A Head Start for Endangered Tortoises?
By Phillip Gomez

An unpretentious little building surrounded by a security fence just off Ivanpah Road near the northeast entrance to Mojave National Preserve has an ambitious purpose: to improve the chances of baby desert tortoises to survive to maturity and to produce vital offspring.

The cryptic lives of tortoises—spent predominantly in underground burrows—and the many years that it takes for them to reach sexual maturity and to reproduce have made it difficult for conservation biologists to conduct field studies.

So, the National Park Service, together with the U.S. Fish and Wildlife Service, Chevron Corp., Molycoop Inc., and two universities have partnered to create a working facility to try to gain a better understanding of tortoise behavior that affects their survival. The Ivanpah Desert Research Facility is staffed by a small team of faculty and Ph.D. candidates from the Savannah River Ecology Laboratory of the University of Georgia and from the University of California, Davis.

For this long-term research project, juvenile tortoises are being "recruited" over a 20-year period and nurtured in this facility until they are capable of joining the Ivanpah Valley’s population with a reasonable chance for survival. The idea for this experiment in wildlife management, entitled Desert Tortoise Juvenile Surveill- vorsch in at Mojave National Preserve—or Head Start to researchers—is similar to the principle underlying children’s nursery schooling: giving kids a head start in life.

In the case of the tortoise, the goal is to gain time for the reptile’s shell to develop and harden to make the young reptiles safe from predators. Adult tortoises with hardened shells have few predators, but juveniles are extremely vulnerable for the first four or five years of life.

“It’s all about the predation,” says Debra Hughson, the Preserve’s chief of science and resource stewardship. “The purpose of Head Start is to allow them to survive.”

How many tortoises are there in the Preserve? “Nobody knows exactly, but only a small percentage make it to adulthood,” Hughson said.

This, coupled with the late maturity of the tortoise, which can take 18 to 20 years to reach breeding age, makes for long odds in the game of survival in the desert.

Once numerous in the Mojave, the desert tortoise began experiencing loss of natural habitat from a variety of sources by the late 1980s: exurban sprawl, overgrazing by livestock, poaching, invasive plants, development of highways and dirt roads, and expanding use of off-road recreational vehicles. The degradation and fragmentation of habitat create barriers for the slow-moving tortoise in its search for food and water and also bring danger from motorists and off-roads. Eggs of the unborn are sometimes trampled. Also, the lives of many are cut short by an upper-respiratory disease, possibly introduced into the desert by sick pet tortoises that were turned loose by their owners.

Tortoise numbers have diminished by as much as 90 percent in some areas of the Mojave, according to Hughson.


The Preserve was created in 1994 under the California Desert Protection Act, federal legislation that was intended to protect remaining California desert wild lands. The act called for large-scale management of the Mojave bioregion west of the Colorado River in conjunction with Joshua Tree and Death Valley national parks, as well as the Bureau of Land Management (BLM).

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Desert Safety Tips

The main cause of death in Mojave More people die in single-car accidents due to speeding than by any other means. Reduce your speed.

Do not depend on a GPS navigation system. GPS maps of remote areas, including Mojave National Preserve, are notoriously unreliable. Carry a folding map.

CARRY and DRINK PLENTY OF WATER Carry a minimum of a gallon per person per day in your vehicle even if you are just passing through. You will need it in an emergency. Carry more if you plan to be active. Fluid and electrolyte levels must be balanced, so have salty foods or "sports drinks" handy as well.

Backcountry travel Hikers, backpackers, and those traveling on dirt roads need to be self-reliant and well-prepared. Plan ahead, carry detailed maps, and let someone know your plans.

Flash floods While driving, be alert for water running in washes and across dips in the road. When hiking and camping, avoid canyons and washes during rain storms, and be prepared to move to higher ground.

Dress properly for hiking Wear loose-fitting clothing and sturdy shoes that protect your feet from rocks and cactus. Use sunscreen and wear a hat. Carry a light jacket as temperatures drop dramatically when the sun goes down.

Avoid hiking in extreme heat Do not hike in the low elevations when temperatures are high; the mountains are cooler in summer.

Watch for signs of trouble on hot days If you feel dizzy or nauseated, or if you develop a headache, get out of the sun immediately, and drink water or sports drinks. Drink clothing to lower body temperature. Be alert for symptoms in others.

