



**NATIONAL
CONSERVATION
LANDS**

Gold Butte

National Monument



Nevada

Annual Manager's Report—Fiscal Year 2018

Table of Contents

Gold Butte Fact Sheet.....	2
Gold Butte Overview.....	5
Programs and Accomplishments.....	7
Science.....	12
Resources, Objects, Values and Stressors.....	13
Summary of Performance Measure.....	29
Manager’s Letter.....	30



U.S. Department of the Interior
Bureau of Land Management

Gold Butte

National Monument

Designating Authority

Designating Authority: Presidential Proclamation – Establishment of the Gold Butte National Monument 9559

Date of Designation: December 28, 2016

Additional Designations

There are two designated wilderness areas, one wilderness study area, one instant study area, and a backcountry byway within the boundary of Gold Butte National Monument (GBNM).

Site Description

GBNM is located 80 miles northeast of Las Vegas and 20 miles south of the City of Mesquite. GBNM encompasses nearly 300,000 acres of remote and rugged desert landscape in southeastern Nevada, where dramatically chiseled red sandstone, twisting canyons, and tree-clad mountains punctuate desolate stretches of the Mojave Desert. The brightly hued sandstone provides a stunning canvas for the area's famously beautiful rock art. The area is popular for outdoor recreation and visitors to the monument can hike to rock art sites, drive the Gold Butte Backcountry Byway to the area's namesake mining ghost town, hunt desert bighorn sheep, or tour the area's peaks and canyons on horseback.

Monument Offerings

GBNM has over 300 miles of designated routes including a 64-mile backcountry byway, which provides the public access to a variety of features. Some of those features include:

Whitney Pockets

A popular camping destination with the most well-known and accessible of the Aztec sandstone formations in the monument. Of note, are the rock stories carved into stones by ancient indigenous peoples and structures built by the Civilian Conservation Corps in the 1930s.

Devil's Throat

An unusual geologic feature along the main Gold Butte road, Devil's Throat is a large,

100-foot-deep sinkhole that continues to grow from underground water dissolving the minerals in the soil.

Gold Butte Townsite

Building foundations and mining equipment for crushing ore are all that are left of the mining boom of the early 1900s at the Gold Butte Townsite. They are a reminder of the rich mining and ranching history of this area.

Year Accomplishments

- Conducted graffiti removal at White Rock, a popular local gathering area, with the assistance of the Friends of Gold Butte.
- Began development of a Junior Ranger Book for GBNM through the Teachers on Public Lands Program.
- Installed two safety and five directional signs in GBNM with assistance of the Friends of Gold Butte through a grant from the Nevada Off-Highway Vehicle Grant Program.
- Regularly attended monthly meetings at the Town Advisory Boards of Moapa Valley and Bunkerville, and Mesquite City Council to provide updates to GBNM.
- Met monthly with the Moapa Band of Paiutes Tribal Chairman to provide updates to GBNM.
- Continued restoration efforts for the 2005 burned areas.

Future Priorities and Opportunities

The Bureau of Land Management (BLM) will focus on the following priorities for Fiscal Year (FY) 2019:

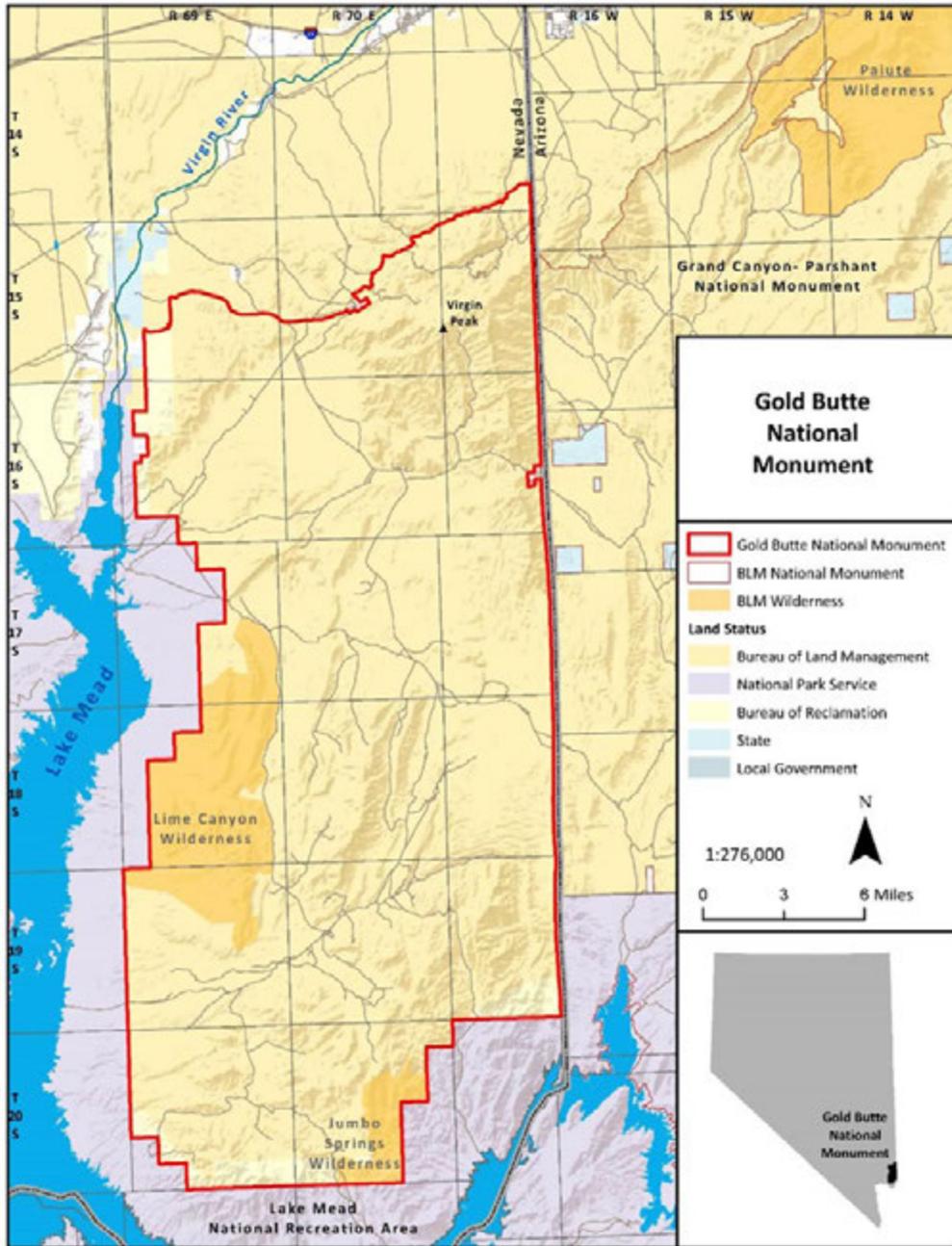
- Community Outreach
- Volunteering Opportunities
- Restoration
- Interpretation
- Road Signing and Maintenance
- Protection of Cultural Sites

