

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

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

Participating Tribes

Pahrump Paiute Tribe, Pahrump, Nevada
Timbisha Shoshone Tribe, Death Valley, California

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AMARGOSA VALLEY

The proposed Amargosa Valley solar energy zone (SEZ) is located about 14 miles south of Beatty, Nevada. The center of the proposed SEZ is located 16 miles northwest of the town of Amargosa Valley, Nevada. The proposed SEZ includes a large section of land west and south of Highway 95, with a portion located on the east side of the highway that incorporates part of Steve's Pass (see Figure 1).



Figure 1 Google Earth Image of the Amargosa Valley SEZ American Indian Study Area (SEZ Outlined in Red)

The Amargosa Valley SEZ American Indian study area extends beyond the proposed boundaries of the SEZ and includes the cultural resources in the surrounding landscape. The Amargosa Valley SEZ American Indian study area includes plant communities, geological features, water sources, and trail systems located in and around the proposed SEZ boundary. The trail systems pass through the SEZ American Indian study area and were used by people from neighboring or distance communities to reach nearby medicinal and ceremonial areas. Western Shoshone and Southern Paiute tribal representatives maintain that, in order to understand native peoples' connections to the SEZ, it must be placed in context with neighboring places and their associated cultural resources.

The Amargosa Valley SEZ American Indian study area is situated in the Amargosa Desert, which is a transition zone from the Mojave Desert to the Great Basin. The Amargosa Desert is unique because it has a self-contained drainage system. The Amargosa River serves as the desert's primary hydrological system. The river begins at the top of Black Mountain, a volcanic mountain located on Nellis Air Force Base, and drains into Death Valley (see Figure 2). The study area encompasses much of the Amargosa Desert and a large segment of the Amargosa River. The valley itself runs parallel to the southwestern border of Nevada. The valley is also close to the Nevada Test Site to the east and Ash Meadow National Wildlife Range to the south. The Amargosa Valley SEZ American Indian study area shares its western border with Death Valley National Park.

Summary of SEZ American Indian Study Area Significance

The lands under consideration in the Amargosa Valley SEZ American Indian study area were traditionally occupied, used, aboriginally owned, and historically related to the Numic-speaking peoples of the Great Basin and western Colorado Plateau. Tribal representatives involved in Amargosa Valley field consultation summarized here are from the Timbisha Shoshone Tribe, representing the cultural interests of the Western Shoshone, and the Pahrump Paiute Tribe, representing the cultural interests of the Southern Paiutes. These Numic-speaking peoples have gone on record in past projects and stipulate here again that they are the American Indian people responsible for the cultural resources (natural and manmade) in this study area because their ancestors were placed here by the Creator. They always have lived in these lands, maintained and protected these places, plants, animals, water sources, and cultural signs of their occupation.

These Numic-speaking peoples further stipulate that because they have lived in these lands since the end of the Pleistocene and throughout the Holocene, they deeply understand dramatic shifts in climate and ecology that have occurred over these millennia. Indian lifeways were dramatically influenced by these natural shifts, but certain religious and ceremonial practices continued unchanged. These traditional ecological understandings are carried from generation to generation through the recounting of origin stories and by strict cultural and natural resource conservation rules. The involved American Indian tribal governments and their appointed cultural representatives have participated in this Programmatic Environmental Impact Statement (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 20 species of fish including whitefish, cisco, trout, chum, dace, shiner, sucker, and sculpin (Grayson 1993:187). The fish species traveled widely across the Great Basin through a variety of interconnected lakes and streams. Late Pleistocene lakes were but a central portion of this hydrological network supporting fish species and by implications, great biodiversity in flora and fauna.

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

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

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

The predominant feature of the Amargosa Valley SEZ American Indian study area during the Pleistocene was the Amargosa River. The Amargosa River is approximately 200 miles long and passes through some of the driest areas in the western United States (Anderson 2005). The river flows from southern Nevada and southeastern California. The river's headwaters begin at the top of Black Mountain, approximately 28 miles north of Beatty, Nevada (Carroll et al. 2006). Currently, the Amargosa River is mainly ephemeral and terminates in Death Valley (see Map 1). The modern Amargosa River drainage basin represents 11% of the ancestral drainage of the Amargosa River, which was established between 11 and 9 million years ago. The establishment of the river followed a major phase of explosive and large-volume silicic volcanism that influenced the initial drainage and topographic development of this area.

Following the main phase of volcanism, one or more outlets presumably developed through breaches in the west wall of the caldera that diverted early-stage intracaldera drainages westward into a tectonically evolving Tertiary sedimentary basin underlying modern Oasis Valley (Reheis, Hershler, and Miller 2008:78).

The drainage of the Amargosa River was modified 9 to 8 million years ago when more than half of the headwater region was removed and the total drainage basin area decreased by 35%. The remaining portion of the ancestral river drained westward and carried sediment into the Oasis Valley. Most of the volcanism and extensional deformation diminished by 6 to 7

million years ago and was largely inactive by 4 million years ago. During this time, most of the mountainous terrain along the upper subbasin and northern margin of the Amargosa Desert subbasin was established (Reheis, Hershler and Miller 2008). The middle to early Late Pleistocene marks the establishment of a drainage basin that approximated the size of the modern Amargosa River drainage basin. The Amargosa River was one of three main sources of water for Lake Manly, a pluvial lake that filled Death Valley during various geological periods (Butler 1983; Anderson 2005).

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



Map 1 Amargosa River Hydrology and Associated Pleistocene Lakes

The Pleistocene environment in the Amargosa Valley SEZ American Indian study area differed greatly from today. An essential difference lies in the far greater presence of water

during the wetter Pleistocene period. Lake Manly represents another central feature of the region. A deeper form of Lake Manly existed between approximately 186,000 and 120,000 years ago. It had a maximum depth of 600 feet and a length of 96 miles (Grayson 2011; Pavlik 2008). Later, a shallower Lake Manly existed between approximately 35,000 and 10,000 years ago. Lake Manly was one of over 20 large freshwater Pleistocene lakes found near the Nevada-California border, many of which were connected by a network of ancient rivers (Pavlik 2008). In concert with the warmer temperatures and higher precipitation, the presence of these abundant water features in the region created a highly productive environment.

In addition to utilizing plentiful natural resources, Numic-speaking peoples developed complex irrigated agriculture throughout their traditional homelands. In Oasis Valley and Fish Lake Valley, recent archaeological studies date irrigated agriculture back between 700 to 1000 AD. Although the environmental setting of the Amargosa Valley SEZ American Indian study area has changed dramatically over the geologic timescales of native use and inhabitation, the Numic-speaking peoples have thrived and continue to do so. Countless shifts in the plant and animal communities have been met with constant coadaptation. Traditional ecological knowledge is continually developed and maintained in harmony with the natural setting. Ultimately, the sustainability of the landscape is ensured through the implementation of thoughtful, active management as a part of the sacred ecology of Numic-speaking peoples.

Special Features

The lands in the Amargosa Valley SEZ American Indian study area contain numerous cultural features that contribute to the history and long-term continued use of the region by Numic-speaking peoples. The Indian people interviewed at this location explained that this SEZ American Indian study area was culturally important because of the presence of water, plants, animals, geologic features, and associated Indian history (see Table 1).

The Amargosa Valley SEZ American Indian study area is central to the lives of Southern Paiute and Western Shoshone peoples. It is believed that these lands were given to Numic-speaking peoples by the Creator and have been under their care since time immemorial. Songs that are associated with the Amargosa Valley SEZ American Indian study area came from the Creator so they could be sung to maintain balance in the world. The Numic-speaking peoples have always watched over and interacted with this land. There is a deeply rooted spiritual connection between Numic-speaking peoples and the land. This connection weaves stories and songs into the landscape, uniting all elements of the universe.

During study visits, materials were documented that demonstrated thousands of years of American Indian use of the Amargosa Valley SEZ American Indian study area. Tribal representatives saw numerous pieces of worked chert and arrowheads that were believed to be thousands of years old based on previous archaeological research. Tribal representatives also noted the presence of volcanic stones that are used as prayer shrines. These stones are unmodified rock with naturally occurring circular depressions. A person traveling through the SEZ American Indian study area would stop at these shrines for prayers. The prayers were sent into the rock and sealed inside with white pumice stones.

Feature Type	Special Feature
Source for Water	➤ Amargosa River
Evidence of Previous Indian Use	➤ Camp sites with rock chippings within the valley, Creation Stories
Source for Plants	➤ Creosote, Indian spinach, and other traditional use plants
Source for Animals	➤ Rabbits, squirrels, and other animals
Geological Features	➤ Spiritual spring and cave, Big Dune, Eagle Mountain, Black Mountain, Devil's Hole, Fortymile Canyon, Bare Mountains, Amargosa River, Ash Meadows, Naturally Occurring Prayer Rocks, Green Minerals
Indian History	➤ Numic Farming disrupted, the 1829 – 1849 travelers along the Old Spanish Trail, the California Gold Rush and the Forty-niners, Federal and Private Commissioned Surveyors, the late 1800s to early 1900s establishment of mining and ranching, the establishment of regions of refuge, the 1899 railroad and development roads, and spiritual runs.

Table 1 Special Features Identified in the Amargosa Valley SEZ American Indian study area

The Amargosa Valley SEZ American Indian study area is located near two important geographic features, Big Dune and Eagle Mountain. These places figure in both Southern Paiute and Western Shoshone Creation stories and songs. For Southern Paiute peoples, the Salt Song trail passes through the Amargosa Valley SEZ American Indian study area. When a Southern Paiute person passes away, the Cry Ceremony is performed. As part of this ceremony, specially trained singers perform the Salt Songs. These songs and their associated spiritual trail carry the soul of the deceased along a thousand mile journey through traditional Southern Paiute territory and neighboring Hualapai territory. During this journey, the deceased transitions from this world into the afterlife. Some of the areas described in the songs are located within this study area.

The Amargosa River has been identified by tribal representatives as being one of most important features in the SEZ American Indian study area. The river water is an essential life giving resource for those living in the desert. The Amargosa River is connected to Black Mountain, a powerful ceremonial volcanic mountain that is located to the north of the SEZ American Indian study area. The river begins at the top of Black Mountain and the water flows through the volcanic canyons of Thirsty Canyon and through the Amargosa Desert and Valley before reaching Death Valley. The power from the mountain follows the flow of water down the mountain and, like the water, flows into Death Valley.

The presence of culturally significant plants and animals contributes to the overall meaning of the Amargosa Valley SEZ American Indian study area to Indian people. Numerous species of traditional use plants and animals were identified such as Indian tea, creosote, desert tortoise, and mountain sheep.

Water

The Numic-speaking peoples traditionally associated with this valley hold a deep and spiritual attachment to the water of the Amargosa Valley SEZ American Indian study area. The Amargosa Desert shares the aridity of the Mojave Basin and Range, but it is characterized more specifically by its distinct internal-drainage. The Amargosa Desert is a discharge for underground water systems, including the Amargosa River (Figure 2), and supports pockets of wetland flora and fauna when water surfaces as springs and seeps. Consistent with the pattern of Mojave Desert precipitation, this area receives most precipitation in the winter. The modest amount of precipitation that the desert receives is utilized by a large variety of endemic ephemeral plants, many of which germinate in response to winter rains and support a wide range of animals (Turner 1994).



Figure 2 The Amargosa River Hyrdological System

The Amargosa River flows (Figure 2) through the entire length of the valley and is one of the longest underground rivers in the world (The Nature Conservancy 2011). Despite the usually subterranean flow, there are times when the river flows on the surface and creates desert oases. These areas of constant stream flow tend to be fueled by spring snow melt discharged from higher elevations and from springs (Walker and Eakin 1963). The river also flows on the surface after heavy seasonal rains. Whether on the surface or underground, the river begins northeast of Oasis Valley and finishes its journey by emptying into an aquifer under the prehistoric Lake Manly in Badwater Salt Lake, Death Valley (Reheis, Hershler, and Miller 2008).

Evidence of Previous Indian Use

Western Shoshone (Figure 3) and Southern Paiute representatives documented archaeological materials, such as pieces of worked obsidian and white chert, throughout the Amargosa Valley SEZ American Indian study area. These artifacts were heavily concentrated on the banks Amargosa River. Many of the materials were heavily weathered with a deep patina, suggesting that they were thousands of years old. Tribal representatives believe that the artifacts found in the study area serve as physical reminders and connect them to their ancestors who lived on and used this land thousands of years ago. Tribal representatives stated that these artifacts were purposely left in the Amargosa Valley SEZ American Indian study area as ritually deposited items. The artifacts are associated with prayer and need to be left in place.



