

## ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential environmental consequences of implementing any of the alternatives being considered. It is organized by resource topic and provides a standardized comparison among alternatives based on topics discussed in the “Purpose of and Need for Action” chapter and further described in the “Affected Environment” chapter. In accordance with the Council on Environmental Quality regulations (Title 40 of the Code of Federal Regulations [CFR], section 1502.16) and the *National Park Service NEPA Handbook* (NPS 2015b), direct, indirect, and cumulative impacts are described, and the impacts are assessed in terms of context, intensity, and duration. This analysis is based on the assumption that the mitigation measures identified in this Saline Valley Warm Springs Final Management Plan and Environmental Impact Statement (plan/EIS) would be implemented for the action. Mitigations are actions taken to lessen the severity and probability of a potential impact.

### GEOGRAPHIC AREA EVALUATED FOR IMPACTS

This plan/EIS is evaluating the Saline Valley Warm Springs Area, which includes Lower Spring and Palm Spring and the backcountry area that surrounds them, Upper Spring, the bat pole and the roads that lead to these features. The Saline Valley Warm Springs Area extends into the designated wilderness along the trail that leads to the east peace sign and the area immediately surrounding the peace sign. The Saline Valley Warm Springs Area encompasses approximately 1,100 acres, of which approximately 11 acres are designated wilderness.

### ADDITIONAL CONTEXT FOR ASSESSING THE IMPACTS

**Visitation Trends.** As stated in the “Background of Saline Valley Warm Springs Area” section of the “Purpose of and Need for Action” chapter, the warm springs of Saline Valley (the warm springs) are used throughout the year but the cooler months, September to May, receive the highest use. Presidents Day and Thanksgiving weekends are traditional heavy use periods for the Saline Valley Warm Springs Area; between 200 and 400 people have been observed during heavy use weekends. The impact analyses consider these fluctuations in visitation and discuss issues from high visitation where appropriate.

**Site Stewardship.** Impacts on the resources at the Saline Valley Warm Springs Area are largely driven by visitor activities. The volunteer camp host and repeat visitors to the Saline Valley Warm Springs Area work to educate new visitors on the stewardship of the springs and surrounding areas. The level of resource management would change under each alternative, but it is expected that the visitors would continue to oversee themselves and other visitors for protection of the resources.

### CUMULATIVE EFFECTS

The Council on Environmental Quality regulations that implement National Environmental Policy Act of 1969, as amended (NEPA), require assessment of cumulative effects in the decision-making process for federal projects. Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period. Cumulative effects are considered for all alternatives and are presented at the end of each impact topic discussion.

## Methods for Assessing Cumulative Effects

To determine potential cumulative effects, past, present, and foreseeable future actions and land uses were identified in or near the Saline Valley Warm Springs Area. Cumulative impacts are considered for all alternatives, including the no-action alternative. Cumulative impacts were determined by combining the impacts of the alternative being considered with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects and plans at Saline Valley and the surrounding area.

These actions were then assessed in conjunction with the impacts of the alternatives to determine if they would have any added adverse or beneficial effects on a particular natural resource, cultural resource, or visitor use. The evaluation of cumulative effects was based on the available information about the actions. The following three projects were considered in the cumulative impact analysis for each resource:

- **Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a).** The National Park Service intends to permit the reactivation of sand and gravel borrow pits for maintenance of Saline Valley Road in Death Valley National Park (the park). Saline Valley Road is an 84-mile-long, graded-dirt road that forms much of the northwestern boundary of the park. Saline Valley Road is in need of repair and re-grading in sections. Inyo County is responsible for the maintenance of Saline Valley Road. The project will reopen six of the existing sand-and-gravel-borrow sites along Saline Valley Road. Material from the borrow sites is needed to maintain this road in a cost-effective manner. No other suitable material sites have been identified at a reasonable distance to the road within the park boundaries and obtaining materials from outside the park is both expensive and runs the risk of introducing nonnative plant species to the park environment. The permit for the borrow sites would be active for 20 years and the borrow areas would be restored at the end of the permit. This project has the potential to affect the following resources: soils and vegetation, wildlife, archeological resources, and visitor experience.
- **Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014).** California State Legislature Assembly Bill 628 establishes a 5-year pilot project that will allow Inyo County to designate certain county roads as combined-use routes up to 10 miles long. These combined-use routes can be used to link existing off-highway vehicle (OHV) trails and trailheads on Bureau of Land Management (BLM) or US Forest Service (USFS) lands to create a unified OHV trail system. OHV use could stray into the park and onto the Saline Valley Road, as the boundaries are not clear in the northwest corner of park and signage in the park does not include language to indicate to visitors that OHV use is not permitted. This pilot project will extend through 2020. The Adventure Trails of the Eastern Sierra Project would incorporate 38 combined-use routes, which include portions of Death Valley Road outside and west of Death Valley National Park. This project has the potential to affect the following resources: soils and vegetation, wildlife, wilderness character, and visitor experience.
- **Road Maintenance.** Road maintenance is an ongoing action performed by Inyo County and by the National Park Service. The roads leading to the Saline Valley Warm Springs Area (appendix A, figure 3) are owned by the National Park Service but most are maintained by Inyo County; the National Park Service is working towards a formal agreement for road maintenance with the County. Saline Valley Road, the main road that leads to the Saline Valley Warm Springs Area, is adjacent to the park boundary for most of the route; however, some sections are within the park boundary. Saline Valley Road also crosses through USFS, BLM, state, county, and private lands. Most visitors access the Saline Valley Warm Springs Area via Saline Valley Road, from either the north (North Pass) or the south (South Pass). Inyo County maintains the road from the southern access at California Highway 190 to Big Pine Road at the northern access. The Saline

Valley Warm Springs Area can be accessed from the northeast via Steel Pass Road and the southeast via Lippencott Road; however, these roads are unmaintained and are best navigated by experienced drivers operating high-clearance four-wheel drive vehicles. The access roads to the Saline Valley Warm Springs Area are subject to closure after washouts from heavy rains for the safety of the visitors. Routine road maintenance by Inyo County has the potential to affect archeological resources.

## SOILS AND VEGETATION

### Methodologies

Baseline conditions in the Saline Valley Warm Springs Area were determined using maps showing vegetation cover and consultations with park botanists. The analysis of vegetation considered that changes in plant community size, integrity, or continuity could occur as a result of the implementation of various proposed activities. This analysis included an evaluation of the potential for proposed actions to favor the establishment and/or expansion of invasive species. Quantitative vegetation surveys have not been completed at the Saline Valley Warm Springs Area; therefore, specific acreages of vegetation impacts were not estimated as part of this project. In addition to vegetation, this analysis considers changes in soil composition or soil function that would occur as a result of the implementation of the various management activities. The information in this analysis was obtained through best professional judgment of park botanists and experts in the field, as well as supporting literature, where appropriate.

### Types of Impacts on Soils and Vegetation

The primary soil impacts from recreation activities would be compaction, disturbance, and contamination. Impacts on soils can be directly related to impacts on vegetation. For example, the changes in soils as a result of trampling and compaction can affect plant growth and survival, although the effects are highly variable and dependent upon existing conditions (Kuss 1986). Additional impacts to plants occur from trampling of vegetation and introduction of nonnative species.

**Compaction and Trampling.** Soils and vegetation can be both indirectly and directly affected by human activities. Soil compaction is the physical compression of soil particles through applied force, which reduces porosity, water and air infiltration and hinders root penetration by plants. Activities that contribute to soil compaction include driving on dirt roads, off-road vehicle use, camping, and hiking. Compaction can cause damage to soil structure, which determines the ability of a soil to hold and conduct water, nutrients, and air necessary for plant root activity and growth (UM 2001). Soil compaction can also increase erosion, which removes topsoil, reduces levels of soil organic matter, and contributes to the breakdown of soil structure (USDA 1996). Compacted soils are often void of vegetation, and this is true for the Saline Valley Warm Springs Area.

Generally, soil compaction creates changes in soil structure and function, impeding vegetation growth by limiting available water and nutrients and obstructing root growth. The effects of trampling are related to the resiliency of the environment in which it occurs. Recovery of desert soils and native plants can be slow due to decreased water infiltration, disrupted nutrient cycles, and slowed decomposition of soil organic matter (Belnap 1998). For example, it is more difficult for plant roots to move through compacted soils; this can cause changes such as the reduction of plant vigor and can impede the reproduction and establishment of seedlings (Cole 2002).

Vegetation can be affected indirectly by trampling through the consolidation of the soil and directly by treading upon the plant itself (Bates 1935). Trampling, which initially bends and weakens leaves and

branches, can ultimately cause breaking and injury to the plant (Douglass, Hamann, and Joslin 1999; Bates 1935). Some plant species can be damaged and completely destroyed by the action of treading, while other species are comparatively immune to harm of this kind (Bates 1935).

**Disturbance.** Soils and vegetation can be affected by disturbance through displacement or direct removal. Soils do not retain their physical properties once disturbed, leading to lower infiltration rates and an increased potential for erosion. Sources of soil disturbance in the park include natural forces, such as wind and weather, and human disturbance, such as development, road or trail creation, and hiking. Camp hosts and visitors could disturb soils through driving, using the Chicken Strip airstrip for taking off and landing, dragging the Chicken Strip airstrip and Warm Springs Road with large tires or other devices, and moving rocks to create impromptu fire rings, artwork, and road alignments. The Chicken Strip airstrip is approximately 1,400 feet long and 35 feet wide or 1.1 acre, and Warm Springs Road from the bat pole to the Saline Valley Warm Springs Area is approximately 2.0 miles and the road is approximately 20 feet wide, or 4.8 acres. The two areas combined represent approximately 5.9 acres that are currently dragged. This soil disturbance would occur infrequently, though the occurrence would be higher between October and May, when visitation is higher. Road and airstrip dragging is a small impact when compared to the dust storms that frequent the park, especially during periods of high wind in the spring and fall. These storms can lift large clouds of sand and dust thousands of feet into the air, creating poor visibility and even whiteout conditions.

Additionally, hiking, illegal use of off-road vehicles, and other recreational activities could disturb cryptobiotic soil crusts. These crusts are a community of organisms primarily comprised of cyanobacteria, green algae, fungi, lichens, and mosses that can survive long periods of drought (Armstrong 2008). Cryptobiotic soil crusts perform several important functions, including providing habitat for other organisms, covering areas of sparse vegetation, protecting desert soils from erosion, and aid in plant succession, allowing other vegetation to become established in a harsh environment (Armstrong 2008). However, cryptobiotic soil crusts are extremely fragile and slow to recover from disturbance, especially in very dry conditions (Belnap and Eldridge 2001).

**Contamination.** Contamination can occur from the introduction of any substance to the soils. Soils of the Saline Valley Warm Springs Area can be contaminated through waste products of humans and wildlife, specifically feral burros (*Equus assinus*). Feral burros walk through the Saline Valley Warm Springs Area and leave large amounts of manure on the grounds. Manure and urine contribute to soil contamination, which could alter soil chemistry and ultimately change the vegetation composition. Additionally, the storage and use of cleaning products, automobile repair fluids and components, batteries, and fertilizer have the potential to affect soils and vegetation through contamination.

**Nonnative Species.** Disturbed areas provide opportunities for and can act as corridors for colonization by nonnative or invasive plant or animal species. Visitors can act as vectors and alter dispersal of native and nonnative plants, possibly resulting in the spread and establishment of new populations of invasive and/or nonnative plants. Nonnative species can be transported into new areas of the parks by travel on hikers' boots, gear, and clothing, as well as vehicle tires. New nonnative species may colonize an area where they were previously absent. By competing with native species, nonnative plant species contribute to species extinctions, alter the structure of natural plant communities, and disrupt ecosystem functions. All recreational activities have the potential to increase the spread of nonnative species.

## Alternative 1: No-Action Alternative

Under alternative 1, the no-action alternative, all visitor activities at the Saline Valley Warm Springs Area would continue; however, per the Death Valley General Management Plan (GMP) (NPS 2002a), no new tubs would be constructed, and no development would occur at Upper Spring. Soils would continue to be

affected by recreation and maintenance activities through compaction, disturbance, and contamination. These factors, in turn, affect the vegetation that grows at the Saline Valley Warm Springs Area. Other factors, including diverted water and nonnative plants also affect the vegetation communities.

The unrestricted and dispersed nature of the campsites at the Saline Valley Warm Springs Area has led to large areas of compacted and disturbed soils mostly devoid of native vegetation centered around Lower and Palm Springs. These impacts would continue under alternative 1. Figure 10 in appendix A depicts the camping areas at the Saline Valley Warm Springs Area between Lower Spring and Palm Spring—Lower Dispersed Camping Area, Burro Spring Camping Area, Cool Pool Camping Area, Central Camping Area, Middle Dispersed Camping Area, Central Site Area, and Upper Dispersed Camping Area. These areas total approximately 119 acres and represent the extent of the Saline Valley Warm Springs Area that is suitable for car camping due to the terrain. (Appendix C presents descriptions and figures of all of the activity areas within the Saline Valley Warm Springs Area.) Visitors are able to camp in desired locations within these areas, as there are no designated campsites.

Warm Springs Road is the only designated road at the Saline Valley Warm Springs Area, but vehicles travel on visitor-created dirt roads delineated by vegetation or rocks and camp close to the soaking tubs. During times of higher visitation, such as Presidents Day and Thanksgiving, visitors are forced to camp further from the tubs. Driving off-road is not permitted in Death Valley National Park, but visitors often travel throughout the camping areas with their vehicles. Repeated driving through the camping areas keeps soils compacted and prevents recovery of the soils and native vegetation in these areas. Although some areas are used less frequently (e.g., the Lower Dispersed Camping Area), all of the camping areas in the Saline Valley Warm Springs Area have been disturbed from driving, camping, and other foot traffic, and would continue to be disturbed under alternative 1.

While most of the impacts from visitors at the Saline Valley Warm Springs Area would be localized, visitors participate in many recreational activities once at the springs and all of these activities have the potential to trample soils and vegetation outside of the developed areas. Any activities that lead visitors away from the main developed areas of the Saline Valley Warm Springs Area would negatively affect soils and vegetation. There are no formal trails in Saline Valley due to the nature of the terrain; therefore, visitors are able to cross the landscape freely, including designated wilderness areas outside of the Saline Valley Warm Springs Area. (Impacts on wilderness character are discussed thoroughly in the “Wilderness Character” section.) Trampled grounds have a reduced ability to absorb water, are more susceptible to wind and water erosion, and hinder the root growth of desert plants (Lovich and Bainbridge 1999). Visitors traveling by foot can impact soils and cryptobiotic soil crusts, but off-road vehicle use is identified as the most damaging recreation activity in the desert (Lovich and Bainbridge 1999).



*A visitor drags Warm Springs Road using his personal vehicle*

No new development would occur under alternative 1, but displacement of soils would continue to occur from several other activities. Visitors routinely drag Warm Springs Road and the Chicken Strip airstrip by pulling large tires or other grading devices behind their vehicles. This process evens the road and airstrip,

but it also loosens soils on the surface, making them available to erosion by wind and water. Driving on the dirt roads also displaces soils of the Saline Valley Warm Springs Area. Additionally, visitors often move rocks to create impromptu fire rings, road alignments, and artwork,

In relatively undisturbed areas such as Upper Spring, vegetation naturally grows around source springs, as there is natural outflow from the spring. The current soil and vegetation conditions at the Saline Valley Warm Springs Area exist in part due to the diversion of water from the source springs. This diversion would continue; however, per the Death Valley GMP (NPS 2002a), no new tubs would be constructed under alternative 1, retaining the amount of diversion at the current levels.

Some water diversion directly benefits the native vegetation at the Saline Valley Warm Springs Area. Water diverted from Burro Spring irrigates the east/west line of western honey mesquite (*Prosopis glandulosa* var. *torreyana*) at Lower Spring. Without this diversion, the honey mesquite and the associated understory may not be as abundant. The runoff from the tubs, shower, and sink at Lower Spring would continue to drain to the settling pond and vegetation beyond. However, water diversions also benefit nonnative plant species at the Saline Valley Warm Springs Area, as discussed in the following paragraph.

Nonnative plant species are established and grow at all three springs sites. The majority of these species are nonnative invasive palm trees and grasses. Palm trees are present at all three sites, and they are considered beneficial for the visitors at Lower and Palm Springs because they provide shade for the soaking tubs. Under this alternative, nonnative vegetation would persist at the Saline Valley Warm Springs Area. The camp host currently aids in the control of new nonnative invasive palm trees by trimming and pulling young palms by hand; however, this minimal control would not completely stop the spread of palm trees at the Saline Valley Warm Springs Area. Water piped from the Cool Pool to a sprinkler irrigates the Lower Spring lawn. Visitors would continue to bring grass seed containing nonnative species for the lawn at Lower Spring, as well as fertilizer for the lawn. Due to the need for regular watering, the lawn is not expected to expand beyond its current limit. At Palm Spring, the runoff from the tubs, shower, and sink would continue to drain the washes adjacent to the developed areas. The effluent provides water for vegetation in these areas that would not be present under natural conditions. The nonnative species of highest concern is saltcedar (*Tamarix ramosissima*), a species of tamarisk, that is a threat to native plant and animal communities in Death Valley National Park. Saltcedar crowds out native species, consumes excessive amounts of water, and salinizes soils where its salty leaves drop (NPS n.d.). Saltcedar is currently present at Lower Spring. Because this species produces an excessive number of seeds that are wind-dispersed, it is reasonable to assume that this nonnative species could become established at Palm and Upper Springs as well.

Impacts at the Saline Valley Warm Springs Area are largely driven by visitor activities. The volunteer camp host and repeat visitors educate new visitors on the stewardship of the springs and surrounding areas. Under alternative 1, these efforts would continue, and National Park Service (NPS) signage with rules for recreating in the backcountry would remain in place at Lower Spring. The guidance from volunteers and signage helps to reduce behaviors that could negatively impact soils and vegetation at the Saline Valley Warm Springs Area; however, the amount that these efforts benefit the resources is unknown.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on soils and vegetation. One project that may affect soils is the Saline Valley Road Borrow Sites and Gravel Management Plan that was approved in 2011 (NPS 2011a). This project would allow for the issuance of a permit to Inyo County for use of existing borrow pits along Saline Valley Road. If the permit is issued, there would be some short-term, construction-related impacts from disturbed soils and loss of vegetation where the borrow pits will be excavated. Once construction is complete, this project could result in

beneficial effects on soils, as the sites would be restored following the road repair activities; restoration is expected to be complete within the 20-year permit period.

The Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) allows Inyo County to designate certain county roads as combined-use routes to link existing OHV trails and trailheads on BLM or USFS lands to create a unified OHV trail system. Included in this trail system is 11.6 miles of Death Valley Road outside and west of Death Valley National Park. Death Valley Road is already paved; therefore, inclusion of this road would not involve construction, habitat modification, or addition of impervious surfaces. OHV use could, however, stray into the park and onto the Saline Valley Road, as the boundaries are not clear in the northwest corner of park. The ATV Adventure Trails Project could have a slight adverse impact on soils or vegetation through trampling and compaction if OHV users do not stay on roads designated for OHV use.

The no-action alternative would allow continued use of the Saline Valley Warm Springs Area and current impacts on soils and vegetation would also continue, including compaction, trampling, disturbance, and pressure from nonnative species. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under the no-action alternative that would constitute a significant cumulative effect.

## **Alternative 2: Regulatory Compliance Alternative**

Alternative 2 would have similar impacts on soils and vegetation as the no-action alternative, as this alternative retains much of the existing use of the Saline Valley Warm Springs Area but brings the actions and conditions into compliance with NPS, state, and federal regulations.

Visitation under alternative 2 would most likely remain consistent with current conditions; therefore, the effects of compaction and trampling from driving, camping, and recreational activities would be the same as described under alternative 1. Approximately 119 acres of the Saline Valley Warm Springs Area would be available for camping and visitors would continue to impact soils and vegetation in these areas (appendix A, figure 10) via driving and foot traffic. Off-road driving, which is not permitted, would cause impacts similar to alternative 1. Under this alternative, Warm Springs Road would be maintained by the National Park Service in accordance with the guidance for high-clearance four-wheel drive roads, as described in the Wilderness and Backcountry Stewardship Plan (NPS 2013a). Under these guidelines, Warm Springs Road would be graded or repaired less frequently than under current conditions, reducing the potential for erosion.

The regulatory compliance alternative would not permit construction of new fire rings or artwork at the Saline Valley Warm Springs Area. All non-historic artwork in designated wilderness and user-created fire rings would be dismantled and the rocks would be dispersed throughout the Saline Valley Warm Springs Area. The removal of the artwork would alter the current landscape to a more natural one, and the disallowance of moving rocks for fire rings and art would reduce the potential for wind and water erosion, although this effect would be minimal. Prohibiting the use of user-created fire rings and encouraging the use of NPS-provided fire enclosures, grills, or firepans would be beneficial to soils. Campfires can change soil properties by destroying the organic material in the soil, which can make the soil more prone to erosion. Use of approved fire containment structures can reduce this risk. Further, visitors would be required to haul out ash and charcoal from fires at individual campsites, which could contribute nutrients to the soil if left in place, changing the soil chemistry. Alternative 2 would also require Chicken Strip users to pack out their waste. This requirement further protects the soils at the Saline Valley Warm Springs Area from contamination.