Gold Butte National Monument

Southern Nevada District Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130
Phone: 702-515-5000
Unit Manager: Lee Kirk

Site Web Address: <https://www.blm.gov/programs/national-conservation-lands/nevada/gold-butte>

Map of Gold Butte



1 Gold Butte Overview

Acreage

Total Acres in Unit	296,937
BLM Acres	285,158
Other Federal Acres	11,779
State Acres*	0
Private Acres*	0

*State and Private Acres are not part of the total unit acres

Budget

Budget Title	Code	Funding
Monuments & Conservation Areas	1711	\$0
Rangeland Management	1020	\$0
Riparian Management	1040	\$0
Wilderness Management	1210	\$0
Recreation & Visitor Services	1220	\$0
Other		\$0
Total Budget		\$0

No funding was allocated to Gold Butte National Monument in FY 2018.

Current Areas of Focus

Recreational use is continuing to increase within GBNM which is impacting cultural resources. The BLM will be preparing an environmental assessment (EA) to provide for interpretation and recreation amenities at the Falling Man, Kirk's Grotto, and Whitney Pocket cultural sites. The recreational amenities could include interpretive kiosks, bathrooms, and trails.

Planning and NEPA

Resource Management Plan

Resource management planning for GBNM is on hold until the President provides direction on the recommendations from the Secretary of the Interior's "Final Report Summarizing Findings of the Review of Designations Under the Antiquities Act".

Travel Management Plan

A Travel Management Plan (TMP) was completed in 2008 to designate routes for Areas of Critical Environmental Concerns located in the northeast portion of the SNDO. The TMP designated 812 miles of routes as open to motorized use of which 300 miles

of those routes are located in GBNM.

National Environmental Policy Act (NEPA)

One Categorical Exclusion (CX) was completed within GBNM. A brief description of the Proposed Action is listed below:

Gold Butte National Monument Abandoned Mine Lands Closures (DOI-BLM-NV-S010-2018-0124-CX): The CX was prepared to provide for the Nevada Division of Minerals to close forty-two abandoned mines for public health and safety.

Staffing

An Acting Monument Manager has been assigned to assist with initial management of GBNM until a table of organization is approved.

Below is the proposed organizational structure that has been submitted to the Director for review and approval:

Monument Manager (GS-12)
Archeological Technician or Tribal Liaison (GS-9)
Park Ranger (GS-7)
Park Ranger (GS-7)

The Southern Nevada District Office (SNDO) staff (e.g. wildlife biologist, law enforcement, botanist, maintenance) provides key support to the operation and management of GBNM in the form management recommendations for protecting or enhancing the natural resources of GBNM and addressing maintenance concerns.

2 Programs and Accomplishments

General Accomplishments

General Accomplishments Table

	Number of Visitors	Education Participants	Interpretative Participants	Visitor Center/Contact Station Visits	Hours of Volunteers			
TOTALS	43,737	N/A	N/A	N/A	743			

Education, Outreach, and Interpretation

The BLM is improving efforts to engage the community through outreach by attending local town board and city council meetings. During the meetings information is provided regarding current and future projects within GBNM.

A Junior Ranger Book for GBNM is being developed through the Teachers on Public Lands Program.

The BLM conducted a Coffee with a Ranger program. The Acting Monument Manager, Law Enforcement Ranger, and Park Ranger set up a table and provided hot chocolate and bagels at Whitney Pocket, a popular camping site, to provide the public an opportunity to meet BLM staff and ask questions regarding GBNM.

Fish and Wildlife

As part of the abandoned mine closures, Nevada Department of Wildlife (NDOW) conducted bat surveys in GBNM. In these surveys California Leaf-nosed bats (*Macrotus californicus*) were discovered roosting in a cave in GBNM which will continue to be monitored into the future. NDOW also has data recorders documenting environmental conditions (temperature, humidity, etc.) in some mines for on-going White-nose Syndrome surveillance. White-nose syndrome is a fungal infection which can be fatal to bats and has decimated bat populations across the U.S. An interesting

find (but not unique to this area) was discovering several desert tortoises using some of the mines during the bat surveys.

NDOW conducts regional surveys to assess population trends of different suites of species, and several surveys occur in GBNM. NDOW has a winter raptor survey route through GBNM. The route usually records a low number of raptors but the following species were observed: red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Cooper's hawks (*Accipiter cooperii*), and Northern Harriers (*Circus hudsonius*). NDOW also has volunteers assist with road surveys in GBNM to record herpetofauna in the area. The following species were sighted during this past year: Sidewinders (*Crotalus cerastes*), Mojave rattlesnakes (*Crotalus scutulatus*), long-nosed snakes (*Rhinocheilus lecontei*), gopher snakes (*Pituophis catenifer*), and patch-nosed snakes (*Salvadora hexalepis*) as well as banded geckos (*Coleonyx variegatus*). BLM assists with these surveys when possible.

In partnership with University of Nevada Las Vegas, seasonal nocturnal point count surveys for relict leopard frog (*Lithobates onca*) were conducted at multiple springs within GBNM to assess habitat conditions and monitor tadpole, juvenile, and adult frog populations at release sites. Populations at some sites persist with evidence of active recruitment while other sites exhibit population declines for numerous reasons (e.g. erratic spring flow, heavy impacts from cattle, horses, and burros, predation, invasive plants, loss of adequate habitat, etc.).