Figure 3 Timbisha Shoshone Representatives and UofA Ethnographer in the SEZ

Ecology – Plants and Animals

The Amargosa Valley SEZ American Indian study area lies within the Mojave Basin and Range level III ecoregion. Its climate is characterized as warm and temperate, with low levels of precipitation. In the elevation range occupied by the study area from 2,800 feet (850 m) to 2,520 feet (770 m) creosote shrubland, with creosotebush (*larrea tridentata*), mesquite (*prosopis* spp.), all-scale (*Atriplex polycarpa*), brittlebush (*Encelia farinosa*), desert holly (*Atriplex hymenelytra*), and sagebrush (*Artemisia* spp.), represent the predominant form of vegetation (US Department of Energy, BLM 2010).

The United States Geological Survey (USGS) defines the dominant type of land cover as Sonora-Mojave Creosotebush-White Bursage Desert Scrub. Other shrubs and cacti can fill in the understory beneath the dominant vegetation. Ephemeral plants seasonally dominate the lowest

layer of ground cover. Associated species include woody species like fourwing saltbush (*Atriplex canescens*), desert holly (*Atriplex hymenelytra*), brittlebush (*Encelia farinosa*), Indian tea (*Ephedra nevadensis*), ocotillo (*Fouquieria splendens*), Anderson’s wolfberry (*Lycium andersonii*), and beavertail cactus (*Opuntia basilaris*) and herbaceous species like desert trumpet (*Eriogonum inflatum*), fluffgrass (*Dasyochloa pulchella*), threeawn (*Aristida* spp.), sandmat (*Chamaesyce* spp.), *Cryptantha* spp., *Nama* spp., and *Phacelia* spp. (NatureServe 2005).

During multiple field visits, Native American representatives identified 15 traditional use plants within the proposed project boundary. Table 2 provides readers with the common, scientific, and Southern Paiute and Western Shoshone names for each plant identified.

Common Name	Indian Name	Scientific Name
Big Sagebrush	sangwav (sp) povi, phovi (ws)	<i>Artemisia tridentata</i>
Blackbrush		<i>Coleogyne ramosissima</i>
Brittlebush		<i>Encelia farinose</i>
Burrobush	paiab (sp)	<i>Ambrosia salsola</i>
Creosotebush	yatumb (sp) yatumbi (ws)	<i>Larrea tridentata</i>
Desert Prince’s Plume, Indian Spinach	t̄mar (sp) tuwarra, tuhuara (ws)	<i>Stanleya pinnata</i>
Desert Saltbush, Cattle Saltbush		<i>Atriplex polycarpa</i>
Desert Trumpet	papakurum(p) (sp) tusarambokup (ws)	<i>Eriogonum inflatum</i>
Fourwing Saltbush	skump, tono (sp) murunibi (sp) tusarambokup (ws) noo-roon-up (ws)	<i>Atriplex canescens</i>
Greasewood	yah-tahmp´, tah-uh-be, toh-no-be (sp) to-nó-be (ws)	<i>Sarcobatus vermiculatus</i>
Honey Mesquite	o’pimb (sp) o’phi (ws)	<i>Prosopis glandulosa</i>
Nevada Indian Tea	tup, tup (sp) yatup (sp) tutumbi, tutupi, u’tuup (ws)	<i>Ephedra nevadensis</i>
Spiny Chorianthe	san̄v, kamuhurusanuv, kanumuvusanuv (sp)	<i>Chorizanthe rigida</i>
Shadscale	kakumb (sp)	<i>Atriplex confertifolia</i>
White bursage	t̄mpisangwav (sp)	<i>Ambrosia dumosa</i>

Table 2 Traditional-Use Plants Identified at Amargosa Valley SEZ American Indian Study Area
(ws = Western Shoshone; sp = Southern Paiute)

The presence of animals in an area contributes to the overall cultural importance of the Amargosa Valley SEZ American Indian study area. In Numic-speaking culture, animals factor significantly in songs, stories, and ceremonies. Animals were also important food sources and their fur, bones, and feathers were used in construction of various utilitarian items. Animals identified in the following table were believed to inhabit the SEZ American Indian study area. Some of these animals may physically and/or spiritually live in the study area. During multiple field visits, Native American representatives identified 41 traditionally important animals within the proposed project boundary. The Table 3 provides readers with the common, scientific, and Southern Paiute and Western Shoshone names for each identified animal.

Common Name	Indian Name	Scientific Name
Mammals		
American badger	ʁnampʁtsi, Hoon, To-chi-e (sp)	<i>Taxidea taxus</i>
Badger	Ho'-nah, Hoo'-nah, Hoo-nah, Ho'-nan (ws)	<i>Taxidea</i> sp.
Black-tailed jack rabbit	Kaam, Kaamʁ, Kamuntsi (sp)	<i>Lepus californicus</i>
Bobcat	Tukupʁts, Tukuuits (sp) Doo'-ko-vitch, Too'-ko-vitch, Too'-ko-bitch, To'-ko-pik (ws)	<i>Lynx rufus</i>
Cottontail	Tavitic, Tavuutsc (sp) Dah-woo (ws)	<i>Silvilagus</i> sp.
Coyote	Yoxovwits, Yoxovʁtsi, Sʁnangwavi, Tʁrasʁnav, Tʁrasinav, Sin-nav, Shin-nah-ab, Tʁrasʁna'av, Turahsunav (sp) Ē-jap'-pah, E-jah, E'-chah, It'-za' (ws)	<i>Canis latrans</i>
Desert cottontail	Tavuts (sp)	<i>Silvilagus audubonii</i>
Gray fox		<i>Urocyon cinereoargenteus</i>
Jack rabbit	Kamusi, Tavusi (ws)	<i>Lepus</i> sp.
Kangaroo rat	Pi-yu-ah, Tah-we-tat, tom-we-a-tats (sp) Bi'-e, Pi'-yu (ws)	<i>Dipodomys</i> sp.
Kit fox	Kuida moss-suguee (ws)	<i>Vulpes macotis</i>
Mountain lion	Tukumumutsi, Piaruku, Too-koo-puts, To-ko-mo-muts, Too-koo-mo-munch (sp) Toi-yă-too'-koo, To-ko-bitch (ws)	<i>Puma concolor</i>
Mule deer	Tʁxia, Tuuyi, Tuhi, Tuhuya (sp) Dũ'-he, Tũ-hě'-yah,	<i>Odocoileus hemionus</i>

	Toó-ho'-yah (ws)	
Pocket gopher	M̄aȳamp̄itsi, Mwe-em-puts (sp) Yě'-hah-vitch, Yě'-hah'-vitch, Ye-hah'-vitch-e (ws)	<i>Thomomys bottae</i>
Pocket mouse		<i>Perognathus</i> sp.
Porcupine	Ȳunḡamp̄atsi, Ye-hum-puts, Yu ^{ch} (sp) Yen", Yũ'-hũ, Yo'-hah, Tsa'-gwit (ws)	<i>Erethizon dorsatum</i>
Red fox		<i>Vulpes vulpes</i>
White-tailed antelope squirrel	Tava'atsi, Ta-va-run-quits, Ta-bats, Ta-vats (sp)	<i>Ammospermophilus leucurus</i>
Woodrat	Kahts (sp) Kah' (ws)	<i>Neotoma</i> sp.
Birds		
American Kestrel	K̄arin'ang kats, Te-ze-nah-kahts, Kwan-an-tsits (sp) Ku-ti'-ta (ws)	<i>Falco sparverius</i>
Burrowing owl	Muku'uts (sp) Ku'-hu (ws)	<i>Athene cunicular</i>
Common raven	Atap̄ats, Atakots, Ha-ta-puits, Ah-tah-pah-ki'p, Tah-kwahts, Ah-tah-pwits (sp)	<i>Corvus corax</i>
Gambel's quail	Akar (sp)	<i>Callipepla gambelii</i>
Golden eagle	Mung, Kwanants (sp)	<i>Aquila chrysaetos</i>
Great Blue Heron	Pah-too-koo ko-vah kahnt, Pah-koor-kuv, Nah-kwah (sp) Wus'-sa (ws)	<i>Ardea herodias</i>
Great Horned Owl	Moop̄ats, Moo-oo-put, Mo-o-puts, Moo-e-pwits, Muup̄ats (sp)	<i>Bubo virginianus</i>
Horned Lark	T̄aranw̄itsi'tsi, N̄ava w̄itsi'ts, Te-we-wit-se, Te-rah we-cha-its, Ne-vow-we-tsits (sp)	<i>Eremophila alpestris</i>
Killdeer	Bah-zah-wee (ws)	<i>Charadrius vociferus</i>
Loggerhead shrike	Tah-cho-noint, Tun-dun-nois (sp)	<i>Lanius ludovicianus</i>
Mourning Dove	Iyov, Ayov (sp)	<i>Zenaida macroura</i>
Northern Mockingbird	Yamp (sp)	<i>Mimus polyglottos</i>
Red-tailed hawk	Ta-ah kwah-nahts (sp)	<i>Buteo jamaicensis</i>

Roadrunner	Ko cha bo'ki, Oo'ts (sp)	<i>Geococcyx</i> sp.
Rock wren	Too-ching-ing, Tumpikixots (sp)	<i>Salpinctes obsoletus</i>
Say's Phoebe	Chu-huv (sp)	<i>Sayornis saya</i>
Turkey vulture	Wikumputsi, We-koo-puts, Week (sp)	<i>Cathartes aura</i>
Western kingbird	Chaxu'uvi, Wahts-koo-its, Too-pe-wats (sp)	<i>Tyrannus verticalis</i>
Reptiles		
Desert horned lizard		<i>Phrynosoma platyrhinos</i>
Desert Tortoise	pi`ka(.)-'ay an _A (sp)	<i>Gopherus agassizii</i>
Lizards		Various species
Long-nosed leopard lizard	Too-ar-rah, Neu-mah-zing-ahts (sp) Sow'-we-vah', Sah'-we-vah (ws)	<i>Gambelia wislizenii</i>

Table 3 Traditional-Use Animals in Amargosa Valley SEZ American Indian Study Area
(ws = Western Shoshone; sp = Southern Paiute)

The Desert Horned Lizard was one of the animals that drew particular interest from tribal representatives during field visits. The horned toad is a very important animal to all Numic-speaking peoples. The horned toad lizard is traditionally used as a medicine by Southern Paiute doctors and the lizard appears in a Creation story (Laird 1976:115-116). Other Numic-speaking peoples associate the horned lizard with power and medicine. For example, the Western Shoshones believe the horned toad is associated with medicine and healing. They have a song that describes this relationship. The following is a discussion of that song told by Corbin Harney, a Shoshone religious leader:

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

Coyote represents another culturally central animal in the Amargosa Valley SEZ American Indian study area. Coyote plays a significant role in Numic peoples spiritual and religious ideology. The importance of maintaining coyote's presence in the area was reinforced by Numic representatives during a 1994 study on the Nevada Test Site. One representative stated:

Leave the coyote alone and leave it in its own natural environment. Coyote creates a balance of everything in this world and it is a very highly sacred animal. They should live out in the wild...in its own natural ways, and it should not be disturbed by man because coyote is a messenger. And although sometimes that message might not be a good one, might not be positive, nevertheless the coyote is very important and is part of the creation. He is a part of traditional dancing and makes us aware of his presence and of the importance of the part that he plays in our lives (Stoffle et al. 1994:160).

Coyote's importance is also demonstrated by its central contribution to many Southern Paiute stories, such as those surrounding the change of seasons, the origin of menstruation, and many stories on the relationships between animals (Stoffle 1997). Within these stories coyote often functions in setting patterns for bold and skillful warriors and hunters (Laird 1976:110). Coyote is also the principle character in the Southern Paiute Creation story. As noted by Richard Stoffle and Henry Dobyns (1983:45-46):

Southern Paiute oral scriptures that have been recorded generally resemble the Christian Genesis and other Creation stories in terms of placing the people on the earth. While there are different versions of this story, the following account derives from southern California and was provided by a Chemehuevi Paiute (Laird 1976).

According to this account, Southern Paiutes believe that originally there was only water. Ocean Woman (*Hutsipamamau ?u*) then created dry land (Laird 1976:148-149). Once there was land, Creator Coyote and Wolf lived on Charleston Peak. Creator Coyote later saw tracks of a woman, but when he caught up with her, she was a louse (*Poo?ʷavi*). Coyote propositioned her, and she agreed to the proposal on the condition that he built them a house. He ran ahead, built a house, and when Louse caught up, she magically put Coyote to sleep and continued on.

