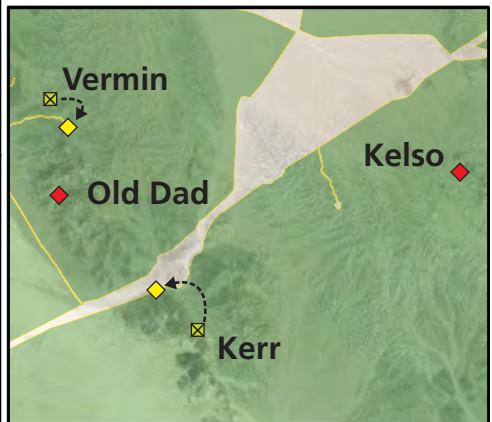
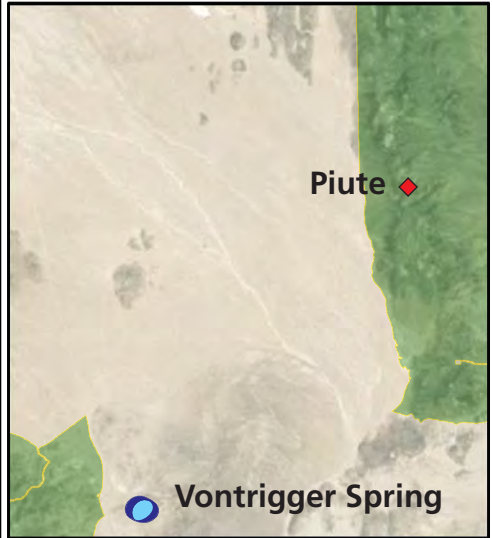
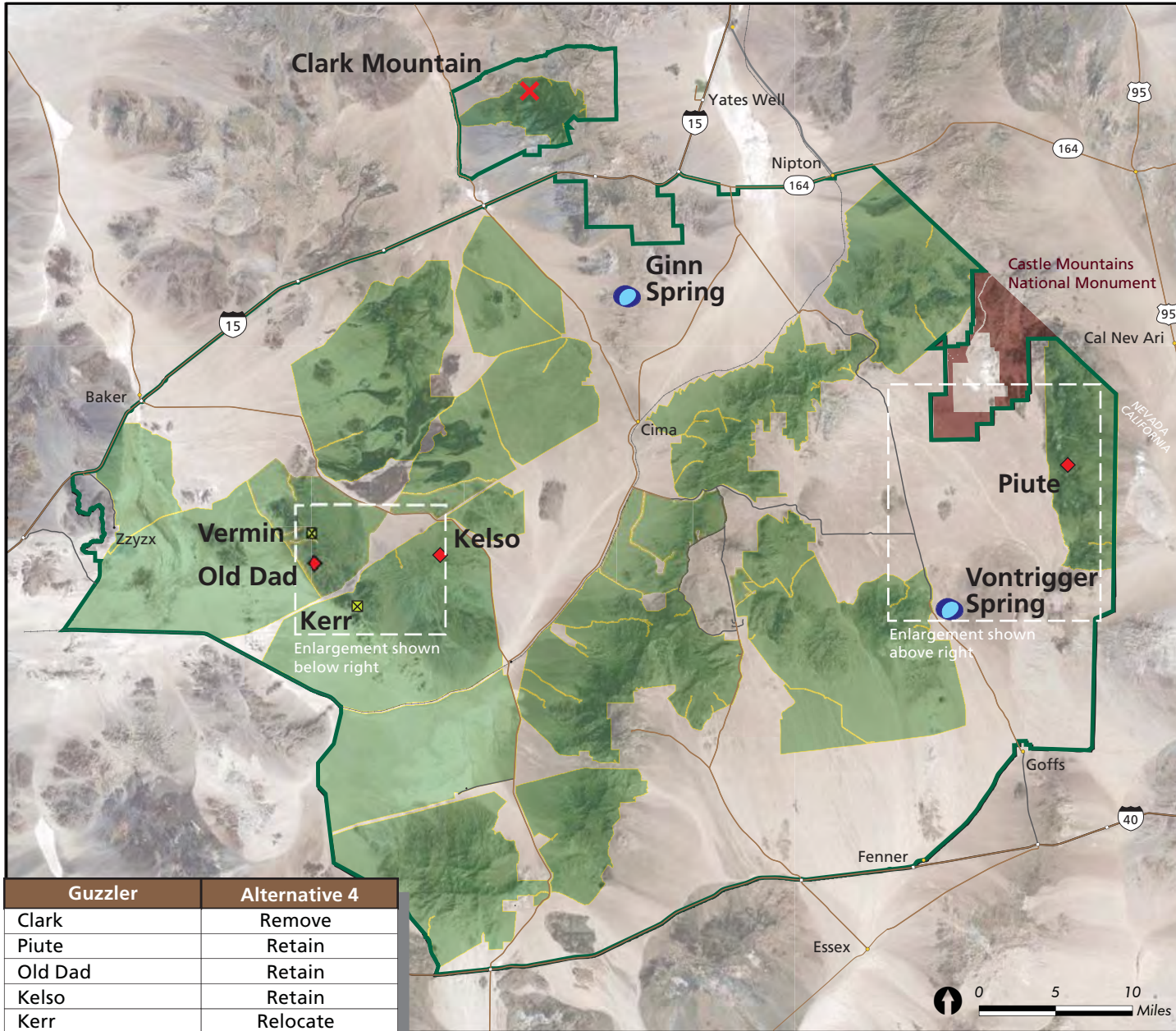