Desert Tortoise

Within GBNM is land designated critical habitat for desert tortoise. Designated by U.S. Fish and Wildlife Service in 1994, approximately 46% of GBNM is considered critical habitat for desert tortoise. Desert tortoise critical habitat was designated because this area of GBNM contains features essential to the conservation of desert tortoises. This habitat is characterized as sparse creosote bush scrub on gentle slopes which allows for herbaceous plant growth. Efforts to protect and improve this habitat include habitat restoration, weed/invasive management, fire/fuels management, as well as promoting proper grazing allotment and horse and burro management, all of which are discussed below.

Grazing

There are two active grazing allotments on the GBNM. Lime Spring Allotment is entirely within the GBNM and consists of approximately 3,596 acres of public land. It is administered by the Arizona Strip Field Office (ASFO) through agreement with Nevada BLM. The agreement for allotment management by ASFO pre-dates the creation of the GBNM. The Lime Spring Allotment is designated as available for livestock grazing as an ephemeral allotment in the ASFO Resource Management Plan (2008). The

allotment has a term grazing permit for ephemeral use; as such grazing is authorized on a year-by-year basis dependent on available forage. This allotment was authorized for use in FY 2018. It is expected that the grazing permittee would apply to use the allotment in FY 2019 and in the foreseeable future.

Mesquite Community Allotment is administered by the ASFO. Approximately 6,515 acres or 13% of the Mesquite Community Allotment is within the GBNM. The rest of the allotment is divided between the Grand Canyon-Parashant National Monument and the ASFO in Arizona. The allotment is designated as available for grazing in the ASFO Resource Management Plan (2008). There is an active term grazing permit for the allotment. The allotment was grazed in FY 2018. It is expected that grazing use would continue in the reasonably foreseeable future.

No grazing permit renewals or monitoring was completed in either allotment in FY 2018.

There were no new range improvement projects completed on either allotment within the GBNM in FY 2018. Regular maintenance of existing improvements was completed through cooperative agreement with grazing permittees.

There has been no change to authorized Animal Unit Months (AUMs) since the creation of the GBNM.

Partnerships

Friends of Gold Butte

The mission of Friends of Gold Butte (FOGB) is “to promote the responsible enjoyment of the Gold Butte National Monument through education, stewardship, advocacy, and preservation of natural and cultural resources.”

A Memorandum of Understanding (MOU) has been entered into with the FOGB. The MOU was entered into between the BLM and the FOGB as a joint effort to protect, monitor, and sustain the natural and cultural resources; increase public awareness, increase educational and interpretive resources; enhance and restore areas that have experienced human-caused or natural adverse effects; and enhance the quality of recreational opportunities in GBNM in a way that also protects the landscape.

Friends of Nevada Wilderness

The mission of Friends of Nevada Wilderness (FONW) is “preserving all qualified Nevada public lands as wilderness, protecting all present and potential wilderness from ongoing threats, educating the public about the values of and need for wilderness, and improving the management and restoration of wild lands.”

The FONW led and participated in various volunteer projects that included habitat restoration, portal sign installation, fence repair, and parking area delineation.

Partners in Conservation

The mission of Partners in Conservation (PIC) “is an information conduit that fills the gap between rural communities and government entities; develops specific partnerships to resolve conservation, recreation, and public land issues; PIC also develops specific partnerships and administers common-sense projects that provide win-win opportunities for all involved.”

PIC provides the BLM insight on the thoughts and concerns from the rural communities that surround GBNM.

Virgin Valley Water District

The Virgin Valley Water District (VVWD) has numerous water rights within the monument. These water rights are critical to meet the future water needs of the communities of Bunkerville and Mesquite. The Las Vegas Field Office continues to work collaboratively with this entity to ensure that rights-of-way for water delivery needs are authorized. The VVWD and BLM developed a Memorandum of Understanding that established a vision, common goals, and objectives to meet water delivery and conservation needs.

Volunteers

Two volunteer orientation trainings were co-led and conducted for members of the FOGB. The orientation training covered the basics of volunteering as outlined in the BLM Volunteering Guide. The orientation training covered volunteer opportunities: road monitor, plant monitor, education and information outreach, restoration team, and hike leader.

Volunteers removed graffiti from White Rock, a popular local gathering area, with the assistance of the FOGB. This project was a clean-up and a training for stewardship teams to remove similar disfigurement from other places in GBNM.

A total of 127 volunteers for a total of 743 hours participated on various volunteer projects that included habitat restoration, seed collection, fence repair, trash pickup, and sign installations.

Wild Horses and Burros

Current population estimates as of March 2018 are 201-212 wild burros. These numbers only take into account animals that reside on BLM-administered lands within

the herd management area (HMA) and do not account for animals that may be residing on lands administered by the National Park Service or land outside of their HMA, either publicly or privately owned. The last aerial population inventory of Gold Butte HMA was conducted in September 2017.

Public Access

Two safety and five directional signs were installed along Gold Butte Backcountry Byway with the assistance of the FOGB. The signs were funded through a grant from the Nevada OHV Grant Program.

Habitat Restoration

GBNM is part of a landscape-scale re-vegetation project undertaken by the BLM Southern Nevada District in conjunction with the U.S. Geological Survey (USGS), the National Park Service, and the Great Basin Institute. The goal of the project is to re-establish three important shrub and yucca species that have not recovered well since wildfires burned thousands of acres of habitat in 2005. The project uses established and novel restoration approaches. During FY 2018, BLM seeded and planted 24 “habitat islands” (each covering approximately 2.5 acres) distributed across an approximately 500-acre area. If successful, the habitat islands will eventually provide seed and other ecological functions for surrounding burned areas.

In October 2017, prior to seeding and planting, herbicide was applied to half of these habitat islands to suppress non-native annuals and create fuel breaks. USGS researchers will monitor the habitat islands over a five-year period to determine if herbicide treatments aid the recovering of native treatments and/or reduce the risk of subsequent fires.

