valley SEZ American Indian study area includes plant and animal communities, geological features, water sources, historic events and the trails that would have connected these features. Southern Paiute and Goshute representatives maintain that, in order to understand Numic connections to the SEZ, it must be placed in context with neighboring connected places including the Milford Flats South and Wah Wah Valley SEZs and their associated cultural resources found in the larger study areas.

Summary of SEZ American Indian Study Area Significance

The Escalante Valley SEZ American Indian study area was traditionally occupied, used, aboriginally owned, and historically related to the Numic-speaking peoples of the Great Basin and western Colorado Plateau. The SEZ American Indian study area extends beyond the boundaries of the SEZ because of the existence of cultural resources in the surrounding landscape. The Paiute Indian Tribe of Utah (PITU) and the Confederated Tribes of the Goshute Reservation (CTGR) Solar Programmatic Environmental Impact Statement (PEIS) field consultations represent the cultural interests of Numic peoples. These 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 study area. Their ancestors were placed here by the Creator and they have subsequently lived in these lands while maintaining and protecting these places, plants, animals, water sources, and the 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 occurring in Mythic Times and by strict cultural and natural resource conservation rules. PITU and CTGR have participated in this PEIS in order to explain the meaning and cultural centrality of the plants, animals, spiritual trails, healing places, and places of historic encounters that exist 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 have also been 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 also present. 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. The massive Late Pleistocene Lake Bonneville was but a

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

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

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

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

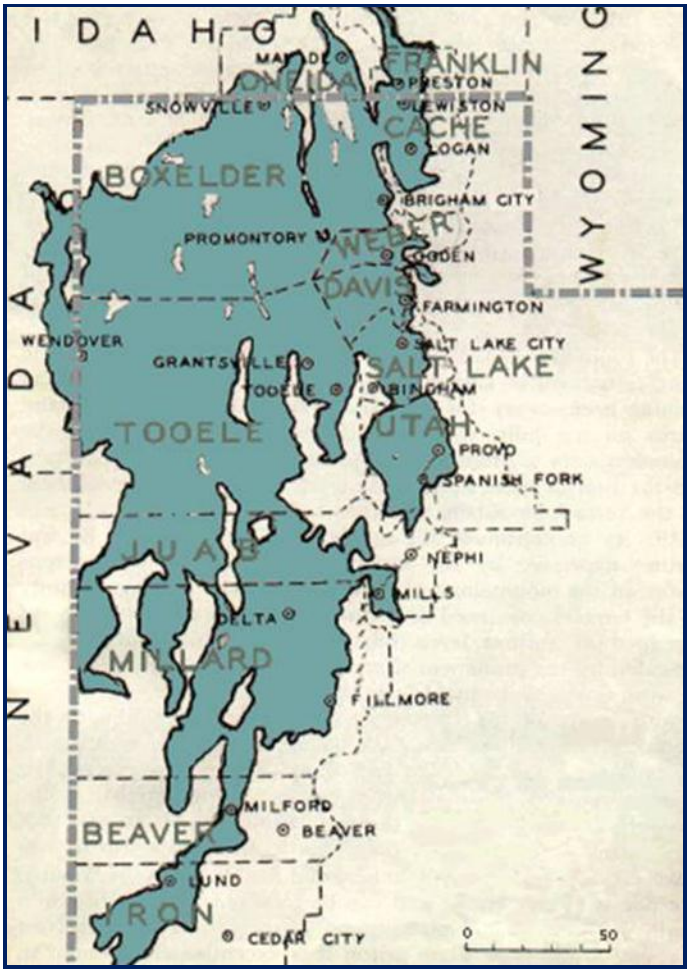


Figure 2 Lake Bonneville with the Red Star Noting the SEZ Study Area

Lake Bonneville (Figure 2) represents the predominant Pleistocene water feature in the eastern Great Basin. At its highest, Lake Bonneville spanned across seven intermontane subbasins through parts of Utah, Nevada, and Idaho. While Lake Bonneville's contemporary remainder, the Great Salt Lake, has levels of salinity too high to support fish, Pleistocene Lake Bonneville differed. Around 26.5 thousand years ago, the lake had risen sufficiently to move past

the salinity threshold and support aquatic life such as ostracodes (*Limnocythere staplini*) (Oviatt et al. 1992). Skeletal remains of whitefish (*Prosopium* spp.) and sculpin (*Cottus* spp.) that do not tolerate saline waters highlight the suitability of the aquatic environment (Grayson 2011). From approximately 22,000 to 12,000 years ago, during which the water level reached its peak, coniferous forests surrounded the lake. At this time, Lake Bonneville covered 19,800 square miles with a maximum depth of about 1,220 feet. From approximately 12,000 to 8,000 years ago, the pollen record indicates the transition from large populations of conifers to the xeric desert scrub seen today, such as greasewood (*Sarcobatus* spp.) and shadscale (*Atriplex confertifolia*) (Madsen 2000). Deposits around the lake also demonstrate the common presence of mountain sheep *(Ovis Canadensis*), musk oxen (*Bootherium/Symbos* spp.), and mastodons (*Mammut* sp.). Camels (*Camelops* sp.), horses (*Equus* sp.), and American bison (*Bison* sp.) were found in more limited quantities and peccaries (*Platygonus compressus*) and ground sloths (*Megalonyx jeffersonii*) were only found to each have one specimen in the area (Madsen 2000). Pollen sequences and macrofossil records suggest that before 8,000 years ago, the conditions surrounding Lake Bonneville were cooler and wetter than today. At this time, areas now covered with pinyon/juniper woodlands were more open and covered with brush. By 7,000 years ago, shadscale and sagebrush (*Artemisia tridentate*) communities began to dominate lower elevations, similar to the vegetative communities that exist today.

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

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

This Pleistocene map was developed by superimposing images of Pleistocene Lake Bonneville's boundaries onto topographical maps of the Escalante Valley SEZ study area, using photo-manipulation software (see Map 1). This map is included to geographically contextualize the Pleistocene lake and to help understand its role in the Escalante Valley SEZ study area. The map is not intended as definitive boundaries of the Pleistocene lake.

Figure 3 Escalante Valley SEZ and SEZ American Indian Study Area with Table Butte in the Background Looking East

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

Special Features

Numic peoples have used the Escalante Valley SEZ American Indian study area for thousands of years. 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. During the ethnographic field sessions, tribal representatives identified the Escalante Valley SEZ American Indian study area (Figure 3) as being part of a large ceremonial landscape that contains many traditional use features like the Eagle Rock (a doctor rock), springs, volcanic places, and important plants and animals (see Table 1).

Feature Type	Special Feature
Source for Water	➢ Pleistocene Lake Bonneville, Sulphur Spring (Lund area), Pleistocene Lake Bonneville, Thermo Hot Springs, Mountain Spring
Evidence of Previous Indian Use	➢ Eagle Rock, Parowan Gap Peckings
Geological Features	➢ Table Butte, Viewscapes, Volcanism, Mountain Spring Peak
Source for Plants	➢ Ceremonial plants, medicinal plants, food plants, utilitarian plants
Source for Animals	➢ Birds of prey, game birds, migratory birds, predatory mammals, game mammals, small mammals, lizards, snakes, spiritual animals
Indian History	➢ The 1776 Domínguez and Escalante expedition, travelers along the Old Spanish Trail 1829 - 1849, Forty-niners and the California Gold Rush 1849-1850, the mid-1800s expansion of the Mormon's state of Deseret, the Region of Refuge, the late 1800s to early 1900s establishment of mining and ranching, and the 1899 railroad and associated communities (Lund)

Table 1 Special Features Identified at the Escalante Valley SEZ Study Area

The SEZ American Indian study area is located in the southern end of Pleistocene Lake Bonneville. Although the lake bed is dry for periods of time, the playa fills with water during times of high precipitation. It is important to understand the hydrological system in this region because the flow of *Puha* (power) follows the flow of water across a given landscape and connects places, people, and other elements.

Figure 4 CTGR Tribal Representatives in Escalante Valley SEZ Study Area

The Indian tribal representatives (Figures 4,6) interviewed at the Escalante SEZ American Indian study area indicated that this place is especially important because of the Sulphur Spring (Figure 7), a traditional spring near Lund that served as both a stopping place for people seeking healing in the nearby hills and a community location. Sulphur Spring was a central place for travelers going back and forth across the Escalante Valley. Because of its regional centrality and because it had a permanent Indian community before the arrival of non-Native people, Sulphur Spring was a place of social and ceremonial gathering. Round dances and big times occurred here and the ceremonial grounds near Sulphur Spring have continued to retain their cultural importance.

Indian people came to this location from great distances to conduct important ceremonies within the Escalante SEZ study area. Eagle Rock, a famous doctor rock (Figure 5), was identified by tribal representatives as a key cultural feature in the Escalante Valley SEZ study area. Tribal representatives linked Eagle Rock to places such as Sulphur Springs, Mountain Spring Peak, and Mountain Spring and they thought these areas formed a large ceremonial complex. Tribal representatives described this as a traditional area used by Southern Paiute *Puha'gants* (shamans) and most likely Goshute shaman to tend to people who were ill and in need of rebalancing and healing. The Puha'gants would conduct complex healing ceremonies that could only be performed in a place of Puha, such as a doctor rock.

Figure 5 Eagle Rock with Mountain Spring Peak in Background

People traveling here from the east would pass through Parowan Gap. A Southern Paiute Creation story explains the existence the Parowan Gap in the middle of the volcanic ridge and the presence of thousands of rock peckings and paintings (called *tumpituxwinap* in Southern Paiute, meaning storied rocks). Travelers coming from the Cedar City area would travel directly across the valley to Lund, stopping at places along the north side of Table Butte (Figure 9). Table Butte is a powerful place in Numic epistemology due to its central position of in the wide Escalante Valley. The location provides minimum obstruction for interacting with the viewscape. Such vista points are essential for vision questing and spiritual renewal.

The Escalante Valley SEZ American Indian study area is in an active volcanic and geothermal area. Places that contain the presence of volcanic activity are considered sacred and powerful. Numic-speaking peoples believe that volcanic events are moments when Puha from deep inside the Earth is brought to the surface as a way for the land to renew itself and to distribute Puha across the landscape. For millennia, Indian people have traveled to places of past and present volcanic activity, like Mountain Spring Peak and Table Butte. Mountain Spring Peak next to Eagle Rock has been identified as a location for vision questing. The viewscape from the top of Mountain Spring Peak, its proximity to such a powerful doctor rock, and its volcanic composition makes it an important location in the SEZ study area. As a place of geothermal activity, Thermo Hot Springs is also an important place to engage in a variety of ceremonial activities. These activities include the curing of individuals using both the sulfuric muds and the mineralized hot water. Other Indian people came to the hot spring to purify themselves before going to other destinations for special activities such as doctoring at the Eagle Rock, vision questing, or balancing ceremonies. Hot springs are also visited by Indian people to acquire songs and Puha needed to help their communities. Trails from many directions came to the hot springs, bringing people on pilgrimage between the hot springs and distant destinations.

Figure 6 PITU Tribal Representatives

During multiple field visits, Native American representatives identified 16 traditional use plants and 27 traditional use animals within the Escalante Valley SEZ study area. The presence of these plants and animals both physically and spiritually add to the study area's overall cultural importance because they are associated with medicine, ceremony, and Creation. Animals play an important role in Creation and Origin stories and are viewed by Numic-speaking peoples as Creator beings. These animals include the coyote, cottontail rabbit, deer, red-tailed hawks, and rattlesnakes. The Escalante Valley SEZ American Indian study area is historically special to Numic-speaking peoples who occupied these lands since Creation. The study area remained under Numic control, use, and management during much of the historic period, but their control over these lands greatly diminished due to a number of forces, including explorers, diseases, foreign settlers, construction and operation of national transportation systems, and mining. In

brief, the major periods divided by factors of encroachment are (1) the 1776 Domínguez and Escalante expedition, (2) the 1829-1849 travelers along the Old Spanish Trail, (3) Forty-niners and the California Gold Rush, (4) the mid-1800s expansion of the Mormon's state of Deseret, (5) establishment in the late 1800 until 1873 of the area as a Region of Refuge, (6) the late 1800s to early 1900s establishment of mining and ranching, and (7) the 1899 railroad and development of regional wagon haul roads.

Water

The Escalante Valley SEZ American Indian study area is located in the southern end of Pleistocene Lake Bonneville. The large playa in the Escalante Valley SEZ American Indian study area fills with water during times of high precipitation. During the November 2010 and August 2011 field sessions, tribal representatives noted the presence of water in and around the Escalante Valley SEZ study area.

Figure 7 PITU Tribal Representatives Investigating Plants in Sulphur Spring in the SEZ Study Area

Rain and snow run-off from the mountains to the northwest also flow into the valley and the Escalante Valley SEZ study area. It is important from a Numic perspective to understand the hydrological system in this region. The flow of Puha follows the flow of water across a given landscape and connects places, people, and other elements. As water drains from the mountains in and around Eagle Rock and Mountain Spring Peak (each places with high concentrations of Puha), the water and the Puha flow into the valley, connecting them with places like Table Butte, located to the southeast of the SEZ study area.

Springs located in the SEZ American Indian study area were identified as important cultural features. Sulphur Spring (Figure 7) is the closest spring to the Escalante SEZ American Indian study area and is located near Lund, Utah. This spring has long been used by Numic peoples as a permanent Indian community and a place of social and ceremonial gatherings. Thermo Hot Springs are located north of the SEZ and were a spiritual and healing destination for Numic-speaking peoples. Mountain Spring was the closest water source for Eagle Rock and was most likely the location of a ceremonial support camp for pilgrims to this doctor rock.

Evidence of Previous Indian Use

During the Indian tribal representatives' visits to the Escalante Valley SEZ study area, multiple ceremonial use places were identified. The geology, archaeological materials, and shared stories helped connect contemporary Indian people with their ancestors and helped explain and highlight the persistence of Indian lifeways in this SEZ study area.

Parowan Gap

Tribal representatives identified Parowan Gap as an important ceremonial place located within the Escalante Valley SEZ study area. This place is associated with a Southern Paiute Creation story that explains the existence of a gap in the middle of the volcanic ridge and the presence of thousands of rock peckings and paintings. Places with tumpituxwinaps are areas used by religious specialists during ceremonial activities because they are believed to be derived from supernatural authorship. According to Numic epistemology, the rocks were once alive and were once people. The people became rocks for human benefit. The writings on them related to this transformation and are part of the living universe. Numic peoples hold strong beliefs that the rocks are alive, have Puha, and spiritual value.