In addition to vehicle use and airstrip dragging and road maintenance, displacement of soils would occur under this alternative during installation of the artistic wooden fencing around the source springs at Lower and Palm Springs (appendix A, figure 11). The perimeter of the four sections of fencing at Lower Springs would be approximately 0.072 mile (301 feet) and 0.014 mile (74 feet) at Palm Spring, encompassing a total of approximately 0.044 acre. This fencing is irregular and would not require a great amount of soil displacement to install. While this action would permanently displace soils, the effects would be extremely localized and immeasurable.



*Artistic fence currently at Lower Spring*

Although the existing fencing at Lower Spring would continue to prohibit the feral burros from grazing on the lawn, the additional fencing around the source springs would not keep feral burros from trampling or grazing on understory vegetation. However, the water diversion under alternative 2 would be the same as described for alternative 1, which would help both native and nonnative vegetation in the Saline Valley Warm Springs Area to persist.

Alternative 2 would also result in beneficial effects on the vegetation community through nonnative species control efforts. Palm trees would be removed from Upper Spring, and as palm trees, which are nonnative and invasive, die naturally at Palm and Lower Springs, the area would be allowed to revegetate naturally. The volunteer camp host could continue to water the lawn to retain the quality of the site that is important to the visitors. The use of fertilizer for the lawn would be addressed in a memorandum of understanding (MOU) with the user group. The National Park Service would continue to perform nonnative plant control through the park's existing invasive management plan and other regulations to implement nonnative species removal.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on soils and vegetation. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 2 would allow for continued use of the Saline Valley Warm Springs Area, similar to current conditions, with added elements for resource protection, including nonnative plant species removal and disallowance of rock movement for impromptu fire rings and artwork. Visitation would remain consistent with current conditions under this alternative, and the beneficial effects from the efforts of alternative 2 would result in little change to soils and vegetation at the Saline Valley Warm Springs Area. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

### **Alternative 3: Community Engagement Alternative**

Alternative 3 would have similar impacts on soils and vegetation as those described for alternative 1; however, alternative 3 aims to provide a greater level of natural resource protection by engaging user groups in the management of the Saline Valley Warm Springs Area while retaining use of the tubs.

The number of visitors under alternative 3 is expected to remain consistent with current visitation levels. Trampling from visitors driving and participating in recreational activities resulting in soil compaction and potential damage to cryptobiotic soil crusts and vegetation would be similar to those described for alternative 1. Alternative 3 would differ in that it would create designated camping areas to limit sprawl into undisturbed areas. For times of higher visitation, designated overflow walk-in camping areas would be created with an associated parking area. With this camping design, effects on soils and vegetation would be limited to previously disturbed areas, reducing impacts from car camping. Additionally, visitors would be required to camp at least 200 feet from all source springs. This restriction would protect approximately 2.8 acres of the Burro Spring, Cool Pool, and Middle Dispersed camping areas from further impacts from camping activities (appendix A, figure 12). Under current conditions with a 100-foot buffer, camping is prohibited from approximately 1 acre of land surrounding the source springs. When the National Park Service designates the car camping areas, walk-in camping areas, and parking areas, they would be located outside of the 200-foot buffer.



*Example of a food storage box*



*Airplane tiedown at the Chicken Strip airstrip*



*Vault toilet at Lower Spring*

Displacement of soils would be similar to alternative 2 in that visitors would continue to drive their vehicles on the dirt road, the airstrip would be maintained by the users with a drag, and creation of new fire rings and artwork would be prohibited. Warm Springs Road would be graded or otherwise maintained by the National Park Service under alternative 3, which would continue to displace soils, though the frequency of maintenance may be less than experienced under current conditions. Under alternative 3, the fence restricting feral burro access would be an extension of the wooden artistic fencing currently surrounding the lawn at Lower Spring. The fencing would be placed around the soaking tubs, source springs, and riparian areas at Lower Spring and Palm Spring (appendix A, figure 13). The perimeter of the four sections of fencing at Lower Spring would be approximately 1.0 mile and 0.32 mile at Palm Spring, encompassing a total of 6.9 acres. This fencing is irregular and would not require a great amount of soil displacement to install. In addition, food storage boxes could be installed at Lower and Palm Springs, additional airplane tie downs could be installed at the Chicken Strip airstrip, and additional vault toilets could be added to Lower Spring or Palm Spring, if necessary. The fence, food storage boxes, tie downs, and vault toilet would displace soils, and although the amount would be greater than that under alternative 2, the amount of soil would be small, and the impacts would be extremely localized.

Vegetation would benefit slightly from the fencing that would be installed around the riparian vegetation. Just as the current fencing at Lower Spring prohibits the feral burros from grazing on the lawn, the

additional fencing would keep feral burros from grazing on understory vegetation. This fencing is minimal and would not protect all vegetation from trampling or grazing by burros. For example, approximately 0.31 acre of emergent wetlands at Lower Spring would be excluded from the fencing and the herbaceous vegetation that grows there (including two plants of management concern) would be vulnerable to feral burro browsing.

Alternative 3 would remove the diversion at Burro Spring. This diversion was installed around 1990 (New South 2015) and has been providing a constant water source to the mesquite and understory vegetation in the middle of the Lower Spring. A comparison of aerial photos from 1993 and 2016 (appendix A, figure 8) indicate that this vegetation persists at Lower Spring due to the water diversion. If Burro Spring has enough flow, natural outflow from the spring could help establish vegetation closer to the source spring, but the line of western honey mesquite and associated understory may not survive. There is likely to be a reduction in the density of the understory vegetation, but the mesquite trees have been established for approximately 20 years. The trees grow a very long taproot and an extensive lateral root system for obtaining water, making it likely the trees would be able to persist at this location, even with the loss of water from the diversion pipe. Over time, the vegetation would likely return to more natural conditions, which could result in a decrease in vegetation of up to approximately 1 acre. All other water diversions would remain under this alternative, and conditions would remain similar to current conditions.

The efforts for nonnative plant removal would be the similar to those described for alternative 2, but under alternative 3, the National Park Service could employ additional efforts, such as removing the lawn at Lower Spring and either allowing it to naturally revegetate or replanting with native vegetation. The National Park Service would also establish thresholds for use and overuse and monitor conditions at the Saline Valley Warm Springs Area, which could trigger response actions by park management to restrict use if damage to natural resources were observed. With the help of volunteers, the National Park Service would be able to better monitor the conditions of the soil and native vegetation at this remote site. Visitor activities, such as walking, camping, and driving, could create impacts on soils and native vegetation that would indicate unacceptable adverse impacts. If a particular area or resource becomes stressed, the National Park Service could implement restrictions on its use to allow for recovery. This monitoring would be done under the park's existing invasive management plan and other regulations. Further, the National Park Service would engage the Timbisha Shoshone Tribe (the Tribe) to incorporate traditional ecological knowledge for native vegetation management. These actions would help reduce impacts from nonnative species as well as misuse or overuse by park visitors. This program would result in a long-term beneficial effect on native vegetation.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on soils and vegetation. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 3 allows visitors to continue to use the Saline Valley Warm Springs Area for soaking and recreation, the same as alternative 1; however, the National Park Service would collaborate with the user groups to protect soil and vegetation resources. This partnership and camping limitations would create beneficial effects on soils and vegetation, though the net effect in this previously disturbed area would be minimal. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 3 that would constitute a significant cumulative effect.

## **Alternative 4: Restoration Alternative**

The restoration alternative would remove all development at the Saline Valley Warm Springs Area and restore the area, as close as possible, to natural conditions. Recovery rates of desert environments are

generally very slow (Lovich and Bainbridge 1999), but removal of the development would reduce the draw for many regular visitors, thus reducing the number of visitors and reducing effects to soils and vegetation from recreational activities.

Visitors would continue to travel to the Saline Valley Warm Springs Area by vehicles, and some off-road driving, although prohibited, could occur. Camping would be dispersed, consistent with other backcountry sites in the park. With fewer visitors and fewer vehicles, soil compaction would be reduced and less concentrated. Soils, including cryptobiotic soil crusts, would be allowed to restore naturally.

Removal of the developed features (e.g., soaking tubs, showers, sinks, plumbing; presented in photographs and figures in appendix C) at the Saline Valley Warm Springs Area would disturb soils and expose them to wind and water erosion; however, removal of the infrastructure would provide beneficial effects over the long term from removal of impermeable materials and an increase in natural substrates. Warm Springs Road would be maintained by the National Park Service, as needed, to allow visitors to access the Saline Valley Warm Springs Area, resulting in some soil disturbance. Fencing to exclude feral burros would be installed



*Example of a visitor entrance through wire and wooden post fencing that would prohibit feral burros from entering the Saline Valley Warm Springs Area*

around the perimeter of the backcountry area at the Saline Valley Warm Springs Area (appendix A, figure 14). The perimeter of the Saline Valley Warm Springs Area is approximately 5.5 miles. This fencing, which would encompass approximately 1,042 acres, would require sinking posts into the ground at regular intervals, resulting in more soil disturbance than the artistic fencing that would be installed for alternatives 2 and 3. Although installation of this fencing would result in a small amount of soil displacement, it would be beneficial to vegetation throughout the Saline Valley Warm Springs Area. This benefit would be greater than that described for alternatives 2 and 3 because feral burros would be excluded from all vegetation at the Saline Valley Warm Springs Area. Therefore, all vegetation would be protected, including the species of management concern that would be vulnerable under alternatives 2 and 3. The Chicken Strip airstrip would be decommissioned and moving rocks for construction of fire rings and art would be prohibited, eliminating soil disturbance from maintenance and other rock-moving activities and changes in soil chemistry from campfires.

All water diversions would be eliminated under the restoration alternative. While the vegetation communities may be reduced from a decrease in water, the communities would benefit over the long term from the return to natural conditions. A comparison of current aerials with those from prior to heavy development (appendix A, figure 8) shows vegetation stands that are sparser under natural conditions, but the distribution patterns between the two aerials are not dissimilar, indicating that there would not be a drastic change in the areas of vegetation cover. As stated for alternative 3, the east-west line of mesquite is fairly well established and should persist, even with the removal of the water diversion pipe from Burro Spring, but the density of the understory vegetation would likely be decreased.

The National Park Service would remove nonnative plant species and the Saline Valley Warm Springs Area would be restored with native species. The vegetation restoration would be a tiered approach: (1) removal of nonnative plants, (2) passive restoration where the National Park Service would let the system

attempt to restore itself, and (3) active restoration where the National Park Service would plant native species, if needed, to accelerate recovery. The National Park Service would monitor the conditions at the Saline Valley Warm Springs Area to track and react to establishment of nonnative species under the park's existing invasive management plan and other regulations, which would provide a long-term beneficial effect on native vegetation.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on soils and vegetation. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 4 would remove all infrastructure and restore the Saline Valley Warm Springs Area. These activities would have temporary adverse impacts on soils from disturbance of the soils and reduction of water to the vegetation. Once construction activities needed to remove existing infrastructure are complete, this alternative would return the Saline Valley Warm Springs Area to more natural conditions by allowing it to naturally restore itself. The restoration would take years and likely decades to complete, but gradually the Saline Valley Warm Springs Area would restore to natural conditions. Additionally, monitoring and response efforts for nonnative species would be implemented. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## **Alternative 5: Preferred Alternative**

Alternative 5, the preferred alternative, would have similar impacts on soils and vegetation as those described for alternative 3 with some differences. The level of visitation and the types of impacts are expected to remain constant with current conditions.

Alternative 5 would be similar to alternative 3 in that displacement of soils would continue to occur from driving on Warm Springs Road and access roads and the dragging of the Chicken Strip and Warm Springs Road for maintenance. New art would be allowed in the backcountry under alternative 5, but visitors would not be able to manipulate natural or cultural resources, thus the impacts would be the same as alternative 3. Under alternative 5, the National Park Service would install fencing only around the source springs at Lower Spring and Palm Spring, resulting in the same impacts as described for alternative 2: extremely localized and immeasurable amounts of soil displacement. This fencing would protect water quality but would not offer protection of the soils and vegetation from compaction, trampling, and contamination (appendix A, figure 15). The fencing at Upper Spring would be replaced and expanded to encompass both the warm and cold source springs (appendix A, figure 15). The soil displacement would be minimal, and all native vegetation at Upper Spring would be protected from burro impacts.

Under alternative 5 the camping situation would be similar to that described for alternative 3. The National Park Service would establish camping zones: designated dispersed camping, overflow walk-in camping with an associated parking area, and areas of no camping for protection of resources. Under the preferred alternative, Warm Springs Road would be delineated and access roads to the designated dispersed camping area and the overflow parking area would be established. Driving would be prohibited elsewhere in the Saline Valley Warm Springs Area. Maintaining these camping zones would protect soils and vegetation from compaction and trampling while still allowing visitors to camp and participate in other activities at the Saline Valley Warm Springs Area. The preferred alternative would maintain the camping buffer around source springs of 100 feet to protect the water quality, continuing to protect the soils and native vegetation in this area from compaction and trampling from camping activities (appendix A, figure 10).

Alternative 5 would remove the water diversion at Burro Spring, resulting in a decrease in understory vegetation; the existing mesquite trees in this area would likely persist because they have been established for some time. Additionally, alternative 5 would divert wastewater from the dishwashing stations and showers to a subterranean system for treatment. At Palm Spring, this would eliminate the vegetation growing in the wash south of the Wizard Pool (appendix A, figure 5B), as it is sustained by the water that drains from the dishwashing station and the shower. At Lower Spring, the change in wastewater treatment would reduce the amount of water that reaches the settling pond but would not affect the vegetation.

Unlike alternative 3, the preferred alternative would allow the lawn to remain and would be maintained in its current footprint. Existing mature palm trees would be allowed to remain at Lower Spring and Palm Spring. The mature palm trees would be maintained by trimming the palm fronds and young palm trees would be removed. Native species would be planted at Lower and Palm Springs. Once the existing mature palm trees die naturally, they would be removed, by which time the native species should have matured sufficiently to provide shade to visitors. An MOU would be established with the user groups to help with many aspects of the management of the Saline Valley Warm Springs Area, including vegetation maintenance and visitor education. The National Park Service, with help from the user groups, would also conduct onsite monitoring of the conditions at the Saline Valley Warm Springs Area, which could trigger response actions by park management to restrict use if damage to natural resources, including soils and vegetation, were observed. If a particular area were to become stressed, the National Park Service could implement restrictions on its use to allow for recovery. These actions would help reduce impacts from nonnative species as well as misuse or overuse by park visitors. This program would result in a long-term beneficial effect on native vegetation.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on soils and vegetation. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 5 would allow visitors to continue to use the Saline Valley Warm Springs Area for soaking and recreation, the same as alternative 1. The National Park Service would collaborate with the user groups to protect soil and vegetation resources. This partnership and camping limitations would create beneficial effects on soils and vegetation, although the net effect in this previously disturbed area would be minimal. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 5 that would constitute a significant cumulative effect.

## Conclusion

Under alternatives 1, 2, 3, and 5, the soils in the Saline Valley Warm Springs Area would continue to be affected through compaction, erosion, and disturbance or removal from visitor activities. The effects on soils would result in impacts that are not substantially different among these four alternatives; however, alternatives 3 and 5 would have smaller areas of impacts due to controlling camping sprawl and delineating roads, and alternative 3 would reduce impacts from burros on native vegetation by expanding the fencing to include vegetated areas. The greatest impacts on vegetation would result from continued water diversion and pressure from nonnative species. Alternative 2 would reduce adverse impacts from nonnative species over current conditions with plans to remove nonnative invasive palm trees and grasses and allowing natural revegetation. Alternatives 3 and 5 would provide further protection from nonnative plants with further resource stewardship efforts; however, alternative 5 would allow the lawn of nonnative grasses at Lower Spring to remain. Additionally, removing diverted water from Burro Spring would return one portion of Lower Spring to more natural conditions. Under alternative 4, adverse impacts on soils and vegetation would be greatly reduced over the long term, as the development at the Saline Valley Warm Springs Area would be removed, thus reducing visitation to the area. Visitors would still visit the Saline Valley Warm Springs Area and impacts from compaction, erosion, and disturbance are expected,

but dispersed camping from fewer visitors would allow the area to recover from decades of heavier use. The effects of visitor activities are not currently posing irreparable threats on soils and vegetation within the Saline Valley Warm Springs Area, and the action alternatives include elements that would improve conditions for these resources; therefore, it can be concluded that the effects from the action alternatives, including alternative 5, the preferred alternative, would not produce significant impacts on soils and vegetation.

## WETLANDS

### Methodologies

The evaluation of impacts on wetlands was based on both a quantitative (acreage affected) and a qualitative assessment of how each proposed alternative would affect wetland functions and values. A detailed discussion of wetlands and descriptions of wetland types is included in the “Affected Environment” chapter. Impacts were determined based on changes to wetland functions and values, including the ability of the wetland to support vegetation and wildlife. The Saline Valley Warm Springs Area, since its development more than 60 years ago, has undergone substantial modification by the user groups for recreational purposes. This analysis describes impacts on both natural and artificial wetlands, as directed by NPS Procedural Manual 77-1: *Wetland Protection*.

### Types of Impacts on Wetlands

The types of impacts on wetlands that relate to visitor use activities at the Saline Valley Warm Springs Area result from trampling, the indirect effects associated with the establishment of nonnative invasive plant species, and the diversion of water. These are described in the following paragraphs.

**Trampling.** Trampling impacts on wetland vegetation would be the same as those described in the “Soils and Vegetation” section. At the Saline Valley Warm Springs Area, wetlands 1 and 3 at Lower Spring and wetland 4 at Upper Spring would be susceptible to trampling effects.

**Nonnative Plant Species.** The threat of nonnative plant species at the Saline Valley Warm Springs Area is also described in the “Soils and Vegetation” section. Wetlands 2 and 4 are known to contain nonnative plants, but all of the wetlands at the Saline Valley Warm Springs Area are susceptible to establishment of nonnative plant species.

**Diversion of Water.** Diversion of water from the source springs through various features at the Saline Valley Warm Springs Area and ultimately to the settling pond creates an artificial wetland (wetland 2). This water also enhances another wetland south of the settling pond (wetland 3). Diversion of water not only creates and enhances these wetlands, but it also removes the possibility of overflow at the source spring, allowing for natural wetland habitat to establish, such as that seen at Upper Spring.

### Alternative 1: No-Action Alternative

Under the no-action alternative, existing conditions would continue at the Saline Valley Warm Springs Area. The current recreational activities would remain the same, as would the water diversions. Additionally, the number of visitors to the area would be expected to remain the same.

Wetland 1 (appendix A, figure 7) contains three small and isolated palustrine emergent wetlands located north of Burro Spring that occur naturally for a total of approximately 0.35 acre. The diversion of Burro Spring leads to a wildlife watering trough that the feral burros often use. The southernmost wetland

associated with wetland 1 is located just east of this trough. During a 2011 survey, one fire ring was documented adjacent to this wetland (Bonstead 2011). Although the fire rings at the Saline Valley Warm Springs Area are constructed and deconstructed by visitors and only represent a snapshot in time, the fire rings do indicate that visitors use this area for setting up camp. The historic Determination of Eligibility (DOE) defined this area as the Burro Spring camping area (appendix C; New South 2015). Wetland 1, which supports whiteflower rabbitbrush (*Chrysothamnus albidus*) and possibly Cooper's rush (*Juncus cooperi*) (plant species of management concern), would continue to be affected by human and feral burro activities (trampling and grazing) under the no-action alternative.

At Lower Spring, wetland 2 (0.027 acre) is the settling pond, an artificial wetland that persists due to the runoff from the tubs, sinks, shower, and lawn (appendix A, figure 7; appendix C). Under alternative 1, there would be no changes to the settling pond, as the diversions would continue, and visitation levels are expected to remain the same as current conditions. These factors would result in approximately the same amount of water provided to wetland 2.



Settling pond and Children's Play Tub at Lower Spring

Wetland 3, the 0.89-acre riparian area southwest of the developed area of Lower Spring (appendix A, figure 7), is supported in part by overflow from the settling pond and runoff from the Lower Spring lawn. Wetland 3 would be subject to trampling as visitors use the area surrounding the vegetation for dispersed camping. A 2011 survey documented six fire rings in or adjacent to wetland 3 along the edges of the vegetation (Bonstead 2011), and the historic DOE defined this area as the Central Camping Area (appendix C; New South 2015). Wetland 3 would remain unchanged under alternative 1, as water diversions and current visitor activities would be allowed to continue.