Alternative 4 Big Game Guzzlers

Mojave National Preserve
Water Resources Management Plan and
Environmental Assessment



Guzzler	Alternative 4
Clark	Remove
Piute	Retain
Old Dad	Retain
Kelso	Retain
Kerr	Relocate
Vermin	Relocate
New Water Sources	Yes – Two sites outside wilderness
Total Guzzlers	7
Within wilderness	4
Outside wilderness	3

Alternative Actions

- ◆ Retain guzzler
- ◆ Guzzler relocation site
- Mojave National Preserve boundary
- ✕ Remove guzzler
- New water source location
- Wilderness*
- ⊠ Relocate guzzler

*Vermin relocation site is within a non-wilderness area associated with an existing road

Small Game Guzzlers

About 131 small game guzzlers are known to exist in the Preserve, nearly half of which (about 60) are located in wilderness. About 26 guzzlers are in designated critical habitat for the desert tortoise.

Management Approaches

Potential management approaches considered for small game guzzlers are:

- **Evaluate** – Determine if guzzlers benefit wildlife based on location, proximity to other water sources, condition, and habitat context; and monitor guzzlers to better understand their ecological importance.
- **Maintain** – Periodically inspect and make small repairs to guzzlers including retaining wildlife ramps, sealing small holes, removing debris, and other routine tasks to ensure the function and safety of guzzlers.
- **Repair** – Perform major repair or rebuild of existing guzzlers including pouring a new concrete apron or replacing the tank.
- **Retain** – Allow non-wilderness guzzlers to remain with no new maintenance, pending future evaluations.
- **Remove or Disable** – Demolish the apron and fill or remove the tank to render the guzzler permanently inoperable, and restore the site to a natural-looking condition. Some or all of the guzzler material may remain on-site.
- **Neglect** – Allow the guzzler to passively fall into disrepair with no maintenance to the extent that it eventually fails to collect or store water.

No maintenance or repair is currently authorized for wilderness small game guzzlers (No Action); nor would any be allowed under the action alternatives. All action alternatives include removing or disabling a select few wilderness guzzlers and neglecting all others. Evaluation, maintenance, repair, and retention only applies to non-wilderness guzzlers.

Table 6 gives a summary of implementation actions for small game guzzlers. None of the alternatives include construction of new small game guzzlers in the Preserve. Any maintenance, repairs, or modifications would be consistent with the guidance of an approved historical condition assessment and treatment plan.

Small Game Guzzlers: Alternative 1 – No Action

Alternative 1 would continue the current management practices for small game guzzlers. All small game guzzlers in wilderness would continue to be neglected. The NPS would continue to coordinate with outside volunteer groups to monitor and retain small game guzzlers, including those determined to be historic under the NHPA. Allowed management activities include routine maintenance of non-wilderness guzzlers and major repairs to the eight non-wilderness guzzlers that have not been recently repaired. However, construction of roads or off-road vehicle travel to access six of those guzzlers would not be allowed. Two of the guzzlers are accessible to vehicles, and the other six would require non-motorized transport of equipment, materials, and personnel for any potential repair projects. These activities would not be authorized in wilderness.

The NPS would continue to allow these maintenance projects on an ad hoc basis in response to immediate maintenance issues or requests from outside organizations. The NPS would not develop any long-term plans for the strategic and systematic removal, addition, or abandonment of small game guzzlers in the Preserve.