A trail to Parowan Gap passes directly through the narrow and constricted opening in the Red Hills. Narrow spaces contribute to the overall cultural meaning of physical and spiritual trails, especially to the travelers moving along them to reach a destination place. As the trail passes through Parowan Gap, it follows the water drainage. Constricted places such as this are locations where Puha will cluster because the flow of Puha is restricted by geological barriers. This is similar to water flowing through tight spaces or slot canyons.

Eagle Rock

Eagle Rock (Figure 8), a doctor rock, was identified by tribal representatives as one of the key cultural features in the Escalante Valley SEZ study area. It was described as an area traditionally used by Puha'gants to tend to people who are ill and in need of rebalancing and healing. Like other doctoring places found throughout Numic territory in the Great Basin and Colorado Plateau, Eagle Rock is situated in an area that was created through volcanic activity. The mountains surrounding the SEZ American Indian study area contain basalt flows and igneous rocks; both are products of volcanic activity. Similar to a Shoshone doctor rock located near the Gold Point SEZ and the town of Lida, Nevada, Eagle Rock draws its power from the volcanic flows above and below ground.

Eagle Rock is surrounded by thousands of offerings made by patients who came to the rock for healing. The rock offerings came in two general sizes and were of the same geologic composition. The smaller stones were placed in a rounded out area on the northern face and larger stones were placed elsewhere on Eagle Rock. These stones were left on the doctor rock after the healing ceremony, until the next time the doctor rock had to be used. When a new patient came, the Puha'gant removed the offering and placed downhill, on either side of Eagle Rock based on its size.

Figure 8 Eagle Rock with a Dust Storm Blowing in the SEZ in the Background

Geological Features

During the Southern Paiute and Goshute tribal representatives' visits to the Escalante Valley SEZ study area, important geological features were identified. Volcanism creates all of the prominent topographic features in the SEZ study area, including Table Butte and Mountain Spring Peak. Viewscapes contribute to the overarching cultural importance of the geological resources found within the Escalante Valley SEZ study area.

Volcanism

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

The Escalante Valley SEZ American Indian study area is in an active geothermal and volcanic area. Minor basalt flows are found in mountainous portions of the study area. This includes two regional east trending igneous belts—the Pioche-Marysvale belt to the north and the Delamar-Iron Springs belt to the south. These belts are believed to be between 26 million and 20 million years old (Klauk and Gourley 1983). The composition of the igneous rocks in the SEZ American Indian study area is consistent with other older calcalkaline volcanics and younger rhyolitic and basaltic extrusives found throughout southern Utah. The volcanic places in the SEZ American Indian study area are geologically and culturally linked to other volcanic areas in Numic-speaking peoples' territory.

Figure 9 Table Butte with the SEZ in the Foreground Looking South

Table Butte

Table Butte (Figure 9) represents a major cultural feature the Escalante Valley SEZ study area. Table Butte represents a powerful place in Numic epistemology due to its station in the Escalante Valley. It is a place of great contrast as a unique, isolated highpoint in the wide and low valley. The butte gains greater status due to its hydrological role as a shedding point for water. Power is closely associated with water and its flow (Stoffle, Zedeño, and Halmo 2001), thus Table Butte represents an important element in shaping the movement of power in the immediate area. The web-like structure of flowing power in the Numic universe is recreated on a micro-scale with elevated features like Table Butte. The web of local water flow is centered on the high point, "with its radials moving out along slopes and valleys, all interlocking the master web of the central world peak" (Stoffle, Zedeño, and Halmo 2001). The importance of such a powerful place is also compounded by the ability of the place to attract other powerful elements (Stoffle, Zedeño, and Halmo 2001). In the case of Table Butte, the immediate surroundings are inhabited by abundant communities of powerful medicine plants. The central position of Table Butte in the wide Escalante Valley adds to the importance of this location as a place for seeing great distances and interacting with the viewscape. Such vista points are essential for vision questing and spiritual renewal (Stoffle, Zedeño, and Halmo 2001). The role of elevated places as lookout or scouting areas was also highlighted during the 1982 Intermountain Power Line Project study. The Table Butte serves as a ceremonial area used for interacting with power, a habitat for medicine plants, and a vista point. The diversity of roles supports the cultural centrality of Table Butte.

Viewscapes

Viewscapes are necessary for certain types of ceremonial activities. As previously mentioned, viewscapes are essential for vision questing at the top of Mountain Spring Peak and

Table Butte. The viewscape from Eagle Rock has been a critical component of doctoring occurring in this area. From Eagle Rock, a person has a view of Table Butte and the Escalante Valley SEZ and study area. Viewscapes such as this are important for ceremonial activity because it allows the Puha'gant to pray to nearby features and draw upon their power as he or she performs a given ceremony. If these views are obstructed, there is a risk of disrupting the flow of Puha and the movement of prayers, causing the ceremony to fail. A failed doctoring ceremony would cause major physical and spiritual harm for the patient and Puha'gant.

Ecology – Plants and Animals

The Escalante Valley SEZ American Indian study area lies within the Central Basin and Range Level III ecoregion. The ecoregion is internally drained and constituted by xeric basins, mountains, and salt flats. The study area ranges in elevation between 5,120 feet (1,560 m) and 5,740 feet (1,750 m) and receives a low level of precipitation with a recorded average of 10 inches (25.4 cm) per year recorded at Beryl Junction. More specifically, the Escalante Valley SEZ American Indian study area is defined as a Shadscale-dominated Saline Basin Level IV ecoregion. Plants in this ecoregion are generally adapted to high salt and pH and low precipitation, extensively represented in saltbush-greasewood shrub communities. Another widespread ecoregion, most represented in the western portion of the study area, is the Salt Desert Level IV ecoregion. This ecoregion demonstrates an even greater extent of salinization and alkalization with poor infiltration and the occasional formation of salt crusts. Specifically tolerant plants occur at low density. The dominant cover type in the study area is the Inter-Mountain Basins Mixed Salt Desert Scrub, typified by open shrubland made up of *Atriplex* species, other shrubs, and perennial grasses in the understory layer. The presence of sand dunes in the study area corresponds to a notable proportion of Inter-Mountain Basins Active and Stabilized Dune cover type, described by sparse vegetation that is adapted to the shifting sands of the dune. The Intermountain Basins Big Sagebrush Shrubland, dominated by big sagebrush (*Artemisia tridentata*) and other sagebrush species, also represents a large portion of the study area.

There were traditionally important plants around Sulphur Spring, the wetlands to the north, the sand dunes to the south east, and the foothills to the west. During multiple field visits, Native American representatives identified 16 traditional use plants within SEZ study area. The Table 2 provides readers with the common, Southern Paiute, Goshute, and scientific names for each plant identified.

Common Name	Indian Name	Scientific Name
Anderson's wolfberry	u'upwivi (sp)	*Lycium andersonii*
Big sagebrush	Sangwav (sp) Po'-ho-bi (g)	*Artemisia tridentata*
Bud sagebrush	kuh-eeb tah-cun-oh-guah, kuh-wepit-tuh-cun-o-guah (sp)	*Picrothamnus desertorum*
Desert globemallow	Tupwiv (sp)	*Sphaeralcea ambigua*
Greasewood	tah-uh-be, toh-no-be, yah-tamp´, tone-oh-bee (sp)	*Sarcobatus vermiculatus*

Indian ricegrass	wa'ii (sp)	*Achnatherum hymenoides*
Locoweed		*Astragalus* sp.
Northwestern Indian paintbrush	Koi'-di-gĭp, to'-go-ûn-go-na (g)	*Castilleja angustifolia*
Penstemon	Toxoawatsip, too-buzz-sah-wop, toe-buzz-see-bee, dim-bah-sego (sp) tu'-go-wi-n ûp (g)	*Penstemon* sp.
Sego lily	sigo'o (sp) si'-go (g)	*Calochortus nuttallii*
Shadscale	oavi, kakumb (sp) suñ, Su'-no, ? ka'-nûm-pi (g)	*Atriplex confertifolia*
Singleleaf pinyon	tuvap, tuvwap (sp) ti'-ba-wa-ra (g)	*Pinus monophylla*
Tulip pricklypear	Manav (sp)	*Opuntia phaeacantha*
Utah juniper	wa'ap (sp) wa'-pi, wap (g)	*Juniperus osteosperma*
Winterfat	boo-see-ah-wah-be, she-shu-bah (sp)	*Krascheninnikovia lanata*
Western tansymustard	ku'u, ahk (sp)	*Descurainia pinnata*

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

Native American relationships with plants have a great and diverse value for Indian communities. Plants serve as vital food, medicine, and cultural resources. Anderson's wolfberry (*Lycium andersonii*) provided a desired food described by the Southern Paiute as "the best berry of all" during consultations with Isabel Kelly (1964; Rhode 2002). It was gathered to be eaten fresh, juiced, mashed, or dried for later reconstitution (Kerr 1936; Zigmond 1981; Rhode 2002). Indian ricegrass (*Achnatherum hymenoides*) seeds were harvested in the early summer by gathering and beating the plants to collect the seeds, before winnowing them into a more condensed form (Kelly 1964; Kerr 1936; Zigmond 1981; Rhode 2002). The seeds were ground into flour and eaten as pudding, gravy, or dumplings (Y. Jake, pers. comm., Rhode 2002). Ricegrass is culturally related to traditional burning practices for range management. Seeds would be sown after the area was burnt to provide a more favorable environment for a new generation of growth (Steward 1938; Stoffle et al. 1989; Rhode 2002). Predominately utilized as a food source, western tansymustard (*Descurainia pinnata*) provides a diverse and highly valued food resource throughout the year. The spring stems were collected as a green, while summer seeds were harvested for making flour (Bye 1972; Steward 1938; Stoffle et al. 1989; Rhode 2002). The flour was used in many dishes including beverages, mush, soup, bread, and confections (Zigmond 1981; Bye 1972; Kelly 1964; Rhode 2002).

Traditionally, important animals were also present in the Escalante Valley SEZ study area. During multiple field visits, Native American representatives identified 27 traditionally

important animals within the proposed project boundary. The Table 3 provides readers with the common, Southern Paiute, Goshute, and scientific names for each identified animal.

Common Name	Indian Name	Scientific Name
Mammals		
American black bear	Wu'da, Tu'wu da (g)	*Ursus americanus*
American badger	~~U~~nampu~~t~~si, Hoon, To-chi-e, ~~U~~nampu~~t~~s (sp) U'na (g)	*Taxidea taxus*
Black-tailed Jack Rabbit	Kaam, Kaam~~u~~, Kamuntsi (sp) Kŭm (g)	*Lepus californicus*
Coyote	Yoxovwits, Yoxovu~~t~~si, S~~u~~nangwavi, T~~u~~rasu~~n~~av, T~~u~~rasinav, Sin-nav, Shin-nah-ab, T~~u~~rasu~~n~~a'av, Turahsunav (sp) I'jŭ pa (g)	*Canis latrans*
Desert Cottontail	Tavuts (sp) Ta'bo, Ta'bo kŭm, I'wa ta bo (g)	*Silvilagus audubonii*
Elk	Pa'rra hi (g)	*Cervis canadensis*
Great Basin Pocket Mouse	Po'nai, To'ĭmp (g)	*Perognathus parvus*
Mule Deer	T~~u~~xia, Tuuyi, Tuhi, Tuhuya (sp) So'ko rri (g)	*Odocoileus hemionus*
Mountain Lion	Tukumumutsi, Piaruku, Too-koo-puts, To-ko-mo-muts, Too-koo-mo-munch (sp)	*Puma concolor*
Pronghorn Antelope	Wahn-ze, Wongs, Waknch, Waantsi (sp) Kwa'ri, Pi'ŭ wants (g)	*Antilocapra americana*
White-Tailed Antelope Squirrel	Tava'atsi, Ta-va-run-quits, Ta-bats, Ta-vats (sp)	*Spermophilus variegates*
Woodrat	Kaatsi , Kahts, Kaats, Kah´ (sp) Ka (g)	*Neotoma* sp.
Birds		
American Kestrel	K~~u~~rin´ang kats, Te-ze-nah-kahts, Kwan-an-tsits (sp)	*Falco sparverius*
Common raven	Atapu~~t~~s, Atakots, Ha-ta-puits, Ah-tah-pah-ki'p, Tah-kwahts, Ah-tah-pwits (sp)	*Corvus corax*
Golden eagle	Mung, Kwanants(sp) Gwi'na, Pi'a gwi na (g)	*Aquila chrysaetos*
Greater Roadrunner	Ko cha bo'ki, Oo'ts (sp)	*Geococcyx californianus*

Horned Lark	Tʉranwintsi´tsi, Nʉva witsi´ts, Te-we-wit-se, Te-rah we-cha-its, Ne-vow-we-tsits (sp)	*Eremophila alpestris*
Mourning Dove	Iyov, Ayov (sp) Ai'wi (g)	*Zenaida macroura*
Loggerhead shrike	Tah-cho-noint, Tun-dun-nois (sp)	
Northern Mockingbird	Yamp (sp)	*Buteo jamaicensis*
Red-Tailed Hawk	Ta-ah kwah-nahts (sp)	*Grus canadensis*
Turkey Vulture	Wikumpʉtsi, We-koo-puts, Week (sp)	*Cathartes aura*
Western Kingbird	Chʉxʉ´uvi, Wahts-koo-its, Too-pe-wats (sp)	*Tyrannus verticalis*
Reptiles		
Desert Horned Lizard		*Phrynosoma platyrhinos*
Lizards	Pompotsatsi, Moxwia, Sʉxʉpʉtsi, Tsahng-ahv (sp) Po'ka ji, Sa'bi yats, Wu'kwi ta (g)	Various species
Long-nosed leopard lizard	Too-ar-rah, Neu-mah-zing-ahts (sp)	
Rattlesnake	Toxoavi, Tanakitsi, To-ko-ahv, To-go-av-ve (sp) Ko'go, Go'go a, To'go a (g)	*Crotalus* sp.