Wetland 4 (0.65 acres) at Upper Spring is the most natural wetland in the Saline Valley Warm Springs Area (appendix A, figure 7). Visitors occasionally soak in the natural pool and impact wetland vegetation through trampling. Visitors to the Upper Spring have altered the pool bottom for temperature control; however, the water from the spring has not been diverted. The burro exclusion fence, when in good condition, prohibits feral burros from entering the area and impacting the wetland through trampling or grazing. However, the fence has been vandalized by visitors, allowing feral burros to enter the habitat at Upper Spring. Although the National Park Service repaired the missing fence section with barbed wire, this is not completely effective in restricting access by feral burros.

Nonnative plant species currently grow in wetlands 2 and 4 in the form of palm trees, which are also invasive species. The palms will spread on their own under current conditions, and therefore, would likely persist at these wetlands. Saltcedar is a species of concern at Death Valley National Park and this species is found at Lower Spring. Because the seeds of saltcedar are plentiful and easily dispersed as discussed in the "Soils and Vegetation" section, and the plant can grow in wetland conditions, saltcedar could become a risk to any of the wetlands at the Saline Valley Warm Springs Area.

Under alternative 1, management actions at the Saline Valley Warm Springs Area would remain the same as current conditions. The sizes, functions, and values of the four wetlands, both natural and artificial, would remain unchanged.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter), none would have an effect on wetlands. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under alternative 1 that would constitute a significant cumulative effect.

## Alternative 2: Regulatory Compliance Alternative

Alternative 2 would have similar impacts on wetlands as the no-action alternative. Alternative 2 retains much of the existing use of the Saline Valley Warm Springs Area but brings the actions and conditions into compliance with NPS, state, and federal regulations. Visitation levels are expected to remain constant with current conditions.

Impacts on wetlands 1, 2, and 3 at Lower Spring (appendix A, figure 7) from water diversion would be the same as described for alternative 1. The fencing installed around the source springs would not provide further protection for these wetlands. Wetland 2, the settling pond, is currently protected from burro impacts by the fencing that surrounds the Lower Spring lawn.

All wetlands at the Saline Valley Warm Springs Area would benefit from nonnative species control efforts. All palm trees would be removed from Upper Spring, allowing the native wetland plant community to reestablish where the palm trees currently exist. At Lower Spring, as palm trees die naturally, the area would be allowed to revegetate naturally, which would provide some benefits to the vegetation community at wetland 2. The National Park Service would perform nonnative plant control through the park’s existing invasive management plan and other regulations, and these efforts could prevent the establishment of other nonnative and invasive species, such as saltcedar, in the wetland areas.

Alternative 2 would not alter the sizes of the four wetlands. Removal of the nonnative plant species under this alternative would not expand the functions and values of the wetlands, but it would improve the quality of the wetlands by allowing native vegetation to become established throughout the wetlands.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter), none would have an effect on wetlands. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.



*Upper Spring source spring and vegetation*

### Alternative 3: Community Engagement Alternative

Alternative 3 would have similar impacts on wetlands as those described for alternative 2; however, alternative 3 aims to provide a greater level of natural resource protection by encouraging the participation of the user groups in the management of the Saline Valley Warm Springs Area while retaining the use of the tubs.

Under alternative 3, the Burro Spring diversion would be removed. This change is not expected to cause changes to wetland 1 as the three areas that comprise wetland 1 are naturally occurring as a result of the water from a natural source spring (refer to appendix A, figure 7).

This alternative would designate specific areas for camping to protect the resources at the Saline Valley Warm Springs Area, including wetlands. Under alternative 3, wetland 3 and a portion of wetland 1 would benefit from the artistic fencing that would be installed around the tubs, source springs, and riparian areas (appendix A, figure 13); however, the fence would be designed so that visitors would be able to camp in the same dispersed manner as described under current conditions. The fence would eliminate grazing by feral burros on the fenced wetland vegetation. Wetland 1 consists of three small, isolated palustrine emergent wetland areas that contain two species of management concern, whiteflower rabbitbrush and Cooper's rush. The fencing would protect the wetland area closest to Burro Spring, which is approximately 0.04 acre. Eliminating browsing effects from wetland vegetation would increase reproduction and fitness of the plants, benefitting the wetland system.

The efforts for nonnative plant removal would be the similar to those described for alternative 2. Alternative 3 could employ additional efforts, such as establishing thresholds for use and overuse and monitoring the conditions at the Saline Valley Warm Springs Area, which would trigger response actions by park management to restrict use if damage to natural resources were observed. These actions would help reduce impacts on wetlands from nonnative species as well as misuse or overuse by park visitors.

Similar to alternative 2, alternative 3 would not alter the sizes of the wetlands, but the quality of the wetlands would be improved through control of nonnative plant species and some protection from trampling and grazing by feral burros.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the "Cumulative Effects" section of this chapter), none would have an effect on wetlands. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under alternative 3 or the preferred alternative that would constitute a significant cumulative effect.

### Alternative 4: Restoration Alternative

The restoration alternative would remove all development at the Saline Valley Warm Springs Area and restore the area, as close as possible, to natural conditions. Removal of the infrastructure would reduce the water supply to some of the wetlands at the Saline Valley Warm Springs Area.

At Lower Spring, alternative 4 would have an effect on wetlands 2 and 3. The settling pond (wetland 2) would be removed, which would result in removal of 0.027 acre of artificial palustrine wetland. Removal of all diversions and the settling pond would reduce the water available to wetland 3. This 0.89-acre palustrine scrub-shrub wetland would likely be reduced in size, though the change is expected to be minimal. A comparison of an aerial of Lower Spring from 1947 (prior to major water diversion) to an aerial from 2016 (appendix A, figure 8) indicates that the current vegetation follows the same distribution as under natural conditions. The northern area of the wetland appears to be more densely populated with

vegetation; this portion of the wetland currently benefits from overflow from the settling pond and runoff from the Lower Spring lawn. The removal of wetland 2 would result in a decrease in wildlife habitat, sediment retention, and flood flow alteration; however, this change would be a result of restoration of natural hydrology and would not be considered an adverse impact on wetlands. The reduction of wetland 3 would cover an area of approximately 0.1 acre; this would result in a slight reduction of wildlife habitat. However, removal of the water diversion infrastructure would create more natural conditions at the source springs. If the flow of the springs were great enough to provide overflow, wetland areas could form around the source springs if the conditions are appropriate.

Visitation to the Saline Valley Warm Springs Area would be expected to decrease under alternative 4. Visitors would use the Saline Valley Warm Springs Area in the same manner of other backcountry areas of the park. Trampling of wetland vegetation in wetlands 1, 3, and 4 could occur, but the impacts would be expected to be lower than those experienced under alternatives that retain the developed elements of the Saline Valley Warm Springs Area. Additionally, a wire fence would be constructed to surround the backcountry area (appendix A, figure 14). This would prohibit feral burros from trampling and grazing all wetland vegetation associated with Lower Spring.

Removal of the palm trees and other nonnative or invasive plant species and implementation of the monitoring and response program would create beneficial effects on wetland 1, 3, and 4. Most of the vegetation within these wetlands is native, but when the nonnative species are removed and managed over time, the native vegetation would be able to become established throughout the Saline Valley Warm Springs Area. The National Park Service would engage the Tribe to incorporate traditional ecological knowledge into the restoration plans.

Alternative 4 would result in reduced wetland functions and values at the Saline Valley Warm Springs Area. The removal of wetland 2 and potential reduction in size of wetland 3 would result in a reduction of wildlife habitat. It is important to note that these changes would result from the restoration of natural hydrology and would not be considered an adverse impact on wetlands. Further, wetlands 1, 3, and 4 would be improved through control of nonnative plant species and protection from trampling and grazing by feral burros.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter), none would have an effect on wetlands. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## **Alternative 5: Preferred Alternative**

Alternative 5 would have similar impacts on wetlands as those described for alternative 3, as alternative 5 would also incorporate camping zones, participation of the user groups in the management of the Saline Valley Warm Springs Area, and removal of the diversion at Burro Spring. However, alternative 5 would differ from alternative 3 in the areas that would be fenced and the handling of wastewater.

Under alternative 5, the fencing at Lower Spring and Palm Spring would be the same as described for alternative 2. The artistic fencing surrounding the source springs would not protect the wetlands at Lower Spring but would protect water quality. Alternative 5 would also replace the fencing at Upper Spring and expand the fencing to surround both the warm and cold source springs (appendix A, figure 15). The fencing would incorporate approximately 0.9 acre and would protect wetland 4 from burros. Visitors would be able to access wetland 4 and some trampling would occur, but Upper Spring receives limited visitation, and impacts to the functions and natural values would be minimal.

Alternative 5 would require the wastewater from dishwashing stations and showers be diverted to a subterranean system for treatment. This would result in less water in the settling pond (wetland 2) at Lower Spring. The settling pond receives water from the dishwashing stations, showers, tubs, and the runoff from the lawn. The reduced amount of water from adding the subterranean system is not expected to greatly reduce the input to the settling pond; therefore, impacts to wetland 2 would be immeasurable. Similarly, wetland 3, which is adjacent to wetland 2 and receives some benefit from runoff, would not be affected by the subterranean system for treating wastewater.

Alternative 5 would not alter the sizes of the wetlands, but the quality of the wetlands would be improved through control of nonnative plant species, protection from trampling and grazing of the Upper Spring wetland by feral burros, and resource protection. Onsite monitoring, completed by the National Park Service and through an MOU with user groups, would help NPS management respond to changing conditions by restricting visitor use in areas where damage to wetlands is occurring.

**Cumulative Impacts.** None of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter) would have an effect on wetlands. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under alternative 5 that would constitute a significant cumulative effect.

## Conclusion

Under alternatives 1, 2, 3, and 5, the four wetlands of Lower and Upper Springs would continue to be affected through trampling and pressure from nonnative plant species. The largest factor affecting the wetlands at the Saline Valley Warm Springs Area is diversion of water from the source springs. Under alternatives 1, 2, 3, and 5, most of the diversions would remain in place; therefore, the sizes of the wetlands would not be altered. Alternatives 3 and 5 would remove the diversion from Burro Spring to the wildlife trough, but this action would not have an impact on wetland 1. Alternative 2 would reduce adverse impacts from nonnative species over current conditions with plans to remove nonnative invasive palm trees after they die naturally and allow natural revegetation. Alternatives 3 and 5 would provide additional protection from nonnative plants with further resource stewardship efforts. These efforts would improve wetland quality. The burro exclusion fencing in alternative 3 would prohibit feral burros from grazing on a portion of wetland 1, which would benefit the two plant species of management concern, whiteflower rabbitbrush and Cooper’s rush, by allowing for greater reproduction and fitness. Alternative 5 would fully replace and extend the fencing at Upper Spring, providing better protection for wetland 4 from the trampling and grazing by feral burros. Under alternative 4, wetlands would be altered by the removal of all water diversion. This change would completely remove wetland 2, the settling pond, and likely reduce the size of wetland 3, which currently persists from overflow from the settling pond and runoff from the Lower Spring lawn. Based on historic aerials of the Lower Spring area prior to heavy development, the reduction of wetland 3 would not create a substantial difference in size. While alternative 4 would result in a reduction of wetland acreage, the changes from restoration actions would result in restoration of natural hydrology and return the Saline Valley Warm Springs Area to more natural conditions over time, ultimately resulting in beneficial effects. The effects of visitor activities are not currently posing irreparable threats on wetlands within the Saline Valley Warm Springs Area, and the action alternatives include elements that would improve conditions for these resources; therefore, it can be concluded that the effects from the action alternatives, including the preferred alternative, would not produce significant impacts on wetlands.

## WILDLIFE

### Methodologies

This analysis of impacts on wildlife considered the changes and disturbance to wildlife habitat, wildlife species, and the natural processes sustaining them that would occur as a result of the implementation of the alternatives. The impacts on wildlife were analyzed qualitatively. The information in this analysis was obtained through observations and best professional judgment of park wildlife biologists, experts in the field, and supporting literature (as cited in the text).

### Types of Impacts on Wildlife

**Disturbance and Displacement.** Potential impacts on wildlife can include disturbance and displacement as a result of human presence and noise. Disturbance affects all species differently, as some wildlife species are more tolerant of human presence. The type and intensity of disturbance to wildlife by human presence is based on many factors, including type of wildlife species (mammals versus birds) and location of disturbance (developed areas like campsites versus designated wilderness), as well as other factors. Disturbance can result in both short- and long-term impacts on wildlife. In most cases, disturbance as a result of human presence and noise would result in a flight response or cessation of foraging or mating behaviors (Cooke 1980, Knight and Cole 1991). These disturbances would typically be temporary in nature, and any mobile individuals, such as mammals and birds, that exhibited a flight response would typically resume their prior behaviors within a short amount of time. Less mobile and small fauna, such as invertebrates, would be more intensely affected by disturbance and displacement compared to larger and more mobile species because of their delayed flight response and small size. Disturbances are generally nonlethal and temporary.

**Habitat Modification.** Wildlife habitat can be adversely affected by humans through visitor activities and trampling. Existing habitat could also be altered to benefit wildlife through restrictions on uses or elimination of facilities. Changes in the vegetation communities can alter existing habitat for wildlife species. Actions that alter the light and moisture regime and those that remove vegetation could result in a reduction in habitat for wildlife species. Trampling is one of the most visible forms of disturbance caused by visitor recreation (Monz et al. 2009), and it can adversely impact vegetation and lead to altered habitat. Habitat damage caused by trampling can lead to reduced suitability for ground-nesting or burrowing wildlife species, or small fauna. Small mammal and invertebrate burrows may be crushed through trampling. Although changes in wildlife distribution may occur as a result of trampling, it is expected that the larger and more mobile wildlife species would usually avoid areas with visitors present during peak activities.

**Behavior Modification.** Normal wildlife behavior can be altered as a result of human presence, which can be an attractant or deterrent to wildlife. Behavior modification in wildlife from human presence can include changes to feeding, nesting, grooming, resting, and habitat use. Additionally, wildlife behavioral responses to disturbance may include reduced prey intake rates, increased vigilance levels, reduction in levels of parental care, or increased time spent in flight.

Human activities at campsites can disturb wildlife and deter them from approaching water sources, which is a critical impact in desert habitats (Hammit and Cole 1998). Other animals could be attracted to campsites due to food smells. Animals that are common at campsites include birds, mice, rats, and squirrels (Lueng and Marion 2000). At the same time, designated campsites can protect new areas from being impacted from camping by limiting the impacts to certain areas in the parks, which would protect other habitats.

Habituation to humans is a behavior modification that can result from human presence in the wilderness. There are two primary means by which wildlife can be adversely impacted by humans in particular: through frequent benign encounters with people, which can lead to habituation, and through the availability of human food items brought into the area by visitors, which if obtained by wildlife, can lead to food conditioning. Habituation is an adaptive response that minimizes unnecessary and irrelevant energy expenditures (McCullough 1982), but it can lead to negative consequences for both wildlife and people. Wildlife that learn to seek out campsites for food become a nuisance.

**Feral Burros.** Burros were introduced to the California desert in the late 1800s by settlers and miners (BLM and NPS 1999). Feral burros are well adapted to survive in the desert environment. Mountain lions (*Puma concolor*) will occasionally prey on feral burros, but this does not occur often enough to reduce the feral burro population. In some areas, feral burros can compete with native wildlife, such as bighorn sheep (*Ovis canadensis*) for food, water, and space. Although feral burros are not directly competing with other wildlife at the Saline Valley Warm Springs Area, they have become habituated to the visitors, often raiding campsites for food. After the development of the alternatives for the draft plan/EIS, the National Park Service entered into a 5-year agreement with Peaceful Valley Donkey Rescue to relocate burros from the park to offsite adoption facilities and sanctuaries. Because this effort would remove burros over a period of 5 years, the fencing options of the alternatives were retained for this final plan/EIS for resource protection. Where the alternatives have impacts on feral burros, these impacts are discussed separately from other wildlife species. The alternatives contain elements that work to control impacts from feral burros on the Saline Valley Warm Springs Area.



*Feral burro eating visitors' food at a campsite at the Cool Pool Camping Area*

## Alternative 1: No-Action Alternative

**Wildlife.** Under alternative 1, the no-action alternative, all visitor activities at the Saline Valley Warm Springs Area would continue. Wildlife would continue to be affected by visitor activities through disturbance and habitat modification.

As stated in the "Soils and Vegetation" section, Warm Springs Road is the only designated road at the Saline Valley Warm Springs Area. Visitors to the Saline Valley Warm Springs Area generally drive on roads created by rock alignments and camp close to the soaking tubs. However, during times of higher visitation, such as Presidents Day and Thanksgiving, visitors are forced to camp further from the tubs in the areas, such as the Lower Dispersed camping area (appendix A, figure 10; appendix C). The unrestricted and dispersed nature of the campsites has led to large areas of compacted land, which creates unsuitable habitat for small mammals and invertebrates that might otherwise burrow in the soils. Approximately 119 acres of the Saline Valley Warm Springs Area have been affected by use of the camping areas by visitors. This effect would continue under alternative 1.

At Lower Spring, visitors tend to camp close to vegetation where possible in the central, Burro Spring, and the Lower Dispersed camping areas, as depicted in figure 10 (appendix A) and appendix C. The human activity could deter wildlife from using the vegetation in these areas for foraging or shelter. Lower Spring contains the most vegetation at the Saline Valley Warm Springs Area; however, some of this habitat is supported by water diverted from the source springs and much of the vegetation is comprised of nonnative species, providing altered habitat. The plant species act as a food source for the wildlife of Saline Valley. For example, palm tree fruits and mesquite fruits, seeds, and flowers are valuable forage, even though the palms species at the Saline Valley Warm Springs Area are nonnative and invasive.

Some of the wildlife species that occupy the habitat at Lower Spring are those species that have become habituated to human presence, such as American coot (*Fulica americana*) and common raven (*Corvus corax*). The settling pond provides habitat for several nonnative aquatic species including western mosquito fish (*Gambusia affinis*), koi (*Cyprinus carpio*), and Louisiana swamp crayfish (*Procambarus clarkii*). These species, as well as others, benefit from the food scraps that are included in the waste water from the dishwashing stations and from poor food storage by visitors.

Visitors also camp in the Middle and Upper Dispersed camping areas (appendix A, figure 10; appendix C), which contain sparse vegetation. Palm Spring contains very little natural habitat. Upper Spring provides a small (approximately 0.8 acre) area of habitat. The Upper Spring vegetation is dense, and the majority of the plants in this community are native. The habitat at Upper Spring is appropriate for supporting aquatic species, terrestrial invertebrates, small mammals, reptiles, and birds. Visitors infrequently explore Upper Spring, thus the impacts from trampling and disturbance would be minimal.



Signage at the library area of Lower Spring

While most of the impacts from visitors at the Saline Valley Warm Springs Area would be localized, visitors participate in many recreational activities and all of these activities have the potential to disturb wildlife. Because the Saline Valley Warm Springs Area is sparsely vegetated, impacts on vegetation would be minimal, but recreation activities would have adverse effects on cryptobiotic soil crusts, which provide a food source for organisms that live below the surface. While foot traffic could disturb wildlife, off-road vehicle use has been shown to produce severe effects on wildlife, specifically in arid environments, through direct mortality, habitat destruction, and noise disturbance (Bury et al. 1977). Although off-road vehicle use is not permitted in Death Valley National Park, it would be expected to continue to occur.

Impacts at the Saline Valley Warm Springs Area are largely driven by visitor activities. The volunteer camp host and repeat visitors to the Saline Valley Warm Springs Area work to educate new visitors on the stewardship of the springs and surrounding areas. Under alternative 1, these efforts would continue, and NPS signage with rules for recreating in the backcountry would remain in place at Lower Spring. The guidance from volunteers and signage could reduce behaviors that negatively impact wildlife at the Saline Valley Warm Springs Area, such as poor food storage and vegetation trampling; however, the amount that these efforts benefit the resources is unknown.

**Feral Burros.** Currently, feral burros are able to roam throughout most of the Saline Valley Warm Springs Area. The users constructed a wooden fence around the Lower Spring lawn to keep the feral burros from grazing on the grasses, and the National Park Service constructed a chain-link burro exclusion fence around Upper Spring to retain its natural habitat and eliminate grazing and trampling from feral burros. However, as stated in the “Wetlands” section, the fence has been vandalized by visitors and the repaired fence may not be entirely effective in prohibiting feral burro access to Upper Spring. There is evidence of feral burros grazing the vegetation at Lower Spring. The feral burros are also known to look for food at visitors’ camps and in fire rings, often damaging items and spreading trash.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on wildlife. One project that may affect wildlife is the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a), which was approved in 2011. This project would allow for the issuance of a permit to Inyo County for use of existing borrow pits along Saline Valley Road. If the permit is issued, wildlife could be adversely affected by the temporary loss of desert scrub habitat, but these affected areas would be restored following the road repair activities; restoration is expected to be complete within the 20-year permit period.