Weed Management

Approximately 40,860 acres were inventoried for weeds and invasive plant species within GBNM. Tamarisk, or salt cedar, has re-sprouted in many previously treated springs. No new springs were inventoried in FY 2018. Heavy populations of salt cedar occur along the Virgin River and near Lake Mead. For the first time, Sahara mustard was found spreading into Gold Butte along the backcountry byway. Small infestations were detected as far into the Monument as Whitney Pocket. Two new locations were identified with Sahara mustard and all were pulled by hand. Puncture vine has also been spotted along the backcountry byway. These infestations are currently small. Five (5) springs were inventoried for previously treated tamarisk. All springs had varying levels of tamarisk infestations: Two (2) springs had an extensive infestation, three (3) springs had 1-2 tamarisk plants. Malta starthistle continues to be a problem at one spring.

3

Science

Science

The BLM has partnered with Northern Arizona University (NAU) to study the restoration of rare plants using biological soil crusts on gypsum soils within GBNM. NAU obtained funding through the National Landscape Conservation System's annual grant program in the amount of \$25,000. Their work will try to restore impacted gypsum soils that have been crushed by illegal off-highway vehicle use or by trampling by illegal cattle or wild burros. The project is important because three of the sensitive species in GBNM (one of which is state-listed as endangered) only grow on gypsum soils, and are often associated with healthy biological soil crust (BSC) communities. These BSCs are important in helping the rare plants to obtain nutrients and hold water. Results of this study will improve habitat for rare plants within the GBNM and give the BLM more information about how to restore habitat for these rare plants elsewhere.

4

Resources, Objects, Values and Stressors

Cultural/Archeological

GBNM contains an extraordinary variety of diverse and irreplaceable historic and prehistoric cultural resources, including many sites important to the history and identity of Native Americans, and remnants of our Western mining and ranching heritage. The landscape reveals a story of thousands of years of human interaction with this harsh environment and provides a rare glimpse into the lives of Nevada's first inhabitants, the rich and varied indigenous cultures that followed, and the eventual arrival of Euro-American settlers.

GBNM's dynamic environment has provided food and shelter to humans for at least 12,000 years. Remnants of massive agave roasting pits, charred remains of goosefoot and pinyon pine nuts, bone fragments, and projectile points used to hunt big horn sheep and smaller game serve as evidence of the remarkable abilities of indigenous communities to survive across this desert landscape. GBNM contains ancient rock shelters and hearth remnants concealed in the area's Aztec Sandstone formations. This sandstone is the canvas for the area's spectacular array of rock art, depicting human figures, animals, and swirling abstract designs at locations like the famed Falling Man petroglyph site and Kohta Circus. Pottery sherds and other archaeological artifacts scattered throughout the landscape reveal the area's role as a corridor for the interregional trade of pottery, salt, and rare minerals.

By the time Spanish explorers arrived in the region in the late eighteenth century, the GBNM was home to the Southern Paiute people, who to this day, retain a spiritual and cultural connection with the land and use it for traditional purposes such as ceremonies and plant harvesting. Hunters and settlers of European descent followed the explorers and by 1865, Mormon pioneers had built settlements in the region.

Early settlers grazed livestock and explored GBNM's unique geology in pursuit of mining riches. Their activities left behind historic sites and objects that tell the story of the American West, including the Gold Butte townsite, a mining boomtown established in the early 1900s, but mostly abandoned by 1910. Several building foundations and arrastras -- large flat rocks used for crushing ore -- remain at the townsite today. Settlers built corrals out of wood or stone, some of which are still standing in GBNM, including one near the Gold Butte townsite and one at Horse Springs along the Gold Butte Backcountry Byway. In the 1930s, the Civilian Conservation Corps was put to

work in the area, leaving behind a variety of historic features including a dam and remnants of a camp in the Whitney Pockets area, in the northeastern region of GBNM.

These world-renowned archeological sites and objects are helping scientists to better understand interactions between ancient cultural groups.

Cultural/Archeological Status and Trend Table

Status of Resource, Object, or Value	Trend
Fair	Slowly declining

Cultural/Archeological Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
296,937	31,196	539	30

Stressors Affecting Cultural/Archeological

Cultural resource sites are under imminent threat from the impacts of recreational use, which have already resulted in the dismantling of archeological features and other damages due to foot traffic and unauthorized artifact collection. Sites most affected by this unauthorized collection are rockshelter areas with associated artifact scatters, as well as areas that are likely to contain human burials. Common impacts to petroglyph areas in the region are graffiti and scratching on the panels and glyphs. Other impacts to the sites in GBNM are trash/dumping, firearm use, campfires, unauthorized vehicle use, and cattle grazing.

Desert Tortoise

Mojave Desert tortoise (*Gopherus agassizii*) are terrestrial reptiles of the Testudinidae family, with a domed shell and round, stumpy elephantine hind legs. The front limbs are flattened for digging and heavily scaled without webbed toes. The carapace (upper shell) is oblong and domed with rounded sides due to the joining of the carapace and plastron (lower shell). The scute centers are often yellowish and have grooved concentric rings. The plastron is also yellowish, with brown along the scute margins. The head is small and rounded in front with reddish-tan coloring and the iris greenish-yellow. The front and hind feet are about equal in size and the tail is short in length.

Habitat for the Mojave population of the desert tortoise is below 4,500 feet elevation in the creosote bush-bursage series of the Mojave desert scrub biome. Dominant plants are creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Desert

tortoise habitat may also include various cacti species (*Opuntia* spp.), saltbush (*Atriplex* spp.) scrub, and Joshua tree (*Yucca brevifolia*) forests at elevations up to approximately 5,000 feet.

Primary constituent elements for the desert tortoise are those physical and biological attributes that are necessary for the long-term survival of the species. These elements are: sufficient space to provide for movement, dispersal, and gene flow; sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality.

Mojave Desert tortoises are typically active during the day and when annual plants are most abundant—during spring and early summer. However, they can also be active following rain events and unseasonably warm periods during fall and winter. If rain events occur at night, tortoises may emerge from their burrows to drink. Female desert tortoises construct nests during the late afternoon and evening and any desert tortoise may emerge from its burrows at night during extreme heat. Desert tortoises usually spend the remainder of the year in shelter sites escaping the extreme weather conditions of the Mojave Desert.