Table 6. Small Game Guzzler Implementation Actions

No Action	Alternative 2	Alternative 3 (Preferred Alternative)	Alternative 4
Wilderness <i>About 60 guzzlers</i>			
Neglect all • No maintenance or improvements	<i>Common to All Action Alternatives:</i> Neglect or Disable • Disable select few (2 to 4) • Ensure existing escape ramps are in functional condition • Block entrances to prevent desert tortoise entrapment • No other maintenance or improvements		
Non-wilderness <i>64 recently repaired</i> <i>8 subject to additional major repairs; 2 are vehicle accessible</i>			
• Ad hoc maintenance, in response to outside requests • Neglect all not otherwise treated	Neglect with Exceptions • Evaluate sets of 10 to 15 for condition and ecological importance • Maintain escape ramps as needed • Maintain if determined important for native wildlife; phase out maintenance if not important • Remove or disable select few (2 to 4) • Allow major repairs to 2 guzzlers • Repeat with next set of evaluation and treatments	Neglect or Disable <i>Same as Alternative 2</i>	Retain with Exceptions • Evaluate sets of 15 to 25 for condition and ecological importance • Maintain escape ramps as needed • Maintain unless determined not important for native wildlife; phase out maintenance if not important • Remove or disable select few (0 to 2) • Allow major repairs to 8 guzzlers (only 2 are vehicle accessible) • Repeat with next set of evaluation and treatments
Potential Treatment/Condition at Full Implementation (20 years)			
• Major repairs on up to 8 guzzlers • Maintain some non-wilderness • Neglect all others • Result in about 68 functional guzzlers	• Major repairs on up to 2 guzzlers • Remove or disable up to 16 in wilderness; 16 out of wilderness • Maintain some non-wilderness • Neglect all others • Result in about 52 functional guzzlers	<i>Same as Alternative 2</i>	• Major repairs on up to 8 guzzlers • Remove or disable up to 16 in wilderness; 8 out of wilderness • Maintain most non-wilderness • Neglect all others • Result in about 60 functional guzzlers

Note: Assumes a 20-year implementation life of this plan, with 5-year evaluation cycles. Guzzlers that are removed or neglected would undergo monitoring and evaluation to ensure they are not ecologically important.

Small Game Guzzlers: Elements Common to All Action Alternatives

Under all action alternatives, the NPS would continue to allow existing small game guzzlers to be retained in the Preserve outside of wilderness.

Implementation Actions

The following implementation decisions or actions for small game guzzlers are common to all action alternatives:

- **All Areas** – Inspect and repair wildlife escape ramps on an as-needed basis on all intact guzzlers;
- **Wilderness** – Neglect; allow guzzlers to deteriorate over time, with no repairs or improvements; and
- **Evaluation** – Evaluate the condition of non-wilderness guzzlers and their contribution to native wildlife (see below).

Upon full implementation under all alternatives, small game guzzlers in wilderness would be neglected (similar to current management) to the point that they are no longer functional. Most small game guzzlers were originally installed to support game bird populations (i.e., quail and chukar), but they also supplement local water features for other desert wildlife. Long-term monitoring of habitat condition and wildlife use near guzzlers will improve our understanding of this relationship.

Within desert tortoise habitat, escape ramps would continue to be repaired as needed on non-wilderness guzzlers, and would be inspected to ensure they are functional on wilderness guzzlers where tortoises may have become dependent. Other wilderness guzzlers would be closed off to prevent entrapment and tortoise fatality, and allowed to deteriorate through neglect. Guzzlers in other non-wilderness areas would be retained, subject to alternative-specific actions (described below).

All actions within wilderness will be planned and implemented to ensure that the techniques and types of equipment needed minimize impacts on wilderness resources and character. Any future actions that involved 4(c) prohibited uses will be subject to project and site-specific MRA. A draft MRA for this plan is included in Appendix A.

Evaluation

All action alternatives would include a long-term evaluation program to better understand the relationship between guzzlers and other developed water features, wildlife habitat, and nontarget native wildlife populations. Evaluation would help the NPS understand the value of these water developments to the native wildlife while also understanding any potential unintended consequences of their existence. This monitoring protocol is not intended to directly influence any specific management actions, but is instead intended to better understand long-term trends throughout the implementation of this plan.