Table 3 Traditional Use Animals in Escalante Valley SEZ Study Area
[sp = Southern Paiute, g = Goshute (Chamberlin 1908)]

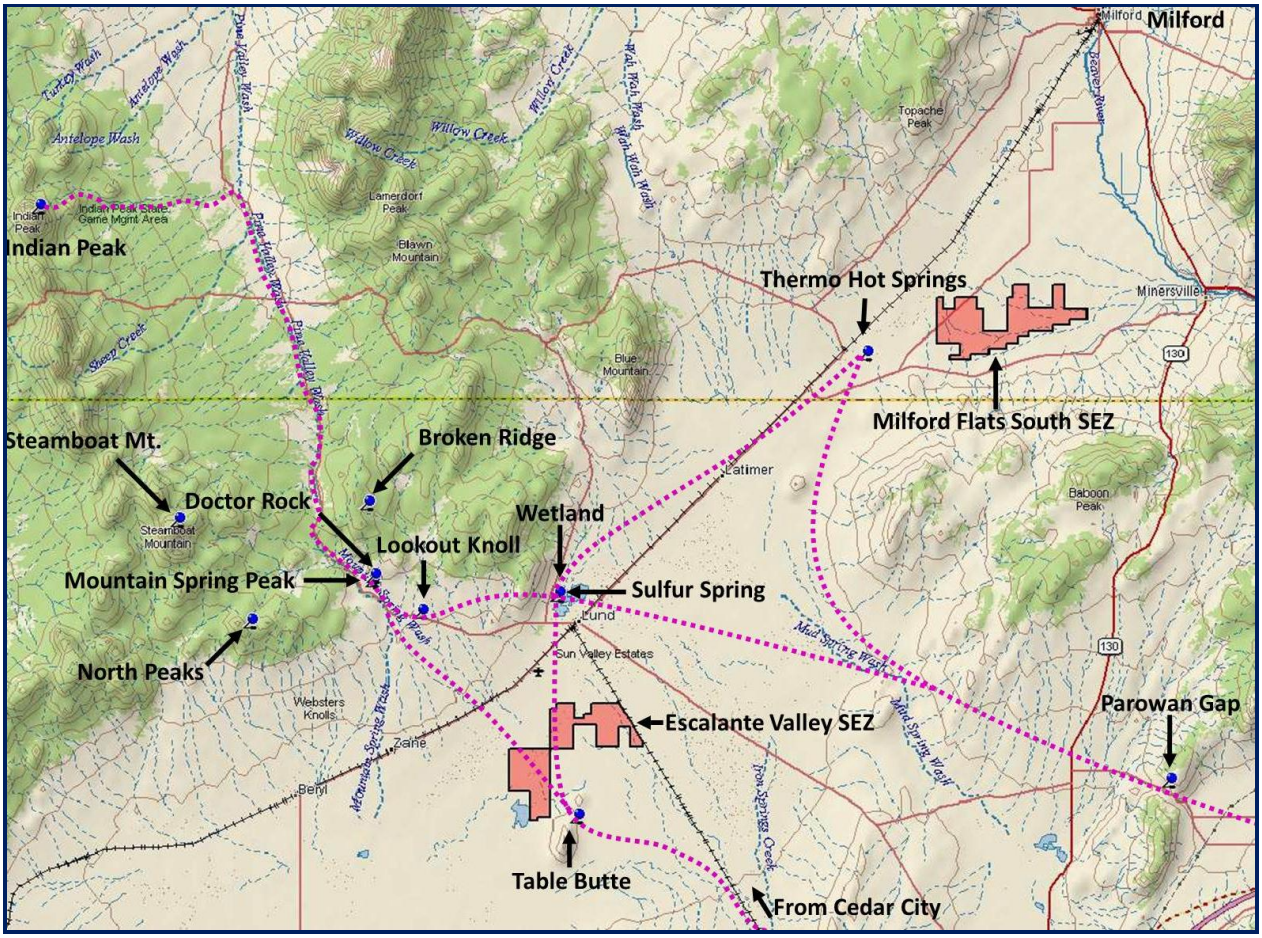
Indian History

The Escalante Valley SEZ American Indian study area is historically special to the Numic-speaking peoples who occupied these lands since Creation. Numic-speaking peoples believe that the Creator placed special features in these lands to support, heal, and protect all humans. The study area remained under Numic control, use, and management during much of the historic period, but their control over these lands would greatly diminish due to a number of forces including explorers, diseases, foreign settlers, construction and operation of national transportation systems, and mining. A more complete discussion of these factors is provided in the Ethnographic Comments later in this analysis. In brief, the major periods divided by factors of encroachment are (1) the 1776 Domínguez and Escalante expedition, (2) the 1829 – 1849 travelers along the Old Spanish Trail, (3) the mid-1800s expansion of the Mormon's state of Deseret, (4) establishment in the late 1800 until 1873 of the area as a Region of Refuge, (5) the late 1800s to early 1900s establishment of mining and ranching, and (6) the 1899 railroad and development of regional wagon haul roads.

Numic-speaking peoples lived in, and socially and culturally adapted to, the various natural resources of the Escalante SEZ American Indian study area over thousands of years. During this time they recognized the special features of the landscape and built these into their lifeways. They used their acquired knowledge of these natural resources to protect the ecology of the area.

When Europeans and animals arrived, they increasingly changed the biocomplexity and biodiversity of the Escalante SEZ American Indian study area ecosystem. Palmer (1933) estimates that the local ecology in the Cedar City area was fundamentally altered within a decade after Europeans began grazing domestic cattle, horses, and sheep on the lands.

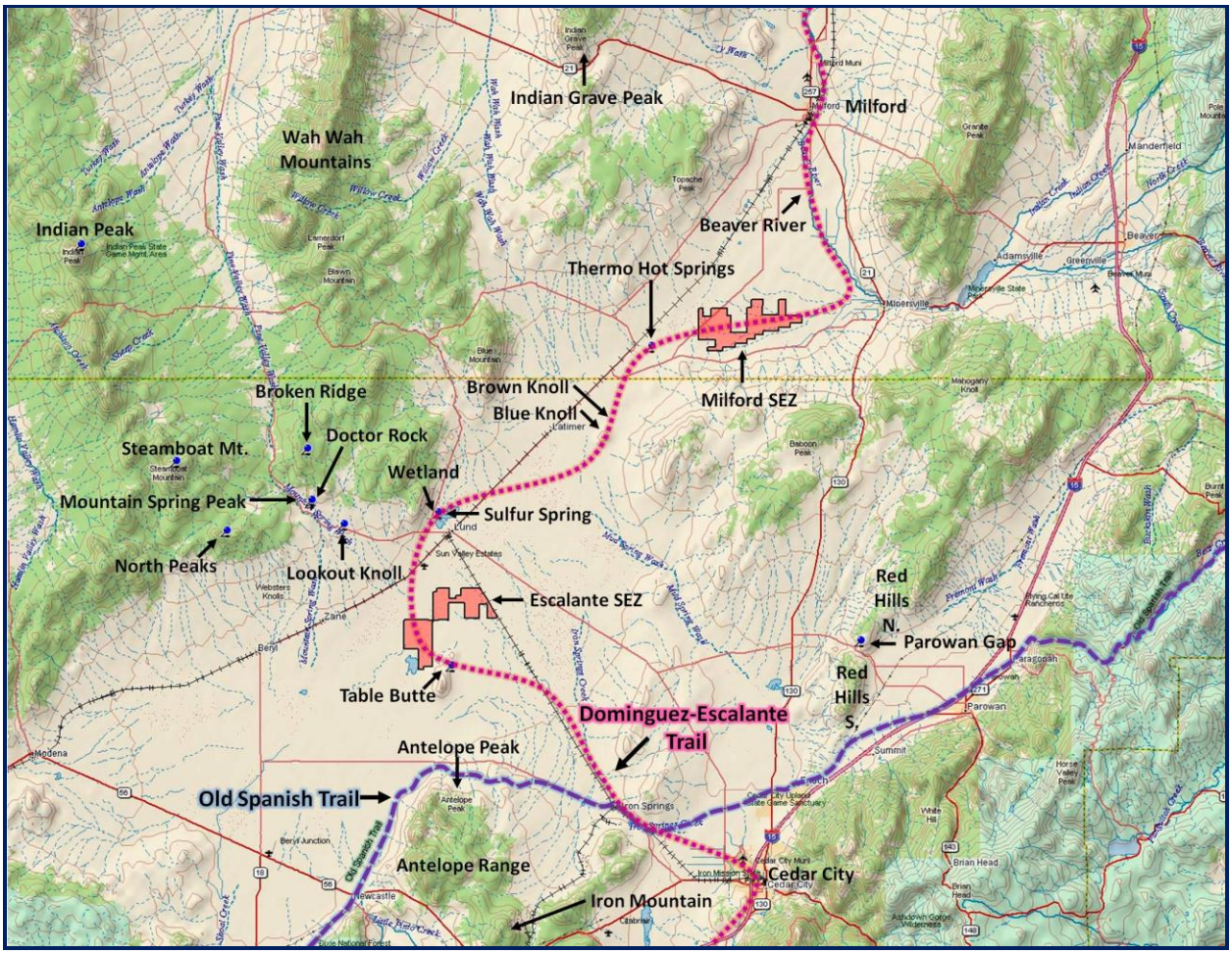
Diseases were key factors in reducing the number of Indian people in the area. When Europeans first arrived in the region they were outnumbered by the Indian people who occupied the area and were capable of defending the best agricultural regions. Diseases quickly shifted the balance of power from the early stage of encroachment termed resource competition to the stage of resource domination (Stoffle and Evans 1976).



Map 2 Important Cultural Places and Trail Networks in the Escalante Valley SEZ Study Area

The 1776 meeting with the Domínguez and Escalante Spanish expedition was the first physical contact between Europeans and the Numic-speaking peoples of this area, thus it was of

great historic importance. In the early 1830s, when the Mexican traders wove together the Old Spanish Trail (OST), a series of Indian trails, enabling caravans to pass through the Escalante SEZ study area, more direct impacts to Indian people and their lands were felt. Traveling both directions twice a year from Abiquiu, New Mexico to San Gabriel Mission, California, the massive caravans were self-sufficient and thus wanted little or nothing from the Indian people along the way. Accustomed to trading with strange and distant people, the Paiutes were surprised and this rejection and insulted at being run off when approaching the Mexican caravans. Eventually, the caravans were perceived as a threat to local people, ecology, and farms, subjecting the caravans to legitimate raids. The Ute people, who restricted Spanish movements and trade along the Ute trails in Colorado and New Mexico, also began to raid along the OST. They raided Mexican traders and kidnapped Southern Paiutes, selling them at trading posts. As European horses escaped along the Old Spanish Trail, they became an asset for the now mounted ex-gardening Utes and a liability to the farming Paiutes.



Map 3 Old Spanish Trail and Domínguez and Escalante Trail through the SEZ Study Area

Eventually, the Numic-speaking peoples of the region lost access to all major water sources, eliminating traditional farming and laying the foundation for a ranching adaptation based on horse riding. Even though the Escalante SEZ American Indian study area remained a place largely controlled by Numic peoples until the early 1870s, the opening of area mines would

bring new encroachments in the form of settler, trains, and wagon haul roads. By the end of the 19th century, Numic-speaking peoples lost control over their traditional lands and economy. After this time, they largely lived in segregated labor camps near sources of wage labor—mines, ranches, and towns.

Native American Comments

The Escalante Valley SEZ American Indian study area was visited three times by tribal representatives from PITU and CTGR during the Solar PEIS Ethnographic Study. The Solar PEIS study visits occurred in November 2010, May 2011 and August 2011. During the three field sessions, 35 interviews were conducted. This total includes two Native American Cultural Resources forms and 33 personal statements from the involved tribal representatives. Previous ethnographic research in the Escalante Valley occurred from 1982-1983 during the Intermountain Power Line Project (IPP). The IPP study visits were conducted with Southern Paiute tribal representatives from PITU and the Kaibab Band of Paiute Indians. Native American interview information from the IPP ethnographic studies was conducted by members of the current BARA research team who were then located at another university.

Intermountain Power Line Project Interviews

During the IPP field visits to the Escalante Valley, special emphasis was given to the Lund Area and Hilly Border Area immediately to the southwest. The following are interpretations made at that time:

Lund Area

> The location of the present town of Lund was an important stopping place for Paiutes who were traveling between the Cedar City, the Milford, and the Indian Peaks areas. Although oral history documents that one young Paiute runner ran the distance from Cedar City to Indian Peaks in one day, the rural wagon trip lasted two days and involved an overnight stay in the Lund area. According to one Paiute, her father told her that before the white people came, her great grandparents used to camp at Sulfur Spring where foot races and other games were held during ceremonies. The old Paiute camping and gathering place is located at a spring just north of the town of Lund. The spring is currently fenced off and used as a watering place for cattle (Stoffle and Dobyns 1983:174).

Hilly Border Area

> When Indian people were shown the IPP project map and noticed that the proposed right-of-way passed through the "hill area" near the western Utah state border and the southern border of the Needles (Indian Peak) Mountain Range, they questioned the placement of the [IPP] line there. "That's where all the pine nuts are," one person said. Another commented, "There's a lot of deer in those hills." All agreed that the hilly area was where many Paiutes used to live and that the line would disturb numerous camping areas, burials, plants, and animals of significance to Paiute people. Particular emphasis was

placed on a place where the propose right-of-way passes over a spring called *Skumpapats* in Paiute (Stoffle and Dobyns 1983:177).

At the Skumpapats (spring), a tribal elder (TE) was asked by lead ethnographer Richard Stoffle (RS), to make any comments about the place that were appropriate:

RS – In the [IPP] Utah archaeology report, this site is described as a "temporary camp: for the processing of plants and animal resources," yet, you (the elder) were saying the site was a permanent living area rather than temporary.

TE – Living area, yeah. Some people might travel from here, though, and, some people that live around here, may come over to visit—maybe live here for a month or a couple—maybe a couple of years. Harvest time, that's the time people comes in and then leave in the fall time when they're having their hunting seasons. But right here (indicating the floor of the valley) seem to me like that area is where they used to camp and live, you know.

RS – Would some of the people have stayed here in the winter or would they have gone down south towards Moapa?