*Sign on the book cabinet door of the library area at Lower Spring*

Another project, the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014), allows Inyo County to designate certain county roads as combined-use routes to link existing OHV trails and trailheads on BLM or USFS lands to create a unified OHV trail system. Included in this trail system is 11.6 miles of Death Valley Road outside and west of Death Valley National Park. Death Valley Road is already paved; therefore, inclusion of this road would not involve modification of wildlife habitat. Although traffic is expected to increase on this portion of Death Valley Road, an increase in collisions with wildlife is not expected. However, OHV use could stray into the park and onto Saline Valley Road, as the boundaries are not clear in the northwest corner of park. Interactions with wildlife from illegal use of OHV vehicles could occur, but these instances are expected to be minimal. Wildlife could be affected by traffic noise, but the increase over current conditions would not be substantial.

The no-action alternative would allow continued use of the Saline Valley Warm Springs Area and current impacts on wildlife would also continue, including trampling and disturbance. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 1 that would constitute a significant cumulative effect.

## **Alternative 2: Regulatory Compliance Alternative**

**Wildlife.** Alternative 2 would have similar impacts on wildlife as the no-action alternative, as this alternative retains much of the existing use of the Saline Valley Warm Springs Area but brings the actions and conditions into compliance with NPS, state, and federal regulations. Visitation under alternative 2 is assumed to be consistent with current conditions; therefore, the effects of disturbance and trampling from driving, camping, and recreational activities would be the same as described under alternative 1.

Alternative 2 would differ from the no-action alternative in the treatment of nonnative plant species, management of the dishwashing stations, food storage education, and fencing.

Under alternative 2, the palm trees would be removed from Upper Spring, and as palm trees die naturally at Palm and Lower Springs, the areas would be allowed to revegetate naturally; these palms are nonnative invasive species. Additionally, the National Park Service would perform nonnative plant control via the park's existing invasive management plan and other regulations. These actions would allow the vegetation communities to exist and succeed in a more natural state, which would provide higher quality habitat for native wildlife species.

The National Park Service would add a filtration system to the dishwashing stations at Lower and Palm Springs, removing food scraps from the wastewater and reducing human-provided food for wildlife. This action would reduce habituation of wildlife, although wildlife would continue to be able to obtain improperly stored food from campsites. For this reason, the National Park Service would expand education efforts, specifically on how to properly store food while camping at the Saline Valley Warm Springs Area, through various media and through direct communication by the camp host.

**Feral Burros.** Under alternative 2, the burro exclusion fence around Upper Spring would remain, and the National Park Service would install wooden fencing around the source springs at Lower and Palm Springs to restrict feral burros. Feral burros would still have access to campsites and all vegetation except for the Lower Spring lawn, which is currently fenced, under this alternative. The fencing would protect the water sources but would not protect any terrestrial wildlife habitat from trampling and grazing by feral burros.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects that have a detectable effect on wildlife. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 2 would allow for continued use of the Saline Valley Warm Springs Area, similar to current conditions, with added elements for wildlife protection, including treatment of nonnative plant species and management of the dishwashing stations. Visitation would remain consistent with current conditions under this alternative, and the beneficial effects from these efforts would result in little change to wildlife at the Saline Valley Warm Springs Area. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

### **Alternative 3: Community Engagement Alternative**

**Wildlife.** Alternative 3 would have similar impacts on wildlife as those described for alternative 2; however, alternative 3 aims to provide a greater level of natural resource protection by encouraging the participation of the user groups in the management of the Saline Valley Warm Springs Area while retaining use of the tubs. The number of visitors under alternative 3 is expected to remain consistent with current visitation levels; therefore, the levels of impacts would also be similar. Alternative 3 differs from alternative 2 by restricting camping to certain areas, managing food storage, removing the water diversion from Burro Spring, removing the lawn at Lower Spring, further increasing visitor education, and increasing restrictions on feral burro access.

The designated camping areas and overflow areas under alternative 3 would prohibit visitors from spreading into undisturbed areas. The buffer around the source springs under alternative 3 would protect approximately 2.8 acres from camping impacts, but the designated car camping areas, the walk-in camping area, and the parking area would concentrate the impacts from driving and foot traffic. While other portions of the Saline Valley Warm Springs Area would be open to recreation activities, this camping design would limit visitors' effects on wildlife habitat and reduce the potential for human

disturbance of wildlife. The intensity of the impacts, especially during times of high visitation that would result in significant sprawl under alternatives 1 or 2, would be reduced, allowing portions of the Saline Valley Warm Springs Area to recover, and reducing potential wildlife/human interactions.

Alternative 3 would work to reduce wildlife habituation. In addition to the filtration system on the dishwashing stations, the National Park Service would have the ability to provide food storage boxes for the storage of campers' food. When the filtration systems, the food storage boxes, and the increased education for camping practices are used in conjunction, they would greatly reduce the potential for wildlife to become dependent on humans for food.

Alternative 3 would remove the diversion at Burro Spring, which would return the mesquite and understory in the middle of the Lower Spring to more natural conditions over the long term. This change would eliminate a water source for wildlife. More importantly, it could reduce the line of mesquite from the middle of Lower Spring. Mesquite is an important resource for wildlife, as the trees can provide shelter, nesting, and roosting habitat, and the seeds, flowers, and fruits are a food source for a variety of wildlife species (Steinberg 2001). If a reduction were to occur, it would result in an adverse impact on wildlife, as it would reduce valuable habitat at Lower Spring. It should be noted that based on comparison of aerial photographs of Lower Spring, this mesquite habitat developed in the mid-1990s, most likely due to the addition of the diversion at Burro Spring; therefore, this habitat should not be considered part of the natural landscape, even though it is comprised of native species. These mesquite trees have been established for approximately 20 years. The trees grow a very long taproot and an extensive lateral root system for obtaining water, making it likely the trees would be able to persist in this location, even with the loss of water from the diversion pipe. If Burro Spring has enough flow, natural outflow from the spring could help establish vegetation closer to the source spring, and this new, naturally occurring habitat would be beneficial for the wildlife of the Saline Valley Warm Springs Area; however, natural restoration in desert habitat is a slow process. In the Mojave and Sonoran deserts, natural revegetation of perennial plant cover after various types of disturbance averaged 76 years (Abella 2010).

Alternative 3 would also remove the lawn at Lower Spring and allow the area to naturally revegetate or replant it with native species. The replacement species, whether planted or allowed to succeed naturally, would likely provide a different habitat than the lawn currently provides. These actions would reduce the nonnative species at the Saline Valley Warm Springs Area and allow for native habitat to return, thus providing a benefit to native wildlife species that would use it.

Alternative 3 would result in long-term beneficial effects on wildlife habitat, and therefore wildlife, through efforts to reduce nonnative species and to support the succession of natural habitats. Nonnative plant removal would be similar to those described for alternative 2, but alternative 3 could employ additional efforts such as entering into an agreement with user groups to support the National Park Service with nonnative species removal and monitoring of all three springs sites for nonnative species establishment. The National Park Service would also monitor conditions at the Saline Valley Warm Springs Area, which would trigger response actions by park management to restrict use if damage to natural resources associated with overuse were observed. The National Park Service would establish thresholds for use and overuse. With the help of volunteers, the National Park Service would be able to better monitor the conditions of the natural resources at this remote site. If a particular area or resource becomes stressed, the National Park Service could implement restrictions on its use to allow for recovery. In support of these actions, the National Park Service would also increase the educational signage on campground boards and the camp host would be required to connect with visitors to encourage resource protection measures. These actions would help reduce impacts on wildlife habitat from nonnative species as well as misuse or overuse by park visitors, resulting in long-term beneficial impacts on wildlife and wildlife habitat. For all of the native habitat restoration efforts, the National Park Service would seek the traditional ecological knowledge of the Tribe.

**Feral Burros.** Under alternative 3, the burro exclusion fence around Upper Spring would remain, and the National Park Service would install wooden fencing around the tubs, source springs, and riparian areas at Lower and Palm Springs to restrict feral burros from these areas. Eliminating trampling and grazing together with nonnative plant species control, the habitats of Lower and Palm Springs would be able to return to more natural conditions, though this process would be slow, as stated in the previous section. Feral burros would still have access to campsites under this alternative.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on wildlife. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 3 allows visitors to continue to use the Saline Valley Warm Springs Area for soaking and recreation, the same as alternative 1. The National Park Service would work with the user groups to collaboratively to protect natural resources. These efforts, camping limitations, food management, and fencing would create beneficial effects on wildlife and wildlife habitat, though the net effect in this previously disturbed area would be minimal. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 3 that would constitute a significant cumulative effect.

## **Alternative 4: Restoration Alternative**

The restoration alternative would remove all development at the Saline Valley Warm Springs Area and restore the area, as close as possible, to natural conditions. Recovery rates of desert environments are generally very slow (Abella 2010), but removal of the development would reduce the draw for many visitors, thus reducing effects from recreational activities. Physical removal of all the features at the Saline Valley Warm Springs Area would temporarily disturb wildlife, as these actions would likely require heavy equipment and vehicles. With fewer visitors and fewer vehicles, impacts on wildlife from trampling and disturbance would be reduced and less concentrated over the long-term.

Removal of the water diversion infrastructure at the Saline Valley Warm Springs Area could adversely affect the mesquite in the middle of Lower Spring, although the probability is low, and remove a reliable water source, as described for alternative 3. Alternative 4 would remove the settling pond, which would eliminate a wetland habitat at Lower Spring. Overflow from the settling pond and runoff from the Lower Spring lawn provide some hydration to the wetland south of these features. Under alternative 4, this wetland vegetation would be negatively affected by the loss of water supply. Although these changes would reduce the habitat available to wildlife, they would eventually restore the Saline Valley Warm Springs Area to more natural conditions, which would benefit native wildlife species over the long term.

The nonnative plant species management actions, the monitoring and response program, and the cooperative agreement between the National Park Service and the Tribe would be the same as described for alternative 3; however, there would not be a camp host and the signage present at the Saline Valley Warm Springs Area would be minimal. Visitors would be responsible for properly storing their food, and the National Park Service would provide the same level of information as is provided to other backcountry visitors in the park.

**Feral Burros.** Feral burros would be restricted from the entire Saline Valley Warm Springs Area by a wire fence that would be installed at the backcountry boundary; the fencing around Upper Spring would remain in place. These fences would prohibit feral burros from trampling and grazing anywhere at the three springs areas. Removal of all development, the expected drop in visitation, removal of all nonnative plant species, the monitoring and response program, and this feral burro exclusion would provide the greatest opportunity for the Saline Valley Warm Springs Area to return to natural conditions. However, even with the protection provided by alternative 4, the restoration process would be slow.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on wildlife. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 4 would remove all infrastructure and restore the Saline Valley Warm Springs Area. These activities would have temporary adverse impacts on wildlife from disturbance. Reduction of habitat would have an adverse effect on wildlife, as desert habitats are slow to recover from disturbance; however, over the long-term, this alternative would return the Saline Valley Warm Springs Area to more natural conditions. Additionally, a monitoring and response program for nonnative species would be implemented. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## Alternative 5: Preferred Alternative

**Wildlife.** Alternative 5 would be similar to alternative 3, except for the fencing, the treatment of the palm trees and the lawn, and the way wastewater is handled. Similar to alternative 3, alternative 5 would have camping zones, which would concentrate car camping to designated areas, allow walk-in camping in other areas with an associated parking area, and prohibit camping in other parts of the Saline Valley Warm Springs Area. These zones would limit impacts to wildlife habitat to previously disturbed areas and allow other areas to recover from previous human use. Over the long-term, this restored habitat could become suitable for use by more wildlife species. The camping buffer around the source springs at Lower and Palm Springs would remain at 100 feet under alternative 5, continuing to protect approximately 1 acre collectively from the Burro Spring, Cool Pool, and Upper Dispersed camping areas.

The Lower Spring lawn would be retained and maintained within its current footprint under alternative 5. Although the lawn allows nonnative species to persist, it does provide habitat and would continue to do so for any wildlife species that use the lawn currently for activities, such as foraging or resting. Under alternative 5, young palm trees would be actively removed, and native species would be planted so that when the existing mature palm trees die naturally and are removed, the native species would be mature enough to provide shade for visitors. The vegetation maintenance would be provided by the user groups under an MOU.

Alternative 5 differs from alternative 3 in that wastewater from the dishwashing stations and the showers would be diverted to subterranean systems to treat the water. At Palm Spring, this change would reduce the small amount of vegetation that grows in the wash south of the sink and shower. This vegetation provides poor quality habitat because it is nonnative, thus the loss of habitat would result in a minimal impact to wildlife. At Lower Spring, the subterranean system would result in a reduced amount of water entering the settling pond. This change is not anticipated to cause a change in the water level or the vegetation that grows around the settling pond.

Alternative 5 would result in minimal impacts on wildlife and wildlife habitat at Palm Spring from a slight reduction in low-quality habitat, but overall alternative 5 would create beneficial effects on wildlife and wildlife habitat throughout the Saline Valley Warm Springs Area. The reduction of nonnative plant species, collaborative efforts with user groups, the increased education, and the camping limitations would support the succession of natural habitat, reduce the potential for wildlife habituation, and allow previously disturbed areas to recover into potentially suitable wildlife habitat.

**Feral Burros.** The fencing that would be installed under alternative 5 would only surround the source springs at Lower and Palm Springs but would replace and extend the fencing at Upper Spring to include both source springs within the fencing. The habitat at Upper Spring would be protected from impacts of burros, but Lower Spring and Palm Spring would be susceptible to burro grazing and trampling. The

agreement between the National Park Service and the Peaceful Valley Donkey Rescue should reduce the burro population at the park and thus the impacts on the habitat at the Saline Valley Warm Springs Area; however, there is no guarantee that this program will be successful.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on wildlife. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 5 allows visitors to continue to use the Saline Valley Warm Springs Area for soaking and recreation, the same as alternative 1. The National Park Service would work with the user groups to collaboratively to protect natural resources. These efforts along with camping limitations would create beneficial effects on wildlife and wildlife habitat, though the net effect in this previously disturbed area would be minimal. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 5 that would constitute a significant cumulative effect.

## Conclusion

Under alternatives 1, 2, 3, and 5, the wildlife in the Saline Valley Warm Springs Area would continue to be affected through trampling and disturbance from visitor activities. The effects on wildlife would result in impacts that are not substantially different among these four alternatives. Alternatives 3 and 5 would remove the diversion of water from Burro Spring to the line of mesquite. The density of the associated understory would likely be reduced, causing a reduction of available habitat, but the mesquite trees would likely persist. Efforts to reduce nonnative species and return the habitat in the Saline Valley Warm Springs Area to more natural conditions would have beneficial effects on wildlife species. Alternatives 2 and 3 would eventually remove nonnative invasive palm trees and allow natural revegetation, thus improving available wildlife habitat; alternative 5 would plant native tree species so that they would mature and provide shade by the time the palm trees die naturally and are removed. Alternative 3 would also remove the Lower Spring lawn and either allow natural revegetation or replant the area with native species. Alternatives 3 and 5 would provide further protection from nonnative plants through an MOU with the user groups for resource stewardship efforts. Under alternative 4, adverse impacts on wildlife would be reduced over the long-term, as the development at the Saline Valley Warm Springs Area would be removed, thus reducing visitation to the area. Visitors would still visit the Saline Valley Warm Springs Area and impacts from trampling and disturbance are expected, but dispersed camping from fewer visitors under the restoration alternative would allow the area to recover from decades of heavier use. Based on available information, the effects of visitor activities are not currently posing irreparable threats on native wildlife within the Saline Valley Warm Springs Area, and the action alternatives include elements that would improve conditions for these resources; therefore, it can be concluded that the effects from the action alternatives, including alternative 5, the preferred alternative, would not produce significant impacts on wildlife.

## CULTURAL RESOURCES

### Methodologies

Potentially eligible National Register of Historic Places (NRHP) archeological, historical, and ethnographic properties are present within the Saline Valley Warm Springs Area. As stated in the “Purpose of and Need for Action” chapter, cultural landscapes exist at the Saline Valley Warm Springs Area; they are discussed under historical resources and ethnographic resources sections. Environmental consequences from each of the five alternatives to these resources were evaluated based on their potential to cause impacts to the integrity of the properties as they relate to their potential eligibility to the NRHP.

## Types of Impacts on Cultural Resources

**Physical Destruction/Damage/Disturbance.** A number of direct physical impacts could occur to cultural resources ranging from disturbance, to removal or destruction of a contributing feature of an eligible property. For archeological sites, artifacts can be removed through collecting and looting activities or moved from one place to another. Even if a curious hiker picked up an artifact, examined it, and then dropped back on the ground nearby, its contextual information is lost, and it loses its ability to convey certain information about the archeological site.

**Changes in the Character of Property Use and Visual Features.** Changes to a site could alter the use or affect the visual elements of a historic resource that contribute to its eligibility to the NRHP. For example, if the property is eligible as a recreational resource, changes that affect its recreational use could impact the eligibility of the site as a whole or of certain contributing features to the site. Similarly, removal of vegetation where vegetation is considered a contributing feature might visually affect the character of the site.

**Loss of Integrity of Association and Relationship to Cultural Groups.** For ethnographic resources, such as Traditional Cultural Properties (TCPs) and areas of ethnographic significance for tribes, certain impacts can affect the integrity of association and the integrity of relationship to the particular cultural group that is tied to the property. If certain traditional cultural practices cannot be practiced or are adversely impacted at a site, this may limit the ability of the site to help to maintain the cultural traditions of the group.

**Viewshed Impacts.** Impacts to the viewshed of a historic property, both looking toward a historic property and looking at the view from a historic property, can affect the integrity of setting, feeling, and association of a historic site, cultural landscape, or ethnographic resource.

## Section 106 of the National Historic Preservation Act of 1966

Consultation under section 106 of the National Historic Preservation Act (NHPA) is described in the “Consultation and Coordination” chapter. Under section 106 of the NHPA changes to NRHP-eligible cultural resources resulting from implementation of a project are referred to as “effects,” and may be considered as “no effect,” “no adverse effect,” or “adverse effect.” Effects can be beneficial, as well as adverse.

### Alternative 1: No-Action Alternative

For alternative 1, the no-action alternative, future visitor use would continue at the Saline Valley Warm Springs Area as it is today, including fees, length and location of stays, use of campfires, and the airstrip. While the current tubs would remain, no additional tubs would be built, and no development would be allowed at Upper Spring (NPS 2002a). Unrestricted dispersed camping, including car camping in backcountry areas, would continue. Only minimal control of nonnative and invasive plants, such as removing young palms, would occur. For archeological sites, NPS monitoring would continue. The camp host and visitors would continue to maintain the tubs infrastructure with NPS oversight.

**Archeological Resources.** Under alternative 1, archeological sites that have been recorded in the past would continue to see the same threats from heavy use that they face now, namely disturbed context, collecting, and serious physical damage. Bonstead noted in 2013 that the archeological sites previously recorded at Lower and Palm springs have “been destroyed through visitor use (human and burro).” Car camping activities would continue in the 119 acres of camping areas, as discussed in the “Soils and

Vegetation” section and presented in appendix C. Visitors to the Saline Valley Warm Springs Area can unknowingly impact archeological resources from activities such as driving through the Saline Valley Warm Springs Area, moving rocks to create fire rings and art, and dragging Warm Springs Road with a heavy tire or other device. Continued visitor use in the current manner in the Saline Valley Warm Springs Area would allow easy access for hikers into more remote, designated wilderness areas where more intact archeological sites may be located, thereby providing a potential for impacts on these sites.



*Bathtub and shower at Lower Spring, contributing elements to the area of historic significance for the recreational users*

**Historical Resources.** Impacts from alternative 1 on the area of historic significance for the recreational users could occur but would be negligible, as the significance is tied to the site’s recreational and social history, both of which would remain the same under the no-action alternative. Existing nonnative and invasive vegetation (including the palms and the lawn at Lower Spring) would remain in place, as would communal spaces that lend the site significance under social history. No new tubs can be constructed, and no development can occur at Upper Spring; these restrictions were already in place per the Death Valley GMP (NPS 2002a).

**Ethnographic Resources.** For some members of the Tribe, the current usage of the Saline Valley Warm Springs Area has a “significant impact from escalating recreational use, inappropriate behavior, and the construction of soaking pools and the development as a spa-like setting” on the area of ethnographic significance for the Tribe (Rucks 2016). The diversion of the natural spring water, the presence of nonnative species, and the choice of some visitors to practice clothing optional recreation at the Saline Valley Warm Springs Area affect what members of the Tribe consider a sacred place. As the current management of the area would continue under alternative 1, these adverse impacts would continue. Although Upper Spring remains undeveloped and retains much of its natural and ethnographic integrity, camping with vehicles occurs at Upper Spring presently and visitors do soak in the Upper Spring source

spring, although at a much lower density and frequency than at Palm Spring or Lower Spring. Alternative 1 would continue to have an adverse impact on Upper Spring, as under this alternative there is little park oversight due to the remoteness of the Saline Valley Warm Springs Area.

**Cumulative Impacts.** The no-action alternative would allow continued use of the Saline Valley Warm Springs Area, thus current impacts on cultural resources would continue. This would include the disturbance of archeological resources and behavior and recreation activities that are contrary to the Tribe's use of the Saline Valley Warm Springs Area as a sacred place.