This happened four times before they reached the Pacific Coast. Louse set out to swim to her home island with Coyote on her back. She dove, and Coyote let go and turned himself into a water spider. He reached the island first and was waiting for Louse when she arrived. Louse's mother wove a large basket while Coyote enjoyed Louse (Kroeber 1908:240; Laird 1976:150-151). Then Louse's mother sealed the basket and gave it to Coyote to tow back to land. As a water spider, he did so. As the basket grew heavy, Coyote became full of curiosity, and he opened it before reaching *Nɨvaganɨ*. Louse's eggs had hatched in the basket and became human beings.

The new human beings emerged from the now opened basket and began to scatter in all directions over the land. By the time Coyote returned to *Nɨvaganɨ*, only weaklings, cripples, and excrement remained in the basket. On Charleston Peak, Wolf (Kroeber 1908:240 says it was Coyote) used his greater power to create the Chemehuevi and their Southern Paiute kindred. The darker color of Southern Paiute skin is attributed to the ingredients used by Wolf to create them. Because it

is the place where the Southern Paiute peoples were created, *Nuvagantu* — Charleston Peak — is holy to Southern Paiutes.

The importance of Coyote’s transformation into a water spider form was also highlighted as it relates to the web-like nature of *Puha* (power) in the universe (Miller 1983). The contemporary presence of the coyote in special song and dance reflects its continuing significance to Numic-speaking peoples (Stoffle, Zedeño, and Halmo 2001).

Geology

The geologic resources of the Amargosa Valley SEZ American Indian study area are complex in composition and cultural meanings. These connections have been formed over millions of years and Numic-speaking peoples have interacted with this landscape for up to 15,000 years. Geologic resources include a range of culturally significant features such as minerals used as paint sources, salts used in curing, quartz deposits used to make tools, volcanic basalt boulders used to hold the prayers of travelers, mountain tops used for vision questing, and fossil evidence of rivers used as mnemonic devices for teaching about the past. All these geologic resources are alive according to the shared epistemology of these Numic-speaking peoples. The Creator made geologic resources alive by placing *Puha* in them when the Earth was formed. Today the geologic resources discussed here all have a place in the lives and history of Indian people.



Figure 4 Big Dune

The Amargosa Valley SEZ American Indian study area contains many important geologic features that are associated with Numic songs, stories, and ceremony like Eagle Mountain, Devil’s Hole, Fortymile Canyon, the Bare Mountains, and the Amargosa River. One important feature in the study area is Big Dune. Tribal representatives stated during ethnographic interviews that Big Dune is featured in traditional stories and songs.

Big Dune (Figure 4) is also culturally important because it is one of a number of sand dunes in Numic territory that are considered “singing sand dunes.” The dunes emit low-frequency sounds that are caused when moisture is found within the sand particles, the temperatures are high, and some sort of impact occurs that cause the sands to shift. Wind, earthquakes, or human activity can create enough impact to cause the sand dunes to shift. The “booming” sound of the sand dune is emitted when avalanches occur on the leeward face of the dune and when the avalanches are at an angle that mirrors to the natural angle of sand deposition. Collisions between the grains of sand cause the grains to become synchronized. When this occurs, the outer level of sand vibrates (Andreotti and Bonneau 2009). From a cultural perspective, the emission of tones and measurable musical notes are a testament that this land feature is alive and it can interact with all elements of the universe.

Eagle Mountain (Figure 5) is another important geologic feature located in the Amargosa Valley SEZ American Indian study area. Southern Paiute and Western Shoshone representatives identified it as being a culturally important place that is linked to Creation stories and songs.



Figure 5 Overview of the Amargosa Valley SEZ American Indian Study Area with Eagle Mountain in the Distance

According to Southern Paiute beliefs, Eagle Mountain is located along the Salt Song Trail, which is an important Southern Paiute spiritual trail. The Salt Songs are performed during the Cry Ceremony, which is conducted to guide the soul of a deceased person to the afterlife (Stoffle et al. 2000a). The location of the spirit person traveling the trail to the afterlife is marked at the end of each set of songs. The living people singing the songs know the spirit person’s progress and the song notifies the living that journey to the afterlife has been successful (Stoffle, Halmo, and Austin 1997).

The Salt Songs are “used in the solemn ritual singing commemorating the demise of one of its owners” (Laird 1976:17). Because it is associated with the passage of an individual to the afterlife, Southern Paiute peoples believe that the Salt Songs and associated places are powerful ceremonial areas.

The Salt Song Trail is associated with the travel of two sisters, *Yárik*, a wild goose, and another bird called *Avínankawats*, a small water bird similar to a duck (Kelly 1933). Kelly explains the journey of the two sisters in her fieldnotes. Kelly described their journey as follows:

...[They] lived at the mountain called *Áyai*, between Searchlight and Fort Mohave. [The sisters] traveled to Ft Mohave then came back, but on the other side of the river. [The sisters] crossed on the other shore to *Kútsakaib* (Grey Mountain). Thus these songs went to Ft Mohave, but turned and came back; this is where the Mohave lost the songs; they do not have them. The sisters came up the river on the east side to a place called *Mowáv* ζ t (a mountain unspecified). [They] crossed the Colorado at the junction of the Virgin; [they] went up to the Salt Cave there and named it. From there [the sisters] came to Charleston Peak then to Ash Meadows; then to the town of Shoshone, to the salt lake below the town called *Paníyí*; thence straight to Old Woman mountain, then down towards Imperial Valley; went almost to Blythe (Kelly 1933:18-106).

The sisters crossed the river one last time and came up the east side and arrived just before the sun rose at the *Kwi'nava* Mountains. The mountains had a large cave for the sisters to stay during the daytime, because they did all of their traveling at night (Kelly 1933). According to Kelly's informants, the sisters “sang en route” and as they were “traveling along, [they] named everything they saw- the mountains, water, everything,” (Kelly 1933:18-106). The places marked along the Salt Song trail are all important and interconnected.

Topographically, the Salt Song Trail marks important places by the end of various songs or sets of songs. Indian people say that the song is about a journey. It describes physical things, but the journey itself is spiritual. While on the journey, a person's spirit will visit a sacred site and then travel to the next one along the song trail. The song demonstrates the strong personal connection that a person has with the land, elements, and resources. When the songs are performed, the connection is made. For Indian people, the song is about healing, ceremony, and reconnection.

Indian History

The Amargosa Valley SEZ American Indian study area is historically special to the Numic-speaking peoples who have occupied these lands since Creation. These peoples believe that the Creator placed special features in these lands to support, heal, and protect all humans. The study area remained under Indian 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, operation of national transportation systems, and mining. A more complete discussion of these factors and the devastating affects they had on Numic peoples is provided in the Ethnographic Comments section later in this

analysis. In brief, the major periods divided by factors of encroachment are (1) Numic farming disrupted, (2) the 1829 – 1849 travelers along the Old Spanish Trail, (3) the California Gold Rush and the Forty-niners, (4) Federal and Private Commissioned Surveyors, (5) the late 1800s to early 1900s establishment of mining and ranching, (6) the establishment of regions of refuge, (7) the 1899 railroad and development of roads, and (8) spiritual runs.

Despite various encroachments into their traditional lands, resources, and living places, Numic-speaking peoples continue to reside, work, and farm the Amargosa Valley SEZ American Indian study area. They primarily lived in Beatty, Nevada; Death Valley, California; and Ash Meadows, Nevada. They participated in the building of the Tonopah and Tidewater Railroad. They travel to mine camps for wage employment. Numic-speaking peoples continue to practice traditional activities throughout the Amargosa Valley SEZ American Indian study area and they continue to tell their children stories of Indian lifeways and practice traditional ceremonial runs that have occurred since the beginning of time.

Native American Comments

Tribal representatives from the Pahrump Paiute Tribe and the Timbisha Shoshone Tribe visited the Amargosa Valley SEZ American Indian study area during the Solar PEIS Ethnographic Assessment. The Solar PEIS study visits occurred in November 2010 and July 2011. During the two field sessions 22 interviews were conducted. This total includes four Native American Cultural Resources forms and 18 personal statements from the involved tribal representatives.

The interview data presented in the following sections have been divided by ethnic group. This division is intended to strengthen the Native American interpretations by providing each ethnic group with equal space and opportunity to share their own cultural concerns and recommendations.

Pahrump Solar PEIS Interviews

The following section contains statements made by a Pahrump Paiute representative before and during the July 2011 field session. These statements discuss the cultural centrality of the Amargosa Valley SEZ American Indian study area to Numic-speaking peoples.

General Comments

This short essay was prepared by a Pahrump Paiute representative prior to the July field visit. This representative wanted to share some initial thoughts about Southern Paiute connections to the Amargosa Valley American Indian SEZ American Indian study area and potential impacts solar energy development may have on Native American resources before the field session occurred.

Amargosa Valley is located within the traditional homelands of Numic-speaking peoples. This area is culturally central to the Pahrump Paiute people. This valley is central in our lives and was provided to us by the Creator since the beginning

of time. It remains part of a complex cultural landscape described continuously in our traditional Winter Stories and ceremonial songs.

Songs such as our Silver or Salt Songs, contain important information based on our traditional knowledge and describe, in great detail, the importance of maintaining the serenity of areas within our traditional lands. This maintenance is critical to insuring the safe passage of a deceased soul on his or her journey to the afterlife. When the world was new, the Creator placed us on these lands where we received these songs. At that time, we were told it was our responsibility to sing these songs to maintain balance in the world.

We were taught that these songs come in many different forms but are all tied to certain locations or activities mentioned within. Similarly, we know the land has songs that can be heard. In Amargosa Valley, there is a predominant sand formation known as Big Dune with important cultural significance. These dunes have eyes to watch over the land and a voice to share its messages in the songs that it sings and the stories it continues to tell our people ever since the beginning of time. It is only one of three locations in the Great Basin known to be blessed with a voice commonly known as singing dune. Culturally, we know these features are alive and have relatives in Tonopah and Fallon, Nevada that must be protected and respected, as we have done for thousands of years.

Since Creation, Numic-speaking people have watched over and interacted with this land to insure that it, along with Indian people, would survive together. We are reminded in our stories and songs about the prominence of dunes that were used as important landmarks found along Indian trails, songscapes and storyscapes that cross through the Valley to other nearby locations. Within close proximity are pictographs created by the Little People, who watch over the land. They chose this special place and made drawings that depict the uniqueness and cultural significance of the area. The Little People knew it was important to leave their messages to communicate with other landforms.

To talk about land, it is equally important to understand that everything within the valley is interconnected. What happens in one place in this rich landscape will ultimately affect another. Such is the case with nearby Eagle Mountain. This special place is tied to many places including Ash Meadows, Spring Mountains, Bare Mountains, Funeral Mountains, Sheep Mountains, and Skeleton Hills. Southern Paiute Winter Stories describe Eagle Mountain as a special passage to the sky where a Mountain Sheep and other important beings entered. There is no other place in the world where is this found.

Solar Impacts- Draining The Sun

To understand the sensitivities associated with the interconnectedness between our culture and the land, it is important to appreciate our deep-rooted spiritual connection to everything in our world and those things that can potentially affect

our people. This is achieved by gaining a glimpse into understanding the cultural implications which are derived from activities that are not done in a culturally compatible manner.

We know the Sun is alive and is a vital part of our culture. Many of our stories and songs are related to the seasons and are intended to interact with the Sun. We know the Sun was given life to watch over us and in turn, provide light for us to see and heat for us to survive. It has caused certain features and/or characteristics to appear in plants, animals and rocks that we see today. It is so strong that it can make water disappear, make things dry up, wither away, or even burn. We are taught the Sun was given only so much power to survive, but if not used correctly, it can be drained of its power and die. When misused, the power of the Sun can be absorbed by artificial means, which were not intended. If this occurs, its power will spread across the land unnaturally, causing a disruption in our songs, stories, and ceremonies resulting in an imbalance in the world and the spread of sickness.

July 2011 SEZ American Indian Study Area Field Visit

The following comments and interpretations were made by a Pahrump Paiute representative (Figure 6) during the July 2011 field visit to the Amargosa Valley SEZ American Indian study area. Also included in this discussion are statements concerning potential impacts and recommendations.