This monitoring effort would be based on spot observations of wildlife presence and behavior before and after implementation of management actions, over a lengthy period, and at multiple sites throughout the Preserve. Evaluation methods would examine diversity of species using guzzlers, survival of game birds (Gambel's quail) in relation to the presence of guzzlers, and habitat selection and home ranges of game birds in relation to guzzlers.

Indicators

The indicators shown in Table 7 are intended to identify and evaluate the relationship between small game guzzlers and native wildlife populations and to prioritize implementation actions accordingly. The indicators would be monitored, in select groups, throughout the implementation of the plan and would be used to define and prioritize specific management actions. As it is not practical to monitor all small game guzzlers at all times, monitoring would be targeted to specific guzzlers or groups of guzzlers.

Table 7. Small Game Guzzlers – Indicators

Indicator	Potential Monitoring Methods
Guzzler condition	<ul style="list-style-type: none"> Neglect wilderness guzzlers Surveys of non-wilderness guzzlers (every 3 to 5 years)
Wildlife use	<ul style="list-style-type: none"> Remote cameras, remote audio recorders Adult-to-juvenile age ratios of Gambel's quail (survival indicator) Home range and habitat selection of Gambel's quail sample Point count or transect surveys of habitat areas surrounding guzzlers
Habitat context	<ul style="list-style-type: none"> GIS analysis of reliable nearby water features

Small Game Guzzlers: Alternative 2 and Alternative 3 (Preferred Alternative)

Objective

The objective for small game guzzler management under Alternatives 2 and 3 would be to identify guzzlers that provide additional habitat value for native wildlife and retain the function of those guzzlers, eliminate those that do not provide ecosystem benefits. While most small game guzzlers were originally installed to support game bird populations, they also provide a supplemental water source for other desert wildlife.

Approach

The implementation of Alternatives 2 and 3 would primarily consist of neglect, though some guzzlers could be repaired or retained based on their ecological importance. Up to 2 guzzlers would be subject to potential major repairs, and up to about 32 could be removed or disabled based on site evaluations (see Table 6).

The NPS would neglect all small game guzzlers in wilderness and would remove or disable a select few based on evaluation. Some non-wilderness guzzlers would be retained, repaired, removed, or disabled based on location and evaluations of their ecological importance. Of the eight guzzlers located outside of wilderness that have not been recently repaired, major repairs or rebuilds would be permitted at two locations that are accessible by vehicle, but would not be permitted at the other six locations. Escape ramps would be maintained and repaired on all guzzlers within the Preserve.

Small Game Guzzlers: Alternative 4

Objective

The objective for small game guzzler management under Alternative 4 would be to support the use of guzzlers to augment native wildlife habitat and improve wildlife habitat connectivity in the Preserve and between the Preserve and surrounding habitat areas. The presence of small game guzzlers across the desert valleys of the Preserve is believed to contribute, to some degree, to the movement and persistence of a variety of native wildlife species beyond game birds. Alternative 4 would seek to use small game guzzlers as a tool to support the survival and

movement of native wildlife species that would otherwise be vulnerable to the effects of climate change and habitat fragmentation. By providing supplemental water sources, existing small game guzzlers could potentially support the long-term survival of native species that may otherwise be extirpated from the Preserve.

Approach

Implementation actions would primarily consist of neglect, though most non-wilderness guzzlers could be repaired. Up to 8 non-wilderness guzzlers could have major repairs, and up to about 24 could be removed or disabled based on site evaluations (see Table 6).

Similar to Alternatives 2 and 3, under Alternative 4, the NPS would neglect small game guzzlers in wilderness and would remove or disable a select few. Some non-wilderness guzzlers would be retained and improved based on evaluations of their ecological importance, while a select few would be removed or disabled. Major repairs or rebuilds would be allowed at all eight non-wilderness sites that have not been recently repaired. However, road construction or off-road vehicle travel would not be allowed for maintenance at six of those sites, requiring non-motorized transport of equipment, materials, and personnel for the repair efforts.

Springs, Wells, Lakes, and Ponds

The Preserve contains a wide variety of springs, wells, and other water developments. The condition, water reliability, and wildlife use of these features varies from site to site. A total of 244 springs, seeps, and water development features have been identified in the Preserve (Table 8). These include a broad range of surface water expressions, ranging from intermittent seeps, resulting in moist soil, to highly modified human developments and perennially flowing natural springs. These water features also include a few hand-dug wells and two ponds in abandoned open pit mines (see “Water Features” in *Chapter 3: Affected Environment*).