TE – Oh, I don't think so. A lot of people—you know—down there at Moapa. In that time—you know—Indians was pretty strong to stand the weather—some stayed here. All around through this area here is that way—you know—permanent place for the person that's born and raised here.

Activities at this Area

RS – When we look again at the archaeology report it says that they found ground stone tools – mutates. The found, in fact, 9 metates fragments, one whole metate with a shallow basin, and one whole metate with a deep basin. What would they have used those mutates for?

TE – Well, the grinding of corn or pine nuts or the Ku'u (mentzelia sp.) or something like that—maybe Wa'ii (ricegrass). And they usually gather this Wa'apumpi that's on the cedar tree, that little berries. They usually grind that, too. They used to eat that, too. That Cedar berries—what they do is grind it up, kinda. Sometimes they got that jerky meat, too. They pound on that, too, you know. They make it soft and powdery—you know—exactly the way they want it to be fit to eat. Some old elders, they have to eat too—you know.

RS - The archaeologist recorded finding 20 pieces of pottery here. Twenty broken fragments.

TE – Uh huh. So there's mud over there (near where the spring comes out of ground). The soil has been treated—you know—and it's really fine when they make that pottery. In the early days—you know—that's how they shaped it. They make fire our there—you

know—from certain wood. I don't know what kind of wood they used at that time. They fired and cooked that pottery to make it hard like cement—you know that's the way they used to use it in the early days.

RS – So the mud for clay pots is here and some of the Paiute pots were made right in this place.

TE – Yah, right in here, yah. Also at some of the other springs in the area—you know.

RS – Did the Paiutes use to burn the grass in this valley to keep the grass down?

TE – I think this was bare – one time, you know when the Indians were here. They dwelled inside the bare ground. My belief that there was all along in here they had the brown plains around here. You know—where they had played games. You know—foot races and horse races and ever other, down in that area (pointing to the eastern portion of the valley).

The games—you know. The people in that days. The Indians were really a-playful. You know—liked a good time and that. They have, say one might have one fast guy in the family. Well, they had competition in him. They say Well, well, shall we all get together and, well, run races—see if they can beat him. They'd have all of them run against him. Same way with the horse races. Same way with a lot of little things—games, you know. They'd have a big powwow circle dance there. Some sacred ceremonies in this area here (long pause). Probably that (a hill top near the mouth of the valley) was lookout point. They did things like that you know. To see the people coming to this spot. There were a lot of places like that.

RS – Right out there is a low pool of water. Would the people have dug out that pool to make it bigger?

TE – No. I think –it's my belief—they had to take up the water where it was. Raised according to where it came out. They might just take and make a little pool of water where they could get a willow jug into it and get some water. And maybe they had some kind of willow dipper and fill that jug with that…or else they should make a nice little waterfall with a rock. There so high—you know—and put that water in a jug and seal it up.

I know they used to do that over there (Indian Peaks). I know some of my people—my dad—the older people had real, real pretty water pitchers what they made, all pitch sealed inside—you know. Even the little ones and the big ones about 2 and 3 gallons. They done that over three gallons—older people used to do that.

The water was sacred to these places, too. It is something really sacred, the water is. They have to live really close to water. Some of them—you know—some people live a long distance from water—from those springs. They come back with their little basket

where the water is jugged and they haul it right to—they make so many trips. I guess they have to make a dozen of them baskets too. That's less that for a week or so of water.

Plants

A day-long on-location ethnobotanical visit provided the opportunity for the concerns of the Paiute elder for plants to be specifically checked by a botanist and for specimen to be collected (30 plants were identified at this location). The depth to which these expressed concerns for the plants themselves as felt by Indian people are made clearer by the following quote from an interview:

The God created these herbs for the purpose of the medical use of the Indians, in the early days. Nowadays, you got the doctors here that tell you that. They show the inside of the blood-what you call 'em—in your blood veins. But in the early days, you take it (a medicine plant) and you have to talk to it. All over, long time ago, they didn't have any medical supply like what the white man now they got. This was it. You know all the little plants—somewhere it grows. That was it. But you have to talk to it first before you go pick it up or else it won't work. You have to explain why you are picking it and what you want it to do for you. You gotta understand it—the Indian way of doing' that, the Indian way of understanding it, see (Stoffle and Dobyns 1983:186).

During the 1983 IPP field visit to the Escalante Valley SEZ study area, Indian interviews provided additional cultural interpretations of the area and additional plants were identified. Some of these interpretations are as follows:

The mountains with their narrow valleys, springs on the flanks of the mountains, and the Beaver River-Sevier Lake oasis were where the Southern Paiutes farmed, hunted, and gathered plants. By moving between ecological zones, Paiutes took advantage of different seasons and land communities. This process, termed elsewhere the transhumant adaptive strategy.

Travel across the [Escalante] Valley occurred on a network of well-developed and often crisscrossing trails. These led to and from special places, jumping off points uniquely suited to send and receive the Paiute travelers. Usually such points had (a) a reliable source of water, (b) natural shelter from a canyon on the flank of the mountain, (c) access along developed trails to resources in the mountains, and (d) food sources to feed tired travelers and in the later times their horses.

The IPP field notes over the past two years [1982 and 1983] repeatedly record stories about the Escalante Desert. These primarily came from Paiute elders. Their stories often focused on the hardships of crossing the Desert. One woman recounted how she made the crossing in a wagon but the road was so rough, she feared her baby would be born in the Desert. She decided to walk much of the way instead. She had the baby at the camping area just when the desert crossing was over. Another person discussed how he felt when he arrived at a camping place after crossing the Desert. "It would make us very happy to

arrive finding water, food, shelter, and other Paiutes in the camp" he said. Some of his fondest childhood memories are associated with successfully crossing the Desert.

The Escalante Desert has a special place in the aesthetics of Southern Paiutes. The explanation for why the Escalante Desert has this place seems to lie in what it is not rather than what it is. It is not high or rugged, therefore, it provides a vista. It lacks permanent water, thus it provides a contrast with the wet valleys at the edge of the mountains. It does not provide shelter from the wind and storms, in contrast with the mountain canyons. It is almost devoid of food plants and animals, in contrast with the lush mountains and oasis to the north. The temperature is either extremely hot or cold in the Desert, in contrast with the more moderate climate of the mountains and valleys. Why is the Escalante Desert import? Perhaps it is because by its being, it gives a heightened contrast to places around it. It is the stark center of the region. It makes other places seem more pleasant for human occupation (Stoffle, Evans, and Dobyns 1983:108).

Given that Southern Paiute people (1) traveled over the Escalante Valley at various points to other ecological zones along a well-developed trail network; (2) stopped at points well suited for rest, water and food; and (3) the contemporary aesthetic significance of the desert to Southern Paiute people, the area is considered to be of high significance to Paiute people of the Paiute Indian Tribe of Utah and the Kaibab Paiute Tribe. All three areas [Thermal Hot Springs, Blue Knoll, and Desert Flats] in this section [of the IPP study area] are considered to be of high significance (Stoffle, Evans and Dobyns 1983:166-167).

Paiute Indian Tribe of Utah Solar PEIS Interviews

The Escalante Valley SEZ American Indian study area was visited in November 2010 and May 2011 by representatives of PITU (Figures 10-11). The following comments are interpretations that were made during these field visits and reflect the cultural significance of resources associated with this SEZ study area.

General Comments

The following statements are observations and personal statements made by PITU tribal representatives at the Escalante Valley SEZ study area.

- *Lund was main stop of place for Indians coming show from Indian Peaks, going to Iron Spring Road.*

- *Escalante Valley, the dirt road in study area was made over the old stage coach road. There also was a stage coach going to Panaca and Milford.*

- *The Chinese had the same stories as the Indian people here. They said that they had snakes in their area that could fly, no different. The old man that told me these stories about these snakes, he says, "I don't know where they went, there must have been a hole somewhere and then the creator told them to go down into that hole"*

- *And then they got a gas pipeline that comes down through here too. And then I think they got another pipeline that's going through too. Then were getting a lot of, well we started this a while ago here on this sand dunes. It's been drying up for quite a few years, its why it's that way*

- *The settlers, when they first got into this country, they were building homes along here and when I was a kid I used to see those homes, you know, certain homes through here, and the wind blows so much you know, that it just shattered those homes. You could put a trailer house out here, you'll last maybe, maybe about 10 years, or lesser than that, that wind will just tear those…so bad.*

- *There are a lot of Indian stories about this area, all over – stories about this valley here, and the mountains, plants, everything. We've been losing a lot of our plants too, because there's not much moisture for the plants. You see some of these, bushes out there; they don't look tall. They used to grow much taller. Some of the sagebrush grows pretty good in certain places.*

Figure 10 PITU Tribal Representatives Speaking with UofA Ethnographer

- *This has an Indian name, and they told me about it, think I could remember that? There so many things that, you try to live among the white people and all of this and that you know – it's hard.*

- *There's an eagle right there, a baldheaded eagle, golden eagle. They don't stick around. Sometimes they'll stay there, sometimes they don't. When we see an eagle like that, we know that he's watching over us, the spirit. Cause he's really something to the Indian people. Like I always said to the whites, I said that when he's a great spirit., He was a human once and he said something that really made me think more of him because he says if a person is hungry he better be really hungry before he eats him. He said it's*

alright to eat him if a person is really starving, but if you're not, leave him alone he says. The coyote, he says, I don't want know one to eat me, he says, so he peed all over himself, and he smells that way right to this day. He says I don't want anyone to eat me, so that's what he did. And the rest of the animals say, fine, if you're hungry, we give you the permission to eat us. The deer, I can say that, they are like a person that is super rich, and has everything. But that's the way we think about them, the deer. They have all this to live on this earth you know, but what we're doing to them, putting all this stuff out here, and that's doing really bad things to what is out here for them to eat, that's destroyed their food and stuff like that. A lot of the Indian people don't know that because they haven't been taught that way. No matter how hard we can try to save things, part of the people in this country today they don't look at it that way, they look at dollar signs.

- *I grew up down in this area. My stepdad was working on the railroad and I spent a lot of time around sections like this over here (pointing to some area). There was a place there too where they used to have, where the guys who used to work on the railroad worked, they called that Mormon, Utah up there, I remembered. And one of the Mormon's he had a son, he was fast, and I was fast. And I'd run and we used to jump on those railroad train cars that used to come by, we used to go to a certain place where we would run after rabbits and then the young rabbits we catch them, the cotton tails. That's how fast we used to be. That was a lot of fun.*

Figure 11 PITU Tribal Representatives and UofA Ethnographers at Sulphur Spring

- *See this little knoll right here going up kinda reddish, there's a healing rock right there on that. We went up to it oh, maybe about a couple of years ago, and this guy that wrote this book about the Paiutes just lately, had my picture right on the front of it. Well, he come around and was talking to me and wanted to know about Mormon Massacre and all that. Well, not at first but later he decided he wanted to learn about it.*

- *This old man told me there's a place where the snakes live, all kinds, in there. But I haven't run into it yet. I see there's deer that come down in there when they start hunting, some that come down in that area and stays. There's a bunch of sand dunes up here.*

- *A lot more people seen a lot of the creatures still alive yet when they were in this area, like dinosaur lizards and stuff like that, the run across them. So the Indians were in this area a long time. Well I guess old man says that after the big flood that we had you know*

that killed a lot of people that he said that uh, the water puddles all around yet on the Indian people when they were here. And we had a lot of the water babies, a lot of them, and to this day, we don't know where they went.

- *In 1948 we got four feet of snow down in this area. And me and my stepdad, we came down in here somewhere hunting jack rabbits and there was enough room there for us to kinda pull in close to the snow and we had sticks. And I keep asking my step dad, what are we gonna do with those sticks? You know they're about this long. He says you just wait and watch. So we got down here and then he starts telling me, "Look for small holes like that." And I say, "Then what?" "Well, there'll be a rabbit under it." We got a lot of jackrabbits in this area. And then we'd start again, walking through the snow and that. I was just a young kid! I was following him. And then we start finding those holes where those rabbits were breathing through and then he stepped on it and the jackrabbit would jump up and that! And then I'd see him swing one of those clubs at it and hit it with it. Killed it right there. Oh, we killed quite a few rabbits that time. And this old man Isaac, the one that told me all the stories, he made a rabbit blanket out of it, out of those rabbit hides and that. And he'd cut them about that much and that, and throw them over the clothes line so it can freeze and dry up. And after that, he made a big ole, with those large ones, size of a blanket like and that. And then he got some string and started stringing it. In and out, in and out. And after that he put his fur through those strings. And after he done that, then he comes down like this with it and tighten it up and then he goes through again. He kept doing that and made a pretty good size blanket. He'd use that as a jacket in those days. All the Paiutes had it.*

- *We had some friends up there, where we live. Some hunters and they used to have a team of horses, big ole wagon. They used to come down this way and they had a hay field down here and we used to pitch our hay on top of the wagon. And then we'd take it back up into Cedar then. We used to ride in the back of the wagon and try to figure what kind of cars coming next and that. Then we used to stop coming down, they used to plant a lot of sweet corn. Then we'd jump off the wagon, run over to the corn field and brake some corn off of it and then we'd take it down, make a fire down there and roast it down there. Then after that we'd go jump into the ponds. We used to have ponds here. And they had a well that pumped water into the ponds. This is on a hot day, when we used to come down. Go cool off after we got the wagon all loaded. Then we'd come back up this road. I don't know how long it took us to go down and come back up.*

- *We have some petroglyphs back up in that canyon and this was a big old rock up there, tall and had Indian writings on it and that.*

Eagle Rock Comments

The following statements are observations and personal statements made by PITU tribal representatives concerning a doctor rock in the Escalante Valley SEZ study area.