Of the past, present, or reasonably foreseeable projects that could have a detectable impact on resources affected by the Saline Valley Warm Springs Management Plan, the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) could have an impact on cultural resources, specifically archeological resources. This project would allow for the issuance of a permit to Inyo County for use of existing borrow pits along Saline Valley Road. Subsurface sites or artifacts could be damaged or destroyed during excavation; however, because the borrow sites have been previously used and the ground previously disturbed, there is only a small potential for impacts to archeological resources.

Routine road maintenance by Inyo County could also have an impact on archeological resources. The maintenance generally involves grading the Saline Valley Road, the main road that leads to the Saline Valley Warm Springs Area, but Inyo County must also restore the road after heavy rains. These maintenance activities could damage or destroy resources, but Saline Valley Road has been previously disturbed and the potential for additional impacts on archeological resources is minimal. Considered together, there would be no meaningful additive or interactive effects among this project on cultural resources and the proposed actions under alternative 1 that would constitute a significant cumulative impact.

## **Alternative 2: Regulatory Compliance Alternative**

Alternative 2, the regulatory compliance alternative, would have similar impacts on cultural resources as the no-action alternative. This alternative retains much of the existing use of the Saline Valley Warm Springs Area but brings the actions and conditions into compliance with NPS, state, and federal regulations. To the extent possible, the existing features at the Saline Valley Warm Springs Area would be made accessible and usable to those with disabilities. Unrestricted dispersed camping, including car camping in backcountry areas, would continue. All user-constructed fire rings at campsites would be removed and only the use of NPS-provided structures would be allowed, such as fire enclosures, grate, grills, or firepans. The communal fire ring at Lower Spring would remain. Under alternative 2, the nonnative invasive palm trees that die naturally at Lower Spring and Palm Spring would not be replaced, but the existing palm trees at Upper Spring would be removed. Additional artistic fencing would be installed around the source springs to exclude feral burros from accessing the springs. Non-historic artwork would be removed from all designated wilderness areas and manipulation of natural or cultural resources for the purpose of art would be prohibited. The vehicle support facility would be removed.

The area of historic significance for recreational users and the area of ethnographic significance for the Tribe would be managed as such by the National Park Service and documentation of and mitigation for the impacts to elements of these resources would be completed. Art at the Saline Valley Warm Springs Area that is determined to be NRHP-eligible would be managed as such. NPS monitoring of archeological resources would continue.

**Archeological Resources.** Under alternative 2, visitor use would remain almost identical to current conditions; therefore, the impacts on archeological resources would continue to occur. The National Park Service would install artistic fencing around the source springs to keep the feral burros from the springs.

Feral burros may spend time trailing along the fence line. Prior to installation of the fencing, the National Park Service would conduct archeological surveys and consult with the State Historic Preservation Officer (SHPO). The fencing would be placed in areas void of resources; therefore, installation of the fence and trailing by feral burros would not affect archeological resources. Alternative 2 would prohibit visitors from manipulating natural or cultural resources for art, preventing further damage to archeological resources, but because the Saline Valley Warm Springs Area has been previously disturbed, this would only result in a slight beneficial impact. The other changes initiated by alternative 2 would have no impact to archeological resources at the Saline Valley Warm Springs Area.

**Historical Resources.** Alternative 2 would begin a program of removing the nonnative invasive palm trees at Lower Spring and Palm Spring as they die naturally, per *NPS Management Policies 2006* (NPS 2006, section 4.4.4.2). As the age of the palms at Lower Spring could not be determined definitively, it remains unknown if they are a contributing feature to the area of historic significance for the recreational users. The palm trees at Palm Spring are a contributing feature of the site; this area is named for the palms. The gradual removal of palm trees would diminish this visual feature of the Saline Valley Warm Springs Area. The conflicting dates for the presence or absence of palms at Lower Spring, based on photographs, oral histories, and written archival sources seem to indicate that trees have been both present and absent in this location. It seems likely that they have been planted, have died, or have been removed, and then replanted possibly several times by either Tribal members, ranchers, or recreational users. Lightning strikes may also have killed palm trees at certain times, as mentioned by visitors (New South 2015).

Alternative 2 would add more artistic fencing around the source springs at both Lower Spring and Palm Spring to limit access of the feral burros. This would not have a visual impact effect at Lower Spring, as the artistic fencing style would be similar to the current fencing. The fencing is not considered a contributing feature of the area of historic significance for the recreational users. It is, however, a sympathetic addition to the setting and feeling and was recommended for re-evaluation as a contributing resource when it reaches 50 years of age (New South 2015). The addition of artistic fencing at Palm Spring would be considered an adverse visual impact, as the feeling of this site is more open and there is currently no fencing in this location. Under alternative 2, all non-historic artwork would be removed in wilderness areas, including the Upper Peace Sign, which is not part of the area of historic significance for the recreational users. Therefore, this action would not cause an adverse impact on historical resources.

Alternative 2 calls for the facilities, including the tubs, to be made accessible and usable to all. While this would be considered a physical impact to the tubs, it may not necessarily be adverse depending on the type of alteration. The recreational user group has made a number of changes to the tubs over time and these have not affected the integrity of materials, design, or workmanship.

**Ethnographic Resources.** As management of the area would continue in an almost identical manner under alternative 2, the impacts described for alternative 1 would continue with some differences. Alternative 2 would begin a program of removing the palm trees at Lower and Palm Springs as they die naturally, and the few palms present at Upper Spring would be removed, per *NPS Management Policies 2006* (NPS 2006, section 4.4.4.2). This restoration effort, which would result in more natural vegetation, would have beneficial impacts, as part of the reason the Tribe considers this an area of ethnographic significance is that they see it as their obligation to protect and restore the natural environment of the springs (Rucks 2016). The area of ethnographic significance for the Tribe would also benefit from the removal of the vehicle support facility at Lower Spring and non-historic artwork in designated wilderness under alternative 2, as it would restore a more natural look to sections of the landscape. The addition of more artistic fencing under alternative 2 would constitute more development at the springs and therefore have an adverse visual impact on the area of ethnographic significance for the Tribe.

**Cumulative Impacts.** Alternative 2 would have no additional adverse impacts on archeological resources, as the visitor use, and therefore disturbance of archeological sites, would be the same as under current conditions. The effects on the area of historic significance for the recreational users would be slight and would include the removal of nonnative invasive palm trees and addition of artistic fencing, all of which would result in visual impacts on the area of historic significance for the recreational users. The area of ethnographic significance for the Tribe would benefit from efforts to restore native vegetation communities and exclude nonnative wildlife from the area and the removal of the vehicle support facility and non-historic artwork from designated wilderness areas. There are two current projects that have a detectable effect on cultural resources: the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and routine road maintenance by Inyo County. These projects are described for alternative 1. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 2 that would constitute a significant cumulative effect.

### **Alternative 3: Community Engagement Alternative**

Alternative 3, the community engagement alternative, aims to provide a greater level of natural resource protection by engaging user groups in the management of the Saline Valley Warm Springs Area while retaining use of the tubs. Camping areas would be designated under this alternative. Changes to the current policy would include delineation of roadways and camping areas, prohibiting camping within 200 feet of source springs, and designated overflow walk-in campsites with defined parking areas. Only authorized firepans and NPS-provided fire enclosures, grates, or grills would be allowed, but the communal fire ring would remain at Lower Spring. The palm trees would be managed as described for alternative 2, but under alternative 3, the lawn at Lower Spring would be removed and the area allowed to naturally revegetate or be replanted with native vegetation. Additionally, the Tribe would be engaged to incorporate traditional ecological knowledge to help manage the vegetation throughout the Saline Valley Warm Springs Area. Artistic fencing would be added to surround the source springs, tubs, and riparian areas to prevent access by feral burros. The piping at Burro Spring would be removed and all non-historic artwork would be removed from the designated wilderness and backcountry areas. The permanent housing for the camp host at Lower Spring would be removed under alternative 3, as would the vehicle support facility. To the extent possible, existing features would be made accessible and usable to those with disabilities.

The area of historic significance for the recreational user and the area of ethnographic significance for the Tribe would be managed as described for alternative 2. In addition, there would be increased education and monitoring by NPS-trained site stewards. Topics covered by the increased education efforts would include resource protection, the relationship with the Tribe, and the history of Saline Valley.

**Archeological Resources.** Under alternative 3, visitor use would remain similar to that described for alternative 2; however, because there would be increased education and monitoring by the National Park Service and NPS-trained site stewards, impacts on archeological resources in the immediate vicinity and broader area would be considered beneficial. The National Park Service would install artistic fencing around the source springs, tubs, and riparian areas under alternative 3. As stated under alternative 2, the National Park Service would conduct archeological surveys and consult with the SHPO prior to the installation of the fencing. Installation of the fence and trailing by feral burros would not affect archeological resources.

**Historical Resources.** The addition of artistic fencing around the source springs, tubs, and riparian areas to limit access of the feral burros could diminish the expansive views of the surrounding desert and mountains, which are important features of the site's setting and feeling. The fencing installed under alternative 3 would be similar to the artistic fencing currently at Lower Spring and, as it is in close

proximity, would blend with the existing setting. As stated for alternative 2, the impact would be greater at Palm Spring due to the open nature of that area.

Nonnative invasive palm trees at Palm Spring and Lower Spring, which are considered contributing features of the area of historic significance for the recreational users, would be removed as they die naturally, thus impacting this feature. In addition, the removal of the lawn, a contributing feature of the area of historic significance for the recreational users, could diminish the ability of recreational users to use this as a gathering point and activity area. Although making rock



Source spring at Palm Spring

alignments is a pastime for certain visitors to the springs, the removal of this non-historic artwork would not affect the integrity of setting or feeling at the site under Criterion A for social history.

**Ethnographic Resources.** Management of the Saline Valley Warm Springs Area would continue in a similar manner to current conditions under alternative 3; therefore, adverse impacts on the area of ethnographic significance for the Tribe would continue. However, the extension of the camping buffer to 200 feet surrounding the source springs would restrict recreational camping activities in the immediate locations of the source springs, providing a beneficial impact.

Alternative 3 would begin a program of removing the nonnative invasive palm trees at Lower and Palm Springs as they die naturally, and the few palms present at Upper Spring would be removed, per NPS *Management Policies 2006* (NPS 2006, section 4.4.4.2). Alternative 3 would also remove the grass lawn at Lower Spring to allow native plants to revegetate the area. These are all beneficial impacts. The addition of more artistic fencing under alternative 3 around the source springs, tubs, and riparian areas would constitute more development at the springs and therefore have an adverse visual impact on the area of ethnographic significance for the Tribe. However, over time, this burro exclusion fencing, combined with the gradual removal of nonnative flora would return the vegetation to a more natural state that is more sympathetic to the area of ethnographic significance for the Tribe. These restoration efforts, which would result in more natural vegetation, would have beneficial impacts, as part of the reason the Tribe considers this an area of ethnographic significance is that they see it as their obligation to protect and restore the natural environment of the springs (Rucks 2016). The area of ethnographic significance for the Tribe would also benefit from the removal of non-historic artwork throughout the Saline Valley Warm Springs Area and in designated wilderness and the removal of the permanent camp host housing and the vehicle support facility. Alternative 3 would have a beneficial effect on Upper Spring, as camping would be restricted to designated areas that would not be closer than 200 feet to a water source. This eliminates the fenced area entirely at Upper Spring and areas adjacent to the fencing for camping.

**Cumulative Impacts.** Alternative 3 would have a slight beneficial impact on archeological resources, as there would be increased education and monitoring by the National Park Service and NPS-trained site stewards. The effects on the area of historic significance for the recreational users would include the removal of palm trees and the lawn and addition of fencing around the source springs, tubs, and riparian

areas, all of which would diminish the visual features of the area of historic significance for the recreational users. The area of ethnographic significance for the Tribe would benefit from efforts to restore native vegetation communities, the exclusion of nonnative wildlife from the area, and the removal of permanent camp host housing and vehicle support facility from Lower Spring and non-historic artwork throughout the Saline Valley Warm Springs Area. There are two current projects that have a detectable effect on cultural resources: the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and routine road maintenance by Inyo County. These projects are described for alternative 1. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 3 that would constitute a significant cumulative effect.

## Alternative 4: Restoration Alternative

The restoration alternative would remove nearly all signs of development at the Saline Valley Warm Springs Area and restore the area, as close as possible, to natural conditions. Dispersed camping would be allowed, as long as campers are more than 200 feet from the source springs. No campfires would be permitted and the vault toilets would be removed. All campsite elements, the airstrip, water diversions, tubs, piping, artistic fencing, campground and campsite improvements, and artwork would be destroyed and removed. Nonnative vegetation would be removed, and native plant growth encouraged with the engagement of the Tribe to incorporate traditional ecological knowledge. Fencing would be installed at the designated wilderness boundary to prevent access by feral burros to the springs. Designation and documentation of the area of historic significance for the recreational users would be completed prior to any removal or demolition. The natural and ethnographic landscape of the area of ethnographic significance for the Tribe would be restored.

The area of ethnographic significance for the Tribe would be managed as such by the National Park Service and the Tribe, and documentation of and mitigation for the effects to the area of historic significance to the recreational users would be completed. NPS monitoring of archeological resources would continue, and in addition, there would be increased education and monitoring by NPS-trained site stewards.

**Archeological Resources.** Under alternative 4, visitation would be reduced dramatically. While this would likely result in a beneficial impact on the remaining archeological resources at the Saline Valley Warm Springs Area and in the surrounding area, it is possible that the isolation of the site could lead to more artifact collecting activities, as there are fewer visitors to monitor the activities of others. The National Park Service would install wire fencing at the wilderness boundary. This fence would keep the feral burros from the springs and vegetated areas, but the feral burros would likely spend time trailing along the fence line. Using information gathered during archeological surveys and consultation with the SHPO, the National Park Service would install the fence to avoid impacts to archeological resources.

**Historical Resources.** Alternative 4 would result in the complete physical removal and destruction of the area of historic significance for the recreational users. All contributing and non-contributing features, such as historic tubs, piping, communal activity areas, camping areas, planted vegetation, artwork, the airstrip, and visitor facilities (including the vault toilets), would be removed. The National Park Service would consult with the SHPO and complete documentation and mitigation of the adverse impacts to the Saline Valley Warm Springs Area prior to removal, but alternative 4 would have a significant adverse impact on the area of historic significance for the recreational users.

**Ethnographic Resources.** Alternative 4 would have significant beneficial impacts on the area of ethnographic significance for the Tribe, as it would eventually restore all three springs to their natural and ethnographic state by removing nonnative plant species and by removing entirely the features of the area of historic significance for the recreational users. The installation of the fencing at the wilderness

boundary to prevent access by feral burros would have a slight adverse impact as it would be located outside of the viewshed of the springs. The fence would be constructed of materials that would blend into the landscape as much as possible, as described in the “Alternatives” chapter.

The site has not been fully evaluated as an area of ethnographic significance for the recreational users, but if it were determined to be as significant as a TCP in the future, alternative 4 would result in a significant adverse impact to the resource. The potential adverse impacts to the user groups that would result from alternative 4 are discussed in more detail in the “Visitor Use and Experience” section.

**Cumulative Impacts.** Archeological resources would benefit from a reduction of visitation under alternative 4. However, fewer visitors, combined with a lowered sense of community could encourage certain visitors to collect artifacts from archeological sites. Alternative 4 would have significant adverse impacts on the area of historic significance for the recreational users and significant beneficial impacts on the area of ethnographic significance for the Tribe from removal of all development. There are two current projects that have a detectable effect on cultural resources: the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and routine road maintenance by Inyo County. These projects are described for alternative 1. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 4 that would constitute a significant cumulative effect.

## Alternative 5: Preferred Alternative

As it applies to cultural resources, alternative 5 (the preferred alternative) would be similar to alternative 3. Alternative 5 would establish camping zones for designated dispersed camping, walk-in camping with a parking area, and areas of no camping. Under alternative 5, the buffer around the source springs would remain the same as current conditions (100 feet), and the National Park Service would install artistic wooden fencing around the source springs at Lower and Palm Springs. The fence at Upper Spring would be replaced and expanded to protect the warm and cold source springs. The lawn at Lower Spring would be retained and native tree species would be planted so that when the existing mature palm trees die naturally and are removed, the native species would be mature enough to provide shade for visitors. Finally, the existing features at the Saline Valley Warm Springs Area would be made accessible and usable to those with disabilities to the extent practical, while preserving potential significant historical features.

**Archeological Resources.** When considering archeological resources, alternative 5 would have similar impacts to alternative 3, as the fencing around the source springs at Lower and Palm Springs and the expanded fencing at Upper Spring would be installed after archeological surveys and consultation with the SHPO were complete. The fencing would be placed in areas devoid of resources. The added education and monitoring efforts by the National Park Service and NPS-trained site stewards would be beneficial to archeological resources at the Saline Valley Warm Springs Area and beyond.

**Historical Resources.** Alternative 5 would remove palm trees from Lower and Palm Springs after they die naturally, the same as alternatives 2 and 3; however, this alternative would plant native tree species so that they would be mature enough to provide shade for visitors by the time the palm trees die naturally and are removed. The nonnative invasive palms trees at Palm Spring and Lower Spring are considered contributing features of the area of historic significance for the recreational users and removing them would impact this feature of the site. Alternative 5 would retain the Lower Spring lawn, a contributing feature of the area of historic significance for the recreational users and would allow recreational users to continue to use this as a gathering point and activity area.

The fencing at Lower and Palm Springs would be the same as described for alternative 2. The artistic wooden fencing around the source springs at Lower Spring would not have a visual impact effect, as the artistic fencing style would be similar to the current fencing. As stated, the fencing is a sympathetic addition to the setting and feeling at the site and was recommended for re-evaluation as a contributing resource when it reaches 50 years of age (New South 2015). The addition of artistic fencing at Palm Spring would be considered an adverse visual impact, as the feeling of this site is more open and there is currently no fencing in this location.

To the extent practical, while preserving potential significant historical features, Alternative 5 would make the facilities accessible.

**Ethnographic Resources.** Alternative 5 would have similar impacts on the area of ethnographic significance for the Tribe as alternatives 2 and 3. Alternative 5 would result in reduction of nonnative species with the removal of the palm trees at Lower and Palm Springs as they die naturally and the addition of native shade trees, as well as the removal of all palm trees at Upper Spring. This restoration effort, which would result in more natural vegetation, would have beneficial impacts, as part of the reason the Tribe considers this an area of ethnographic significance is that they see it as their obligation to protect and restore the natural environment of the springs (Rucks 2016).

The addition of artistic fencing around the source springs (the same as alternative 2) would constitute more development at the springs and therefore have an adverse visual impact on the area of ethnographic significance for the Tribe. The expansion of fencing at Upper Spring would add more development, but the fence would protect the water of both the warm and cold source springs and the vegetation from burro grazing and trampling. Restricting camping to designated zones, continuing to restrict camping within 100 feet of the source springs and prohibiting driving in all areas except Warm Springs Road and access roads for camping areas would provide beneficial impacts.

**Cumulative Impacts.** Under alternative 5, there would be a slight beneficial impact on archeological resources, as there would be increased education and monitoring by the National Park Service and NPS-trained site stewards. Under alternative 5, the effects on the area of historic significance for the recreational users would include the removal of nonnative invasive palm trees and addition of fencing around the source springs, all of which would result in visual impacts on the area of historic significance for the recreational users. The area of ethnographic significance for the Tribe would benefit from efforts to restore native vegetation communities and the exclusion of nonnative wildlife from the area. There are two current projects that have a detectable effect on cultural resources: the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and routine road maintenance by Inyo County. These projects are described for alternative 1. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 5 that would constitute a significant cumulative effect.

## Conclusion

Archeological sites, although already heavily impacted within the area of ethnographic significance for the Tribe and the area of historic significance for the recreational users, would likely benefit from the increasing controls placed on the Saline Valley Warm Springs Area if alternatives 3, 4, or 5 were enacted. This would be of particular benefit to identified sites and isolated artifact finds in the developed area; however, it could also benefit identified sites located throughout the Saline Valley Warm Springs Area around the springs by reducing visitor traffic in the area. Due to anticipated decreased visitation resulting in more isolation, alternative 4 could lead to more artifact collection by visitors.

Under alternative 1, the area of historic significance for the recreational users would continue in virtually the same way that it does today. Alternatives 2, 3, and 5 each alter camping patterns, vegetation, and recreational activity to some manner; these alternatives would have impacts on the area of historic significance for the recreational users to a degree. However, although integrity would be decreased in certain areas, particularly setting and feeling, the site would retain its ability to convey its historic significance. Alternative 4 would result in significant adverse effects due to complete site destruction and removal.