Dangerous animals Never place your hands or feet where you cannot see first. Rattlesnakes, scorpions, or black widow spiders might be sheltered there.

Mine hazards Never enter a mine. They are unmain- tained and unstable, and you might encounter pockets of bad air or poisonous gas. Stay out, and stay alive!

In case of emergency Cell phones do not work in many areas. Try moving uphill to get a signal. To call for help, dial 911 or the Federal Inter- agency Communications Center at 809-383-5651. After calling, stay with your car until help comes.

Essential Information

Dates and Hours of Operation
The preserve is always open. Information centers (see below) maintain regular hours of operation.

Fees and Reservations
There are no entrance fees. See page 6 for information about campground reservations and fees.

Information Centers
Three information centers provide orientation, information, and trip-planning advice. Park rangers are on duty. Western National Parks Association (WNPA) bookstores offer books, maps, and more.

Kelso Depot Visitor Center
Located on Kelbaker Road, 34 miles southeast of Baker, CA. Open seven days per week from 9 a.m to 5 p.m. Closed on Christmas.

Hole-in-the-Wall Information Center
Located near Hole-in-the-Wall Campground.

Headquarters Information Center
Located at 2701 Barstow Road, Barstow, Calif. Open Monday through Friday. 8 a.m.-4:00 p.m.

Food
Limited snacks are available in the Western National Parks Association stores at Kelso Depot Visitor Center and Hole-in-the-Wall Information Center, but there is no restaurant. Restaurants are located along I-15 at Barstow and Baker, Calif. and along I-40 at Ludlow, Fenner, and Needles, Calif.

Water
Drinking water is available only at Kelso Depot Visitor Center, Hole-in-the-Wall Information Center, Hole-in-the-Wall, Black Canyon and Mid-Hills campgrounds.

Gasoline
There are no gasoline stations within Mojave National Preserve. Gasoline can be purchased along I-40 at Needles, Fenner, and Ludlow, Calif.; along I-15 at Baker, Calif., the Cima Road exit, and Primm, Nev., and along U.S. 95 at Searchlight and at the Nev.163 junction south of Cal-Nev-Ari, Nev.

Lodging
There are no motels within Mojave National Preserve. Lodging may be available in Barstow, Nipton, Ludlow, Needles, Baker, and Twentynine Palms, Calif., and in Primm and Searchlight, Nev.

Bicycles
Bicycles are allowed in parking areas, on paved roads, and on existing, open dirt roads. Bicycles are not allowed in Wilderness Areas or for cross-country travel.

Pets
Although not allowed inside information centers, pets are welcome elsewhere. They must be leashed and never left unattended. Dogs used during hunting activities must be under the owner’s control at all times. Pet excrement must be collected and disposed of in garbage receptacles.

Permits
Permits are required for all organized events, group events (more than 15 individuals or 7 vehicles), and commercial activities such as filming. Fees apply. Proof of insurance and posting of a bond might also be required. Call 760-252-6107 or visit www.nps.gov/moja for more information.

Hunting and Firearms
Hunting is permitted in accordance with state regulations. All hunting activities require a license; additional permits and tags might apply. Visit the California Department of Fish & Wildlife website at http://www.dfg.ca.gov/ for more information.

Target shooting or “plinking” is prohibited. All firearms transported within the preserve must be unloaded, cased, and broken down, except during lawful hunting activities. No shooting is permitted within ½ mile of developed areas, including campgrounds, information centers, Kelso Dunes, Fort Piute, Sweeney Granite Mountains Desert Research Center, and the Desert Studies Center at Zzyzx.

Collecting and Vandalism
Disturbing, defacing, or collecting plants, animals, rocks, historic or archeological objects is prohibited. Leave these resources as you find them for everyone to enjoy. Metal detectors are not allowed.

Private Property
Private inholdings are found throughout the preserve. Please respect the rights of our neighbors. It is your responsibility to obtain permission before hunting, hiking, or entering private property.

Cattle and Fences
Most grazing within Mojave National Preserve occurs on public land. This land is open to you to explore, but please do not disturb cattle, fences, or water tanks. Leave gates as you find them. Watch for cattle on roadways.