Desert Tortoise Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

Desert Tortoise Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
186,909	186,909	186,909	45,000

Stressors Affecting Desert Tortoise

GBNM continues to experience an increase in visitation. Increased visitor use and vehicle traffic increase risks to tortoise and their habitat by direct mortality and disturbance through use by visitors in occupied tortoise habitat.

Motorized recreation results in mortality and permanent habitat loss from activities that fragment and degrade habitats, which include the proliferation of roads and trails

and increased habitat invasion by nonnative invasive species.

Non-motorized recreation such as camping, hunting, target shooting, rock collecting, hiking, horseback riding, biking, and sightseeing can also result in impacts to both tortoise and their critical habitat from increased visitation.

Increased frequency of wildfire due to the invasion of non-native plant species has burned thousands of acres of tortoise habitat. Changes in plant communities caused by non-native plants and recurrent fire can negatively affect the desert tortoise by altering habitat structure and species available as food plants.

Vegetation

The 348,000 acre region ranges in elevation from 433 m – 2454 m and hosts a diversity of plant and wildlife species due in part to the convergent vegetation influences of the Mojave, Great Basin, and Sonoran deserts and the Colorado Plateau. The steep elevation gradients and complex orthography of the basin and ranges can affect localized seasonal temperature and precipitation patterns. The most common habitat types include Mojave mixed scrub and creosote (*Larrea tridentata*) – bursage (*Ambrosia dumosa*) desert scrub. Substantial wash systems and geomorphologic formations such as rocky outcrops, erosional highlands and sand sheets provide a unique range of habitat types for many organisms and plant communities.

There are seven sensitive plant species within GBNM; Las Vegas bearpoppy (*Arctomecon californica*), Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*), three-cornered milkvetch (*Astragalus geyeri* var. *triquetrus*), Blue Diamond cholla (*Cylindropuntia multigeniculata*), Beaver Dam breadroot (*Pediomelum castoreum*), sticky buckwheat (*Eriogonum viscidulum*), and chalk liveforever (*Dudleya pulverulenta*). There is also a sensitive moss, *Didymodon nevadensis*, which occurs on gypsum soils within the Monument. Two of these plant species are state endangered. This is the highest concentration of sensitive plant resources that occur within a special protection area in southern Nevada, with exception of Ash Meadows National Wildlife Refuge (which has one of the highest rates of endemism in the country).

Large-scale fires in 2005 burned many acres of native vegetation in the GBNM, most of which has become a monoculture of red brome, an invasive grass species. These fires and the coupling of invasive species' presence is detrimental to native plant communities. Additionally, heavy grazing pressure exists in the GBNM from over 15 years of illegal cattle grazing and overpopulated herds of wild burros. BLM Assessment, Inventory, and Monitoring (AIM) data over the last 7 years shows high cover of invasive annual grasses throughout the GBNM, almost no native perennial grasses where one would expect to see high cover of perennial grasses due to the site

potential, and moderate to extreme departures from reference conditions due to all of these factors.

Vegetation Status and Trend Table

Status of Resource, Object, or Value	Trend
Poor	Stable

Vegetation Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
348,000	348,000	348,000	150,000

Stressors Affecting Vegetation

Fire, invasive species, overpopulated wild burros, and illegal livestock grazing are all responsible for negatively impacting vegetation resources. Negative feedback loops exist between all four issues. Invasive species, most notably red brome, have become monocultures in burned areas from large fires in 2005 in the GBNM. These plants are more susceptible to future fires and crowd out native plants. Illegal cattle grazing has put pressure on native plant communities, particularly forage plants, for the past 10 years. This vast grazing pressure, on top of grazing pressure by wild burros, reduces the amount of forage plants (notably perennial grasses), that remain on the landscape.

When added to the amount of area burned in the GBNM, very little native forage remains for native wildlife species and native plant communities are not able to recover from fire or grazing. These heavily impacted vegetation communities are not resilient to other outside stressors and therefore, cannot recover easily after fire, OHV intrusion, or climate change’s impacts. Over time, these other stressors will further degrade vegetation communities in GBNM unless serious steps are taken to alleviate these pressures.

Wild Horse and Burros

Wild horses and burros can be found throughout 10 western states, including Nevada. The wild burros (burro is the term used for a wild donkey) are the descendants of donkeys that were released by miners who resided within the area during the late 19th/early 20th century.

Wild Horse and Burros Status and Trend Table

Status of Resource, Object, or Value	Trend
Good	Stable

Wild Horse and Burros Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
170,354	Acres inventoried within the herd management area (HMA) are limited to vehicle accessibility and therefore, vary. Key forage species are inventoried each spring in 15-25 different areas within the HMA to monitor the amount of forage being consumed within the HMA.	170,354	Acres monitored within the herd management area (HMA) are limited to vehicle accessibility and therefore, vary. A full aerial survey of the HMA was conducted in FY17. With the use of a helicopter, transect lines spaced ½ to ¾ of a mile apart are flown throughout the entirety of the HMA and the surrounding areas using the simultaneous double count method. Data is then verified and analyzed by the United States Geological Survey before distribution to the BLM and the public.

Stressors Affecting Wild Horse and Burros

Wild burros are dependent upon vegetation and natural spring resources found within GBNM. The drought that has occurred over the past several years has affected both of these resources in a negative way. Wildfire has affected vegetation production within the herd management area, creating room for invasive species, such as red brome and cheat grass that have replaced more highly palatable species, such as *Ephedra nevadensis*, big galleta, and Indian ricegrass. The drought has effected the hydrology of the herd management area and as a result many water resources go dry, either temporarily or in some cases permanently. This has resulted in many of the burros moving to and residing permanently on National Park Service and private lands.

Overpopulation may be affecting wild burro populations due to the limited resources that are present within the national monument. Wild horse and burro populations double every four years due to having very few natural predators and having a highly successful rate of raising foals. As herd numbers increase it puts further strain on the limited resources within the Mojave Desert ecosystem. Acceptable Management Levels (AML) are established based off of modern rangeland monitoring and scientific methods and are periodically updated to ensure that rangeland health standards are being met within herd management areas. For wild burros, the AML is 22-98 animals.