Traditional Use

- *I could probably answer that a couple different ways, how Indian people use this area. First of all you have the physical way of people living off this land in the grocery store or pharmacy or school. This is everything that you need, and the church of course. This is a big part of our spiritual beliefs. So we use and need the land for everything that it provides us to live as people, but we, in turn, have to nurture that to make sure it continues to reproduce. Then you have the spiritual side of things, that all of this, our religion, everything that we have, and our songs and our stories can't go on without having this place here because we need this to get onto to the next level, or to the next plateau for our afterlife and even our daily lives of how we survive.*

Geography

- *I think that the geography of the area is unique in that it's part of how the story of Creation talk about how this was at one time all underwater. When the water started to subside you got these big huge lakes, and that's where a lot of those animals used to be here, however long ago, in the very beginning. A lot of the things that were placed there were put here for a reason so all the different rocks and things that you see, everything that's out in this landscape, including all the geology, is very much alive. It is things that we use, we rely upon; it talks to us, we talk to it. It's things that help get you through your life. This geology is central to all of our songs and our stories, even when we're talking*

and singing Salt Songs, Silver Songs, and other types of songs or even prayers. It's the same way that we have the vocal snapshots during those songs – things that describe all of this and how lush it truly is as an environment. There is just so much that's out in this area that is alive and needs that continuous interaction that can't be disturbed in the way that it's been placed here.



Figure 6 Pahrump Representative Discussing the Importance of the Amargosa Valley SEZ American Indian Study Area

Importance of Viewscapes

- *We made the first stop here along where the river is. There are several things around as I was walking. First, notably, is the landscape. The vistas that you get from here, from the Spring Mountains to the south and within that, of course, you get Mount Charleston, which is the place of creation for the Southern Paiute people. From there it's an extremely important area because we need that location which overlooks this area here too. It's because it's not only where we were created there but we were told in our traditional winter stories that we have to watch over this area and care for the things that are here. So everything was provided to us in this world. Nearby, south of here by the sand dunes, actually, there is a pictograph cave that has several drawings of things that are there, several locations throughout these mountains that were actually a boundary, a boundary location for the various tribes.*

Water

- *Sometimes Indian people would travel along the Amargosa and it really depends if the water was running or if it was just the riverbed. In some of the areas where there are deeper places around, deeper ravines, sometimes those became good thoroughfares because people could follow those to get to certain locations because we knew that they*

were a constant that people could travel through. Other times you want to stay out of those, especially if they were flowing, because you had the water in there and the water is a living being. So you can't be doing things to upset the water. You can't be throwing things in there. You're not supposed to be noisy by there. They say that you're not supposed to be doing things that are nasty or things that are disrespectful there, or else the water will disappear. It will dry up.

This particular river here is not necessarily because people are doing things badly why it disappears, but it's part of that reminder. See, just like Bare Mountain had all the trees there and you can see the petrified wood. That's part of the reminder that's there, just as this river is there. It also shows it because it has to reveal itself, to let people know that it's still alive and well. That's why it needs to hear our voices, it needs to hear our songs, it needs to hear our prayers and things that we have for it, so that way it will survive and thrive and everything else around this that gravitates towards the sand dunes is so important.

It's almost like this magnet that draws the water from the north towards the south, and as it goes down past the sand dunes into Death Valley and over to Ash Meadows and even going down into Shoshone, Tecopa, down into Dumont, and even south of Dumont where the little towns where Paiute people used to live. Chemehuevi people from the south; they're us. Chemehuevi and Paiutes are the same. They also knew all these areas, and they knew all of Kelso dunes, and they knew the ones south of there too because we all were related and we talked the same language and things.

Geology

- *As I'm walking through here, there are several pieces of this green mineral. I'm not sure what it is. It's a soft stone that actually is tied to one of our traditional stories when the sky opened up and there were these large lizards and large birds, bigger than you can even imagine, they said. They used to roam all around here and when the sky opened up one of those birds came and it ate one of the big lizards and took it over into an area not far from here, then it had regurgitated it on the other side of the mountain. It threw it up and there were these three big green mounds of minerals; that's the remains of that animal, to remind us. All throughout this area I'm finding that same green mineral that actually can be, when prepared properly, is used as a paint that's been used in other pictograph sites and things that area around, but also for ceremonial purposes and things. So there are lots of things here, just in my first walking around I find there are lots of rocks around and some of these are the kinds that we use. These are for prayers, actually, that are being done when people would pass through here.*

Those green minerals that I was talking about, they're all over here. These are the remains, as we see it; they're just as alive, even though people look at them as rocks. But you can feel these rocks and you know that from a long time ago this is part of those huge, huge lizards that used to be around here. That's why things were placed here. If this is here, all it does for us is it reaffirms the cultural significance and importance of this precious landscape.

As I was talking about the rocks that we use for praying along certain places around us, sometimes they have lids on them, like a little rock lid on it. This one didn't have one but you can see where it's been worked, or enhanced, and used. They're very, very important to us and we still use these things as we seen them today.

So when we put these rocks in these holes for the praying and things, they would put a cover on there and those rocks helped keep the prayers in the rock so as people pass through they feel and they can hear all those good things. Plus it goes back into the rock and into the ground, which helps use that power to help keep the land in balance and keep everything else in check so people don't get sick and it will keep all the other sickness away from the animals and the plants, the environment, and the air, the wind, all those kinds of things. It's very, very important for us to do.

Plants

- *I look and I see the yatumb, the greasewood, that's around here. There are stories of how those were created for this particular spot and why it has to be here and why this cannot be leveled here. If development does start to disrupt the balance of, not only the environment here, but also our cultural environment and our spiritual environment that we have. It will impact all of that because we're going to be left at a place that you can't change, that you can't take back if it was meant to be this way. We've been singing these songs since the beginning of time as they were brought to us. We learned those songs, we still carry those songs on, we still practice them, and they still are sung out of respect for the land and helping to keep this world in balance. That's why we feel that everything that we do within our traditional homelands is so vital to making sure that the world can continue on because everything is centered around, as we see it, our world and our universe which began at Mount Charleston and spread out all throughout Numic territory.*

Evidence of Previous Indian Use

- *As I walk around I can see lots of pumice around and knowing that there was volcanic activity which coincides with our winter stories and our ties to the surrounding areas. But the uses of those rocks were very important. They were used for many different things; they were used as, sometimes archaeologists will call them, abraders for making arrows and straightening shafts and things so we see those types of things that are, again, part of our reminders that there are lots of things that were around that are remnants of Indian people. For the untrained cultural eye, people would never know this, but for this, they are these indicator items.*

I think that the artifacts that are around this area. There are many different ways to look at that. Unfortunately, when scientists look at it, they may just see it as an inanimate object that just may have some characteristics that they try to analyze and try to identify. For us there's a spiritual connection because we know that those artifacts, first of all, have a spirit, that they are alive, they were touched by Indian people and even animals

when they were humans and things. This is the same way that they help watch over all those things. The reason that they're here is because we're always taught that people left those here for us to see, and we're to leave those here for the next person to see, and the next person to see, to always let it continue on. Once you start picking those up, then you break that cycle. Many of the artifacts, at times, people will refer to them as waste flakes, or debitage, or trash, but they're really not. You can go not too far from here and you go down south of Pahrump and you look at one of the high chiefs, Chief Tecopa. His grave is covered with a lot of that lithic material that people are saying, waste flakes. They're not; they're actually ways that are paid out of respect. Oftentimes when there was water all around here and the rivers were flowing, it's the same thing. You have to give offerings to those places. When you feed land and you feed the water, you talk to the land, you talk to the water and all of those things have to happen. So these are all remnants not only of utilitarian items, but items of prayer and items of offerings and things out of respect to help maintain the balance.

Songs

- *But we use this area and it's described in many of our songs from the Silver Songs, to the Salt Song, my goodness, there are Fox Songs, Mountain Sheep Songs. There are several different things that we sing about that actually describe this area and we need it for our religious and ceremonial reasons, of course, but also to pass on to the other world.*

Places Connected to the SEZ American Indian study area

- *My mom, my grandma, several other people that would come from Pahrump and Ash Meadows would come right through this area, know this area like the back of their hand and this is an area that is very, very important. There used to be people around here; there was a big leader that used to be around here that he would help share and watch over this information that was provided by the people but he would share it with the people to make sure that everything was going the way that it was planned, because if not – if you don't take care of it – then they say that it disappears.*

When I'm looking here to the north I can see the Bare Mountains. Of course the Bare Mountains are also very important. When my grandma and them used to ride by this way on horseback, at 70 miles from Pahrump to Beatty, they would ride that horseback starting early in the morning coming up and the old folks used to always talk about and share the stories about all the different landscape, how it used to be a long time ago since the beginning of time, when we were here, and how we were created and told to watch over it up until current times and even in the future. When we look at the Bare Mountains, it was an area that was lush with trees and they talked about that and they talked about how this whole landscape was much different. When they would go up into the mountains up there you can find petrified wood that's up there on top of the mountains, as well, that shows part of that. In essence the story is, and I can't say because it's out of season, but it's just that when it wasn't being respected the land had reacted. It responded to it because it's alive. So, it was struck by fire and then it burned, and it burned the wood down. The Creator said that that it would never come back, but it

would always remind us of what happened when we don't protect it. So the same type of deal happened up there that can happen anywhere. They are lessons learned; if you don't pay attention to the land, if you don't protect it, if you don't feed it and nurture it, if you don't respect it, it will respond or react accordingly and that's when things go away. Every single mountain range around here as far as you can see all is tied in, including this area here in the Amargosa Valley, within those songs for our memorials.

When people morn and there are things we have to do that at the time of death, a year after that; their name is never spoken but the area becomes very important to us to make sure that we're never having any disrespect shown for any of that or else people get trapped. Our spirits will get trapped in between and, of course, that's when other things can happen and sickness and those types of things will occur as well. So we have to be very, very carefully with those types of activities.

This Amargosa SEZ is definitely interconnected. There's no way that you can talk about this because just, actually, when you stand here where we're at, I can look around and I can see our place of Creation, I can see the sand dunes, I can see the Bare Mountains, I can see the Funeral Mountains, I can look out over onto the Nevada Test Site and to those areas, all around. So, it would be like, if it weren't connected, then it's like I can't talk about any of those mountains. That means I can only talk about this area. So, first of all you have the interconnection of everything that's around and how those things are alive. So when I look at the Spring Mountains, I know when I look from the north end of the Spring Mountains which is what they call the end of the mountain that goes to the head of the mountain over by Mount Potosi. That's a living being that's laying there, that's all part of what we believe. I think beyond that, then we have all these plants that are interrelated, the animals that are here that are interrelated. When we pass on they talk about the relationship we have with the animals that fly to different places, or go to different places, or live in different places, or live here and they carry those songs, those messages and everything else around. This reinforces the interconnectedness. Then you have the Indian people that talk about this area and then for Southern Paiutes in particular that for us in Pahrump and Ash Meadows and up in Amargosa Valley here, and even up into Beatty, this was all part that the Indian people used, knowing this land like that back of their hand. That's why I said earlier on the tape how my family used to come through here on horseback, a long time ago. They know all this.

My mom is 90 years old and she remembers all this and knows like it's the back of her hand. But you can't talk about this place without talking about Mount Charleston. You can't talk about Mount Charleston without talking about the Southern Paiute people. That then goes within Southern Paiute lands from California, Nevada, Utah, and Arizona. So it's a very vast area. Then you go, and I'm just talking on the surface, so now you look at the sky, and the sky is all interrelated here too because you can't talk about one pocket without talking about all the other compartments within the sky. So that's another of what helps weave all this thing together. Then you go subsurface, underground, and you have all of the water and the volcanic activity and things that go and feed into this area here. So to have a break in that would cause a big disruption in

our culture, and in the land, and in the ecology, and in our traditional beliefs and things, or how we would survive as a people.

Big Dune

- *Big Dune actually, I remember my family always talking about that. First of all, it's a very prominent feature on the landscape. So you see that there, and that prominence is actually described in our songs as we're singing about this area and traveling through this area, and as the soul travels through this area we talk about those dunes. The second thing is that it's an area that is so revered by Indian people because we know it's alive. It has the ability to move, it can shift in its shape, it has a voice, it sings, it can talk to you, and a lot of times people really had to respect those areas and it's not an area where you would necessarily go to live. You can find offerings and stuff that are left over there, but it was an area that was so important because people knew that when you go there you can hear the voice of that sand dune. That sand dune is actually tied into other sand dunes that talk to one another, where this one talks to the one up by Tonopah; there are sand dunes up that way, and it talks to the one up north there of Fallon, and it goes over by Dumont Dunes, which is down south there, and it goes on by Kelso Dunes.*

Actually all of these places are known as signing dunes, or talking dunes, and those really, with the exceptions of the ones that are north of here, up by Tonopah and Fallon, those other ones probably follow the Salt Song. It kind of bounds the territory that people would travel and that a spirit would travel when the world was new, when all of this was created and things that would happen from all over from way back in this life and even things that happened beyond us in this other world that's above us and down below us and all around us here. There are things that we can see and things that we can't see that all tie into those dunes. Those dunes really support a very unique environment, just over there. That is environment is only found over there. There are certain little insects and things that we would find over there that we talk about. There are certain plants that are over there that's why you would either go over there, to try to get some of those things, or pray to those things, talk to those things. They're the ones that can talk to that mountain that goes in and is able to interact with all the other places around, like Kelso Dunes and Dumont Dunes and even up here.