Table 8. Characteristics of Known Springs and Water Developments

Characteristic	Number	% of Total
Total known springs (features)	238*	—
<i>Managed springs (features)</i>	124	52
<i>Located in wilderness</i>	182	76
Total named ponds and lakes	6	—
Total known wells	73	—
<i>NPS water supply wells</i>	8	11
<i>Wells for grazing permits</i>	15	21
<i>Monitoring wells</i>	10	14
<i>Other wells</i>	40	55

*Includes multiple features that are located on the same spring.

Potential Actions for Managed Springs

As described in *Chapter 3: Affected Environment*, the NPS has identified a set of 124 spring features that would potentially be subject to management activity. Potential management approaches considered for springs and water developments are:

- **Maintain** – Maintain, stabilize, or improve water conveyance infrastructure (e.g., pipes, valves, or troughs), or natural features such as topography, to promote or improve the conveyance of water.

- **Evaluate for Wildlife** – Determine the value and importance of the water source for ecological importance and native wildlife and complete a MRA and historical assessment to support retaining or improving the water infrastructure within wilderness if deemed necessary.
- **Neglect** – Allow water development to passively fall into disrepair with no maintenance.

Potential Actions for Wells

As described in *Chapter 3: Affected Environment*, the NPS has identified 73 wells that would potentially be subject to any management activity. Potential management approaches for wells are as follows:

- **Maintain** – Maintain well, pump, and associated infrastructure for existing purposes until it is no longer needed.
- **Destroy** – Completely and properly seal wells in compliance with State of California standards and regulations, including removal of aboveground infrastructure.

Management actions for springs, wells, lakes, and ponds are summarized in Table 9.

Elements Common to All Alternatives

Springs

None of the alternatives include active demolition and removal of spring developments or the construction of new water developments in the Preserve. Any efforts to retain or improve spring developments would occur on a case-by-case basis as funding and partnerships allow. In addition, any repairs or modifications to historic sites or developments would be consistent with the guidance of an approved historical condition assessment and treatment plan and in consultation with the California SHPO.

Wells

Under all alternatives, the 8 NPS water supply wells would continue to be retained, along with 28 other wells that are associated with grazing permits or water quality monitoring. All other wells that are not needed or used would be destroyed (in accordance with Section 13800 of the California State Water Code), except one to three wells that might be retained for potential future water supply. Two of these retained wells which would be in the Hole in the Wall area. No new wells would be drilled for wildlife purposes.

The NPS water supply wells to be retained are in the following locations:

- | | |
|-------------------------|-------------------------------|
| • Hole in the Wall well | • OX Ranch |
| • Kelso Depot | • Rockin' L well |
| • Kessler Springs Ranch | • Valley View Ranch |
| • Mid Hills Area | • Zzyzx Desert Studies Center |

All actions within wilderness will be planned and implemented to ensure that the techniques and types of equipment needed minimize impacts on wilderness resources and character. Any future actions that involved 4(c) prohibited uses will be subject to project and site-specific MRA. A draft MRA for this plan is included in Appendix A.

Table 9. Summary of Actions for Springs, Wells, Lakes, and Ponds

	No Action	Alternative 2	Alternative 3 (Preferred Alternative)	Alternative 4
Wells	<ul style="list-style-type: none"> • Maintain 8 water supply wells • Maintain 28 other wells • Add 1-2 wells in the Hole in the Wall area to support Preserve operations • Destroy unused wells, per state regulations 	<ul style="list-style-type: none"> • Maintain 8 water supply wells • Maintain 28 other wells • Add 1-2 wells in the Hole in the Wall area to support Preserve operations • Destroy unused wells, per state regulations • Retain up to 3 existing wells for future water supply 	Same as Alternative 2	Same as Alternative 2
Mohave Tui Chub (MC) Habitat	<ul style="list-style-type: none"> • Maintain habitat on an ad hoc basis 	<ul style="list-style-type: none"> • Maintain springs for MC habitat; pursue additional sites (5 to 10) 	Same as Alternative 2	Same as Alternative 2
Managed Springs	<ul style="list-style-type: none"> • Maintain springs in response to outside requests • Clean up spring sites if needed for visitor safety 	<ul style="list-style-type: none"> • Evaluate springs for ecological importance and condition (5 to 7 sites per year) • Maintain if determined important for native wildlife (5 to 10 total springs) 	Same as Alternative 2	<ul style="list-style-type: none"> • Evaluate springs for ecological importance and condition (5 to 7 sites per year) • Maintain springs to support native wildlife (10 to 15 total) • Neglect maintenance on those determined not important for native wildlife
All Other Springs	<ul style="list-style-type: none"> • Neglect all not otherwise treated 	<ul style="list-style-type: none"> • Neglect all not otherwise treated 	<ul style="list-style-type: none"> • Neglect all not otherwise treated 	<ul style="list-style-type: none"> • Neglect all not otherwise treated
Treatment/Condition at Full Implementation (20 years)	<ul style="list-style-type: none"> • Maintain 36 wells; destroy others • Maintain select springs, per outside requests • Neglect all others 	<ul style="list-style-type: none"> • Maintain 36 wells; retain 3 for water supply; destroy others • Maintain up to 10 springs for MC habitat • Possibly retain up to 10 springs, based on evaluation • Neglect all others 	Same as Alternative 2	<ul style="list-style-type: none"> • Maintain 36 wells; retain 3 for water supply; destroy others • Maintain up to 10 springs for MC habitat • Possibly retain up to 15 springs, based on evaluation • Neglect all others