Invasive Species/Noxious Weeds

Nevada State listed noxious weed species found in GBNM include Malta starthistle (*Centaurea melitensis*), saltcedar (*Tamarix ramosissima*), Sahara mustard (*Brassica tournefortii*) and puncturevine (*Tribulus terrestris*). Malta starthistle is classified Category A, indicating the occurrence of these species is limited throughout the state, thus all infestations must be actively controlled with the goal of eradication. Sahara mustard is classified Category B and must be eradicated where the action is deemed feasible. It is recognized that for Category B species, some infestations may be too extensive to be realistically controlled or eradicated. Saltcedar and puncturevine are Category C, indicating the species are present to such an extent that precludes active eradication in an environmental setting for many infestations. For species classified Category C, control is required primarily by nursery plant dealers.

There are also species in Gold Butte that are non-native and invasive, yet have not been legally designated as noxious by the State of Nevada. In addition to the brome species, populations of London rocket (*Sisymbrium irio*), African mustard (*Malcolmia africana*), and Russian thistle (*Salsola* spp.) have been documented in Gold Butte. Tamarisk, or salt cedar, has re-sprouted in many previously treated springs. No new springs were inventoried in FY2017. Heavy populations occur along the Virgin River and near Lake Mead. For the first time, Sahara mustard was found spreading into Gold

Butte along the scenic byway. Small infestations were detected as far into the Monument as Whitney Pockets. Puncturevine has also been spotted along the scenic byway. These infestations are currently small.

Invasive Species/Noxious Weeds Status and Trend Table

Status of Resource, Object, or Value	Trend
Fair	Declining

Invasive Species/Noxious Weeds Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
296,397	40,856	30,000	0

Stressors Affecting Invasive Species/Noxious Weeds

With the new designation of Gold Butte as a National Monument, more people are expected to visit Gold Butte. Increased visitation will potentially bring more disturbance and invasive plant seeds to the area. This could increase the amount of invasive and weedy species already in the area and bring new invasive species to the area. OHV can disturb soils which will create an area for invasive species to grow. Wildfires are often a stressor in the Mojave Desert. Wildfires create large swaths of disturbance where invasive species thrive and native species have very poor recruitment. There were no reported fires during FY 2018, but the effects of previous fires are still obvious. Weather patterns in the area of GBNM are critical because changes in precipitation patterns and temperature effect plant communities. Increased precipitation can help native species in a harsh environment, but can also lead to an increased grass crop that contributes to the annual grass-fire cycle. Trespass grazing is contributing to the spread of invasive annual grass, other fire prone invasive species, and noxious weeds. Gold Butte AIM data is showing that the area is trending towards type conversion, from native plant species to invasive annual grass.

Fire/Fuels

Wildfires can benefit ecosystems or damage them. Much of the Mojave Desert, including much of the GBNM, is not fire adapted. Historically, low to moderate severity fire has played a role in native plant communities, promoting plant and wildlife habitat diversity in a mosaic pattern. Wildfire history indicates fires within Gold Butte have ranged from 5 - 80,000 acres. A large portion of the GBNM area burned in the 2005 Southern Nevada Complex. The primary objective is to maintain native plant

communities and prevent or reduce invasive annual grass infestations. Preventing human caused fires is a goal.

Fire/Fuels Status and Trend Table

Status of Resource, Object, or Value	Trend
Fair in unburned areas. Poor in burned areas.	Declining

Fire/Fuels Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
296,397	50,000	50,000	0

Stressors Affecting Fire/Fuels

Previously burned areas have not recovered and invasive brome grass dominates burned areas. Decades of cattle trespass have contributed to decreased land and ecosystem health through direct impacts to native plant communities. This is supported by BLM AIM data. Native GBNM grasses are considered ephemeral, which means they only occur when favorable weather conditions such as sufficient precipitation are present to promote growth. The GBNM is within the Mojave ecoregion. The Mojave Desert is known for its very low annual precipitation. Native and invasive plant species are very dependent on precipitation frequency and occurrence. Cattle are known vectors for spreading noxious and invasive plant species including cheatgrass and red brome. The conversion of native plant communities to fire prone invasive annual grass is the primary stressor. Wildfires burning in cheatgrass or red brome typically remove and replace native vegetation. Because of invasive annual grass, propagule pressure, and the presence of noxious weeds on adjacent lands, future wildfires are likely to be problematic.

There is a need for increased public outreach and education on wildfire hazards and the impacts of wildfire to the environment. Human caused fires account for over 50% of all wildfires in southern Nevada. Future increased visitor use is likely to increase human caused fires. GBNM AIM data is showing a very concerning trend of type conversion to invasive annual grass. Increased presence of invasive annual grass above historic levels is an indicator there is an increased risk for large, catastrophic fires in the GBNM. LVFO's Restoration Program has initiated the Burn Area Recovery Project with the intent to promote and restore native vegetation and reduce invasive annual grass in burned areas.

Hydrologic Conditions

GBNM is located within the Colorado River hydrographic region or basin. The region is further divided into three hydrographic areas (listed below) which are partially contained within the planning area.

Hydrographic Area	Region/Basin	Number
Virgin River Valley	Colorado River Basin	222
Gold Butte Area	Colorado River Basin	223
Greasewood Basin	Colorado River Basin	224

The three hydrographic areas within the Colorado River Basin are tributaries to the Colorado River. Approximately 210,000 acres (71%) of the National Monument drain into the Gold Butte Area Hydrographic Basin and 70,000 acres (24%) drain into the Greasewood Basin, both of which contribute to Lake Mead and the Colorado River. The remaining 15,000 acres (5%) of the GBNM drain into the Virgin River Valley Hydrographic Basin and eventually into the Virgin River and to the Colorado River.

Surface Water

Surface water occurrence is far less abundant than groundwater and is limited to ephemeral streams and springs. Streams such as Nickel Creek and Cabin Canyon Creek, during most years, flow short distances for short periods of time, primarily during early spring. Numerous ephemeral washes transect the planning area, conveying flows only in response to storm events. These drainages are subject to short-duration, high-intensity thunderstorms which produce rapid runoff and at times flash flooding of downslope areas. Mud Wash and Quail Spring Wash are the more significant drainages. However, there are no drainages or areas within the monument that are classified as Flood Hazard Areas by the Federal Emergency Management Agency (FEMA).