All the ones from here to Dumont Dunes, you can follow this Amargosa River that goes all the way down that way. This is a disappearing river. We know where it's north of here up by Beatty where the headwaters are, then it runs through where the Indian camps used to be. My folks used to go up to the Indian camps up in Beatty and stay there while the doctoring went on all around this area by a lot of the sand dunes and even by the river that is really a thoroughfare. It's a good marking on the landscape that people would use as identifiers to get from certain locations to conduct or fulfill certain responsibilities and ceremonial beliefs.

Impacts of Solar Energy Development

- *We come through this area. We sing about this area that is so vitally needed. The sun that shines in this area is particularly important to us because what it does is it provides the life that we need in this lifetime but also on the flipside as well. So when you have things that are out here that might disrupt that connection, then we're going to end up, obviously, having problems with going into our next life. The way that it would be captured artificially if they were looking at using the solar panels and trying to capture the power of the sun, which is looked at as a battery. It only has so much power and if it's not nurtured and taken care of, this is the sun, and then it will go away. It can die, but it can also cause sickness when that happens because it makes the world out of balance. We're extremely concerned about that because if that happens then everything else out here will face the same consequences.*

I wanted to share a couple thoughts about the solar project and what happens in Paiute beliefs and things by trying to collect or artificially harnessing the power of the sun and trying to convert it into power artificially through electricity and things. What that does, if you can imagine, it's like it's capturing the sun. So the sun whose powers that are only supposed to be seen during the daytime, is being captured artificially and shot across the land, used for power wherever it goes, and people will use that power but they won't understand what happens to us. What it does, it turns out that it flips the world as we know it. So days become extended into the nighttime when it's not supposed to be and it then shoots all around and it confuses the people that have passed on. They're right on the other side; they can watch us, they can see us, and we have to respect those people. We can't allow them to be confused, or the songs that we have that come through here – it confuses that too, because there's no way that we can talk about the songs that are supposed to be sung in a certain sequence. So at midnight, we're at a certain place over by Mount. Charleston, as it's going on its journey. It starts way down to the south. But if we start coming forward and we start singing the songs out of sequence or at the wrong time then our people are basically going to literally be trapped. They won't be able to go on onto their journey. Then it also flips onto the night, so it confuses the things that are supposed to be happening at night, start happening in the daytime. So there are those things that when we, there are certain protocols and practices that we do only at nighttime that you can't do in the day and vice versa. So if you do, there are consequences to all that. If somebody were to do something that were prohibited in doing, then you see those changes happening, or you see animals that are supposed to be travelling at night and only being around and seen at night will then start to appear during the daytime because they too are confused with everything that's around. It really causes a great deal of distress.

I was sharing this project with my mother who is 90 years old, who used to ride through here, and she's very concerned about this because as she's getting older she wants to make sure that she goes to where she needs to go and things are being done and the right way and the world is not in chaos and people aren't sick and things. This project is going to potentially do that if you're trying to capture those things with the sun. People just don't understand. This goes way beyond just looking at the plants and the animals here.

Those are extremely important; this is our grocery store, it's not a wasteland, but rather a place for Numic culture and religion. It goes deep down into the ground. It goes every way that you can see and considers everything that you see in the landscape in the four nautical directions. It considers everything that is up, from the sun and the sky and everything to down below, way down deep, to even looking at the past, the present, the future, and where we are us as a part. All of those ten things are all part of what we believe and we have to pray to every time. If we miss any of that or don't consider that, then we're going to end up running into the issues that I described with the sickness. So, I look at this in part how, here it is my family for as far back as we know and as far back for us, all my relatives and everything and my people were here since the very beginning, when this world was created and when there were bodies of water all over this location. Mount Charleston was really more of an island where there were things, where we were created, where we were placed, intentionally put there to watch over this area. Today, of course, there aren't a lot of Indian people around, but our culture and our religion is just as important to us as hopefully other people's religion and culture are because we have to rely upon that to make sure that we can survive as a people and as a culture.

Solar recommendations...that is really a tough one. First of all, as I shared on the tape earlier how we view the sun, a lot of our stories and songs, and beliefs relate to the sun: how we get up in the morning, our activities that we do. There are certain practices and things that we can do at night that we can't do in the day and vice versa. So we need to make sure that those things continue on. We can't cause an imbalance.

So for a solar recommendation to be in this area, first and foremost, would be that this is not the place for it. This is the place where song trails come through here. There are stories about the wind coming through this area. The dust that you see sometimes; those are the spirits of the Indian people and sometimes they're angry and they'll bring sickness. They always tell you, when you see those things, to avoid them and tell them to go away, to pass around you. If they come through you they'll cause you to get sick and you don't want that. So trying to remove things that were meant to be here in a place that's so precious where you have all of those parts of the church stories, I guess is the only way to say it. It's our religious stories and songs that come through here that we need for our afterlife or else a person's going to get trapped in the middle and they're not going to be able to go on. It's going to cause such an imbalance and sickness around. There will be a ghost sickness that will be coming around to people. There will be things in the environment that will be happening. There will be the artificial way of trying to harness the energy from the sun that you can't do – it wasn't intended to be that way because we think of it as a battery that only has so much power to give. It has to be maintained and nurtured and if it's not then it will die and go away. But it's also a very powerful being because it has the ability to cause things to die and to wilt; it can cause things to grow and flourish. It can cause things to live, it can cause things to do all kinds of activities. It has the power to dry up and suck up water and it's a very powerful time, even when there are things like eclipses and things of that sort. Those are very important times for us as Numic-speaking people because it's a very powerful moment when there are changes happening in the environment.

When people talk about global climate change and things like that. These are the types of activities that when you're pulling down that power from the sun; as you drain it and you're now trying to push that power across the land, it then interferes with the songs and stories that we have. It then kills and interferes with the plants and the life there because not only is it our songs and stories, these plants have songs and stories that they talk amongst one another. The animals do the same thing. The things underneath do the same thing. The geology does the same thing. We've said how these mountains and everything they see as so alive; there are the ears to hear to hear you and the eyes to see you and the feelings to feel you. This knows all of that. So it would cause so much sadness to see something like this happen because we have no place to go. Once you end up trying to change this, you can't replace it. You can't say, "ok, we won't do that much damage. We're going to put up these things and nobody will ever see it." I think that creates a real big problem.

The other thing, not cultural, I think that is a big issue is when you get these places that are not remotely placed and I'm not advocating for that, but when they're not remotely placed, they become great targets in rural areas. If a person were to drive through the state of Nevada, for example, it's so hard to see a sign that's not shot up, or somebody wants to see something, or something that may get stolen that you'll find on a gate for a ranch somewhere, a souvenir. Unless there would be the security in this area, I think it would be very likely that there would be vandalism. The problem with the vandalism, then it becomes an attraction. Then people start coming into our area here, where now we're trying to deal with culturally, we don't have a prescribed way to deal with it, so now we're trying to figure out, how do we deal with photovoltaic panels. We don't have a word in Paiute for that. We don't have a way of dealing with that. We don't have a way for dealing with the attraction of destruction and vandalism that comes in and all it does is cause people to go around the fenced area and see what's there. So now we have the creation of new roads, the disturbance of habitats, and actually we're at the upper end of the desert tortoise habitat. They're known to be in this area, but these are areas that are important because those animals, we don't even just look at them as the animals, but the beliefs that come with them. So, the sun has a lot of things that creates how people react and how the animal reacts, when they hibernate. The sun was responsible for how the creosote was burned in some of the traditional winter stories. It talks about how the cotton tail, how it's tail got white and how the jackrabbit got some black spots on his back, and by his legs and things. All of those things are stories that are related to the sun that had to happen in this area because even when we were coming around here we were welcomed by a jackrabbit. He was one of those ones, he helps watch over this area, just like all the little {chuchugo}, those spirits that are all around here that watch over here because they know that we're here, I'm here for the good of the land and to help protect this area and that's what I think all Indian people that have been out to this site are saying the exact same thing. They want to help protect this land. It's not because are trying to push it off onto somebody else; we're trying to protect this area because we have to. It's vital to our survival and to our songs and our stories, and even keeping the ecological balance in this area that needs to happen. These are the things that we have, and are our responsibilities that we have culturally.

Timbisha Shoshone Solar PEIS Interviews

The following comments and interpretations were made by Timbisha Shoshone tribal representatives (Figures 3, 7, 8) during their field visit to the Amargosa Valley SEZ American Indian study area. The following statements reflect the cultural significance of resources and places associated with the SEZ American Indian study area.

General Comments

The following statements are observations and personal statements made by Timbisha Shoshone tribal representatives concerning the Amargosa Valley SEZ American Indian study area.

- *The trail from Nevares to the hot springs goes across the site. Also this area is tortoise and rabbit habitat. Eagle Mountain is off in the distance and the solar panels could affect the viewshed.*
- *The Indians went from Nevares Springs up to the hot springs and Indian Pass. That was a major Indian trail to Beatty.*
- *If the project goes broke, in the process of removing the material we would like the land restored with the help of the Timbisha Shoshone to help identify proper plants in that area and to do prayers that help restore the balance of the land.*
- *The mountain sheep cross here. There was a big herd back here. South of Lathrop Wells, there's a place down there where they cross the road and people run over them with their cars all the time.*
- *They have badgers out here. Badgers are important. Little desert squirrels are out here too.*
- *There are rabbits here too, and the animals are related to us.*
- *The animals are the ones that are still free to roam the lands, but they're getting crowded. At the tortoise reserve south of Las Vegas, the birds are eating the young. I've seen a video on that; they have a place for the tortoise but the birds are coming in and eating the baby tortoise because their shell is soft. They're all concentrated there. Our first choice is not to disturb them and move them away from their habitat because this is their land, their home. It's just like us – that's our home down there in Death Valley, and they weren't going to take us out of there. I would rather see them left alone to be able to live their life, but if the habitat is going to be destroyed I'd rather see them go someplace large and safe.*
- *Historically, right there, where we live in Death Valley, they called a natural oasis. Furnace Creek, that ranch, in some of the histories that are written, it is called a natural oasis. It is not a natural oasis. The Indian people brought down the water. You can still*

see the trace where they brought the water down from the springs onto this area, which they thought was a good area to do some agriculture. Ash Meadows was already doing theirs. They got the seeds from the Ash Meadows people and they started to grow things there and even built a reservoir. In history, it says that it was a natural oasis that the people came up on, but it was not. It was a human made landscape. I always think about our language. There are words in reference to growing things, growing crops and planting. So if they weren't planting seeds, why have that word in there. We do have words that refer to planting the seeds and watering them. They have a word for that, to water the plant and all this kind of stuff.

- *This was a major river. It had to be to fill up Death Valley and make it a lake. The wetter times with elephants and mastodons, that's been talked about by our elders. These are the people that hardly ever went to school; they didn't learn it in school or anything like that.*
- *Trail for Nevares to Hot Springs goes across the site. This area is a tortoise and rabbit habitat. You can also see Eagle and Panamint Mountain off in the distance.*
- *The underground water area here serves Death Valley.*
- *Devil's Hole, its source is the river, and it surfaces. I've seen it surfacing; it ran on the surface in 1983 and '93. Grace and I were talking about the what-ifs. With climatic changes, we never know what kind of weather we're going to get into, really.*
- *Willow flags here mark the run Western Shoshone do once a year. They use Shoshone colors: green, red, white, blue, and they all have meanings. The run would be disturbed by a solar project here. I'm pretty sure it would be disturbing to the elders when they have to come down this way and see that because we come to this area because it's a well known area and we wouldn't want that to be disturbed. You come to this place over here to give thanks and to acknowledge Yucca Mountain itself. It is human, living, breathing, and the elders that that if the Yucca Mountain project was completed, the mountain would become angry. It's like a snake – who knows what would happen then. That could related to its outside features, like this area here. It being there and seeing it could have an impact on its being. Running through Western Shoshone land, looking around and vistas are important. Unobstructed views are important. This is like a long time ago when they used to go on their spiritual run.*
- *From here you can see Eagle Mountain That's one of our mountains that has a tale to it.*
- *All these grasses here – I bet people a long time ago probably used them for flour or something. The creosote was used as medicine. I don't know if you've ever been out in the desert after it rains or during the rain, but the creosote smells so good. It's a natural cleanser.*

Native American Cultural Resources Interviews

During field visits, Timbisha Shoshone Representatives were given the option to be interviewed with one of the UofA's survey instruments. The following comments reflect those recorded during interviews with the Native American Cultural Resources Form.