- *Across road is a place called Eagle Rock where the old people would go and make an offering on the rock.*

- *I think that a lot of other Indians came through and asked for the blessings. If this was a powerful healing rock, then other neighboring tribes would have heard about it and would have made a journey over here.*

- *I think that a lot of people just came here to this rock and I think that mountain up there – I can't say too much about that mountain. Maybe somebody went up there to be alone, to pray by themselves and sit for maybe a whole two days, maybe a day, maybe something like that, depending on what they're asking for from the Creator. Maybe they want to be a good singer, a Salt Singer, maybe have special medicine.*

- *I don't know [if the viewscape of the valley below would have been important]. The valley itself, I think that a lot of times the people that were traveling had come through the valley, and some of them may have had a different approach to come to this healing rock, coming from the valley, coming from wherever, maybe coming from or going to…*

- *Puha-tump. That's what you would call doctor rock. Power rock.*

- *As we drive up to the Eagle Rock, we see a large hill which could be a marker to show you where the Doctor Rock would be. In the valley are the Dry Lake bed, the flats, and mountains. In this area, all that we see is where the Doctor Rock draws its power from. There are many rocks everywhere, but there are places on the land where there is a strong place of energy, strength, and power from the earth; a place of power and healing. Some places have more powers than others and Indian people from other tribes, other than the Paiutes who live in this area, would hear of these places and travel to be healed. Eagle Rock is such a place. There is a spring very close to the Doctor Rock, medicine and food plants, rabbit, deer, and basket making materials. Lithic scatter and arrowheads were found. This place is very important to the Paiute people.*

Native American Cultural Resources Interviews

The following comments were recorded during interviews with PITU tribal representatives using the Native American Cultural Resources survey instrument. These interviews were conducted at Eagle Rock and discuss the surrounding landscape of the Escalante SEZ study area.

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

- *I think the rock itself. When I first saw it, it didn't look very attractive with all that stuff on top, but now it looks very good – the way it should be. When they make their offerings, they should put them around it and if you wanted to give it water, to go around it or on top, pour the water. Not leave money – if you wanted to leave offerings, the best thing you can leave is food and water, but not money. What's a rock going to do with the money? That's a white man offering. There's this mountain down in the Grand Canyon where the white people put money in that rock. It sits right in-between, going down toward the canyon. Some of the Indians used to say that an offering from the Paiute – they would*

give it food – but when the white people heard about this, then they started giving money. Why is it so important to a white person to give money? Because that's the most important thing to them. But to Indians, Indians never had money like that, so food and water and your prayer when you talk to it.

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

- *In the old days, someone might have gone up there to get a song about life. If you go by yourself. That's the only way you get the spirit to come around to see you. I think I would stay some time up there. Sometimes you have to go and just sit by yourself and meditate. That's what the old Indians used to do. They would stay well…two days. You know, when you're in town, you get all that pressure and when you're out in these hills, you lose all that pressure. The view makes you feel good. You get up on top of a hill like that and look around, it makes you feel real good; like you're the chief up there. You would sing while you were up there and here at the rock too. But like I said, it only worked when that Indian doctor was there at this healing rock.*

- *That's were a lot of them [Indians] came too, just to get to heal themselves. They traveled a long ways just to go to that healing rock.*

- *This rock was more for healing, maybe they had vision quests up there on the mountain for answers.*

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

- *I think that for Eagle Rock itself. I think that a lot of the rocks and this mountain; I think it kind of hides it, so that some people don't know about this and when they find out that a little puha-tump (doctor rock), if they find out about that…If the white people found out about this they would probably want to take it out and put it in front of their house or put it in front of a big museum or something. Anything that they think looks good and that would look pretty in front of their house, they're going to come and get it. So I think that a lot of times the cedars and this mountain here protect it.*

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

- *Yes, water is always important. They use it to pray with. They use it to give to sick people when they pray for it, and maybe that's what they did here, maybe they got some water. Water is very important. My husband prays with water also, depending on what kind of sickness or what kind of whatever it is that ails you. My husband, one time one of my sisters was always having bad dreams in her house and so she came to my husband and asked what was wrong. Maybe it's me, or is it my home, or what, because she said that she keeps seeing somebody in her house, standing by the doorway. So my husband heard her story, what she was telling him, so he told her, "Well, ok, tomorrow I'll be down*

there." So we went down early in the morning and he says I'm going to use water to pay for this special prayer. So he used the water. He put it in a cup and he prayed for her, and prayed for the house, inside and outside, so he went around the house after he got through praying, he took the water and all the way around the house and started sprinkling it around the house. He came back in and he told her, "Drink some of the water, just a little bit." So she did and that afternoon my sister said that she was in the house and then she said the big old whirlwind came through and went out the door. She said that it made such a horrible made and it went out because she heard the doors open and slam. So that was the ghost that was in her house, that's how he left. About a week later we went down to go see her and that's what she told Walter and she thanked him, and then tried to gift him with some money, but he said, "No, it's ok. The main part is that what I did for you was for you and for your family." Anyway, she said that she never had that dream again. They have stuff like that that goes on, and it's still happening from this day. Yeah, cedar and water is very important. It's important because you drink it; that's what makes you move and gives you life. If it wasn't for water…

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

- *Yes. It's [the solar panels] going to eat up all the water. And that's not including Las Vegas and the water where it's going to too. That's another story!*

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

- *I think they didn't use it for ceremonies. I think that was their food. If they had plants around here, I haven't seen any though, that are cookable for them. If there are any, maybe it could be down in the flatter area or maybe wild onions, tea. Did you say that you'd seen tea? Some of the old Indians used to pick the root from the plant. In some areas, you can find wild onions. In flat areas like this one, they have wild onion. But you have to make sure it's the right kind of onion because, if you don't, there's a poisonous one too that you can eat. That will kill you right off.*

- *Yeah, there's tansy mustard out here, and pinions, and …*

- *This is all cedar bark, but then again they came to get that too. I think they made chew out of them, didn't they? I think there were certain kinds of cedar bark that they used. I think it had to be maybe a special kind, I don't know. I know a lot of the old people, when my uncles would get wood, sometimes they would bring the cedar and my grandmother would use that. She would say go get that, she would call it {mohohp}. It's that stuff, that bark thing there that's hanging that they started their fire with. Just like chips – you gather chips and that's how you start the fire and that helps it to get started, the fire to get started. I think the fire—they used that because if they were praying for someone, they would have to use the dry cedar to throw in the fire so that the smoke would put some of that cedar on it and pray with that. We still do that from this day. From this day, in this new generation, when my husband prays he uses the cedar, but it's not this kind of cedar.*

It has to be a special kind of cedar. It has to come from way up high on a mountain and sometimes you get it in different areas. My father-in-law used to get his in California because they had big – I guess it was a little bit different than then ones that we have around this area. So he used to bring whole big sack fulls, and that sack would probably only get you that much cedar because when it dries – you have to dry it, and you hang it, and then you dry it, and then my father-in-law puts like a canvas down on the bottom of it, so that when it gets dry then they fall by themselves. Then, when it gets really dry he shakes it and all that cedar falls out. Then he puts them in a bag and when he used to do prayer meetings, then that's what he used. Cedar is very important to some of the Indian people, the Paiute people because they still use that to pray with, to fan themselves with, the smoke of the cedar.

Figure 12 Sego Lily found near the Eagle Rock in the Escalante Valley SEZ American Indian Study Area

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

- *There are all kinds of animals. You can see there's a hawk, there's eagles, maybe there's rabbit, deer, cottontail. Eagle feathers [have been used in ceremony and doctoring].*

- *I think this flat area is mostly for rabbits. This is antelope country.*

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

- *I think the cows eat a lot of that stuff, those little plants (Figure 12). Some of the old Indians used to pick the root from the plant. In some areas, you can find wild onions. In flat areas like this one, they have wild onion. But you have to make sure it's the right kind*

of onion because, if you don't, there's a poisonous one too that you can eat. That will kill you right off.

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

- *I think a lot of Indian people don't know about this. A lot of them did at one time, but I think if they did, they'd want to come here. If they knew about this. I sure would [bring my children and grandchildren here]! And in the future, I'm going to. I'm going to bring my grandkids up here.*

Solar Recommendations

The following statements were made by PITU tribal representatives in regards to perceived impacts of solar energy development in the Escalante Valley SEZ study area. Their comments reflect cultural concerns for traditional resources found in the SEZ American Indian study area and long term impacts.

- *I think that the solar plant that they're going to do, especially in this area here, I think that they're going to destroy a lot of the artifacts and a lot of what it means to all the Paiute people. I think that solar thing is just going to eat everything up because they're going to destroy a lot of the artifacts and a lot of the, maybe they have plants down there. To the white people that means that it's very important to them. To me, I would just live without.*

- *I think that's gonna take a lot of the energy away from the…say there was a medicine man that lived here. That thing would eat his prayers, eat other people's prayers. And I think the solar, I mean it's good and everything, but I think it's gonna do a lot of harm to a lot of harm to the culture here, around our area. I don't know what it's gonna do to the deer. It's gonna leave its mark.*

- *Putting solar panels in this area would take from the viewscape and may take power away from this area of healing. The sun's energy will be collecting in these panels, taking water from the earth and springs to support the solar panels and taking water away from the Doctor Rock. The contaminants polluting the earth will kill the power of the Doctor Rock. All things are connected. The earth, plants, trees, air, and water all lead to this place of power, healing, and prayer. The Paiute people still travel to this place of healing and the Dry Lake bed is connected to Eagle Rock. I don't want to look out and see solar panels so close to a sacred place of healing; a place the Paiute people have come to be healed and prayed to the Creator for thousands of years. This ground is as sacred to us as a church is to a Christian.*

Confederated Tribes of the Goshute Reservation Solar PEIS Interviews

The Escalante Valley SEZ American Indian study area was visited in August 2011 by CTGR tribal representatives. The following comments are interpretations that were made during

these field visits and reflect the cultural significance of resources associated with this SEZ study area.

General Comments

The following statements are observations and personal statements made by CTGR tribal representatives at the Escalante Valley SEZ study area.

- *The Goshute people came down a lot because those two tribes (Paiute and Goshute) were friendly towards each other. I heard people coming down on horses a long time ago through here. And I don't know, like I said, there must have been more than one trail because all of this is Paiute country. Maybe from Delta…they used that mountain as a main base, I think, and they probably used those smaller mountains for harvesting and the valleys for the other plants too. They use those higher mountains for protection.*

Eagle Rock Comments

The following statements are observations and personal statements made by CTGR tribal representatives pertaining to a doctor rock in the Escalante Valley SEZ study area.

- *Well, it's a place where a lot if a person laid on top of that and then his problems went away. If he had a problem or ailments or any problems...this was a place, a special place. Maybe a person's lifestyle changed forever. He left his bad ways behind. Something like that. Become a good person. It's an ailment of somebody who's always in trouble, you know, an outlaw, don't believe in nothing. Come here and go straight. It makes a better man, a person out of him. It kinda connects the person to the Mother Earth. That's probably how they used it, for healing, so this is a sacred place.*

- *You have to pray to make the power come out, to surface or something. It's probably how they used to do it. Pray to bring the healing power to the surface. I was looking but I didn't see any clues. I kinda get the feeling… like I said, you might have to stay here another day somewhere close so the spirits can come.*

- *That healing power from that rock there, it'll heal somebody that has ailments or somebody who is always in trouble…they come here and build strength and make a better man. That's probably how they used it, the healing types. So this should be a sacred place.*

Sulphur Spring Comments

The following statements are observations and personal statements made by CTGR tribal representatives concerning the Sulphur Spring in the Escalante Valley SEZ study area.

- *We used to braid this plant. We used to just pick them up and braid them. You could make baskets out of them, but it takes a lot of patience. Her grandma was the one who showed me how to do it. And then she showed me how to put your designs in there.*

- *My grandma used to do that (make baskets from the reed), and she get that knife and make it more flat so she could make the little shape for the cradle board. My mom used to make that.*

Solar Recommendations

The following statements were made by CTGR tribal representatives in regards to perceived impacts of solar energy development in the Escalante Valley SEZ study area. Their comments reflect cultural concerns for traditional resources found in the SEZ American Indian study area and long term impacts.

- *I don't know [if the solar panels would affect this place], but it just wouldn't be the same as it was before. [Is this a place you would want to take your kids and grandkids to and tell them about?] Sure! This area needs to be protected in some way. I would have to talk about protection of this sacred area.*

- *This area needs to be protected. Talk about protection of this sacred area…with Paiute and BLM.*

- *I think it needs to be recognized, or a sign and a fence put up around this area. It needs to be labeled as a traditional Indian sacred site, so that nothing gets disturbed.*

Ethnographic Comments

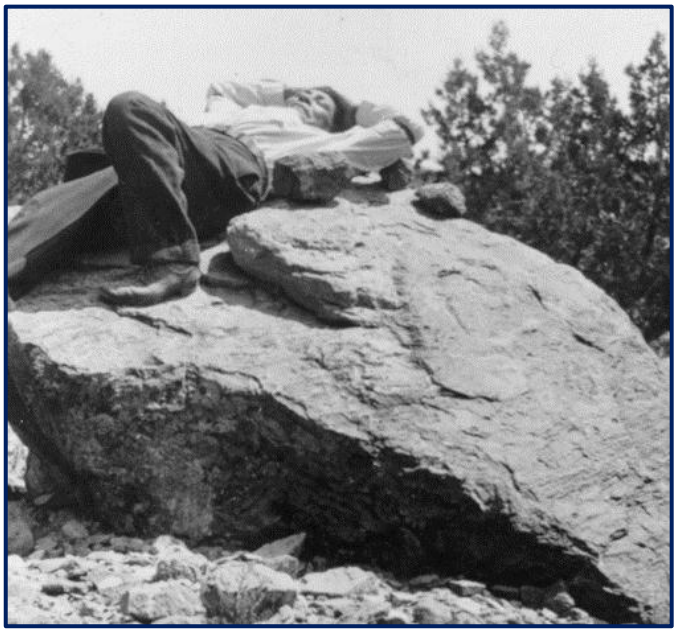
Throughout traditional Numic territory, there are thousands of places connected through songs, oral history, human relations, ceremony, and trails (physical and spiritual). These connections create synergistic relationships between people and place. In the Escalante Valley SEZ study area, places used for medicine, power acquisition, and residency are linked together through interconnected trail networks that cross through the study area. One place that is situated along these trails is a doctor rock, referred to as Eagle Rock by tribal representatives. Southern Paiute and Goshute representatives noted this place was used for ceremony and medicine.