High-intensity thunderstorms often produce rapid runoff and flash flooding which can result in floodwater and sediment damage within the region. Flash flooding, which has been on the increase, usually occurs from tropical depressions out of the south or southwest.

Springs are important water sources in the monument as with the rest of southern Nevada. A total of 128 springs have been identified within the planning area. The average flow of these springs is less than one (1) gallon per minute (gpm), with some springs being nothing more than a seep area with little discernable flow, while others measured as high as three (3) gpm.

Ground Water

Ground water is vital in this region of few surface water sources. Depth to water varies throughout the Monument, but it can be generally characterized as ranging from at or near the surface to several hundred feet.

Most ground water recharge in southern Nevada is derived from winter and spring precipitation, representing approximately one-half of the total annual precipitation. The moisture is stored in snowpack, at elevations of 7,000 to 8,000 feet and higher. Precipitation reaches the groundwater reservoirs by way of streams which eventually discharge onto alluvial aprons or by infiltrating directly into consolidated rock and percolating vertically and laterally to the valley fill aquifer. Additional inflow is received from localized intense storms and ground water discharge from adjacent areas. Natural discharge of ground water in the basins occurs as a result of transpiration from phreatophytes (deeply rooted plants that obtain water from the water table or the soil layer just above it), spring discharge, evaporation from bare soil, interbasin flow, and base flow to streams.

Water Quality

In southern Nevada, one critical water resource problem is the poor quality of much of the surface and ground water. Several factors contribute to the high quantities of chemicals and solids in the regional water. High evaporation rates leave concentrations of salts at or near the soil surface after rainfall. The composition of rocks and soils, often containing calcium, magnesium, carbonates, silicates, metallic and nonmetallic minerals, also affects water quality. As water moves slowly into and through the soil profile, it dissolves and acquires these constituents. In addition, dust containing salts is blown from playas onto standing surface water and onto soil where it enters both surface and groundwater.

Levels for turbidity, total dissolved solids, sulfate, chloride, manganese, iron, and nitrate nitrogen exceeded Federal standards in several springs. Many of these levels do not pose health hazards; only nitrate nitrogen is potentially dangerous.

The quality of ground water varies throughout the GBNM, as it does in the remainder of the state. In general, groundwater in areas of recharge has low chemical concentrations, but as it moves through the ground water system to discharge areas (i.e. valley bottoms), it dissolves sediment and rock materials. The extent to which chemical constituents are dissolved is largely determined by these factors: 1) the solubility, volume, and distribution of the materials; 2) the length of time that the water is in contact with the materials; 3) the distance that the water travels from the point of recharge; and 4) the temperature and pressure within the ground water system.

Hydrologic Conditions Status and Trend Table

Status of Resource, Object, or Value	Trend
Poor	Stable

Hydrologic Conditions Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
N/A	N/A	N/A	N/A

Stressors Affecting Hydrologic Conditions

Impacts to surface water resources result from both natural and anthropogenic forces. Natural impacts include erosion from wind and water, wildland fire, disturbance from wildlife, and high precipitation events resulting in high flow. Anthropogenic impacts include driving off-road vehicles; grading for rights-of-ways, unsustainably high numbers of wild horses and burros and illegal livestock; roads, trails and associated drainage; dumping; invasive weeds; and water use by water rights holders.

Riparian/Wetlands

Riparian and wetland areas are sensitive vegetative or physical ecosystems that develop in association with surface or subsurface water. Riparian and wetland ecological systems comprise only a small portion of the GBNM, but they are among the most important, productive, and diverse ecosystems on the landscape. Benefits from riparian/wetland ecosystems are essential to both human and wildlife values and includes the following:

- Maintaining clean renewable water supplies;
- Providing for diverse plant and wildlife ecosystems, including special status species;
- Importance in cultural and historic values;
- Greenbelt-associated recreation and scenic values;
- Thermal/shade protection, which is especially important within the arid Southwest.

Riparian and wetland areas include, but are not limited to, areas adjacent to waterways (whether waters are surface, subsurface, or ephemeral), springs, potholes, wet meadows, floodplains, and reservoirs. Riparian areas are recognized as a form of

wetland transition between permanently saturated wetlands and upland areas. For BLM purposes, riparian and wetland areas are referred to synonymously unless specifically discerned. The BLM utilizes various tools to describe, analyze, and evaluate riparian/wetland ecosystems relative to their potential and capability to achieve a properly functioning and healthy ecosystem.

Riparian habitats are fragile resources and are often among the first landscape features to reflect impacts from management activities. These habitats are used as indicators of overall land health and watershed condition. A healthy riparian system will filter and purify water as it moves through the riparian zone; reduce sediment loads and enhance soil stability; reduce destructive energies associated with flood events; provide physical and thermal micro-climates in contrast to surrounding uplands; and contribute to groundwater recharge and base flow. Within most riparian systems in the arid southwest, the potential of a riparian ecosystem is strongly dependent upon the availability of water. The degree, timing, and source of water availability, among other physical factors, is commonly referred to in terms of perennial (yearlong), interrupted (perennial flow discontinuous in space), intermittent (seasonal), or ephemeral (storm) water sources.

Riparian/Wetlands Status and Trend Table

Status of Resource, Object, or Value	Trend
Poor	Stable

Riparian/Wetlands Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
500	500	500	18

Stressors Affecting Riparian/Wetlands

Riparian resources within the monument are limited. These resources are managed for conservation and public use. Impacts to surface water resources result from both natural and anthropogenic forces. Natural impacts include erosion from wind and water, wildland fire, disturbance from wildlife, and high precipitation events resulting in high flow. Anthropogenic impacts include driving off-road vehicles; grading for rights-of-ways, unsustainably high numbers of illegal livestock as well as wild horses and burros; roads, trails and associated drainage; dumping; invasive weeds; and water use by water rights holders.