Springs, Wells, Lakes, and Ponds: Alternative 1 – No Action

Under Alternative 1, the NPS would conduct minimal routine management of springs and water developments in the Preserve. Ongoing management activities would be limited to repairs to fencing or water developments to prevent resource damage or hazardous conditions for visitors, and would be primarily focused on features that have resource or interpretive value or are close to visitor areas. Historic water developments could be restored or stabilized on an ad hoc basis, per outside requests, to mitigate structural deterioration (up to about four per year). Habitat for the Mohave tui chub would be repaired on an ad hoc basis.

Routine “snapshot” monitoring of springs and historic developments by NPS staff and volunteers would continue as resources are available. The Mojave Network Inventory and Monitoring Division would continue to monitor Mohave Chub (MC) Spring and a group of desert springs per approved protocols. Wells would be actively repaired or destroyed, consistent with state regulations, as resources allow. Under this alternative, the NPS would not engage in any long-term or comprehensive plans to systematically remove, disable, repair, or improve springs or other water developments in the Preserve.

Springs, Wells, Lakes, and Ponds: Elements Common to All Action Alternatives

Monitoring

All action alternatives would include a long-term monitoring program to better understand the relationships between spring developments and water availability, and between springs and wildlife populations. This monitoring effort would be based on spot observations of wildlife presence, over an extended period, and at multiple sites throughout the Preserve. This monitoring protocol is not intended to directly influence any specific management actions, but is instead intended to better understand long-term trends throughout the implementation of this plan.

Indicators

The indicators listed in Table 10 are intended to identify and evaluate the relationship between springs and native wildlife populations and to prioritize implementation actions accordingly. The indicators would be monitored throughout the plan and would be used to inform, but not determine, specific management actions. As it is not practical to monitor all springs and water developments every year, monitoring would be targeted to specific areas or groups of springs.

Table 10. Spring and Water Developments – Indicators

Indicator	Potential Monitoring Methods
Water availability	<ul style="list-style-type: none"> • Precipitation • Annual spring surveys for presence of water • Surveys of nonfunctional spring developments for presence of water
Wildlife use of springs	<ul style="list-style-type: none"> • Remote cameras • Remote audio recorders • Spot surveys/human observation

Implementation Actions

Implementation actions related to springs, wells, ponds, and lakes that are common to all action alternatives include:

- Maintain MC Spring, Lake Tuendae, West Pond, Morningstar Mine Pond, and potentially Rainbow Wells for Mohave tui chub; additional restoration sites would be pursued

- The NPS would not actively manage, repair, or improve other ponds or lakes in the Preserve
- Destroy any wells that are not needed or used, per state regulations, and
- Retain up to three existing wells in the Preserve for potential future water supply.

Springs, Wells, Lakes and Ponds: Alternative 2 and Alternative 3 (Preferred Alternative)

Objective

Under Alternatives 2 and 3, the NPS would seek to meet varying and competing land and wildlife management mandates by strategically repairing or improving select water features that are important to native wildlife, while allowing most features to continue to deteriorate over time. In the long term, this approach would retain the wildlife value of select water developments while allowing most developments to continue to deteriorate.

Approach

Management actions for springs, wells, lakes, and ponds would be identical under Alternative 2 and Alternative 3. The NPS would retain but neglect most springs and water developments. Maintenance of select springs (up to about 10 total) would be permitted based on evaluation of their ecological importance and condition.