When asked to describe the geography of this area or elements that stand out the Native American Representatives responded:

- *Important elements are the underground river, growth of shrubs, big sand dunes, the dry lake and water, and the mountains all around the valley.*
- *The river, sand dunes, and plants stand out to me.*

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

- *Yes they would have; the area would have been used for many life-ways. The area would have been used for living, hunting, seasonal camping, ceremony/power, gathering food, and many other things.*
- *People would have used this area. It has many uses, like the springs, mountains, and trails.*

When asked to specify how this place would have been used, the Native American Representatives replied:

- *All uses contribute to their way of life: cultural, following traditions, trails to mountains and springs, hunting, gathering, and meeting others for gatherings.*
- *Amargosa Valley would have been used for living, hunting, seasonal camping, ceremony/power, gathering, and more.*

When asked if this place is part of a group of connected places, the Native American Representatives replied:

- *Yes it is. Legends told to the generations of people, prehistoric and historic, connect this place to others.*
- *Yes it is connected.*

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

- *Yes, they would have. The Amargosa River, along with Ash Meadows springs and Mountain Springs were used.*
- *The water here was used for drinking, medicine, ceremony, and other things.*

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

- *Water is medicine for all Indians.*

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

- *The condition of the site is poor. The sand dunes are being impacted by people driving over them and making tracks. The Russian thistle is evading the native plant area.*
- *The condition of the site is poor. The native plants are gone and the sand dunes are being destroyed by ATVs.*

When asked if Indian people would have used plants in Amargosa Valley, the Native American Representatives replied:

- *Yes they would have used them. Plants here were used for food, medicine, and making things.*

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

- *The condition of the plants here is fair. Humans are impacting the site – using the area for fun and not spiritual things.*
- *The condition of the plants is poor. Invasive tumbleweed and humans using the area as a play-land is affecting the site.*

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

- *Yes they would have. The animals would have been used for food, ceremony, clothing, and tools.*

When asked to evaluate the condition of animals and habitat in Amargosa Valley SEZ American Indian study area, the Native American Representatives replied:

- *The condition is poor. Humans and vehicles are impacting the condition of the animals and habitat at this site.*

When asked if Indian people would have the Amargosa Valley SEZ American Indian study area and artifacts found here, the Native American Representatives replied:

- *Yes, they would have. The site and artifacts here would have been used for living, hunting, gathering, camping, and ceremony/power.*

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

- *The condition of the site and artifacts is poor. Humans are impacting the site.*
- *The condition of the site and the artifacts here is poor. There are too many people out here destroying the area.*

When asked if Indian people would have used geological resources within Amargosa Valley SEZ American Indian study area, the Native American Representatives replied:

- *The geological features in Amargosa Valley would have been used for seeking knowledge and power, communicating with other Indians, ceremony, communicating with spiritual beings, teaching other Indians, and for marking territory.*
- *Yes, they would have been used.*

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

- *The condition of geological features here is poor. Over-use of vehicles is impacting the site.*
- *The condition of the geological features at this site is poor. Cars and people are impacting the condition of resources here.*

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

- *Overall, the condition of Amargosa Valley is fair.*
- *Overall, the condition of Amargosa Valley is poor.*

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

- *Yes, humans and vehicles are affecting the condition of this place.*
- *Yes, cars and people are affecting the condition of Amargosa Valley.*

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

- *Keep people out, so nature can protect the water.*
- *I recommend keeping people out.*

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

- *Get rid of all exotics like Russian rye.*
- *Remove all unwanted plants.*

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

- *Close the area for conservation.*
- *I recommend closing the area.*

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

- *Designate the sand dunes area to be conserved.*
- *Close the sand dunes to four-wheeling and people.*

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

- *Protect the mountains and the river.*
- *Protect the riverbed and the mountains.*

When asked for overall recommendations for protecting Amargosa Valley SEZ American Indian study area, the Native American Representatives replied:

- *Remove exotic plants and limit the recreational use. Start conservation.*
- *Remove the tumbleweeds and close the area to people and driving.*

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

- *Yes they would. Indian people would want to come to this place to protect it and to use it spiritually. Visiting the site would also be a part of use.*
- *Yes they would. Indian people would want to come to this place for protecting the area and praying.*

When asked if any special conditions must be met for Indian people to use Amargosa Valley SEZ American Indian study area, the Native American Representatives replied:

- *If possible, Indian people would need no recreational vehicles and no noise.*
- *There must be no cars and no noise.*

Big Dune

Big Dunes is located in the Amargosa Desert about 20 miles south of Beatty, Nevada and 3.4 miles southwest of Highway 95. Big Dune stands at roughly 300 feet at its tallest point and is 2623 feet above sea level. The sand dunes are found approximately 2.25 miles southeast of the Amargosa Valley SEZ. This place was identified by Timbisha Shoshone tribal representatives as culturally sensitive and important to Shoshone peoples.

- *All I know is the dunes in our language. And, but, somehow or other, that bird is related to the sand dunes. The tuhuviot. It's that little fly catcher. He's related to our sand dunes down there. Where he came from, I have no idea. But where he wound up at was right there in the valley where they demolished him. Where he died. And that's the name of that mushroom rock, Tuhuviot, after that bird.*
- *The wind makes sounds, you know. Sand makes sounds and all that. I wouldn't doubt it one bit. Because it's kinda relative to other landscapes that have been known to have songs. The songs come from the place. That's what they've always said, you know, that the trees will—they'll hear the trees. Which again is caused by wind, you know. And then when they have songs, they talk about that this song came to me. It was given to me. And they'd sing that song. And it's relative to a landscape. They would sing that song.*

Big Dune Native American Cultural Resources Interviews

The following comments were recorded during interviews with Timbisha Shoshone tribal representatives using the Native American Cultural Resources survey instrument. These interviews concern Big Dune and the surrounding landscape of the Amargosa Valley SEZ American Indian study area.

When asked to describe the geography of this area or elements that stand out the Timbisha Shoshone Advisory Committee responded:

- *Important elements are the underground river, growth of shrubs, big sand dunes, the dry lake and water, and the mountains all around the valley.*

When asked to specify how this place would have been used, the Timbisha Shoshone Advisory Committee replied:

- *The area would be used for many life-ways.*
- *All uses contribute to their way of life: cultural, following traditions, trails to mountains and springs, hunting, gathering, and meeting others for gatherings.*

When asked to specify how this place is connected to other places, the Timbisha Shoshone Advisory Committee replied:

- *Legends told to the generations of people – prehistoric and historic – connect this place to others.*

When asked to discuss water resources connected to Amargosa Valley SEZ American Indian study area, the Timbisha Shoshone Advisory Committee replied:

- *The Amargosa River, along with Ash Meadows springs and Mountain Springs were used. Water is medicine.*

When asked to comment on the condition of the site, the Timbisha Shoshone Advisory Committee replied:

- *The dunes are being driven over and covered in tracks. The Russian thistle is evading the native plant area.*

When asked to comment on how plants were used at this site, the Timbisha Shoshone Advisory Committee replied:

- *Plants here would have been used for food and medicine*

When asked to comment on the condition of plants at this site, the Timbisha Shoshone Advisory Committee replied:

- *Humans are impacting the site – using the area for fun and not spiritual.*

When asked to comment on the condition of animals at this site, the Timbisha Shoshone Advisory Committee replied:

- *Humans and vehicles are impacting the condition of animals and habitat at this site.*

When asked to comment on the condition of animals at this site, the Timbisha Shoshone Advisory Committee replied:

- *Humans are impacting the site.*

Amargosa River

The Amargosa River is about 200 miles long and it is the major source of water for the Amargosa Desert and nearby Death Valley. Given the current proposal, the river bisects the Amargosa Valley SEZ American Indian study area. At this time, the river flows underground as it passes through the study area (Figure 7). It is important to note that during wet years, the river will flow on the surface. This place was identified by Timbisha Shoshone tribal representatives as culturally sensitive and important to Shoshone peoples.



Figure 7 Native American Representative and Ethnographers Examining the Amargosa River Bed in SEZ American Indian Study Area

- *The Amargosa River, along with Ash Meadows springs and Mountain Springs were used. Water is medicine.*
- *This was a major river. It had to be to fill up Death Valley and make it a lake. The wetter times with elephants and mastodons, that's been talked about by our elders. These are the people that hardly ever went to school; they didn't learn it in school or anything like that.*
- *Trail for Nevares to Hot Springs goes across the site. This area is a tortoise and rabbit habitat. You can also see Eagle and Panamint Mountain off in the distance.*
- *The underground water area here serves Death Valley.*
- *This land has been the Indian people's land since the beginning of time and the Amargosa River ran through here. The railroad when through here years ago and my ancestors helped build it. The Amargosa River runs under ground here, so how is that going to be affected? The river ends up in Death Valley; there you can see the water. The Indian people farmed here years ago, and this area was part of a major trail to the Beatty area. The Indian people have used this area since the beginning of time.*
- *We found eight shards – they were white and you can see where their fingerprints were. The trail and the water would have brought Indian people out this way. They probably camped right next to the water, the Amargosa River. I'm thinking that the water probably ran where we were – that bend going down. It could be a leftover stream. They probably camped along the sides and he was saying that obsidian, that big piece I found; he said that it was the bomb a long time ago when the volcano went off and the bits and pieces went everywhere. Some landed over here.*

Solar Recommendations

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

- *Could they come in here and level everything off, then not build immediately?*
- *I think the mirrored receptors would reflect a lot of light all the way around.*
- *I hope that this project doesn't come to fruition. I don't know how much power this country needs.*
- *Will they have to put up new transmission lines later if the current ones can't handle the future load?*
- *A project with a small area might be acceptable, but the designated area now is much too large.*

- *With another project, the way that guy was talking, there was 6,000 acres of this land that they're going to just flatten and clear off, and his idea was to cut the creosote off just above the roots and just leave it. They don't grow all that fast, but when you're going to be out here 10, 15, maybe 20 years, these things will grow back. So someone is going to come in, other than him because he'll probably be gone, and they'll say, "Well, let's put a little weed killer on there." I don't think they care about the river flowing underneath the ground, as long as they get water that they can use for these.*



Figure 8 View of Eagle Mountain from SEZ American Indian Study Area

- *I understand that they need water to wash the panels off. So in an area this big, how much water do you need to keep them clean and to cool them down? They can say anything, and you say, "Oh, ok, we'll take your word for it. Go ahead and do it." Then you find out that it doesn't work that way. The water is important, and it shouldn't be used beyond a level that the Tribe could decide.*
- *Something might happen that might pollute the ground. Someone was saying that these panels have an endlife, and you have to do something with them. A lot of people do tend to get lax on a lot of things that they're supposed to do and if no one is around to tell them, "Do this, and do it now. Get it out of here." There's a lot of people that would say, "Maybe we'll just leave it out here for a month, we'll take it out in six months". Next thing you know six months is one year, one year is two years, and the panels are still lying out there. So, it can get lax. Out of sight is out of mind until somebody goes back there and says, "What's all this. How long have these been laying out here?"*

- *I don't think self policing works very well; you tend to get lax sometimes. I think there should be some sort of monitoring component with personnel from our office approving the project activities on a regular basis.*
- *I'd sure hate to see all of this cleared. After they level this stuff off, what are they going to do with it? Are they going to burn it? Then you won't have any jackrabbits running around here. The ants would be gone. During the springtime, this old dead grass is green. When they do that, there's not going to be anything here. This whole area, if the other proposed projects happen – there were supposed to have been some on this side of the dunes up to the road and it was supposed to be fenced in. Then we had some on the other side of Valley View Road. There was one going down to an old runway there, a runway for piper clubs, or small prop planes, and that was going to be just covered with photovoltaic. So this whole valley would be covered with this! The whole thing would be covered with panels. There would be no more of this that's here now – it would be an eye sore really, unless they were camouflaged. How tall are these going to be? If they were 20-30 feet high, a rabbit could get underneath, so they could migrate.*
- *There's a lot of sagebrush out there, and creosote. I'm concerned that if this area was cleared, they would have to use herbicides to keep the plants down, which is a violation of the land and the river running underneath.*
- *If the project goes broke, in the process of removing the material we would like the land restored with the help of the Timbisha Shoshone to help identify proper plants in that area and to do prayers that help restore the balance of the land.*
- *We want the cost of decommissioning and restoration built into the project budget.*
- *I'm concerned that the project will affect the wind, and those dunes. The wind is a living entity and could become angry.*
- *The project may affect the underground water. The underground water serves Death Valley. Also, the project may affect the sand dunes and the wind patterns which are very important.*
- *Solar heats up the ground. How the solar panels are going to raise the temperature of the earth is another concern I have. Will they change the temperature of this area? Also, would the project area be fenced? The animals probably wouldn't go in there if there was nothing to eat, but they could go in there to repopulate or on migratory paths.*
- *This could be a crossing place, and I'm concerned about the movement of animals. This could be a burrowing area for tortoise, or other animals.*
- *We have kangaroo rats. Those are the ones that really make their homes down there on the flat where they said they're going to destroy all the creosote. They're going to tear that down, and that's where the kangaroo rats live. They make their homes there, the*

squirrels too. They are important animals that we care about; we love all animals and we think an awful lot of them.