Current conditions under alternative 1 present adverse impacts on the area of ethnographic significance for the Tribe due to the types of recreational activities occurring at a sacred place to the Tribe. Alternatives 2, 3, and 5 would provide some return to native vegetation and the removal of non-historic artwork, which is a beneficial impact. Alternative 3 and 5 would reduce the footprint for camping at the Saline Valley Warm Springs Area, and alternative 3 would further restrict camping within 200 feet of the source springs, which would allow the sources immediate environs to have less activity than at present. Alternative 4, which results in the complete removal of the area of historic significance for the recreational users and full restoration of the natural and ethnographic landscape, including fencing to exclude feral burros at the wilderness boundary, would result in a significant beneficial impact to the area of ethnographic significance for the Tribe. Alternatives 2, 3, 4, and 5 would provide some level of fencing around the springs, which reduces access by feral burros, a beneficial impact, while also introducing (in the case of alternatives 2, 3, and 5) an additional adverse visual impact close to the springs.

## WILDERNESS CHARACTER

### Methodologies

When evaluating impacts on designated wilderness from the alternatives, the National Park Service considered the qualities of wilderness character, as presented in the following section. The extent to which the wilderness character qualities are degraded, preserved, or improved is analyzed for each alternative.

### Types of Impacts on Wilderness Character

**Untrammelled.** An untrammelled wilderness is one in which ecological systems and their biological and physical components are autonomous, or free from human intervention. By contrast, human actions that restrict, manipulate, or attempt to control the natural world within wilderness degrade the untrammelled quality. Trammeling actions include the removal of nonnative species, intervention in the behavior or lives of native plants and animals, projects to restore the natural conditions of wilderness, and interference in natural processes and energy flows. These actions may be temporary, but while they are in effect, they affect the untrammelled quality of wilderness.

**Natural.** An undegraded natural wilderness quality shows minimal effects of modern civilization upon the ecological systems and their biological and physical components. A natural wilderness comprises landforms, soils, water, habitats, species, and terrestrial food webs that are largely intact in their natural state and not influenced by human activities and external threats. Scientific activities, such as the removal of scientific specimens, invasive scientific methods, or the introduction or augmentation of wildlife to replace depleted populations, affect the natural quality.

**Undeveloped.** The *Wilderness Act* states that wilderness is “an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation,” with “the imprint of man’s work substantially unnoticeable.” The undeveloped quality of wilderness is impacted by

the presence of structures and installations and by the use of motor vehicles or motorized equipment. These developments are also prohibited by section 4 (c) of the *Wilderness Act*, and are only permissible if they are “necessary to meet minimum requirements for the administration of the area” as wilderness.

**Solitude or Primitive and Unconfined Type of Recreation.** Wilderness provides outstanding opportunities for recreation in an environment that is relatively free from the encumbrances of modern society, and for the experience of the benefits and inspiration derived from self-reliance, self-discovery, physical and mental challenge, and freedom from societal obligations. This quality focuses on the tangible aspects of the setting that affect the opportunity for people to directly experience wilderness.

**Other Features of Value.** Wilderness preserves other tangible features that are of scientific, educational, scenic, or historic value. In Death Valley National Park, this quality includes the intangible and symbolic values of the Tribe (NPS 2013a). This quality is preserved or improved when these resources are preserved and their loss or impacts to such features degrade this quality of wilderness character (Landres et al. 2015).

## Alternative 1: No-Action Alternative

Under alternative 1, the no-action alternative, all visitor activities at the Saline Valley Warm Springs Area would continue. Wilderness character could continue to be affected through visitor activities. As presented in figure 2 (appendix A), Lower Spring is fairly centered in the backcountry area. Palm Spring and the Chicken Strip airstrip are closer to the wilderness boundary, and Upper Spring is very closely surrounded by wilderness. Topography and terrain play a role in limiting visitor use activities in these areas, especially closer to the wilderness boundary. Camping at the Saline Valley Warm Springs Area is unrestricted and dispersed. Visitors generally camp close to the developed areas, which are all located within the backcountry area; however, visitors may spread out into wilderness, particularly during times of high visitation, as described in the “Additional Context for Assessing the Impacts” section in the beginning of this chapter. In Death Valley National Park, visitors are able to camp in the backcountry and in designated wilderness. Visitors camping in backcountry can obtain a voluntary permit from any visitor center or ranger station. Camping in the wilderness is allowed along dirt roads at least one mile away from any paved road or “day use only” dirt road with vehicles parked immediately adjacent to the roadway to minimize impact (NPS 2016b). Although prohibited intrusions into wilderness by vehicles are not common, they would adversely affect the *natural*, and *solitude or primitive and unconfined recreation* qualities of wilderness character.

Visitors to the Saline Valley Warm Springs Area often enter the wilderness to participate in recreational activities. Adverse impacts to wilderness character could occur from visitor activities within the backcountry indirectly affecting the experience of wilderness visitors. Use of the facilities, high levels of visitation, and increased noise could affect the *solitude or primitive and unconfined recreation* quality of wilderness for other wilderness visitors and the *intangible and symbolic values of the Timbisha Shoshone Tribe*, especially during high-use times, such as Presidents Day and Thanksgiving.



Upper peace sign, constructed in the 1990s

## ENVIRONMENTAL CONSEQUENCES

Visitors to the Saline Valley Warm Springs Area create artwork by collecting rocks of different colors and constructing art on the desert floor. One piece of art, the lower peace sign, was constructed in the 1960s (New South 2015). The peace sign was made by removing the top layer of soil and rock by walking the area repeatedly or by using hand tools and exposing the different colored surface below (Bonstead 2011). Visitors have maintained the peace sign and a social trail has formed due to the number of people that visit the peace sign; both the peace sign and the trail are in wilderness. Visitors commonly create new artwork in the art board area (appendix C).



*Lower peace sign, constructed in the 1960s*

Occasionally, visitors venture into wilderness to create new art. An example is the second peace sign. The upper peace sign was constructed in the 1990s. This piece of artwork was likely constructed in the same way as the lower peace sign (Bonstead 2011). Because wilderness should “generally appear to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable,” the creation of new art installations in wilderness and the continued presence of art installations currently in wilderness would adversely impact wilderness character (16 US Code [USC] 1131-1136).

The Chicken Strip airstrip would remain open for use by pilots under alternative 1. Although the airstrip is located within the backcountry area, it is located just 0.1 mile east of the wilderness boundary and planes must fly over designated wilderness areas to reach the airstrip. The presence of small aircraft over wilderness, including its noise, would create adverse impacts on the *natural*, and *solitude or primitive and unconfined recreation* qualities of wilderness and *the intangible and symbolic values of the Timbisha Shoshone Tribe*. While the presence of small aircraft, including noise, detracts from wilderness quality. The Saline Valley Warm Springs Area is located within the training area for pilots from the Naval Air Weapons Station China Lake, and the naval jets have similar types of impacts on wilderness character, although with much higher intensity.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable impact on resources affected by the Saline Valley Warm Springs Management Plan, Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) could have an impact on designated wilderness. This project allows Inyo County to designate certain county roads as combined-use routes to link existing OHV trails and trailheads on BLM or USFS lands to create a unified OHV trail system. Included in this trail system is 11.6 miles of Death Valley Road outside and west of Death Valley National Park. Death Valley Road is already paved; therefore, inclusion of this road would not involve modification of designated wilderness. However, OHV use could stray into the park and onto Saline Valley Road, as the boundaries are not clear in the northwest corner of park. If this illegal use of OHV vehicles were to occur, they would have an adverse impact on the *natural*, and *solitude or primitive and unconfined recreation* qualities of wilderness.

The no-action alternative would allow continued use of the Saline Valley Warm Springs Area and current impacts on the qualities of wilderness would continue, including prohibited vehicle use in wilderness, indirect impacts on wilderness users from crowds and noise in the backcountry area, and creation of artwork in wilderness. Considered together, there would be no meaningful additive or interactive effects

among the Adventure Trails project and the proposed actions under alternative 1 that would constitute a significant cumulative effect.

## Alternative 2: Regulatory Compliance Alternative

Alternative 2 would have similar impacts on wilderness character as the no-action alternative, as this alternative retains much of the existing use of the Saline Valley Warm Springs Area. Alternative 2 would provide beneficial effects on wilderness character by removing any existing non-historic artwork in wilderness and enforcing the prohibitions of any manipulation of natural or cultural resources for the purpose of art and of any new art in designated wilderness. The lower peace sign would remain in wilderness because it is a contributing element to the potential Saline Valley Warm Springs Historic Site; this designation is discussed further in the “Historical Resources” section of the “Affected Environment” chapter. Because wilderness should “generally appear to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable,” the continued presence of lower peace sign currently in wilderness would adversely impact wilderness character (16 USC 1131-1136). By removing some artwork, alternative 2 would create fewer impacts on the *intangible and symbolic values of the Timbisha Shoshone Tribe* than expected under alternative 1. Visitors’ use of the facilities, the crowds, and the associated noise would continue to adversely affect the *solitude or primitive and unconfined recreation* quality for people visiting the wilderness areas surrounding the Saline Valley Warm Springs Area. Because use and visitation are expected to remain consistent with current conditions, the intensity of the impact would be the same as expected under alternative 1, with the greatest impacts occurring during times of high visitation.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan, Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) could have an impact on designated wilderness. This project is described for alternative 1. Alternative 2 would allow for continued use of the Saline Valley Warm Springs Area, similar to current conditions; however, all non-historic artwork would be removed from wilderness and no new artwork would be allowed, providing a small beneficial impact on wilderness character. The lower peace sign, part of the historical landscape, would remain in wilderness and continue to adversely impact wilderness character. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## Alternative 3: Community Engagement Alternative

Alternative 3 would have the same impacts on wilderness character as alternative 2 for artwork. All art except the historic lower peace sign would be dismantled and the rocks scattered, and new artwork in wilderness would be prohibited.

Alternative 3 would have beneficial effects on the *solitude or primitive and unconfined recreation* quality of wilderness character in the management of camping at the Saline Valley Warm Springs Area. This alternative would create designated camping areas and additional designated overflow walk-in camping areas for times of heavier use. These designated areas would eliminate visitors spreading into wilderness areas for camping and affecting visitors in wilderness areas adjacent to the Saline Valley Warm Springs Area. However, the prohibited use of off-road vehicles is expected to continue because of the absence of physical barriers and lack of personnel that provide enforcement. While these intrusions are not common, they would have an adverse impact on the *natural* quality of wilderness character. Additionally, the use of the facilities, crowds, and noise from visitors would continue to have an impact on the *solitude or primitive and unconfined recreation* quality of wilderness, as described for alternative 1.

Alternative 3 could create an agreement with the user groups at the Saline Valley Warm Springs Area to help protect park resources. The National Park Service would also monitor the conditions at the Saline Valley Warm Springs Area, which would trigger response actions by park management to restrict use of the Saline Valley Warm Springs Area if prohibited intrusions in wilderness were observed. With the help of volunteers, the National Park Service would be able to better monitor the conditions at and beyond the wilderness boundary. If violations were observed, the National Park Service would be able to take actions to better protect wilderness character. This program would result in a long-term beneficial effect on the wilderness character. Additionally, this alternative would increase education on the campground boards and through the campground host. Topics covered by the increased education efforts would include Leave No Trace® camping practices, resource protection, and the history of Saline Valley. These actions would help to decrease adverse impacts on wilderness character.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan, Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) could have an impact on designated wilderness. This project is described for alternative 1. Alternative 3 would allow for continued use of the Saline Valley Warm Springs Area, similar to current conditions and remove non-historic art and prohibit the installation of any new artwork in wilderness, similar to alternative 2. Additional benefits of alternative 3 would include designated camping areas and agreements with the user groups to help protect resources of the Saline Valley Warm Springs Area. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

#### **Alternative 4: Restoration Alternative**

Under alternative 4, visitation would be expected to be lower than that under the other alternatives due to removal of the developed features of the Saline Valley Warm Springs Area. The restoration alternative would also remove all artwork in the Saline Valley Warm Springs Area and in designated wilderness. The removal of all artwork in wilderness would benefit wilderness character because wilderness should “generally appear to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable” (16 USC 1131-1136). The removal of the lower peace sign under this alternative would reduce adverse impacts on the *intangible and symbolic values of the Timbisha Shoshone Tribe*.

Camping would be dispersed and managed as in other backcountry areas of the park. While visitors could violate camping regulations and venture into wilderness via vehicle, the frequency of this action would be small due to the expected lower visitation rates. Prohibited off-road vehicle use is also expected to continue, though at a reduced rate. These intrusions would continue to have an adverse impact on the *natural, and solitude or primitive and unconfined recreation* qualities of wilderness character; however, the frequency would be lower than that of current conditions.

Under alternative 4, the use of the backcountry area would be consistent with that in other parts of the park due to lower visitation at the Saline Valley Warm Springs Area and removal of the developed features. Visitors would not likely arrive in large groups and would not produce a large amount of noise. This would result in a beneficial impact on the *solitude or primitive and unconfined recreation* quality for people visiting the wilderness areas when compared to current conditions.

The Chicken Strip airstrip would be decommissioned under alternative 4, eliminating the presence of small personal aircraft near the Saline Valley Warm Springs Area, thus removing impacts on the *natural, and solitude or primitive and unconfined recreation* qualities of wilderness and *the intangible and symbolic values of the Timbisha Shoshone Tribe*.

The construction of a burro exclusion fence, which would be placed at the backcountry boundary, adjacent to wilderness, could impact the scenic views from wilderness. Because the fence would not be placed in wilderness, would not impede the movement of wildlife species over the landscape, and would not impact users' ability to access wilderness, this potential impact is not expected to affect wilderness character. In addition, the National Park Service could specify the use of materials in the project plans that would blend the fence into the landscape and reduce visual impacts.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan, Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) could have an impact on designated wilderness. This project is described for alternative 1. Alternative 4 would remove most of the development from the Saline Valley Warm Springs Area and restore it to more natural conditions, resulting in beneficial impacts on the surrounding wilderness. The construction of a burro fence adjacent to wilderness is not expected to impact any of the qualities of wilderness character. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## Alternative 5: Preferred Alternative

In the context of wilderness character, the impacts of alternative 5 would be the same as those described for alternative 3. By removing all non-historic artwork from wilderness, alternative 5 would create fewer impacts on the *intangible and symbolic values of the Timbisha Shoshone Tribe* than expected under alternative 1.

Visitation is expected to remain constant, but greater management of camping areas and driving would reduce impacts on the *solitude or primitive and unconfined recreation* and the natural qualities of wilderness character. It is expected, however, that some off-road driving would occur due to the absence of physical barriers and lack of personnel that provide enforcement.

Alternative 5 would increase education on the campground boards, through the campground host, and through communication with the user groups. The user groups would also protect park resources through monitoring efforts, helping the National Park Service respond to changing conditions within and outside of the Saline Valley Warm Springs Area. These actions would help to decrease adverse impacts on wilderness character.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan, Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) could have an impact on designated wilderness. This project is described for alternative 1. Alternative 5 would have the same impacts on wilderness character as alternative 3, except for the burro exclusion fence, which would not impact wilderness character. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## Conclusion

Under all of the alternatives, wilderness character in the Saline Valley Warm Springs Area would continue to be affected by visitor activities. Alternatives 2, 3, and 5 would prohibit creation of new artwork and would remove non-historic art in designated wilderness, resulting in a beneficial effect on wilderness character over the long term. Under alternative 4, the impacts from camping, driving, and off-road vehicle use in designated wilderness would be reduced because the visitation to the Saline Valley

Warm Springs Area would likely be lower. Adverse impacts could occur under alternative 4, which proposes the placement of a wire wildlife exclusion fence at the wilderness boundary, outside of wilderness, which could affect the scenic values of wilderness for some users. All alternatives would have a slight adverse impact on the *intangible and symbolic values of the Timbisha Shoshone Tribe* through the continued presence of visitors near the wilderness area.

## VISITOR USE AND EXPERIENCE

### Methodologies

Visitors travel to the Saline Valley Warm Springs Area for a variety of reasons based on personal goals and interests and the feeling they experience during their visit is the result of multiple actions and encounters. This analysis considers how the proposed alternatives would affect how people use the Saline Valley Warm Springs Area, as well as how the alternatives would alter visitors' experiences. Although several factors contribute to the quality of experience, the proposed actions would affect visitor use and experience primarily through the presence or absence of the soaking tubs and associated facilities and the level of freedom to use the Saline Valley Warm Springs Area as desired.

The impact analysis for visitor use and experience is based on current conditions at the Saline Valley Warm Springs Area, which provides information on impacts on park resources. The description of current conditions was drawn from several site visits, park staff information, and information provided by visitors during public comment periods and interviews.

The analysis identifies impacts on the general recreational uses at the Saline Valley Warm Springs Area, a developed backcountry campground. Recreational use of the Saline Valley Warm Springs Area includes activities such as soaking, camping, and use of the Chicken Strip airstrip. Visitors have a variety of desired recreational experiences, which may include solitude, communal recreation, and spiritual experience. Some visitors travel to Saline Valley via small airplane, simply to use the Chicken Strip, a backcountry airstrip. These visitors may visit the soaking tubs, recreate in the surrounding areas, and camp; however, many pilots are only interested in landing on and taking off from the backcountry airstrip. The desired experiences of the visitors who travel to the soaking tubs and camp at the Saline Valley Warm Springs Area can vary greatly. Some visitors seek the Saline Valley Warm Springs Area for the communal experiences, such as the high-visitation weekends (Presidents Day and Thanksgiving weekends), where large groups of people come together for community meals, competitive sports games (e.g., golf and softball), singing, and storytelling. Other visitors travel to the Saline Valley Warm Springs Area for a more spiritual experience, seeking a quiet camping experience and soaking in the natural spring waters. Desired conditions differ for all visitors and cannot be easily categorized; however, by examining these recreational uses, the impacts of the alternatives on recreational visitor use and experience can be captured. The National Park Service recognizes that these recreational uses may seem broad, but the use of these categories helps to classify the impacts of the alternatives on the visitors without confusing the analysis.

The Saline Valley Warm Springs Area was historically used by the Tribe, and potentially other tribes, for traditional tribal uses, such as collecting vegetation, hunting, performing ceremonies, seeking connection to nature, and using the natural spring waters for healing. The development of the area interrupted the tribal uses, as the diversion of natural springs waters into cement tubs, the parties, the introduced nonnative plants, and the clothing optional recreation are generally in disagreement with tribal uses. The National Park Service recognizes that tribal members may continue to use the Saline Valley Warm Springs Area and be affected by the current use and would be affected by the alternatives; however, tribal members are not simply visitors to Death Valley National Park. As discussed throughout this plan/EIS,

the National Park Service is authorized to enter into a cooperative agreement with the Tribe by the Timbisha Shoshone Homeland Act of 2000 (Public Law 106-423). As such, the Tribe has a unique role that differs substantially from other visitors. Impacts on tribal uses of the Saline Valley Warm Springs Area are discussed in detail in the “Ethnographic Resources” section of this chapter.

### **Alternative 1: No-Action Alternative**

Visitor use and experience at the Saline Valley Warm Springs Area under the no-action alternative would reflect a continuation of current management, maintenance of existing opportunities, and current levels of access. Visitors would continue to be able to camp unrestricted at the springs without a permit. Campfires in user-created fire rings built with rocks or NPS-provided fire enclosures, grates, or grills would not be restricted. While the visitors and volunteers would not be allowed to construct new tubs at the springs per the Superintendent’s Compendium, all current water diversions would continue, the users and camp host would be responsible for maintenance and cleaning the facilities, and visitors could continue to create new artwork. The vault toilets would remain in their current locations; the visitors would continue to clean the facilities and the NPS maintenance staff would continue to pump the toilets once or twice a year. Use of the Chicken Strip airstrip would continue with two sets of tiedowns, and maintenance of the airstrip would be performed by Recreational Aviation Foundation (RAF) in coordination with the National Park Service.



*Artwork of a bat at the art board / rock alignment area at Lower Spring*

Under the no-action alternative, the camp host position would remain. The camp host site would retain the permanent housing, water feature, plumbing, drainage ditch, solar array, government vehicle, and personal items. The vehicle repair support services provided by the current camp host would be available to visitors. The camp host responsibilities would continue, and the camp host would continue to work with the National Park Service and specifically the Death Valley National Park rangers to monitor the visitors and resources.



*Sign at the Chicken Strip airstrip*

The trends for vegetation and wildlife communities at the Saline Valley Warm Springs Area would remain unchanged. Native, nonnative, and nuisance species would persist and thrive on the diverted water (plants and wildlife) and intentional and accidental feedings (wildlife).

Under alternative 1, the recreation opportunities, atmosphere, and sense of community created by the development at the Saline Valley Warm Springs Area would be retained. Visitor use and experience at would continue essentially unchanged from the current situation. The development in the Saline Valley Warm Springs Area would continue to provide a unique experience in a very remote area of the park with a potential for communal or solitary experiences, based on the time of visit. Visitors would continue to be able to soak in the tubs whether for spiritual and healing purposes or for social reasons. All current forms of recreation allowed at the Saline Valley Warm Springs Area would continue, including camping, soaking, hiking, gathering around a communal campfire, softball games, and creating artwork. Solitude could be attained by the time of visit and campsite selection under alternative 1.