Implementation actions for springs under Alternatives 2 and 3 would include:

- Allow most spring developments to deteriorate over time;
- Evaluate select springs for ecological importance and condition (about 5 to 7 sites per year); and
- Maintain select springs (about 5 to 10 total) if determined to be important for native wildlife.

Springs, Wells, Lakes, and Ponds: Alternative 4

Objective

In Alternative 4, the NPS would seek to support and supplement native wildlife populations to make them less vulnerable to these outside changes. To that end, this alternative would seek to actively retain selected water developments for wildlife. As a result of a long history of human land use in the region, the wide range of water developments are a long-standing component of the Mojave Desert ecosystem. As such, these developments have also become an important source of free-standing water for a wide variety of native wildlife species. Over the long term, as human development and climate change are expected to constrain the availability of habitat and water for many native species, these natural springs and water developments are expected to play an increasingly important role in sustaining native wildlife habitat.

Approach

Overall, this alternative would retain, repair, and improve some water developments, while allowing most developments to continue to deteriorate. The NPS would retain and improve select springs and water developments throughout the Preserve, emphasizing those with greatest ecological importance. Some developed springs would be actively repaired to improve water supply and promote wildlife habitat (up to about 15 total).

Implementation actions for springs under Alternative 4 would include:

- Evaluate select springs for ecological importance and condition (about 5 to 7 sites per year)
- Maintain select springs (about 10 to 15 total) if determined to be important for native wildlife
- Neglect maintenance on those springs determined to be less important for native wildlife
- Allow most spring developments to deteriorate over time

Other Water Resource Management Elements

The following elements of water resources management would be implemented by the NPS under any of the action alternatives.

Deep Alluvial Basin Groundwater

As described in the “Water Resources” section of *Chapter 3: Affected Environment*, the Preserve contains portions of several large alluvial basins that support deep aquifers. These alluvial basin aquifers are important for human use (including water supplies for the NPS, the Union Pacific Railroad [UPRR], and surrounding communities), while they also support several of the key springs and surface water features in the Preserve—most notably the perennial Piute Springs and Soda Springs, which are important surface water and ecological resources.

Under all action alternatives, the NPS would implement the following actions related to deep alluvial basin groundwater:

- Use select existing wells to monitor water levels and water quality for long-term trends
- Monitor groundwater quality as required to protect public health
- Work with partners to investigate and understand groundwater at Soda Springs and other sites
- Develop new wells to support Preserve operations as needed (e.g., administrative support facilities and expanded or relocated campgrounds and visitor centers)
- Provide technical review and comments for water-related issues relative to historical, existing, or proposed developments that may affect Preserve water resources (e.g., historical and ongoing mining operations and groundwater development projects)
- Pursue legal avenues, as necessary, to prevent or remedy impacts on Preserve water resources
- Complete comprehensive inventory of wells in the Preserve; plug and abandon unused and unneeded wells to provide aquifer protection and bring the Preserve into compliance with California state law

Water Rights

The proper ownership and use of water rights is a complex and important property issue in a desert environment. With a long history of land ownership and use under multiple federal agencies, as well as multiple land acquisitions and agreements related to federal lands, the complexity of water rights in the Preserve is both daunting and important. To support long-term stewardship of Preserve resources, it is important that the NPS have a clear understanding of its water rights and any rights that it can assert to respond to changing circumstances.

Under all action alternatives, the NPS would implement the following actions related to water rights:

- Inventory state water rights acquired by the Preserve via historical and future land acquisitions
- Develop and assert federal reserved water rights as necessary to protect Preserve water resources

Other Programs

Hazardous Materials

Under all action alternatives, the NPS would continue to identify and mitigate hazardous materials as lands are acquired. This is not only a legal requirement, but it is also important to retaining the quality and value of scarce water resources in the Preserve.

Grazing Management

Under all action alternatives, the NPS would work to develop and implement a livestock grazing management plan in a manner that is consistent with the other actions in this plan, as well as other goals to manage ecological systems.

Alternatives and Alternative Elements Eliminated from Further Consideration

During scoping and alternatives development, several alternative concepts or elements were suggested by the NPS, stakeholders, and the public that were considered and eliminated from further analysis in this EA. Based on NPS and NEPA guidelines (NPS DO-12), reasons to eliminate alternatives include technical or economic infeasibility; inability to meet project objectives or resolve need; duplication with other, less environmentally damaging or less expensive alternatives; conflict with park/preserve plans, purposes, or other policies; or too great an environmental impact. Alternatives or alternative elements that were eliminated from further consideration are discussed below.