- *I know on other solar projects there was a concern about the shining of the receptors and distracting drivers as well as pilots when they're flying over there. The solar project down there in town finally agreed to go dry after there was enough objection to their wet plan. Using so much water in the desert isn't a good idea.*
- *This project may affect sand dunes and wind patterns.*

Ethnographic Comments

Throughout traditional Western Shoshone and Southern Paiute 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 Amargosa Valley SEZ American Indian study area, places used for medicinal purposes, vision questing, and power acquisition are linked together through interconnected trail networks that cross through the study area. One area that has particular cultural significance is the Amargosa River, which runs through a major portion of the Amargosa SEZ American Indian study area.

Puha

To Numic-speaking peoples, the universe is alive and everything is interconnected through all types of relations. This is what anthropologist, Roy Rappaport (1999:263-271, 446) refers to this as the “the ultimate sacred postulate.” The universe is alive in a similar way that humans are and both possess most of the same characteristics. The universe has discreet physical components such as power and elements. As explained by Sven Liljeblad, power is everywhere and is “a source of individual competence, mental and physical ability, health, and success” (1986:643-644). Power is often referred to as Puha. This concept is common among the different tribes throughout the western United States. Numic-speaking peoples such as the Ute, Western Shoshone, Southern Paiute, and Northern Paiutes have similar words in their languages; (Ute- *Puwavi*, Western Shoshone- Puha and *Poha*, Paiute- Puha). It is a fundamental principle of their epistemologies as well. Such a concept of power is not limited to Great Basin and Colorado Plateau peoples, it is also a fundamental epistemological principle for the nearby Yuman-speaking peoples such as the Mojave, Hualapai, and Havasupai.

In order to understand the role Puha has in Paiute and Western Shoshone cultures, the basic doctrine of Puha must be explained. Puha is derived from Creation and permeates the universe, which resembles a spider web. Sometimes it is like a thin scattering. At other times, it occurs in definite concentrations with currents where there are clusters of life. Puha exists throughout the universe but it will vary in intensity from person to person, place to place, element to element, and object to object. This is similar to how strength differs among humans. Puha can also vary in use and it determines the tasks that certain elements (air, water, rocks, plants, animals) can perform. Puha is networked; it connects, disconnects, and reconnects elements in different ways. This occurs because of the will of the elements that have the power.

Puha is present in and can move between the three levels of the universe: the upper level, where powerful anthropomorphic beings live, the middle level, where people live now, and the lower level, where extraordinary beings with reptilian or distorted humanoid appearances live (Stoffle, Zedeño, and Halmo 2001).

In his article, “Basin Religion and Theology: A Comparative Study of Power (Puha),” Miller (1983:79-89) noted:

Power is diffused everywhere in continuous flux and flow, which however, is not haphazard because, as an aspect of memory, power is rational. From all available evidence, the routes of concentrated power within generalized dispersion are web-like, moving both in radial patterns and in recursive concentric ones, out from the center and back again [...] The web image is reflected in the stories where Coyote assumes the form of a water spider to carry humans to land and Sun takes the form of a spider who is webbing the firmament of the universe [...] The web of power, however, is not static like that of a spider because the webbing actually consists of the flow of power rather than filaments per se. Rather, the web is pulsating and multidimensional, even having aspects of a spiral, sometimes regular and sometimes erratic, intersection with the radials from the center. This spiral movement is represented most graphically by an in-dwelling soul of a person that can be seen escaping the body at death as a whirlwind.

In Paiute and Shoshone cultures, there are rules for handling Puha and powerful objects. These rules function to control the person with the Puha and prevent him or her from misusing it. Power can only be used at proper times and in proper places and it must be used in accordance with standardized procedures such as preparation and ceremonial pilgrimages. People who have Puha and knowledge may withhold information on procedures for acquiring and maintaining power from people who are uninitiated or deemed unworthy candidates. Stoffle, Zedeño, and Halmo (2001:65) wrote; “the diversity and unpredictability of power was consistent with an ecosystem that was equally diverse and unpredictable, although often kind and bountiful in the resources provided by nature.”

Puha is tied intimately to the land and it has a special relationship with water. Water is a life giving force that both falls from the heavens and springs from the land. Water is imbued with power from its origin place and it carries that power as it moves through an endless circulation from the atmosphere to the earth and back again. Puha flows in much the same way, coming from the earth, traveling through the atmosphere and spreading along natural elemental courses. In a way, water is a metaphor for Puha and the element is often inseparable from the power. Puha is not an abstract concept for Numic peoples; it is a physical reality.

Black Mountain, the Amargosa River, and Puha

Since the beginning of time, the Amargosa River has been an important feature for Paiute and Western Shoshone peoples because of its cultural link to the distribution of Puha. The Amargosa River begins at one of the most powerful places within Paiute and Western Shoshone territory. The river’s headwaters are at the top of a large volcanic mountain known as Black

Mountain (Figure 9). It is one of the highest local volcanoes and has long been identified as an important ceremonial area.



Figure 9 The Amargosa River

Millions of years ago, when Black Mountain was formed, its caldera held a large lake. Eventually, the southern wall of the caldera was broken in two places releasing its waters and beginning the process of eroding two large dendritic canyons, collectively known today as Thirsty Canyon. From these dramatic steep-sided canyons, water flows toward the Oasis Valley past the Oasis Valley hot springs. It then flows south along the northeast side of the Funeral Mountains, past the town of Shoshone and Dumont Dunes. There, the river turns quickly to the west and empties into Death Valley. Today, this roughly 200 mile long river runs underground most of the year, but it once was the major river feeding Lake Manley, the Pleistocene lake that dominated much of Death Valley (Stoffle et al. 2009).

The hydrological complex of Amargosa Valley SEZ American Indian study area is one of the most important in the region. Given that water and Puha flow downhill, Black Mountain is

the ultimate source of regional Puha and water. The river, mountain, and associated features have been linked to ceremonial travel and the act of power seeking by Paiute and Shoshone medicine men and women. For those who would make a pilgrimage to Black Mountain, a system of trails would have been followed, passing shrines and prayer stations where ritual actions were performed for the purposes of spiritual preparation.

In addition to the physical pilgrimage trails found on the surface, the Black Mountain area factors heavily into important spiritual trails. These trail networks are traveled by supernatural beings both above and below the earth. Water babies travel on the spiritual trails created by underground water sources far below the ground. These networks intimately connect the Amargosa River, area hot springs, magma flow, and associated cinder cones. All of these features create Puha paths and provide travel routes between places for spiritual beings (Stoffle et al. 2009).

Big Dune

Within Indian culture, powerful places are recognized by their topographic uniqueness. It is in these places that Puha concentrates. These places of power are often in the form of hot springs, dramatic peaks, canyon constrictions, rivers, and sand dunes. “Often the power of such places is supplemented by striking panoramic views and musically interesting acoustics. The views and acoustics have their own powers that in turn contribute to the power of a place as well as facilitate the performance of ceremonies” (Stoffle et al. 2000b:5). In the case of Big Dune, not only is it an entirely unique topographic feature, it also provides some of the most stunning views in the area.

Indian History

Indian people have a history like all peoples. Their history however, has largely been carried down through time via oral accounts. Oral transmission has been used because those who controlled writing and publication for much of this time (non-Indian), dominated the narration of events. Indian history can be considered to begin as soon as impacts of Europeans arrived in Indian Country.

Numic Farming

The Ash Meadows area is closely associated with places in the Amargosa Valley SEZ American Indian study area. Traditionally many Numic-speaking peoples lived in this area. Due to the abundance of water, Ash Meadows was one of the major agricultural centers in this part of Numic territory. Indian people grew a large variety of domesticated crops including the three staples—corn, beans, and squash. They tended to their fields with hand crafted tools such as a digging stick. In addition to cultivating domesticates, Numic-speaking peoples cultivated wild strains of plants through a number of highly developed techniques. These included using burning to clear areas of brush and stimulate new growth, as well as transplanting and pruning plants (Steward 1941:232).

In neighboring Death Valley, Western Shoshones also farmed on a fairly wide scale. Lingenfelter (1986:19) indicates that each Shoshone family cultivated a dozen or more acres with corn, beans, and squash being the main crops. Later, Dock, the traditional Shoshone district leader of the Grapevine Canyon district, and Gold Mountain Jack, a Mahunutsi, each started second farms out on the floor of Death Valley at Panugu, where Gold Mountain Jack's family spent about half of their time.

Steward's informant, BD, recalls that his father, uncle, and grandfather cultivated 50 acres in Grapevine Canyon. In addition, a Shoshone by the name of "Cold Mountain Jack also had a ranch about a mile below the village and one other family had a plot," (Steward 1938:89). Steward also states that before the introduction of shovels, digging sticks were used for planting. Furthermore, each species was planted in a separate row and farming, including irrigation, was performed by both sexes. Each plot was family owned, and at the death of an owner, the fields were allowed to lay fallow for one or two years.

North of Death Valley, the Panamint Shoshones also adopted agricultural practices. In the hinterlands of the Panamint and Argus mountains, many small springs were used for Indian agriculture. When botanist Fredrick Coville visited the Panamint Shoshones in 1891, he indicated that the community was engaged in indigenous agriculture as well as hunting and plant procurement activities. He wrote, "At the mouth of Hall canon, near Hot springs, at the west foot of the Panamint mountains, and in Johnson canon, on the eastern or Death valley slope of the same range, the Indians have under crude irrigation and cultivation two or three acres of ground" (1892:352).

Coville also identified some of the principal cultigens he encountered. These included "corn, potatoes, squashes, and watermelons," (Coville 1892:352). At the end of the 19th century, the Panamints continued to hunt jackrabbits, cottontail rabbits, quail, and mountain sheep. In addition, they hunted chuckawalla lizards, kangaroo rats, and mice. They also continued to procure a wide range of wild plant resources that were used for food, medicine, and the creation of items that made material culture.

The Old Spanish Trail Period

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 Los Angeles, California, over what was to become known as the Old Spanish Trail (OST).

Between 1829 and 1849, the Old Spanish Trail was the primary land route between the two provincial outposts of Abiquiu and Los Angeles. During these years, it was used extensively by Mexican and American traders who traded New Mexico woolen goods for California-bred horses and mules (Stoffle et al. 2008:2).

The OST was actually a series of well-established Indian trails that were linked together by Mexican herders and traders. Hundreds of people, woolen goods and herds of thousands of animals were moved across the trail. The OST went through present day Las Vegas Valley, crossed southern Nevada and continued into California (Stoffle et al. 2008). These mass

movements of people and herds back and forth on the OST network caused major direct and indirect disruptions in the lives of Numic-speaking peoples.

While the main branch of the OST came through the Las Vegas area (via Las Vegas Wash) and curved west to Cottonwood Springs, the effects of the OST and its travelers, namely the spread of disease, environmental degradation to watering holes and the displacement of Indian people, rippled throughout the Numic-speaking communities of southern Nevada (Stoffle et al. 2009:33)

The impact of the OST forced Indian people to abandon many of their traditional communities at water sources along the trail throughout southern Nevada and California. Indian people had to re-establish themselves in more isolated places for protection away from the trail.

California Gold Rush and the Forty-Niners

After the closure of the OST, the lure of gold and land brought forth new waves of pioneers, miners, and explores. This marked a new period that continued major and lasting impacts on Numic-speaking communities and marked the first time when constant access to the entirety of Southern Paiute and Western Shoshone territories was available.