Under alternative 1, visitors would continue to be able to access the Saline Valley Warm Springs Area via the Chicken Strip airstrip using small private planes and they would be able to camp with their planes directly at the airstrip, if they desire. The Chicken Strip is the last backcountry airstrip remaining in the park and provides a unique and challenging aviation experience. As such, retaining the use of the Chicken Strip under alternative 1 would be beneficial for the visitor use and experience for those visitors who seek this type of recreation or those visitors who enjoy watching the aircraft fly into the Saline Valley Warm Springs Area.

Based on comments received during the public scoping, alternatives development, and draft plan/EIS comment periods, visitors have differing opinions on items such as the presence of nonnative species and the camp host position, but overall, the lack of change to the Saline Valley Warm Springs Area experience under this alternative would continue to benefit those visitors that seek the area for recreation. For visitors seeking solitude and a spiritual experience, the continuation of all recreation activities could have an adverse impact, as a quieter visit must be planned around the weekends and holidays that attract larger crowds.

Because the activities at the Saline Valley Warm Springs Area are not in compliance with some NPS, state, and federal regulations, the National Park Service could curtail some practices. Restrictions on recreation activities at the Saline Valley Warm Springs Area could result in adverse impacts on visitor use and experience.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on visitor use and experience. One project that may affect visitor use and experience is the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) that was approved in 2011. This project would allow for the issuance of a permit to Inyo County for use of existing borrow pits along Saline Valley Road. The excavation activities along Saline Valley Road for this project could interrupt access and create a slight short-term adverse impact on visitors during construction activities. However, once construction is complete, repairs to Saline Valley Road would provide long-term beneficial effects from

improved infrastructure and easier access to the Saline Valley Warm Springs Area. These beneficial and adverse impacts would affect access to the springs.

The Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014) allows Inyo County to designate certain county roads as combined-use routes to link existing OHV trails and trailheads on BLM or USFS lands to create a unified OHV trail system. Included in this trail system is 11.6 miles of Death Valley Road outside and west of Death Valley National Park. Death Valley Road is already paved; therefore, inclusion of this road would not involve construction, habitat modification, or addition of impervious surfaces. The ATV Adventure Trails Project would have a slight impact on visitor experience in the form of increased traffic on Death Valley Road.

The no-action alternative would allow continued use of the Saline Valley Warm Springs Area under current management practices. Depending on the intention of the visit, this alternative would have adverse or beneficial impacts on the user groups experience. The continued use of the developed areas and the airstrip would provide beneficial effects on the use and experience at the Saline Valley Warm Springs Area. Considered together, there would be no meaningful additive or interactive effects among these projects on visitor use and experience and the proposed actions under alternative 1 that would constitute a significant cumulative effect.

## Alternative 2: Regulatory Compliance Alternative

Alternative 2 would have similar impacts on visitor use and experience as the no-action alternative, as this alternative retains much of the existing use of the Saline Valley Warm Springs Area but brings the actions and conditions into compliance with NPS, state, and federal regulations.

Camping regulations under alternative 2 would be similar to those described for alternative 1 with few differences. Alternative 2 would implement a mandatory no-cost permit system modeled after the Visitor Use Permit System proposed in the *Death Valley National Park Wilderness and Backcountry Stewardship Plan* (NPS 2013a), and an overnight camping fee could be implemented in the future. Visitors would be able to have campfires at their campsites, but the National Park Service would remove user-created fire rings, encourage visitors to use NPS-provided firepans or other fire enclosures, and require visitors to haul ash and charcoal from the Saline Valley Warm Springs Area with other trash. The camp host and visitors currently clean and maintain the tubs and water diversion infrastructure. Under alternative 2, the National Park Service would enter into an MOU with one or more user groups for maintenance of these features. The Chicken Strip airstrip would continue to be used in the same manner as under current conditions; however, visitors who camp at the Chicken Strip would be required to pack out their waste. At the Saline Valley Warm Springs Area, the number of vault toilets and the frequency at which they are pumped would remain the same, but visitors would be encouraged to pack out their waste. Although presently not allowed, one practice popular among the visitors is creating new artwork. Under alternative 2, manipulation of natural or cultural resources for the purpose of art would be



*Trailer at the camp host site at Lower Spring*

prohibited. Additionally, all non-historic artwork would be removed from wilderness and no new artwork would be created in wilderness.

Under alternative 2, the camp host position would remain the same as described for alternative 1. The vehicle support facility would be removed, and emergency vehicle assistance should not be expected by the visiting public. The removal of the vehicle support facility could adversely affect some visitors that experience vehicle issues while traveling to or from the Saline Valley Warm Springs Area; however, this aspect of alternative 2 would make the Saline Valley Warm Springs Area consistent with the rest of Death Valley National Park. These restrictions would change camping at the Saline Valley Warm Springs Area slightly for visitors, though they would not significantly alter the experience for most users.

Alternative 2 would work to reduce the presence of nonnative plants at the Saline Valley Warm Springs Area. All nonnative invasive palm trees would be removed from Upper Spring and as the nonnative invasive palms die naturally at Palm Spring and Lower Spring, these areas would be allowed to naturally revegetate, per *NPS Management Policies 2006* (section 4.4.4.2). These palms create shade for the soaking tubs and the presence of the palms is held in high regard with recreational users. Removal of the palm trees would result in an adverse effect on the experience for these users. However, some visitors support NPS efforts to control nonnative species in the park and would benefit from the removal of the palm trees.

Under alternative 2, the use of the Saline Valley Warm Springs Area would only differ slightly from use under current conditions. Removing user-created fire rings, requiring the use of NPS-provided structures (enclosures, grills, grates, or firepans), requiring visitors to pack out ash and charcoal, and limiting the creation of new art in the wilderness would align Saline Valley with other camping opportunities at other developed backcountry campgrounds in the park.

Visitors would be more involved with upkeep of the Saline Valley Warm Springs Area through an MOU with the National Park Service for maintenance of the tubs, hauling out ash and charcoal with other trash upon leaving the area, and packing out waste from campsite at the Chicken Strip. Being involved in the maintenance of the Saline Valley Warm Springs Area could create a greater sense of community for some visitors. Although several small changes may produce adverse impacts, overall alternative 2 would continue to be beneficial for those that seek a recreational experience at the Saline Valley Warm Springs Area. For those seeking solitude and a spiritual experience, the continuation of most recreation activities could have an adverse impact, as a quieter visit must be planned around the weekends and holidays that attract larger crowds.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on visitor use and experience. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 2 would allow for continued use of the Saline Valley Warm Springs Area, similar to current conditions, with added elements for resource protection. Overall, the impacts on the three user groups would be the same as those described for alternative 1. The continued use of the developed areas and the airstrip would provide beneficial effects on the use and experience of the Saline Valley Warm Springs Area. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 2 that would constitute a significant cumulative effect.

### **Alternative 3: Community Engagement Alternative**

Alternative 3 would continue to allow use of the tubs at the Saline Valley Warm Springs Area; however, in addition to the compliance changes described for alternative 2, this alternative would make some

substantial changes to provide a greater level of natural resource protection by engaging user groups in the management of the Saline Valley Warm Springs Area.

Alternative 3 would change the camping experience for visitors. Unlike alternatives 1 and 2, this alternative would designate camping areas where visitors could drive in with their vehicles. When these designated camping areas are full during times of higher use, visitors would park their vehicles in a designated parking area and use the overflow walk-in camping areas. These designated camping areas would be at least 200 feet from the source springs. Additional tiedowns could be provided at the Chicken Strip to accommodate more aircraft at a given time; however, visitors would not be allowed to camp at the airstrip with their airplanes. Similar to alternative 2, this alternative would implement a mandatory no-cost permit system and an overnight camping fee could be implemented in the future.

Under alternative 3, the National Park Service could install additional toilets at Lower Spring or Palm Spring, if necessary, and the National Park Service could use a contractor to pump the existing toilets more often under this alternative. These additions would benefit visitors to the Saline Valley Warm Springs Area on high-use weekends, such as Thanksgiving and Presidents Day, as the current vault toilets often become full during high visitation periods.

All non-historic artwork would be removed from the developed areas and wilderness, and restrictions on creating new artwork would be enforced so that natural or cultural resources would not be manipulated for the purpose of art. Only the bat pole that marks the entrance to the Saline Valley Warm Springs Area on South Pass and the lower peace sign would remain.



*The Crystal Pool and visitors at Lower Spring*

Alternative 3 would also incorporate more education for the visitors through various media and through interpretive signs on campground boards and engagement by the camp host. The education efforts would include topics such as Leave No Trace<sup>®</sup> camping practices, resource protection, the relationship with the Tribe, and the history of Saline Valley.

The camp host position would change under alternative 3. The assigned camp host would hold the position for a one-season term and would have to reapply annually to retain the position. The camp host would be required to provide his or her own housing. Current features

of the camp host site that would be retained include the water feature, plumbing, drainage ditch, power system, and government vehicle. The camp host would check visitors' compliance with the park entrance fee in addition to other duties. The camp host would continue to work with park rangers and resource staff in enforcing park rules.

Nonnative species control would be a priority under alternative 3. A wildlife exclusion fence installed around the source springs, soaking tubs, and riparian areas that would eliminate feral burros from these

## ENVIRONMENTAL CONSEQUENCES

areas. In addition to the nonnative plant efforts described for alternative 2, alternative 3 would remove the lawn at Lower Spring and either allow the area to naturally revegetate or replant the area with native grasses. Establishment of thresholds for use and overuse and a monitoring and response program would further protect native communities and involve the user groups in the restoration activities.

Recreation experiences at the Saline Valley Warm Springs Area would change considerably under alternative 3 from current conditions due to changes in camping restrictions, the ability to recreate freely, restrictions on creation of new artwork, and efforts to remove nonnative species. These changes could have adverse or beneficial impacts on the use and experience of the Saline Valley Warm Springs Area depending on the visitors' desired experience. The restrictions that would be implemented under alternative 3 would alter the uninhibited atmosphere of the Saline Valley Warm Springs Area as it has been since development started. For visitors seeking this experience, their experience would be adversely impacted. These changes would also have an adverse impact on those wishing for a more solitary experience, as the designated camping areas would create a more developed feel and restrict the ability to camp in a more isolated location within the Saline Valley Warm Springs Area. Further, for those seeking solitude and a spiritual experience, the continuation of most recreation activities could have an adverse impact, as a quieter visit must be planned around the weekends and holidays that attract larger crowds.

The efforts of the National Park Service to reduce nonnative species could enhance or degrade the visitors' experience. As stated under alternative 2, visitors have differing desires for the vegetation and wildlife communities at the Saline Valley Warm Springs Area; some visitors enjoy the shade provided by the nonnative invasive palms and enjoy the presence of the feral burros while others would prefer a more natural environment. Additionally, the removal of the water diversion at Burro Spring could alter a popular camping area for visitors over time by potentially reducing or eliminating the line of mesquite that is sustained by this diversion. This would negatively affect the camping experience. However, as explained in the "Soils and Vegetation" section, it is likely that the existing mesquite trees would persist. Alternative 3 would encourage the user group to help the National Park Service monitor use and overuse, allowing the visitors to play a larger part in maintaining the area, which could enhance the sense of community and the visitor experience.



*Upper Spring with native and nonnative vegetation species*

Alternative 3 would also change how visitors use the Chicken Strip. The airstrip would remain open and there would be an opportunity to add more tiedowns, but visitors would not be able to camp next to their airplanes. For visitors that wish to camp, they would have to walk to the designated camping area to set up their tents. As such, alternative 3 would allow more pilots to use the Chicken Strip during a given period, which would be a benefit to those pilots that enjoy visiting the Saline Valley Warm Springs Area during high-use periods. However, some pilots may be averse to leaving their aircraft to camp in another portion of the Saline Valley Warm Springs Area.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on visitor use and experience. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 3 allows visitors to

continue to use the Saline Valley Warm Springs Area for soaking and recreation, the same as alternative 1, but the National Park Service would work towards creating a more natural environment around the developed areas by excluding feral burros, limiting camping areas, removing nonnative species, and creating a monitoring and response program. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 3 that would constitute a significant cumulative effect.

## **Alternative 4: Restoration Alternative**

The restoration alternative would remove all development at the Saline Valley Warm Springs Area to include the soaking tubs, sinks, and showers and associated infrastructure, all vault toilets, all artwork, and the Chicken Strip airstrip.

Camping at the Saline Valley Warm Springs Area under this alternative would be the same as camping in other undeveloped backcountry areas of the park. A mandatory no-cost permit system would be put in place. Visitors would have to set up camp at least 200 feet away from water sources, soaking in the source springs would be prohibited, and campfires would be prohibited, consistent with other backcountry camping areas in Death Valley National Park.

This alternative would not retain the services of a camp host; therefore, the camp host site would be entirely removed, and vehicle support services would no longer be available.

The goal of alternative 4 would be to return the Saline Valley Warm Springs Area as to as natural a state as possible. A wildlife exclusion fence would be installed around the area along the wilderness boundary. This fence would keep feral burros from entering the vegetated areas. The National Park Service would remove all nonnative species, plant native species natural distribution patterns, and monitor the native species for success. The National Park Service would also create a monitoring and response program to avoid the re-establishment of these species by cooperation with outside organizations.

Alternative 4 would completely alter the visitor experience at the Saline Valley Warm Springs Area. With the removal of all of the tubs, associated development, and the Chicken Strip, the Saline Valley Warm Springs Area would be very similar to other undeveloped backcountry camping areas throughout Death Valley National Park and would no longer hold special value to many of the regular visitors. The removal of the development at the Saline Valley Warm Springs Area would remove a unique experience for many visitors. This change would affect those visitors who come for a communal recreation experience, as well as those who enjoy the springs for a more spiritual experience, as using the soaking tubs is a common desire to most people who visit the area. The Chicken Strip also represents a unique experience. Death Valley National Park has two additional airports, Furnace Creek and Stovepipe Wells, but these airports have asphalt runways, are located in more developed areas of the park, and do not offer pilots the same backcountry experience as the Chicken Strip airstrip. For those visitors seeking communal recreational opportunities, alternative 4 would represent a significant adverse impact.

Once restored to natural conditions, the Saline Valley Warm Springs Area would represent another unique recreational opportunity. The Saline Valley Warm Springs Area setting is not available anywhere else in the park. The remote area with natural warm springs surrounded by native vegetation communities and associated wildlife communities would create a backcountry camping experience that could not be paralleled in the park and possibly in the surrounding lands. For visitors seeking a more natural and solitary recreational experience, alternative 4 would provide significant beneficial impacts.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on visitor use and experience. These projects include the Saline Valley Road Borrow Sites and Gravel

Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 4 would remove all infrastructure and restore the Saline Valley Warm Springs Area, which would have a significant adverse impact on visitors that seek the Saline Valley Warm Springs Area for activities such as communal activities, soaking in the tubs, and landing at the Chicken Strip airstrip. For visitors seeking solitude and a traditional backcountry camping experience, alternative 4 would result in significant beneficial effects. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 4 that would constitute a significant cumulative effect.

## **Alternative 5: Preferred Alternative**

In the draft plan/EIS, alternative 5 was similar to alternative 3 in the context of visitor use and experience; however, the National Park Service made some changes to alternative 5 after analyzing the public comments on the draft plan/EIS. This alternative works to combine the necessary compliance changes described for alternative 2 and a greater level of natural resource protection while retaining some of the features that were identified as important by the user groups during the draft plan/EIS review. The following paragraphs detail where alternative 5 differs from alternative 3 and the resulting impacts on visitor use and experience.

Alternative 5 would establish camping zones to include a designated dispersed camping area where visitors would be able to camp with their vehicles, overflow walk-in camping with an associated parking area, and areas of no camping for protection of resources. Under alternative 5, Warm Springs Road would be delineated and access roads to the designated dispersed camping area and the overflow parking area would be established. Driving would be prohibited elsewhere in the Saline Valley Warm Springs Area. Alternative 5 would maintain a camping buffer around source springs of 100 feet to protect the water quality. Visitors who fly into the Saline Valley Warm Springs Area and use the Chicken Strip airstrip would be allowed to camp with their aircraft under alternative 5. Although alternative 5 would change how some visitors use the Saline Valley Warm Springs Area and would diminish the feeling of unrestricted recreation, the core recreational uses of the Saline Valley Warm Springs Area would be allowed to continue, resulting in an overall beneficial impact to visitors.

Alternative 5 would not implement a mandatory camping permit or an overnight camping fee. Instead of requiring permits or registrations, the National Park Service would gather data on visitor use patterns through formal visitor use studies, which could include ways to count visitors at both high and low use periods. These data would help the National Park Service understand current visitor use trends and impacts. The park entrance fee would apply for all visitors to the Saline Valley Warm Springs Area.

All non-historic artwork would be removed from designated wilderness. New art in non-wilderness areas would be allowed, as long as natural and cultural resources are not manipulated, the art is not a permanent fixture, and the art is removed from the Saline Valley Warm Springs Area when the visitor creating the art leaves. Creating art at the Saline Valley Warm Springs Area is a common activity and many visitors describe the area as inspiration for artwork. The allowance of art under alternative 5 would be a continued benefit for some visitors.

Alternative 5 would remove nonnative palm trees after they die naturally, as described for alternative 2. All palm trees at Upper Spring would be removed. Native species would be planted so that they would be mature enough to provide shade for visitors by the time the existing mature palm trees are removed. Additionally, the lawn at Lower Spring would be retained within its current footprint. This alternative would rely heavily on the user groups for maintenance of the existing mature palm trees and the lawn. Volunteers, including camp hosts and visitors, would be required to trim palm fronds, pull young palm trees, and maintain the lawn without allowing it to expand. Onsite monitoring, completed by the National

Park Service and through an MOU with user groups, would help NPS management respond to changing conditions by restricting visitor use if damage to natural and cultural resources were to occur in certain areas. Participating in the protection of resources would provide an enhanced experience for some visitors. The management of nonnative species under alternative 5 would not drastically change the conditions at the Saline Valley Warm Springs Area, as the lawn would be available for recreation activities and the palm trees and, in the future, native trees would continue to provide shade in the developed areas, resulting in continued beneficial impacts for visitors.

The fencing under alternative 5 would be the same as described for alternative 2 – only surrounding the source springs at Lower and Palm Springs. This fencing would prohibit burros from drinking from the source springs, protecting the water quality, while not affecting visitors' viewshed or ability to move around the Saline Valley Warm Springs Area. The fencing at Upper Spring would be replaced and expanded to protect the native vegetation and the source springs from burro damage.

As described for alternative 3, the recreation experiences would change considerably due to changes in camping restrictions, the ability to recreate freely, and restrictions on new artwork could cause adverse impacts for visitors. Alternative 5 would have a large volunteer component, which would allow the visitors to remain personally invested in the maintenance of the Saline Valley Warm Springs Area, including management of vegetation, facilities, and other visitors, education, and resource protection. These activities would help the National Park Service monitor use and overuse of the area. Ultimately, however, the effect on visitor use and experience would depend on a visitor's desired experience.

**Cumulative Impacts.** Few past, present, or reasonably foreseeable projects have a detectable effect on visitor use and experience. These projects include the Saline Valley Road Borrow Sites and Gravel Management Plan (NPS 2011a) and the Inyo County ATV Adventure Trails of the Eastern Sierra Project (Inyo County 2014). These projects are described for alternative 1. Alternative 5 would allow visitors to continue to use the Saline Valley Warm Springs Area for soaking and recreation, the same as alternative 1, but the National Park Service would work towards creating a more natural environment around the developed areas by excluding feral burros from the developed area, limiting camping areas, removing nonnative species, and creating a monitoring and response program. Considered together, there would be no meaningful additive or interactive effects among these projects and the proposed actions under alternative 5 that would constitute a significant cumulative effect.

## Conclusion

Under alternatives 1, 2, 3, and 5 the Saline Valley Warm Springs Area would continue to provide unique visitor experiences. Alternative 1 would allow the continuance of the recreational activities at the springs, including use of the Chicken Strip airstrip. Alternative 2 would not differ except for enforcement of prohibitions on new artwork, removal of the vehicle support facility, and efforts to reduce nonnative species at the springs. Under alternatives 1 and 2, there would be beneficial effects on experiences for those that seek communal recreation. Those seeking solitude with soaking opportunities could achieve their desired experience depending on the time of visit and campsite selection; however, during periods of high use, there would be a continued adverse impact on these visitors' experiences. Alternatives 3 and 5 would allow recreational activities at the Saline Valley Warm Springs Area but would make considerable changes to camping regulations, recreation activities, and the approach to nonnative species. These alternatives would change the recreation experience due to the restrictions; some visitors would consider their experience degraded from these changes, while other visitors may consider the restrictions a benefit. Under alternative 4, the development at the Saline Valley Warm Springs Area would be removed. Because the environment and atmosphere of the springs, which is unique to Death Valley National Park, would be completely changed, the adverse impacts on experiences for communal recreation or those seeking to soak in the natural spring waters would be significant and adverse. The Saline Valley Warm

Springs Area would be restored to natural conditions under alternative 4; therefore, the impacts on natural backcountry camping experience would be beneficial and significant.