Eagle Rock Ceremonial Complex

Medicine men or women, also known as Puha'gants, would take the sick to Eagle Rock and would engage the rock as they approached it. The Puha'gant and patient would explain to the doctor rock where they were from and what their purpose was for visiting. Upon arrival, the Puha'gants would remove offerings (stones) from the previous visitors and place the offerings on the right or the left downward slope below the rock. The placement of the offering depended upon the size of the item. Large stones were placed on the right whereas the smaller items were placed on the left. Once this was done, a new offering was placed in the eye of the doctor rock. The Puha'gant would then take the sick person and place him or her on top of the rock. The top of the rock is large enough to have a fully-grown person fully laid out. After this step was completed, the Puha'gant began doctoring by performing prayers and certain ceremonial activities until the patient was cured. Indian people identified Eagle Rock to be at the center of a

large ceremonial complex that included places such as Sulphur Spring, Mountain Spring, and Mountain Spring Peak.

Eagle Rock at Escalante Valley has been a part of Numic traditional memory since before Euro-American encroachment. William R. Palmer (1935) photographed Puha'gant, Johnnie Kanosh (Figure 13) and Woots Parashont (see Figure 14) at Eagle Rock in the mid-1930's (Figure 15).



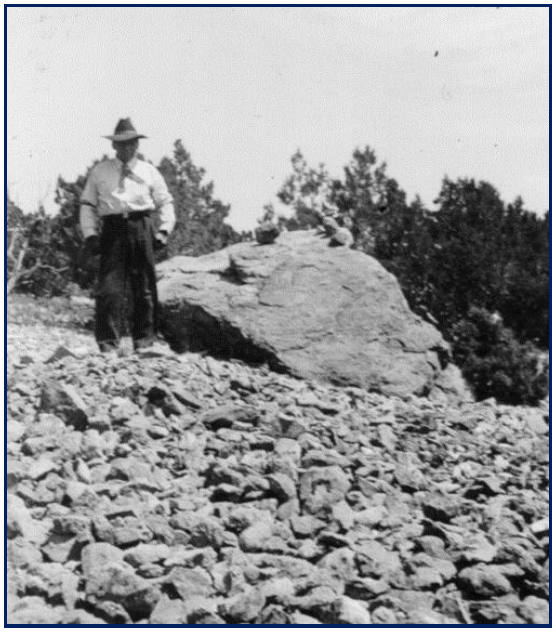


Figure 13 Johnnie Kanosh Demonstrating a Cure on Eagle Rock (left) and
Figure 14 Woots Parashont Standing by Eagle Rock (right)

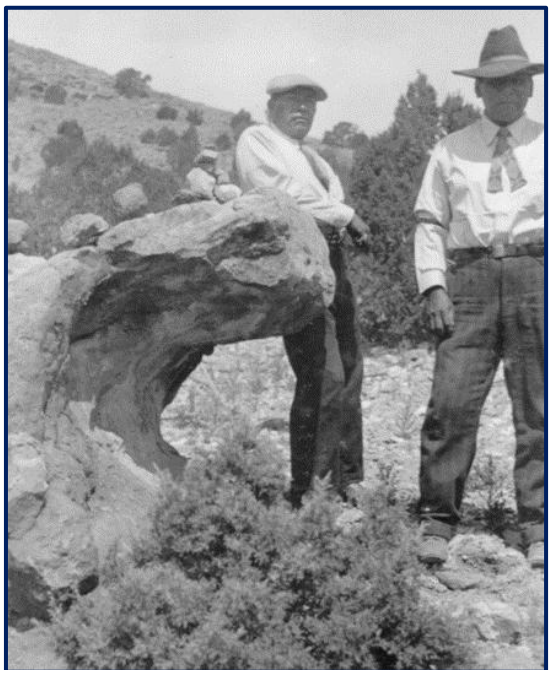


Figure 15 Woots Parashont and Johnnie Kanosh

This doctor rock has also been studied in previous ethnographic works, such as the IPP report (Figure 16) (Stoffle and Dobyns 1983). The unique shape of Eagle Rock was discussed as contributing to its overall cultural importance. Southern Paiute elders explained that Eagle Rock was shaped like the head of an eagle. Anthropomorphic and zoomorphic landscape features are often associated with Puha, Creation, and ceremony. The shape of a landscape feature contributes to the meaning of the place and influences how Indian people interact with the feature. In the case of this doctor rock, eagles are powerful animals that are associated with Creation so eagle-shaped features are used by Puha'gants in doctoring activities.

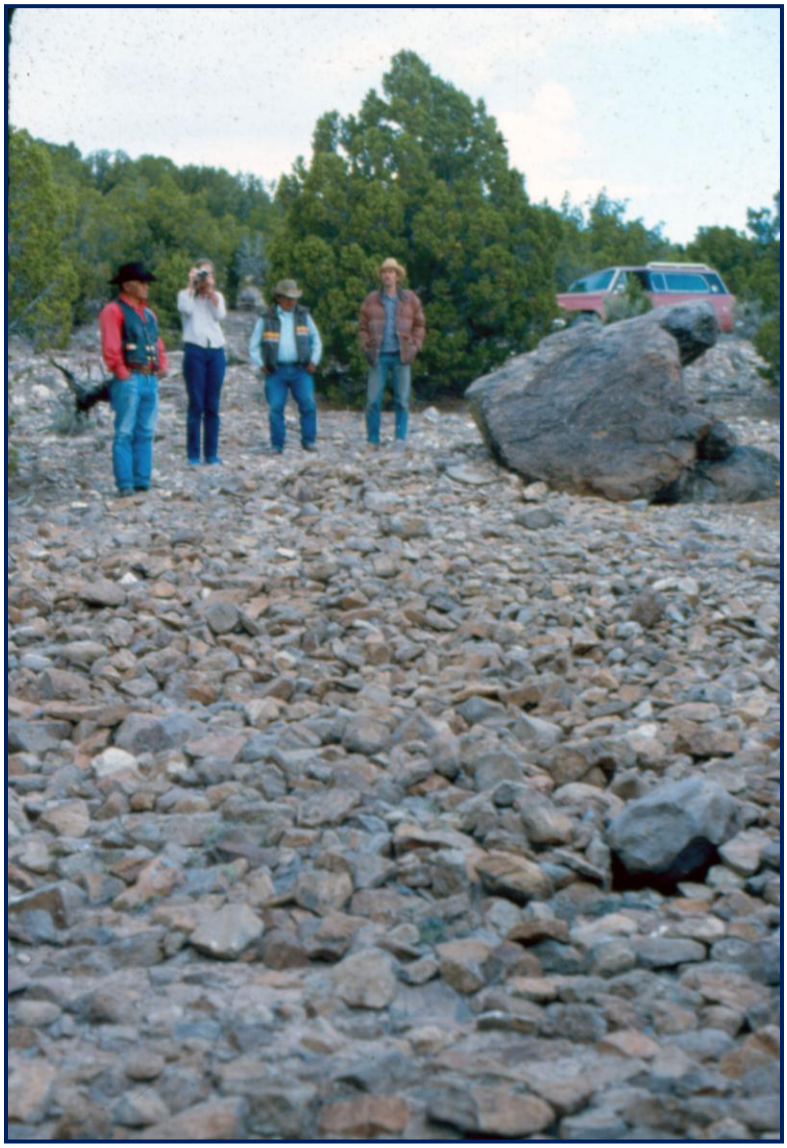


Figure 16 Clifford Jake, Dan Bulletts, and University of Wisconsin-Parkside Ethnographers at Eagle Rock with Ritual Deposits in the Foreground 1982

During the May 2011 field visit, Southern Paiute tribal representatives noted that the place was covered with debris from non-Indian people. The tribal representatives explained that the place needed to be cleaned and offerings needed to be given to Eagle Rock out respect for the place and its power. The trash was removed, the rock was cleansed, and offerings and prayers

were given (Figure 17). While this was occurring, the rain that had been occurring on and off since the group's arrival at Eagle Rock stopped and the sun began to shine. Southern Paiute representatives believed that this was the place's response to the prayers and gifts that Eagle Rock received and that the land was happy to have Indian people return and interact with it again.

Figure 17 PITU Tribal Representatives Cleaning the Eagle Rock with Offerings in Foreground

Throughout traditional Numic territory, doctor rocks factor prominently in healing ceremonies. Doctoring rocks come in many shapes and sizes. They range from a volcanic neck located in the middle of the Colorado River in the Grand Canyon to flat tonal rocks with offering holes located on the Nevada Test Site (NTS).

In some places, doctor rocks were traditionally used by multiple ethnic groups. For example, religious specialists from three different ethnic groups (Southern Paiute, Western Shoshone, and Owens Valley Paiute) would visit the doctor rock on the NTS in preparation for traveling to other locations on the NTS or places to the south (Stoffle et al. 1989, Stoffle et al 1990, Zedeño et al. 1999). In the past, elders interpreted this flat-perched rock as a "doctor" or "power" rock used for curing and obtaining guidance or power. People visited the NTS Doctor Rock before continuing along the pilgrimage trail to Buckboard Mesa and Scrugham Peak. Pilgrims stopped at the NTS Doctor Rock to further prepare for their journey. The NTS Doctor Rock afforded travelers an opportunity to rid themselves of any impurities that could harm them while seeking their vision on the mountaintop.

When archaeologists first recorded the NTS Doctor Rock, it was noted that pieces of obsidian were found in the offering hole. This linked the doctor rock to ceremonial and rites of passage activities along the northern edge of Buckboard Mesa in which obsidian was frequently

used (Beck 2005). Pilgrims on vision quests may have brought pieces of obsidian to the NTS Doctor Rock to thank it for providing them with the guidance and power to achieve their vision successfully.

During recent visits to the doctor rock on the NTS, the tribal representatives and UofA ethnographers discovered the NTS Doctor Rock elicits a musical sound when it is tapped. Tonal rocks such as this are extremely rare and are interpreted as musical instruments in ceremony.

Indian History

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

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

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

Disease Impacts 1600s – 1900s

One of the most socially and culturally disruptive kinds of events in American Indian history was the arrival of pandemics caused by diseases exotic to North America (Denevan 1992; Dobyns 1966, 1983; Thornton 1990). In general terms, initial pandemics spread for thousands of miles (thus being larger in scale than epidemics) through hundreds of American Indian ethnic groups. In general, these pandemic events emanated from a source European population but spread from Indian group to Indian group through their own contact. Such pandemics are called Virgin Soil Epidemics because they were neither observed nor recorded by Europeans (Crosby 1976). Later in the historic period, Europeans were present along most traditional American Indian trade routes and could see the implications of diseases and provided a record of their social and cultural impacts. Often Virgin Soil Epidemics resulted in the death of up to 90% of all directly impacted Indian peoples.

One the best documented pandemics, and in many ways a model of what happened to the Numic-speaking peoples of southern Utah, was the spread of smallpox around 1780 to the Hopi.

Around 1780, the Hopi people faced an unimaginable perturbation—an extensive three year long drought (1777-1779) that combined with a smallpox pandemic to jointly kill most of the population by 1780 (Upham 1986). In the Hopi Dictionary (1998:378) the word for smallpox, *paayawu*, has two more entries "*Hisat Oravve ~y akw wùukoso'a*" (Long ago in Oraibi many people died from smallpox) and "*Hópìituy amumi pitu*" (This smallpox afflicted the Hopi people). So many Hopi people died at this time that the living could not properly bury the dead, who were simply thrown off the edge of the mesas.

This episode is well documented by the visit of the Domínguez and Escalante expedition in November of 1776, who conducted a census (family count) before the events. They estimated a population of 7,494 people in 1,249 families, with an estimate of six people in each family. After the smallpox and drought events, Hopi was visited by the Spanish Governor Anza who came to document their condition in September of 1779. Anza officially estimated a population of 798 people living in 133 families, using an unrealistic estimate of six people in each family. The Hopi village of Oraibi, for example, had eight hundred families in 1776 and barely forty in September of 1779, a loss of 95%. Seven Hopi villages had dwindled to five with no more than forty families left in any village. By most calculations the Hopi lost at least 90% of their population by 1780 (John 1975:600).

Some Hopi did move away as part of a traditional pattern of relocating to ethnically different neighbors living in wetter ecosystems, like at Havasupai and other pueblos along the Rio Grande. The former was achieved safely by the refugees, but many Hopi refugees who tried to move to the Rio Grande were killed or captured by the Navajos and never returned (John 1975:593,597). Many Hopi simply chose to die in place—options were really limited. The Zuni were experiencing a similar fate as the Hopi and had largely died or left that pueblo. The Rio Grande pueblo people did have river water but they were already dying from smallpox (John 1975:598). Thus a lower number of deaths than 90 percent may have occurred because some Hopi did leave to live with neighboring ethnic groups, but the prognosis was poor for everyone and Hopi society was in extreme jeopardy in 1780.

The Hopi population partially recovered but it never again reached the pre-1780 size. Hopi census figures from 1890 indicated a total population of 1,996 persons. The census of 1900 records only 1,852 persons and the census of 1910 documents 2,009 persons. The census thus documents a Hopi population that is less than a quarter of what it was in 1775 (Johansson and Preston 1978). Still the Hopi people in the early 20th century appeared to be living a traditional lifeway, conducting balancing and rain ceremonies, and experiencing a daily round of life much like that observed by Escalante in 1775. So how did they restore/reconstitute their society and culture after the drought and pandemic? The most robust explanation is that people from distant communities who similarly lost much of their population were unable to sustain a traditional way of life there and subsequently moved to Hopi and joined this increasingly multi-ethnic community as new clans. Joining Hopi, however, involved accepting strict protocols where the newcomers recognized the primacy of Hopi language, culture, and political leadership model. Newcomers were permitted unique roles in Hopi society, could continue to practice specialized religious ceremonies in private kivas, and speak their own language away from others. Each clan and religious society was welcome to become a part of a village only on the assurance that it would make a contribution to the common good of the community (Hieb 2002:91). The new

Hopi society was made of many peoples and cultures that today constitute *Hopitutskwa* (Hopi Land) which encompasses everywhere the Hopi people and their ancestors traveled, lived, and were buried during the long migration from the place of origin to *Tuuwanasavi* (earth center) on the Hopi Mesas (Kuwanwisiwma and Ferguson 2004).