Removal of All Water Developments

Several public scoping participants suggested that all water developments be removed from the Preserve. These suggestions were primarily based on the assertion that the presence of water developments was not consistent with NPS or wilderness policy, that they are the remains of past human development activity, or that they simply are not natural and do not belong in the Preserve. The NPS considered an alternative that removes all water developments, but such an alternative was eliminated from further analysis for a variety of reasons.

There are more than 500 known water features in the Preserve, ranging from large and elaborate guzzler systems to aging pipes protruding from the soil or wet areas behind an earthen dam. Some features are located near roads, while many others are in remote settings. Considering the number and diversity of water features on the landscape, it would be prohibitively difficult and costly to implement a program to remove or disable all water features.

While the NPS acknowledges that water developments are not part of the natural desert ecosystem, many of the guzzlers and nearly all of the developed springs have existed on the landscape for many years and were in place long before the designation of the Preserve as a national park system unit in 1994. As a result, many wildlife populations in the Preserve rely on water developments, and their complete removal could have unacceptable impacts on some populations and would not be consistent with the overall purpose and need for this plan. This is

particularly the case for the fully protected desert bighorn sheep, whose population stability and distribution in the Preserve is directly related to existing guzzlers. The NPS believes the full removal of all big game guzzlers from the Preserve would have unacceptable impacts on existing sheep populations, their management, and their contribution to regional conservation efforts for the species.

Removal of All Water Developments from Wilderness

During the early phases of the planning and evaluation process, the NPS considered an alternative that would eliminate all big game guzzlers from wilderness. More specifically, four big game guzzlers would be removed (Clark, Piute, Old Dad, and Kelso), and two (Kerr and Vermin) would be relocated to suitable non-wilderness locations. In this alternative, the NPS had previously assumed that a reduction in the number and distribution of developed water features would result in a long-term shift toward a desert ecosystem that is less reliant on human intervention, and that by applying adaptive management principles this can be achieved without unacceptable impacts on native wildlife populations.

As part of the analysis of alternatives, the NPS discovered that this alternative for big game guzzlers would result in a 56 percent reduction in dry season habitat, based on an updated model of habitat. This magnitude of change—loss of more than half of the dry season habitat for bighorn—would result in an unacceptable loss of habitat for bighorn. Therefore, this alternative concept was eliminated from further analysis and consideration.

Significant Expansion of Water Developments

One alternative concept that was considered and eliminated is the significant expansion of water developments in the Preserve for the purposes of maximizing wildlife habitat or promoting hunting and wildlife viewing opportunities. As described above, many water developments currently exist in the Preserve, and many local and regional wildlife populations have become dependent on the availability of water in certain locations. Likewise, it is well understood that past and present human developments have compromised the function of the Mojave Desert ecosystems and that those effects are likely to be compounded by climate change.

While the NPS acknowledges the potential role of water development in mitigating anthropogenic impacts and promoting native wildlife conservation, the expansion of water developments would need to be limited, strategic, and reasoned. For example, Alternative 4 includes the possibility of limited guzzler expansion for the purposes of improving habitat connectivity for native wildlife species. Such water development expansion would be considered credible and appropriate because of its potential value to native wildlife conservation. The expansion of water development beyond those specific objectives, or for the purposes of expanded hunting opportunities or nonnative species habitat, is not considered appropriate for this plan or compatible with the GMP and NPS policy. Therefore, the alternative concept of significant expansion of water development was rejected from further analysis.

Prohibition of Hunting

Some members of the public wanted the NPS to consider prohibiting hunting in the Preserve. These comments were generally based on the belief that hunting is not appropriate in any unit of the national park system, or that the sole basis for retaining water developments in the Preserve is to support hunting, and, therefore, if hunting were prohibited, water developments would no longer be necessary. Any alternative concepts that prohibited hunting in the Preserve were eliminated from further consideration and analysis. The 1994 CDDA, the action by the U.S. Congress that established the Preserve, specifically directs the NPS to “permit hunting, fishing, and trapping on the lands and waters within the preserve in accordance with applicable Federal and State laws.” This provision for public hunting in the Preserve is further affirmed by the 2001

GMP. Most hunting in the Preserve occurs during a limited season, while hunting for desert bighorn sheep is limited to a very small (0 to 4) number of tags. The prohibition of hunting was not considered as an element of this plan.