Soils

Throughout the GBNM area, there is a sharp contrast in physiography between mountainous areas and lowlands. Soils in the area developed under different environmental influences. Under the arid conditions which prevail at all but the highest elevations, little downward movement of the soluble constituents of the soil occurs. Most leaching is confined to the translocation of the soluble material (usually lime) from the surface to the subsoil, with the resultant formation of a hardpan. These soluble salts are usually leached only to a depth of 1 to 2 feet.

In this climate, rocks tend to break down by disintegration rather than by decomposition. Mechanical breakdown (spalling) is more common than chemical action. As a result, mountains are covered with a thin veneer of rock fragments. Cloud bursts and showers sweep large quantities of this material into ravines and valleys, forming alluvial fans of the coarser material. Finer-grained sediments are washed into the lowlands.

Wind is also an active agent in soil genesis. Wind-blown sand is common, with the greatest accumulations found in the lower valleys, often forming dunes. Wind-blown silts, mixed with the fine alluvium washed down from the slopes, comprises the soil mantle of the lowlands. The term "blow sand" arises from the fact that much of the surface soil is wind-deposited.

Organic matter in most desert soils is far less than the average 3 to 5 percent by weight contained in soils formed in humid regions. Even in a wet year when spring annuals are abundant, much of the vegetal matter is oxidized by the summer heat before it can be turned into humus. A gravelly surface, referred to as "desert pavement", can be found in the monument. This surface is stable and resistant to erosion. Erosion is normally active on surfaces lacking a desert pavement. The sparse cover of vegetation does little to reduce wind and water velocities. Wind erosion is a major factor in recharging surface soils with carbonates through the movement and deposition of calcareous dusts.

Soils in the Monument are primarily Entisols and Aridisols. These are described in detail below. The Entisols have little or no evidence of development of pedogenic horizons. They are located in areas where the soils are actively eroding (steep slopes) or receiving new deposits of soil materials (alluvial fans and floodplains).

Aridisols have one or more pedogenic horizons that may have formed in the present environment or that may be relics from a former pluvial period. These soils do not have

water available to plants for long periods of time and the surface is generally bare. Aridisols are often associated with desert pavement.

Soils in the GBNM have been surveyed previously by the Natural Resources Conservation Service (NRCS). Soils were mapped as a part of the Soil Survey of Clark County, Nevada, in 2006. The surveys contain detailed soils descriptions, supporting data, and maps.

Soil erosion involves two processes: (1) a detachment or loosening influence, and (2) transportation by means of floating, rolling, dragging, and splashing. Freezing and thawing; flowing water; and rain impact provide the detaching agents. Raindrop splash and especially running water facilitate the carrying away of loosened soil. On comparatively smooth soil surfaces, the beating of rain drops results in most of the detachment.

During the high intensity, short duration thunderstorms that are common in the region, raindrop impact tends to destroy soil aggregates, enhance sheet and rill erosion, and encourage considerable transportation by splashing. A hard crust often develops upon drying. This crust impedes seedling emergence, greatly reduces infiltration for the next storm, and limits the possibilities for vegetative shielding which, by absorbing the energy of rain impact, prevents the loss of both water and soil and reduces degranulation to a minimum. However, in some desert locations, this surface crust does cover loose, fine soil particles, resulting in limited protection from wind erosion. In the vegetation types offering generally sparse cover, little interception of precipitation or protection from overland flow of water occurs.

As is the case with water erosion, the loss of soil by wind movement also involves detachment and transportation. The abrasive action of the wind results in some detachment of tiny soil grains from the granules or clods of which they are a part. When the wind is laden with soil particles, its abrasive action is greatly increased. The impact of these rapidly moving grains dislodges other particles from soil clods and aggregates. The cutting and abrasive effects, especially of sand, upon tender leaves and vegetation is harmful.

Erosion susceptibility is a measure of the erosion potential of a soil whose surface has been disturbed. Wind and water erosion potential are used to determine susceptibility in an area. Soil surveys conducted by the National Resource Conservation Service, were used in the development of erosion susceptibility ratings for the planning area.

Soils Status and Trend Table

Status of Resource, Object, or Value	Trend
Poor	Stable

Soils Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored in FY
296,990	296,990	296,990	0

Stressors Affecting Soils

Impacts to soil resources result from both natural and anthropogenic forces. Natural impacts include erosion from wind and water, wildland fire, disturbance from wildlife, and high precipitation events resulting in high flow. Anthropogenic impacts include driving off-road vehicles; grading for rights-of-ways, unsustainably high numbers of wild horses and burros as well as illegal livestock; roads, trails and associated drainage; dumping; and invasive weeds preventing the formation of natural soil crust.

5

Summary of Performance Measure

Please provide a brief qualitative summary of the status of ROVs listed in the previous section. This summary and the below table are intended to provide a simple overview of the prior section—no additional information is being requested here.

Resources, Objects, and Values Status Summary Table		
Resource, Object, or Value	Status	Trend
Cultural/Archeological	Fair	Slowly declining
Desert Tortoise	Good	Stable
Vegetation	Poor	Stable
Wild Horse and Burros	Good	Stable
Invasive Species/Native Weeds	Fair	Declining
Fire/Fuels	Fair	Declining
Hydrologic Conditions	Poor	Stable
Riparian/Wetlands	Poor	Stable
Soils	Poor	Stable

6

Manager's Letter

It was very important to continue public outreach because of the sensitivity of the area. Moving forward the BLM will continue to inform the surrounding communities in regard to the projects and activities occurring within GBNM through attending town board meetings, which has helped to bridge the information gap between the BLM and the surrounding communities.

As projects and activities move forward, the BLM will continue working closely with partners to build the volunteer program. The volunteer program and community support are essential elements of the GBNM management as current staff and resources within the BLM are limited.

Lee Kirk
Monument Manager (Acting)
Las Vegas Field Office
Southern Nevada District



**NATIONAL
CONSERVATION
LANDS**

Gold Butte

National Monument

Southern Nevada District
Bureau of Land Management
Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130
Phone: 702-515-5000

March 15, 2019

The mention of company names, trade names, or commercial products does not constitute endorsement or recommendation for use by the federal government.