Like the Hopi in 1780, the Southern Paiute and Goshute people had irrigated farms watered with rivers and springs situated along major trade and travel routes. The primary Numic settlements in southern Utah were located along the western base of the Wasatch Mountains extending from the south near the Virgin River to the Sevier River in the north. These farming settlements were to be occupied by the Mormons beginning in the late 1840s. When gold was discovered in California and those Mexican lands became a part of the United States, a relative large migration passed through southern Utah along established wagon trails that linked Salt Lake City to California via the Old Spanish Trail. These migrants to California carried various diseases and directly exposed the nearby Mormon and Indian populations along their travel path. As a consequence, by the early 1850s Indian settlements near the new Mormon towns were either greatly reduced in population or eliminated (Stoffle, Jones, and Dobyns 1995). It can be assumed that some Indian people moved to more isolated regions of refuge (see below) at this time to protect themselves from further devastation.

Domínguez and Escalante Expedition 1776

The Domínguez and Escalante Expedition marked the first time in historic recorded in which Southern Paiutes encountered Europeans first hand. In July of 1776, the Franciscan fray Francisco Atanasdio Domínguez headed this famed expedition with Fray Silvestre Velez de Escalante as his second in command. The expedition was charged by the Spanish government to discover an overland route connecting the Nuevo Mexíco and Las Californias territories of Nueva España. After over a year of delays, the expedition departed from Santa Fe, New Mexico for Monterey, California. They left with ten men on the 29th of July. By the 14th of August, the expedition had picked up two more men from Abiquiu. Throughout the expedition, native guides were hired to maneuver the expedition through various territories. The first was identified by Escalante as a Tabehuachi Yuta whom they met on the 23rd of August. The second guide they took onto their expedition they called a Laguna Indian. The last guide was a Laguna boy who joined the party on the 2nd of September. It is unclear when the guides departed from the expedition, but they were all given their own mounts to ride. Because of this insight, we know that there was a minimum of fifteen horses in the expedition and it can be deduced that the actual size was probably triple or more this number since the expedition members would have had a great need for spare mounts. The number of pack animals (mainly mules) that were brought on the expedition is also unclear; however it is known that as supplies diminished and they grew less necessary, the pack animals were used for food.

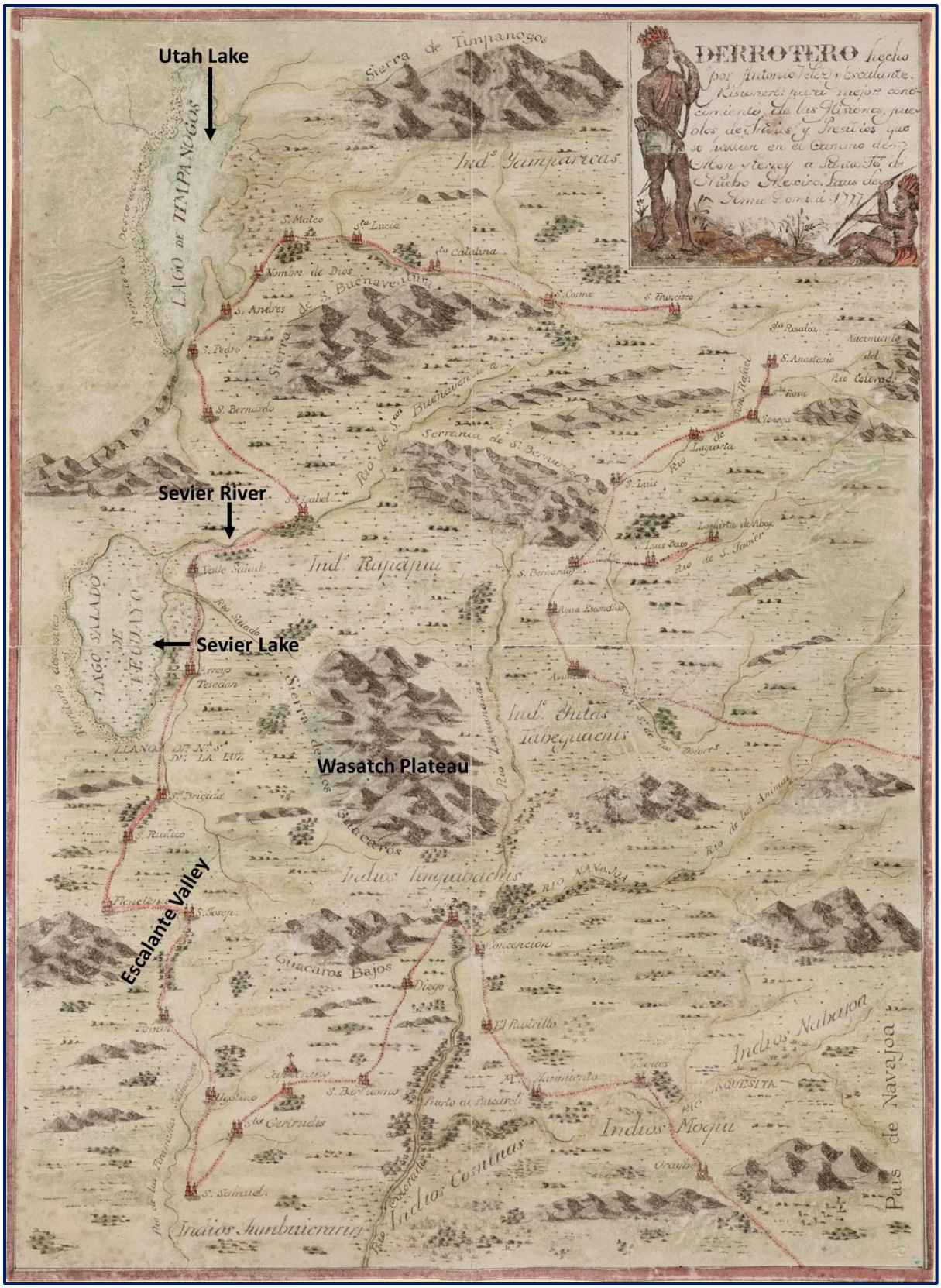


Figure 18 Map of the Domínguez and Escalante Expedition in 1776

This expedition directly impacted two of the proposed Solar SEZ study areas, specifically the Escalante and Milford Flats SEZs (Figure 18). Based on the latitudinal coordinates taken during the expedition on October 9th, they spent a night at San Rustico, a place slightly south of modern day Milford. From here, they followed the Beaver River south and then continue pressing westward towards the Wah Wah foothills, where springs were abound. While crossing this part of the Escalante Valley, the expedition hiked to the top of noticeable hills in the flat expanse of the valley floor. These hills were formed from the alkali hot springs, known today as the Thermo Hot Springs. From there, they continued south and stopped at a place they name San Elucian. The next day, the expedition continued southwest and stopped at a spot near Blue Knoll. There they cast lots to determine the fate of the expedition. The results caused the expedition to abandon their ambitions of reaching Monterey, CA and to return to Santa Fe, NM (Warner 1995:87-93). For the rest of the day, the expedition continued to cross the valley and arrived by the end of the day, at the foothills of the Wah Wah Mountains. On October 12th, the Domínguez and Escalante expedition passed to the west of Lund, through the Escalante Valley SEZ study area. Here, Escalante documents running into marsh lands that were difficult to wade through. Escalante states that running through the middle of the marsh appeared to be an irrigation ditch. As this region is particularly arid, relief came in the form of the numerous springs in the eastern foothills of the Wah Wah Mountains. The area around these springs is lush and full of high grasses. The largest spring closest to the valley floor is the Sulphur Spring. There was an established Indian community at these springs that still remains in the historical memory of Southern Paiute and Goshute tribal representatives. Southeast of this area, the expedition encountered around twenty Indians gathering wild plants and seeds. Two women were forcible detained and said that many of their people lived in this area (Warner 1995). Based on the agricultural and cultivate practices of Numic peoples in the area, what Escalante described as an irrigation ditch could have been exactly that since it was close to an agricultural area. The plants that Escalante termed "wild" were in fact food staples of Numic peoples in the area, who nurtured and cultivated desert plants to ensure good crop yield. That area of the valley would have most likely needed the support of surrounding springs because of the arid nature of the valley floor.

Travelers Along the Old Spanish Trail 1829-1849

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

> Between 1829 and 1848, the Old Spanish Trail was the primary land route between the two provincial outposts of Santa Fe and Los Angeles. During these years, it was used extensively by Mexican and American traders who traded New Mexico woolen goods for California-bred horses and mules (Stoffle et al. 2008:2).

Animals were moved from California to Santa Fe in herds of up to 4,000. Few records survived these early periods to describe the interaction between Natives and Hispanic herders and traders. However, Santa Fe and Abiquiu, New Mexico were places where Indian people were sold into slavery. It can thus be assumed that relations were unfriendly. By the opening of the Old Spanish Trail trade route in 1829, conflict, encroachment, and disease had taken their toll on the native

populations of the region, allowing travel to California to become possible (Stoffle et al. 2008:265).

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

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

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

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

The opening of the Old Spanish Trial created a lucrative slave trade. Anglo, Indian, and, "Hispanic traders would raid Indian villages to take slaves for profit; the prices of slaves in New Mexico and California markets ranged from $50 to $400, and girls sold at higher prices than boys since they were valued as household servants. This trade also stimulated slave raids among neighboring Indian groups" (Zedeño, Carroll, and Stoffle 2006:26). Ute, Southern Paiute, and Goshute territories overlapped in areas like the Escalante Valley, helping to perpetuate these raids. Because of slavery, Southern Paiutes often suffered the loss of their women and children. The loss of females and by extension marriage partners and food providers to Ute slave traders was a cause of great concern to the Las Vegas and Moapa Paiutes, continuing as late as 1855 (Edwards 1978:52; Jensen 1926:188). One historically documented case is of the Utes selling a Paiute boy to Kit Carson for $40 at Antoine Robidoux's trading post in 1844 (Simmons 2000:58). Because of the constant threat of kidnapping from the Utes, the Southern Paiutes refused to join the Utes on the Uintah Reservation.

Mormon Settlement 1840s-1850s

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

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

When the Forty-niners started passing through the Mormon communities, they brought with them much needed supplies, livestock, building materials, iron, and wagons. The Mormons, who arrived between 1847 and 1848, acquired a wealth of goods from their transactions with the Forty-niners between 1849 and 1850. As a result, the centrally directed Church of Jesus Christ of Latter-day Saints was able to well equip its own arriving immigrants and outfit them with wagons, livestock, tools, and clothing. The church then sent these new colonists out to establish communities beyond the Odgen-Salt Lake City-Provo region.

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

In 1850, Brigham Young sent a colony of Mormons to Parowan Gap and the development of Cedar City quickly followed (Ricks 1964). With the arrival of more settlers in the area, adverse impacts grew and Numic livelihoods were undermined as settlers moved across Indian territory, settling oases, springs, and rivers (Stoffle et al. 2008). Hostile interactions were often precipitated as traditional resources were abused and annexed by new comers. Edward Lyman describes the dynamic as, “the outsiders who so frequently crossed Indian lands, using their trails, livestock feed, water, as well as scarce game, refused to pay willingly, the Native Americans naturally adopted methods of exacting payment by stealing and wounding passing livestock so that the whites would leave it behind for their use” (2004:24). While Southern Paiutes and Goshutes sometimes requested payment successfully, oftentimes non-Indians who traveled along the wagon road would more likely shoot at Indian people who approached to request toll fees. This hostility and conflict grew to define the climate of negotiation at the time (Lyman 2004).

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

The Forty-Niners and the California Gold Rush

In 1849, the United States acquired the lands of present-day California, Nevada, Utah, Arizona, New Mexico, and Texas following the signing of the Treaty of Guadalupe Hidalgo. These lands were of great interest to the United States because they offered a wealth of natural resources and access to shipping ports on the Pacific Ocean. The Federal Government began to develop policies that would make these lands accessible to the general public, which affected the Indian people in the SEZ study area. Individual citizen initiatives, however, quickly outran national policy planning when sawmill workers near Sacramento discovered gold in the millrace in 1848. The Gold Rush began when the word spread throughout the country that gold had been discovered in California. By the spring of 1849, 40,000 to 50,000 people emigrated westward to California. While some took to ocean routes to reach the West Coast, many traveled overland along established trails and wagon roads. Some overland emigrants from the southern states traveled across northern Mexico or followed the wagon roads opened by Mormon military battalions (Cooke 1878; Couts 1961). Most overland travelers followed the central route ascending the Missouri and Platte Rivers and crossing the Rockies to Mormon Salt Lake City. It was estimated that 10,000 to 15,000 were thought to have traveled through Salt Lake Valley in 1849 and an equal number in 1850 (Arrington 1958:68). Then most of the emigrants crossed the mountain passes in the Sierra Nevadas, directly to the gold region of California. Others detoured south very near the SEZ American Indian study area through Goshute and Pahvant Southern Paiute territory to Cajon Pass and southern California. This particular route offered the advantage to late-start travelers because it remained snow-free during the winter when deep snows make the passes in the high Sierra Nevadas impossible to travel (Stoffle and Dobyns 1983).

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

The Southern Goshutes division suddenly found itself confronted by emigrants traveling south from Salt Lake City to the lower Sevier River. Goshute people appeared to have attempted

to trade with these new travelers who tended to camp along the river to allow their draft and riding animals to graze. The Goshutes (or as there are sometimes referred to as in the literature, the "Snake Indians") traded horses for firearms (Young 1998:64). Some historians have argued that these Indian traders were not Goshute people, but members of Chief Walker's raiding band exchanging horses for guns. Ethnographic research suggests otherwise. These Indian people were identified as the "Snakes", a term applied to Shoshone/Goshute peoples during this time. The Indian people were located along the Sevier River; a major agricultural center for Goshute people.

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

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

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

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

The massive migration by Euro-Americans often spread contagious Old World Pathogens to Native Americans. These diseases spread rapidly throughout Indian communities causing

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

The start of the Gold Rush also brought a massive cholera outbreak that greatly affected Indian people across the United States. During this time, many non-Indian people were ill with cholera in most of the American cities and those who headed west towards California had ill persons in their traveling parties. The sanitary conditions in these wagon trains allowed cholera to continue to spread to new, susceptible people for long periods of time. The continued spread of this disease reached the western portion of the continent. Along the route, the infected Euro-American travelers contaminated the water supplies of various Native American groups, thus causing a major loss of lives. The spread of diseases likely played a major role in Goshute and Southern Paiute people moving away from the wagon road. They probably contacted whatever disease was being carried by the individual pack trains and suffered an unknown number of deaths. Some of these diseases like cholera hit these communities about a decade earlier, but the Indian people had retained knowledge of the symptoms and deadly nature of this illness that allowed them to develop coping strategies (Stoffle and Dobyns 1983).