## HUMAN HEALTH AND SAFETY

This section presents an evaluation of the alternatives as they relate to health and safety impacts on the park's visitors.

### Methodologies

The analysis of effects on human health and safety considered recreation and other activities at the Saline Valley Warm Springs Area. Impacts on park visitors were analyzed quantitatively using information from relevant studies, personal communication, and professional judgment to predict changes in human health and safety.

### Types of Impacts on Health and Safety

The Saline Valley Warm Springs Area is in a remote location of Death Valley National Park. Visitors that want to visit the springs have to be committed to long travel and be prepared with supplies. While at the Saline Valley Warm Springs Area, there are some factors that could affect the health and safety of the visitors. These factors are discussed in this section.

**Water Contaminants.** Natural springs are used for recreational soaking and health purposes; however, natural untreated water can expose users to items of health concern, including bacteria, amoebae, radon, and arsenic. Due to high levels of minerals and elevated temperatures, hot springs are ideal for pathogen growth (Yoder et al. 2004). *Legionella*, a non-fecal bacterium, can be found in a variety of water environments and thrives in temperatures above 25°C and *Naegleria*, a free-living amoeba, prefers thermal waters with temperatures up to 46°C (WHO 2006). Another potential contaminant found in natural hot springs is arsenic. Arsenic is often associated with geothermal waters and is common in southwestern United States (Smedley and Kinniburgh 2002). Coso Hot Springs, located in Inyo County, is one hot spring with elevated levels of arsenic (Welch, Lico, and Hughes 1988). Ingestion of arsenic has proven to cause various forms of cancer (Smith et al. 1992). Visitors can reduce their exposure to these contaminants by spending less time in natural spring water, refraining from immersing their heads in the water, and avoiding ingestion of the water.

**Nuisance Wildlife.** Normal wildlife behavior can be altered as a result of human presence and especially with the presence of human food. Wildlife that learn to depend on developed areas can become habituated to humans and ultimately become a nuisance. Poor food storage and deliberate feeding exasperates habituation. At the Saline Valley Warm Springs Area, feral burros are known to raid campsites in search of food. These feral burros do not have a fear of humans and are often present among the visitors' campsites. Recently, visitors to the springs have indicated that coyotes have become accustomed to visiting the campsites in search of food with a dwindling concern for human presence. Other nuisance species include ravens and various rodents.



*Grackles in a drainage area at Palm Spring*

In addition to searching for human food, feral burros and other habituated wildlife contribute to the degradation of water quality from the introduction of pathogens from their waste. The source springs are not protected from runoff and potentially contaminated water could be diverted to the soaking tubs, showers, or the sinks where visitors wash their dishes. Presence of animal waste at the campsites can lead to an increase in insects and rodents, which could potentially carry diseases such as hantavirus.

**Flood Risk.** Under the present hydrologic and sediment regime, drainage patterns around the developed areas of the Saline Valley Warm Springs Area indicate that flood runoff is derived from three watersheds in the Saline Range to the north and northeast; these drainages are presented in figure 9 (appendix A) and described in detail in the “Human Health and Safety” section in the “Affected Environment” chapter and in the Floodplains Statement of Findings (appendix G).

Visitors who camp at Lower Spring would be subject to flash floods. While there is not a reliable history of the flash floods that have occurred at the Saline Valley Warm Springs Area, there are anecdotal accounts of several flash floods since people started regularly visiting the area in the late 1940s (New South 2015). Flash floods occur regularly in deserts, as the soils do not readily absorb the water from storms and the vegetation is sparse. When there is a flash flood emergency, visitors can go to the higher ground located on the bluff east of the springs known to visitors as the art gallery.

**Hazardous Materials.** The camp host and regular visitors to the Saline Valley Warm Springs Area retain a supply of automobile repair and service items and cleaning supplies. These items are classified as hazardous materials, as they could pose a threat to human health if not used, stored, and disposed of properly. The Occupational Safety and Health Administration has standards that describe safe handling of hazardous materials. Automobile repair and service items, such as gasoline and lubricants, would be covered under Occupational Safety and Health Administration Standard 1926.152 “Flammable Liquids” and Occupational Safety and Health Administration Standard 1910 Subpart H “Hazardous Materials.” For all hazardous materials on site, Safety Data Sheets should be available to those people using them. These Safety Data Sheets include information such as the physical, health, and environmental hazards and safety precautions for handling and storing the chemical.

## **Alternative 1: No-Action Alternative**

Under alternative 1, the no-action alternative, all visitor activities at the Saline Valley Warm Springs Area would continue. The health and safety of the visitors would continue to be affected by their use of the facilities provided.

## ENVIRONMENTAL CONSEQUENCES

**Water Use.** Visitors to the Saline Valley Warm Springs Area would continue to use the soaking tubs, the dishwashing stations, and, indirectly, the settling pond. The water from the source springs would continue to be diverted to the soaking tubs, showers, and sinks. This water would not be tested for pathogens, chemicals, or bacteria. The sinks currently have signs that identify the water at the sinks as nonpotable and these signs would remain. The sinks and tubs would drain to the settling pond, which, although a potential drowning hazard, would remain unfenced. The recreational water use at the Saline Valley Warm Springs Area presents potential for adverse impacts on the health and safety of the visitors.

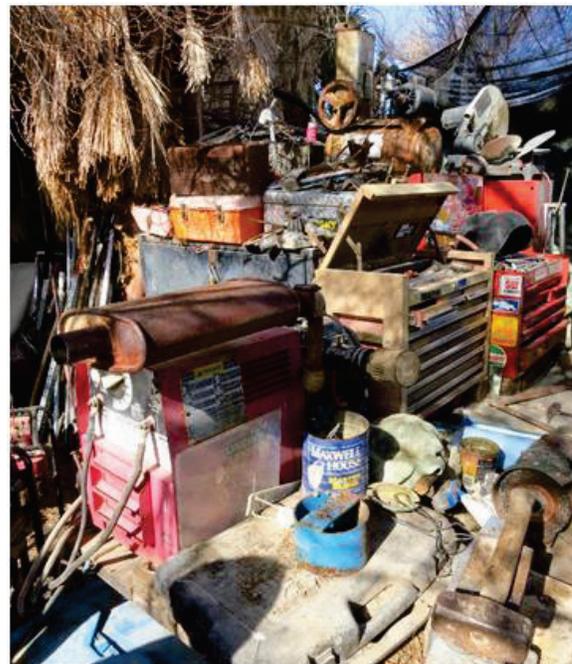
**Habituated Wildlife.** The habituation of wildlife can cause a host of threats to human health and safety including direct conflict with animals, animal waste in the camping areas, potential damage of supplies, and loss of food. Under alternative 1, visitors to the Saline Valley Warm Springs Area would continue to store their food individually, as they deem sufficient. Food left out or otherwise stored improperly would be subject to wildlife that has become habituated to human food. When wildlife forage for food, they could damage visitors' possessions in the process or leave visitors without sufficient food for the duration of their trip. Visitors are required to remove their campfire waste and to pack out their trash, including food waste. Any lapse in good campsite housekeeping, such as leaving food or other trash, could further perpetuate the habituation of wildlife. The dishwashing sinks provide another opportunity for visitors to inadvertently provide food for wildlife. Lower Spring currently has signage warning visitors of the consequences of feeding the wildlife, and the camp host and regular visitors work to educate new visitors about good housekeeping practices.

During the public scoping and alternative comment periods, visitors to the Saline Valley Warm Springs Area commented on the presence of feral burros, coyotes, and ravens. The commenters noticed an increase in rodents and insects at the campsites and attributed this change to the increased waste from habituated animals.

**Flood Risk.** Because there would not be a change in camping trends and the number of visitors to the Saline Valley Warm Springs Area is expected to remain constant, the risks to human safety from flash



*Improperly stored gasoline cans at camp host site*



*Vehicle repair supplies at the camp host site*



*Bleach and cleaning supplies at Lower Spring*

flooding is expected to continue. During times of potential flash floods, the camp host would personally communicate with each visitor to warn them of flood warnings and instruct them where higher ground is located. Flash floods could damage visitors' camping equipment and vehicles, ruin food, and destroy or move personal belongings.

**Hazardous Materials.** All activities at the Saline Valley Warm Springs Area would continue, including use of the automobile support facility by the camp host and other visitors. There are many items used for vehicle repair that could cause health hazards, including batteries, fluids such as lubricants and solvents, and gasoline. These items are not in a proper storage container and could result in environmental or health hazards if the contents spill or leak.

The visitors continually bring bleach to clean the soaking tubs and vault toilets. The camp host and visitors participate in the cleaning activities in accordance with guidelines for cleaning established by the current camp host. The bleach and other cleaning supplies are not stored properly and empty bottles are not disposed of properly.

**Accessibility.** The Saline Valley Warm Springs Area does not contain any design features that aid in accessibility, as defined by the 2010 *Americans with Disabilities Act Standards for Accessible Design*. Under alternative 1, there would be no modifications to the tubs, walkways, or other features of the Saline Valley Warm Springs Area. During the public scoping and alternative comment periods, several commenters noted that, due to previous injuries or other disabilities, the Chicken Strip airstrip is the only way they could travel to the Saline Valley Warm Springs Area because the drive was too harsh. Visitors would be able to continue to travel to the Saline Valley Warm Springs Area via airplane under alternative 1.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the "Cumulative Effects" section of this chapter), none would have an effect on human health and safety. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under alternative 1 that would constitute a significant cumulative effect.

## Alternative 2: Regulatory Compliance Alternative

**Water Use.** The use of water under alternative 2 would be the same as described for alternative 1 for bathing, soaking, and washing dishes; however, the National Park Service would consult with the Office of Public Health to develop and an approach for and implement water quality monitoring of the source springs. The settling pond would be fenced under this alternative, reducing the potential for a visitor to fall into the pond. The source springs would be fenced with artistic wooden fencing to prohibit feral burros from drinking from source springs, resulting in a slight improvement from contamination from feral burros.

**Habituated Wildlife.** Alternative 2 would provide additional education to visitors on the issues associated with providing food to wildlife through online resources, direct interactions with the camp host, and increased signage at the Saline Valley Warm Springs Area. Visitors would be responsible for properly storing their food and keeping a clean campsite, as described under alternative 1, but the education would be expected to lower the possible instances of visitors providing food to wildlife. This would indirectly benefit health and safety as it would reduce the number of food-habituated animals. Additionally, a filtration system would be added to the dishwashing sinks, which would reduce the food scraps available to wildlife.

**Flood Risk.** The potential for flash floods would not change under alternative 2; however, the increased education would increase the visitors' knowledge of the risks associated with flash flood and the location of the higher ground. The increased education would allow the visitors to act quicker during a weather emergency, reducing the potential for impacts on visitor safety.

**Hazardous Materials.**

Alternative 2 would reduce the impacts on health and safety from hazardous materials. The vehicle support facility would be removed, and emergency vehicle assistance should not be expected by the visiting public. Removal of the facility would reduce the amount of hazardous substances that would be stored at the Saline Valley Warm Springs Area. Visitors would continue to bring bleach and other cleaning supplies; however, these products and any hazardous materials used for emergency vehicle repairs would be used and/or stored according to Occupational Safety and Health Administration regulations.



*Feral burros in campsites at Burro Spring Camping Area*

**Accessibility.** Under alternative 2, the Saline Valley Warm Springs Area would be made as accessible as possible to allow access for those with disabilities. This would be a beneficial effect on the safety of those visitors with disabilities. The Chicken Strip airstrip would remain open, allowing shorter travel time for those visitors with injuries or disabilities who have access to airplane travel.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter), none would have an effect on human health and safety. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

### **Alternative 3: Community Engagement Alternative**

Under alternative 3, the impacts on human health and safety for flood risk, hazardous materials, and accessibility would be the same as described for alternative 2.

**Water Use.** Water use and risks under alternative 3 would be similar to those described for alternative 2; however, source springs, tubs, and riparian areas would be fenced with artistic creosote fencing to exclude feral burros from these areas. The fence would prohibit feral burros from drinking from source springs. The fence would also keep terrestrial wildlife excrement further from the source springs. Ultimately, the fencing would improve water quality from reducing potential for contamination from wildlife.

**Habituated Wildlife.** Under alternative 3, visitors would have access to more information on the dangers of providing food to wildlife, as described under alternative 2. However, alternative 3 would also give the National Park Service the option of installing food storage boxes at the Saline Valley Warm Springs Area to reduce the human food available to wildlife. The addition of education and the possibility of adding food storage boxes would reduce the incidences of habituated wildlife, thus reducing the adverse effects of wildlife depending on humans for food. Additionally, the installation of wooden fencing around the source springs, tubs, and riparian areas would keep feral burros from these areas where visitors are often concentrated.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter), none would have an effect on human health and safety. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under alternative 3 that would constitute a significant cumulative effect.

## Alternative 4: Restoration Alternative

**Water Use.** Water use in developed tubs and other infrastructure at the Saline Valley Warm Springs Area under alternative 4 would be eliminated. The tubs, showers, and sinks would be removed; the settling pond would also be removed. The potential health risks from recreational water use would be eliminated.

**Habituated Wildlife.** Alternative 4 would remove all facilities from the Saline Valley Warm Springs Area, which is expected to reduce visitation and the visitors’ length of stay. With fewer campers, there is a smaller chance of wildlife becoming food-habituated. A fence would be installed along the wilderness boundary that would keep feral burros from the entire developed area. With less human food available, wildlife is likely to resume natural foraging behaviors. The adverse effects from wildlife raiding campsites, eliminating in camping areas, and exposing humans to potential disease would be greatly reduced under this alternative.

**Flood Risk.** The potential for flash floods would not change under alternative 4; however, because visitation would be reduced under this alternative, camping would be less concentrated. Visitors would have access to information on flood risks through online resources prior to visiting the Saline Valley Warm Springs Area. There would be a greater adverse impact on visitor safety under this alternative because visitors would not have the camp host to warn of impending weather emergencies, but this scenario is consistent with the level of support given to backcountry campers in other parts of the park.

**Hazardous Materials.** All vehicle repair services and features at the Saline Valley Warm Springs Area would be removed, which would eliminate the need for the hazardous materials discussed for alternatives 1, 2, and 3. Alternative 4 would have a beneficial effect on visitor health and safety because visitors would not have the potential to encounter these substances while at the Saline Valley Warm Springs Area.

**Accessibility.** Under alternative 4, there would be no added features to increase accessibility, and the Chicken Strip airstrip would be removed. There would be a slight adverse impact from the removal of the airstrip for visitors who cannot handle the long drive to the Saline Valley Warm Springs Area, but this change would make the Saline Valley Warm Springs Area as accessible as other parts of the park.

**Cumulative Impacts.** Of the past, present, or reasonably foreseeable projects that could have a detectable effect on resources affected by the Saline Valley Warm Springs Management Plan (presented in the “Cumulative Effects” section of this chapter), none would have an effect on human health and safety. Therefore, there would be no meaningful additive or interactive effects from these projects and the proposed actions under this alternative that would constitute a significant cumulative effect.

## Alternative 5: Preferred Alternative

Under alternative 5, the impacts on human health and safety for water use, flood risk, hazardous materials, and accessibility would be similar to those described for alternative 2.

**Water Use.** Under alternative 5, visitors would be able to use the tubs, showers and sinks as they currently do; however, the water from the dishwashing stations and showers would be diverted to subterranean systems—one for Lower Spring and one for Palm Spring—instead of flowing to the settling pond and a wash south of the Wizard Pool. The wastewater would be treated in the subterranean systems instead of becoming available to the environment. The settling pond would be fenced to reduce the potential for a visitor to fall into the pond. The National Park Service would install artistic wooden fencing around the source springs and consult with the Office of Public Health to develop and an approach for and implement water quality monitoring of the source springs.

**Habituated Wildlife.** Under alternative 5, visitors would have access to more information on the dangers of providing food to wildlife through education efforts. The National Park Service would also work with the user groups to monitor resources at the Saline Valley Warm Springs Area, including wildlife activity, and increase education both at the site and through communications with the user groups members. The subterranean systems for treating wastewater would eliminate food scraps at the dishwashing stations, reducing the potential for habituated wildlife.

**Accessibility.** Under alternative 5, the Saline Valley Warm Springs Area would be made as accessible as practical to allow access for those with disabilities without creating impacts on potentially significant historical features.

## Conclusion

Under alternatives 1, 2, 3, and 5, human health and safety in the Saline Valley Warm Springs Area would continue to be affected through recreational water use, habituated wildlife, flood risk, and hazardous materials. Alternative 2 would provide beneficial effects on health and safety by bringing the actions and conditions into compliance with NPS, state, and federal regulations. Alternative 2 would provide more education, conduct water quality monitoring, reduce human food available to wildlife, restrict feral burros from drinking from the source springs, and increase accessibility. Alternative 3 would be similar to alternative 2, except this alternative would install burro exclusion fences that would keep the feral burros from areas that contain the source springs, soaking tubs, and riparian areas. Alternatives 3 and 5 would have the added benefit of installing food storage boxes if deemed necessary, which would help reduce food habituation further. Alternative 5 would install subterranean systems for the treatment of wastewater from the dishwashing stations, which would reduce the human food available for wildlife at the Saline Valley Warm Springs Area and reduce the risk of contaminated water from entering the environment. Under alternative 4, safety concerns from recreational water use and hazardous materials would be eliminated. Habituation of wildlife would be reduced due to the burro exclusion fence and the lower visitor numbers expected with this alternative. There would be risk associated with flash flood and accessibility; however, alternative 4 would create a backcountry scenario at the Saline Valley Warm Springs Area that is consistent with the rest of the backcountry camping areas throughout the park. Recreational activities at the Saline Valley Warm Springs Area are not currently posing significant threats to the health and safety of the visitors. Alternatives 2, 3, and 5 include elements that would improve conditions for protecting visitors, and alternative 4 would create a recreation scenario at the Saline Valley Warm Springs Area that is consistent with other backcountry areas of the park. Therefore, it can be concluded that the effects from the action alternatives would not produce significant impacts on health and safety.

## **SUSTAINABILITY AND LONG-TERM MANAGEMENT**

In accordance with NEPA, and as further explained in the *National Park Service NEPA Handbook* (NPS 2015a), consideration of long-term impacts and the effects of foreclosing future options should be included in any NEPA document. For each alternative considered in a NEPA document, considerations of sustainability must demonstrate the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.

The National Park Service must consider whether the effects of the alternatives involve tradeoffs between the long-term productivity and sustainability of park resources and the immediate short-term use of those resources. It must also consider whether the effects of the alternatives are sustainable over the long term without causing adverse environmental effects for future generations (NEPA section 102[c][iv]).

### **Relationship of Local Short-term Uses versus Long-term Productivity**

Alternatives 1, 2, 3, and 5 would trade long-term productivity for short-term use of park resources. Visitor activities (e.g., diverting water from source springs, dispersed camping, and watering the lawn) at the Saline Valley Warm Springs Area would continue to adversely affect wildlife and wildlife habitat at the expense of the long-term productivity and sustainability of these resources. Alternative 2 would take steps to reduce nonnative plants and effects from nonnative wildlife. Alternatives 3 and 5 would further protect native habitats by limiting camping areas, monitoring plans, and resource stewardship efforts. Alternatives 1, 2, 3, and 5 would provide degraded experiences for some park visitors.

For alternative 4, there would be a short-term commitment of human resources during restoration activities that would enhance the long-term productivity of park vegetation and habitat in the Saline Valley Warm Springs Area and result in sustainable use of the resources in that area. This alternative would require more resources than alternatives 1, 2, 3, and 5 due to the intense restoration efforts, which would require commitment of park personnel time. For this management alternative to be sustainable, it would require long-term monitoring to protect park resources. Alternative 4 would completely change the experience for those that visit the park solely for the unique opportunities available at the Saline Valley Warm Springs Area.

### **Irreversible and Irretrievable Commitment of Resources**

Alternatives 1, 2, 3, and 5 would cause impacts to wildlife, wildlife habitat, wilderness, and ethnographic resources, from continued use of the Saline Valley Warm Springs Area for recreation similar to current conditions; however, these impacts are not regarded as irreversible or irretrievable. Under alternative 4, the natural resources would benefit from restoration efforts, but would adversely affect the Saline Valley Warm Springs Historic Site. The implementation of alternative 4 would require intensive consultation and negotiation with the Tribe, Advisory Council on Historic Preservation, and SHPO to resolve adverse effects to historic resources. The National Park Service would complete documentation and mitigation of the Saline Valley Warm Springs Historic Site prior to removal, but alternative 4 would have irreversible and irretrievable impacts on the historic site.

### **Adverse Environmental Effects that Cannot be Avoided**

Use of the Saline Valley Warm Springs Area under alternatives 1, 2, 3, and 5 would adversely affect ethnographic resources. The nature of the Saline Valley Warm Springs Area currently and the continuation of its use under these alternatives would inherently affect the visitors who value the site for

## ENVIRONMENTAL CONSEQUENCES

its ethnographic values. Conversely, alternative 4 would adversely affect the Saline Valley Warm Springs Historic Site since all of the development would be removed.