The California Gold Rush in 1849 was the first known documentation of Euro-Americans in the Amargosa Desert. An estimated 25,000 people immigrated overland into California in this single year and are now known as the Forty-niners (McCracken 1990). Most of the travelers arriving in the winter opted for traveling through southern Nevada and to Los Angeles in order to avoid crossing the Sierra Nevada Mountains in the winter. A mislabeled map was circulated that directed people hundreds of miles off course. This misdirected map led travelers away from the OST route and through the Amargosa Desert, and down into Death Valley. William Manly and his party were one of the groups following the incorrect map. He recorded that when his party reached the southern portion of the Amargosa Valley, there was water running through the river. He also noted that during a half a day's walk past the river, he found a clay bowl left by Indians to collect water and drank thirstily out of it (Manly 2001). Other parties known as the Mississippi Boys (Bugmashers), the Jayhawkers, the Brier family, and the Benntt-Arcan family also traveled through the Amargosa Valley and the SEZ American Indian study area (McCracken 1990).

Reports from the Forty-niners in the Funeral Mountains indicated that there was silver in the Panamint Mountains which led to increased interest and traffic in the Amargosa-Death Valley region. Charles C. Breyfogle was a prospector who is said to have received information about the location of ore from a Forty-niner. Based on this tip, he headed to Amargosa Valley and began prospecting in the surrounding hills. After being separated from his companions, he returned to camp half-starved and packed with gold (McCracken 1990). He was not able to locate where he found this rich vein of gold again. Because of Breyfogle's success, numerous prospectors began mining the surrounding mountains to search for the supposed gold ore. The increased traffic and mining activities disrupted traditional Paiute and Shoshone use of this region.

Surveyors

Not long after the first miners arrived in this part of Nevada, the United States Government and private companies sent to survey the Great Basin arrived. By the late 1800s, five separate survey teams had crossed through the Amargosa Desert.

A later government sponsored expedition was led by Lieutenant George M. Wheeler, charged with surveying the landscape and resources of much of the greater Southern Paiute and Western Shoshone traditional territories. In 1871, Wheeler traversed southern Nevada, traveling through Amargosa Desert and Ash Meadows Valley and continuing west through Numic-speaking peoples' territory into Owens Valley. Wheeler often observed the agricultural practices of the Indians he encountered and also shed light on the habitable environments' seemingly desolate landscapes;

We found plenty of excellent grass and water, the latter from warm springs...I then moved southward and crossed a low range into another sandy and gravelly desert, (Pah-rump Desert,) which extends south for miles, and skirts the Spring Mountain Range. This desert contains several beautiful little oases, the principal once being at Pah-rump Springs, at which point are located quite a number of Pah-Ute Indians, very friendly and quite intelligent. These Indians raise corn, melons, and squashes. Great quantities of wild grapes were found around these springs (Humphreys 1872:84).

After Wheeler, an ethnographic reconnaissance was commissioned by the government and led John Wesley Powell. He provided the first ethnographic account of Numic-speaking peoples from his expeditions into Arizona, Utah and Nevada in 1873-1874 (Stoffle et al. 2009:213).

The influx of people into the region quickly resulted in non-Native settlement of the Amargosa Valley. In the late 1870s, settlers, such as Charles King, settled along the most agriculturally valuable areas. Non-Natives took over the natural resources, using them to graze cattle, grow crops, and pushed native peoples off of their land in the Amargosa Valley.

Mining and Ranching

Development in Amargosa Valley was sparse since few resources that were of interest to Euro-Americans were available. As mines in surrounding areas became more successful, Euro-American settlement in the Amargosa Valley began to increase. The mining boom of the 1870s near Death Valley, Nevada provided markets that were close enough to support settlements in the Amargosa region. The valley had many attractive agriculture and ranching areas that were appealing to prospectors and miners, for whom the availability of local foodstuffs was an apparent advantage (McCracken 1990).

Charles King was the first white settler in Amargosa Valley. King traveled west to California during the 1850s gold rush. In 1871, King was working as a miner in Timpahute, located in Lincoln County, Nevada. George M. Wheeler's topographic and scientific survey came through this area and King signed on as a guide. King used his guide position to examine

business prospects in the areas he traveled and saw that Ash Meadows would be highly valuable because it was close to mining operations at Ivanpah and Chloride Cliff. King purchased the land and drove 1300 head of cattle from southern California to Ash Meadows where they had free range. King fattened up the cattle at Ash Meadows and sold the meat to miners for more than 30 cents a pound. King opened a butcher shop in Panamint, where his beef had a greater value per ton than the ore that was mined in this area. The Leander brothers and Eugene Lander also started ranches around the Amargosa Valley area.

The arrival of Euro-American ranches in the Amargosa area caused regular, direct contact between Indians and non-Indians in the area. Many ranches were established near valuable watering spots and, as these water sources shifted into Euro-American control, more travelers were able to come into the area. Lander's ranch became an important stopping point for travelers and the water sources on this property would be later used to service regional mining camps. By the end of the 1870s, most of the springs along the Amargosa River between Beatty south and Pahrump Valley were taken up by homesteaders (Lingenfelter 1986; McCracken 1990).

Region of Refuge

Starting in the late 19th century, Indian people were forced to flee their traditional communities due to non-Indian encroachment. Indian people fled to isolated areas that held spiritual and ceremonial associations. These areas became known as regions of refuge. The term 'region of refuge', was first defined by anthropologist Gonzalo Aguirre Beltrán. Van Vlack (2007:100) added, "Essentially, the local sectors were arranged as refuge regions, and were areas isolated both physically and socially from the mainstream of the national society." Beltrán elaborates that these isolated communities had internal and external means for coping with forced and unnatural cultural change. The stability and security provided by these regions were part of the resistance to these changes (Beltrán 1979:71).

During the encroachment period, the Black Mountain area and the Spring Mountains became regions of refuge. Oral history and historical research shows that the Black Mountain area was both culturally important during traditional times and also a region of refuge after the loss of traditionally territory to Euro-American encroachment (Caroll et al. 2006). During the encroachment period, competition with non-Indian for the natural resources caused Southern Paiutes to retreat into the Spring Mountains (their Origin Mountains) where resources, both physical and spiritual, were plentiful (Stoffle et al. 2004). Other areas within the Amargosa Valley SEZ American Indian study area, such as Skull Mountain, have also been described as regions of refuge.

Railroad – 1905 to 1943

The San Pedro, Los Angeles, and Salt Lake Railroad (SPLA & SL) was completed on January 30, 1905 (Burbank 2009). The founding of Las Vegas, the discovery of gold and silver in the Tonopah-Goldfield area, the Bullfrog mining district boom, and the exploitation of mineral deposits in Death Valley helped to drive Amargosa Valley into the next stage of development. F.M. Smith wanted a railroad to distribute ore found in the remote areas of Funeral Mountains on

the eastern edge of Death Valley and started the development of the Tonopah and Tidewater Railroad (T&T) in July 1904. Smith believed that the T&T could connect to Senator Clark's SPLA & SL; however, in August 1905, Clark denied Smith's right to connect to the SPLA & SL. Smith was forced to abandon his effort but Clark soon took over Smith's operations and laid tracks that headed into the Amargosa Valley, with stops at Johnnie Siding, Amargosa, Rose's Well, Beatty, and Rhyolite (McCracken 1990:42-43). This railroad, called the Las Vegas and Tonopah Railroad (LV&T) operated until October 31, 1918. In 1919, the LV&T roadbed was purchased by the Nevada Department of Highways and the route was incorporated into the state highway system.

Smith changed his base of operations from Las Vegas to Ludlow, California and was assured that the Santa Fe Railroad would cooperate with his effort to build a railroad to Lila C. Mine and northward toward Rhyolite, Goldfield, and Tonopah boomtowns. On October 30, 1907, the last spike was driven in the T&T. The railroad and mining boom, however, had started slowly and by 1943, all of the T&T rails were removed and its equipment dispersed.

The development of the railroads allowed for increased migration and settlement in the Amargosa Valley. The establishment of mines and towns placed a high demand on water resources and timber needed as both a fuel source and a construction material. The high use of lumber devastated the piñon pine populations and greatly reduced Indian access to this staple food. Access to springs was restricted for use in mines and mining camps and Indian labor was often used to farm rich agricultural areas claimed by non-Indian settlers. Map 9 shows mining development throughout the Amargosa Region.

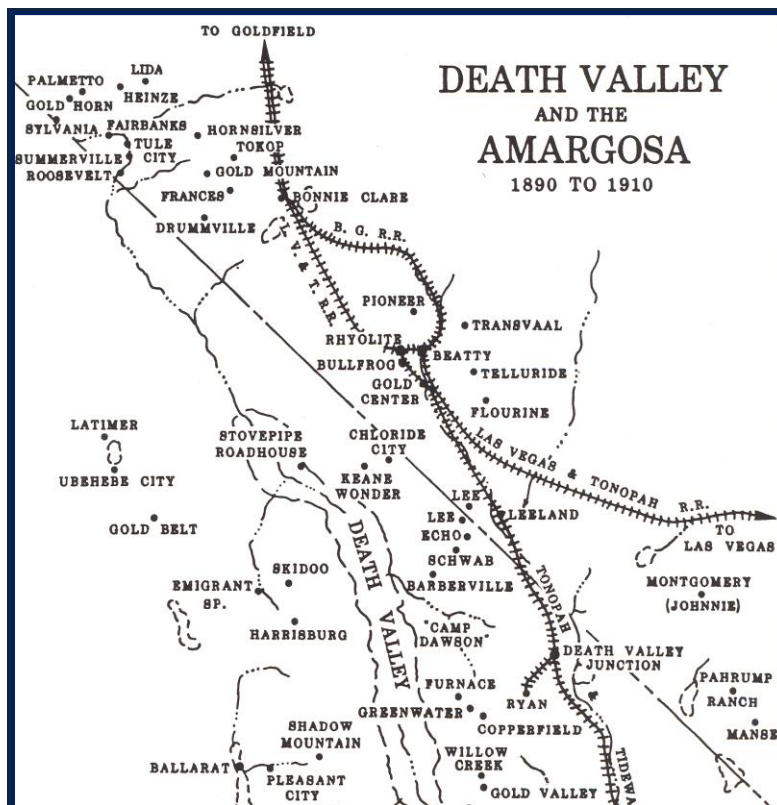


Figure 10 Mining Development in the Amargosa Region (Lingenfelter 1986:188)

Mining camps along the Amargosa River were situated in the same locations that were recorded as Indian villages in 1875 (Figure 10) (Stoffle et al. 2009). By 1906, the economy shifted the location of Indian people as demands for labor and resources increased in mining towns like Beatty, Rhyolite, and Oasis Valley. Indian labor was being used to haul timber for the mines and other wage-labor jobs. Restricted access to traditional land and resources encouraged a shift to wage labor in Native American communities. By the early 20th century, railroads and mines were a valuable source of income for Indian populations and it became necessary for native people to travel with the railroads and other developing industries to maintain their livelihood. The closure of mines and railroads led to a sharp decrease in the Indian population. By the 1930s, the Native population in the area was reduced to 366 individuals and this number continued to decline until the 1970s (Stoffle et al. 2009).

Traditional Running

The Amargosa Valley SEZ American Indian study area is located in the path of Western Shoshone spiritual runs, *Mavaa Mia* (Walk on Sacred Land). This ceremonial activity is conducted annually. Prayer flags mark the traveler's route. These flags are made out of willow and the flags contain traditional Shoshone colors such as green, red, white, and blue. Each color denotes a different meaning. During these spiritual runs, it is important to have an unobstructed view of the landscape in order to interact with the surrounding geographic features. If solar panels were built in the Amargosa Valley SEZ American Indian study area, the spiritual run would be affected and the area would be forever changed.

Potential SEZ American Indian Study Area Impacts – Tribal Recommendations

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

Solar Recommendations

- Tribal representatives stipulate that solar energy development in the Amargosa Valley SEZ American Indian study area will adversely impact the identified special features (see Table 1). It could have an adverse effect on the balance of the world and the power of the Sun.
- Tribal representatives stipulate that it is necessary to preserve the Amargosa Valley SEZ American Indian study area as a sacred place because solar energy development in this area would adverse consequences that will upset the balance of the world.
- Tribal representatives stipulate that the cultural resources in the Amargosa Valley SEZ American Indian study area are important to understanding their past, their present, and their future. They stipulate that these resources will always be culturally important to Indian people.

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

Bureau of Land Management Recommendations

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

- 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:
 - Amargosa River
 - Big Dunes
 - Eagle Mountain
 - Bare Mountains
 - Ash Meadows
 - Devil's Hole