As a result of the diseases and the increased levels of danger along the wagon road, Indian people sought refuge in other areas. When Southern Paiute and Goshute peoples pulled away from the road, they moved to nearby highland areas in the Escalante Desert-Needles Range to the west and Colorado Plateau to the east (Stoffle and Dobyns 1983). Indian Peaks has been an area that has been repeatedly discussed as a region of refuge (see below). Indian Peaks was an isolated area that was a great distance from the trails and roads to California. In the upland areas in and around Indian Peaks, Indian people had a wide variety of food and medicinal resources that were untouched by Euro-American encroachment. Most importantly, the Indian Peaks area had a stable water source that could support people and agriculture.

Region of Refuge – Late 1700s until 1873

The term Region of Refuge was coined by G. Aguirre Beltrán in 1979 to describe what happened to traditional peoples in Mexico when they lost control over key aspects of their land, economy and social lives. Indigenous populations shifted themselves and important activities to isolated and protected portions of their traditional lands in the hopes of living out a traditional life in the face of encroachment forces (Beltrán 1979).

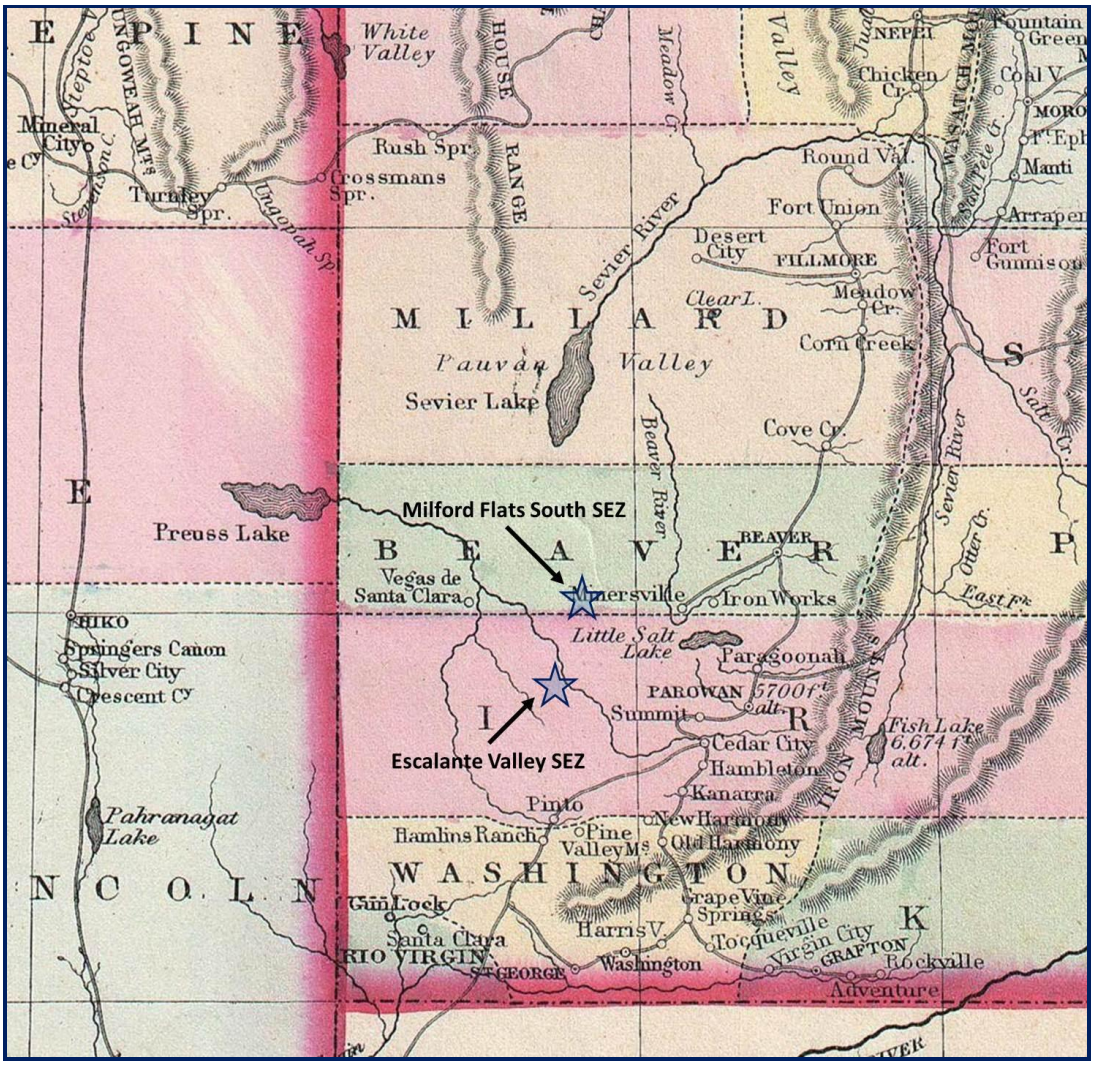


Figure 19 Map of the Escalante Valley SEZ American Indian Study Area and Surrounding Region in 1872

The Escalante SEZ American Indian study area (including, for this purpose, Indian Peaks to the west) probably became a region of refuge for Numic-speaking peoples living in southern Utah when the *Latter-day Saints* (LDS) Mormon oasis corridor was established in the early 1850s. When water, agricultural lands, other natural resources, and even the privacy to conduct ceremonies were lost to the new Mormon settlers, Numic-speaking peoples increasingly moved their key activities and even their residence to remote hinterlands such as the Escalante Valley SEZ study area.

Figure 19, above, drawn in 1872, indicates the Escalante Desert was the most isolated area in southern Utah. It remained so until mines were established to the west and transportation systems penetrated the area opening it up to development. The United States government passed a law in 1890 after the widespread Ghost Dance movement outlawing any Indian ceremony (Crum 1994). As a result, isolated portions of the Escalante Desert, such as Eagle Rock, were sought for conducting ceremonies, and Indian people gravitated to Indian Peaks for ceremonial and social gatherings.

Establishment of Ranching and Mining – Late 1800s to Early 1900s

The California Gold Rush migration began in 1849. Although northern towns such as Provo were established at this time, most of the Mormon towns were not established along the Wascha Oasis corridor until early 1850s. In mid-January, 1851, a Mormon company founded Parowan in Little Salt Lake Valley in Numic territory. The Gold Rush migration continued through this region throughout the 1850s. The steady flow of non-Indian people through this portion of Utah led to armed conflicts, as illustrated by the Mormon massacre in 1857 at Mountain Meadows.

Cowboys and cattlemen were in Utah before the first Mormon pioneers and strongly influenced Mormon settlements and culture. The development of ranching grew alongside mining and transportation industries. Livestock came into Utah with the opening of the Old Spanish Trail, which passed through the southern part of Utah. Various goods such as rugs and blankets from New Mexico were exchanged for horses and mules from California (Powell 2010; Stoffle et al. 2008).

The first livestock herds arrived in Utah during the 1840s. Jim Bridger and Miles Goodyear brought livestock from Santa Fe to Fort Buenaventura and sold their livestock on November 25, 1847 to Captain James Brown. This livestock sale included 75 cattle, 75 goats, 12 sheep, and 6 horses. In 1847, a large number of livestock were brought to Utah by the second company of the Mormon pioneers. They brought 358 sheep, 887 cattle, 2,213 oxen, 35 hog, 124 horses, and 716 chickens (Jacobs 1984). By 1850, the number of cattle in Utah had increased to 12,000 head and 34,000 head by 1860 (Powell 2010). In 1866, Texas cattle were brought into Utah by John Hamilton Morgan in 1866. Morgan and a friend drove a herd of Texas longhorns from Missouri to Salt Lake City. This was the first of thousands to come. During his second expedition, Powell witnessed 2,000 head of Texas longhorns on June 8, 1871 along the Green River (Jacobs 1984). The increase in hooved animals was detrimental to traditional Indian lifeways because the livestock grazed heavily on traditional food plants and negatively affecting Indian food supplies.

The completion of the transcontinental railroad greatly changed Utah's cattle industry. The railroad allowed a greater supply of cattle to be transported to eastern markets. Eastern and foreign capitalists stimulated economic investment in the West through livestock investments. By 1890, Utah had over 278,313 head (Powell 2010).

Mining related impacts in the Escalante Valley SEZ American Indian study area centered on activity in Iron Springs, Parowan Gap, and Cedar City. In 1849, as part of LDS exploration of the area, Parley Pratt discovered the iron deposits which would come to define the aptly named Iron County. A group of 150 adults was immediately dispatched by the LDS Church to settle and develop iron in the area (Larson 1963). The settlement at Parowan colony in 1851 was followed shortly after as the Mormon settlers pushed into the Cedar City area for the development of another iron settlement (Utah State Historical Society 1988). With iron from the area now described as the Iron Springs district, just south of the Escalante SEZ study area, the during the latter portion of that year Cedar City saw its population triple as the family members of the workers and military company members arrived. Later that year the newly occupied Cedar City

saw the development of its fist iron manufacturing on Coal Creek. In 1852 the population swelled again, after the first successful batch of iron stimulated Brigham Young to call one hundred new families to Cedar City. Local historian William Palmer estimated between 300 and 500 Paiute residents to live in the Cedar City area, with the Cedar City chief Cal-o-e-chipe also representing the head of the Paiute council of bands. With the arrival of the settlers in Cedar City Paiute people were displaced from their traditional homes and land base.

While relationships with local Paiute people were generally stable, the pressure of encroachment occasionally turned violent between Mormon settlers and Ute and Navajo populations passing through the Cedar City area. This violence escalated into an armed conflict between non-Indian settlers and the Ute chief, Walkara. This was known as the Walker War, which concluded in 1854. Following the war, relationships with the Native American populations were stable but tensions remained. Mormon settlers continued construction of adobe forts and they trained militia soldiers. Cedar City's initially push for iron mining and manufacture never attained the level of production desired, and was eventually sidetracked by military conflict with the United States government in the 1857 Utah War (Seegmiller 1998).

Coal mining in the Escalante Valley focused predominately in Coal Canyon. Two veins were found in the canyon almost concurrently with Cedar City iron in 1851 and represented the needed fuel that drove iron production. In 1893, Henry Holt discovered silver west of Shoal Creek however, the claim that this mine (Escalante Mine) would become the second most successful mine in Iron County did not yield great results until 1980 because the mineshaft quickly filled with water. The Jennie Mine, on Buck Mountain represented the greatest producer of gold in the area between 1907 and the 1940s. Aside from silver and gold in the Escalante and Jennie mines, other minerals were found only sporadically throughout between 1890 and 1940. (Seegmiller 1998)

Railroad 1899

The transcontinental railroad crossed Utah in 1869. This date marked the end of the Pioneer Era (Strack 1994:450; Seegmiller 1998:381). North of the Escalante Valley SEZ study area, the town of Milford was established in 1870 for mining and ranching. The Utah Southern Railroad Extension tracks reached Milford on May 15, 1880 (Strack 2011), after which Milford became an important transportation center for ore and livestock shipments (University of Utah 2009). The construction of railroad line crossing the Escalante Desert from Milford, Utah was encouraged by the opening of mines at Stateline and Gold Springs in the 1890s. The Utah and Pacific Railroad (U&P) completed the route from Milford to Uvada, Utah between October 1898 and July 1899 (Seegmiller 1998:382).

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

Lund, Utah gained a large volume of business and livestock and other products were freighted to Lund for shipping to Salt Lake City and California (Seegmiller 1998:383).

The town of Lund was founded for the sole purpose of serving the railroad and the town began with a population of three individuals in 1900. In the early 1900s overland wagon freight in the Lund area still supplemented the railroad economy. A local resident described freighting in Lund as relatively busy, with wagons and teams coming in from Cedar City, Parowan, and St. George, as well as Indian people bringing pine nuts to sell (Seegmiller 1998). The road situation in the area changed greatly in 1921 when work crews began paving the highway from Cedar City to Lund. Prior to 1920, traveling from Lund to Cedar City included passing through Iron Springs on a very difficult road due to rough conditions and mud when wet. The road from Lund to Parowan, however, had been in relatively better condition even prior to 1920 (Seegmiller 1998).

Potential SEZ American Indian Study Area Impacts – Tribal Recommendations

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

Solar Recommendations

- Tribal representatives believe that solar energy development in the Escalante Valley SEZ American Indian study area will adversely impact the identified special features (see Table 1).

- Tribal representatives stipulate that the cultural resources in the Escalante Valley SEZ American Indian study area are important to understanding their past, their present, and their future. They stipulate that these resources will always be culturally important to Indian people.

- Tribal representatives believe that the culturally significant places mentioned in the above text should be considered for tribal declarations as Sacred Sites (Executive Order 13007) and nominations as Traditional Cultural Properties (Bulletin 38) to the National Register of Historic Places.

Bureau of Land Management Recommendations

The consulting tribes believe that Escalante Valley should be managed as an integrated spiritual cultural landscape. To accomplish this goal, PITU and CTGR representatives should be brought together with Bureau of Land Management to develop an integrated cultural landscape management plan.

- Tribal representatives stipulate that they would like to return to the Eagle Rock Ceremonial Complex (this includes in addition to Eagle Rock, Sulphur Springs,

Mountain Spring, and Mountain Spring Peak) in the future and continue to use this place for praying and healing because this ground is sacred to Numic-speaking peoples.

- Tribal representatives request that the BLM greatly restrict access to the Eagle Rock area in order to provide this doctor rock with the highest levels of protection.

- Tribal representatives expressed a desire to have Native American monitors visit the Eagle Rock Ceremonial Complex (this also includes Sulphur Spring, Mountain Spring Peak, and Mountain Spring) has part of any co-management agreement with the BLM.

- 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:

    - Eagle Rock Ceremonial Complex (Eagle Rock, Sulphur Spring. Mountain Spring Peak, Mountain Spring).
    - Thermo Hot Springs,
    - Parowan Gap,
    - Table Butte,
    - Lund
    - Indian Peaks
    - Pleistocene Lake Bonneville