Firewood & Campfires
Wood is scarce in the desert. Cutting or collecting any wood, including downed wood, is prohibited. All firewood, including kindling, must be brought in. Firewood might be available for purchase at Baker, Fenner, Needles or Nipton, Calif. Campfires are allowed in campground fire rings and other established sites. To minimize your impact, use a firepan and pack out the ashes. Please do not leave fires smoldering or unattended.
Avenues to Adventure

Mojave National Preserve is vast. At 1.6 million acres, it is the third-largest unit of the National Park System in the contiguous United States. While much of Mojave’s wild and historic splendor is available only to those who travel its trails on foot, the primary roads of the preserve offer endless opportunities for exploration (see map on page 8).

Kelbaker Road

Cinder Cones & Lava Flows
No signs or services. About 14 miles southeast of Baker, Kelbaker Road traverses a 25,650-acre area of lava flows and volcanic cinder cones thought to range in age from 10,000 to 7 million years old. In 1973, the area was designated as Cinder Cones National Natural Landmark due to its scenic beauty and exceptional geological value. Aken Mine Road (19 miles southeast of Baker, Calif.) offers an interesting side trip through the heart of the area and access to a lava tube. High clearance and four-wheel drive recommended.

Kelso Depot Visitor Center
Information, exhibits, orientation film, art gallery, bookstore, restrooms, water, picnic area. Open every day but Christmas. Located 34 miles southeast of Baker, Kelso Depot began operation in 1924 and served as train station, restaurant, and employee housing on the Los Angeles and Salt Lake route of the Union Pacific Railroad. Now Mojave National Preserve’s principal information center and museum, the Depot offers extensive exhibits that describe the cultural and natural history of the preserve. Historically furnished rooms offer a glimpse into Kelso’s past.

Kelso Dunes
Self-guiding trail, pit toilets, no water. About 42 miles southeast of Baker (8 miles south of Kelso Depot), then 3 miles west on a graded dirt road. Nearly 700 feet high and covering a 45-square-mile area, the Kelso Dunes were created over the course of 2,500 years by winds carrying sand grains from the drier Soda Lake and Mojave River Sink located to the northwest. The Providence and Granite mountains served as barriers that trapped the blowing sand. The dunes produce a “booming” or “singing” sound when sand with the right moisture content slides down the steep slopes. Try it for yourself—run down a dune slope (but don’t trample vegetation!) to initiate the sound.

Granite Mountains
No signs or services. An imposing jumble of granite marks the south entrance to the preserve. 50 miles southeast of Baker on Kelbaker Road. Portions of the Granite Mountains lie within the University of California Desert Research Center; please respect the signs that mark the boundary. High clearance and four-wheel drive recommended.

Clark Mountain
No signs or services. The only portion of Mojave National Preserve north of I-15, Clark Mountains is also its highest point, at 2,720 feet. A white forground rock cliff near the top is one of only three in the Mojave Desert. Check detailed maps or ask a ranger for access information. High clearance and four-wheel drive recommended.

Cima Dome & Joshua Tree Woodland
Self-guiding trail, no water. The near-perfect symmetry of Cima Dome rises 1,500 feet above the surrounding desert and is home to the world’s largest concentration of Joshua trees. The top of the dome is located west of Cima Road, this unusual geologic feature is best seen from a distance. Try the view looking northwest from Cedar Canyon Road, 2.5 miles east of Kelso Cima Road.

White Cross World War I Memorial
Located 12 miles south of I-15 on Cima Road, this memorial is owned and operated by the Veterans of Foreign Wars.

Joshua Tree Woodland
Self-guiding trail, wayside exhibits, pit toilets, picnic area. Historically known as Soda Springs and later renamed Zzyzx (pronounced ZEE-zik), this oasis is home to the California State University Desert Studies Center. The buildings and pond were developed in the 1940s by Curtis Springer, who operated a health resort at the site. Zzyzx is open to the public—still around Lake Tjelmeland and along the shore of Soda Dry Lake. Please do not disturb participants when classes are in session.

Nipton, Ivanpah & Lanfair Roads
Eleven miles south of Primm, Nev., Nipton Road begins I-15 and passes through Nipton, Calif., 11 miles east. Ivanpah Road (only the 10 northmost miles paved) heads southeast of Nipton Road, through the Ivanpah and Lanfair valleys, eventually connecting with the paved Lanfair Road and the Feinler Valley. Together stretching 46 miles, Ivanpah and Lanfair roads connect the northwestern preserve boundary (inhabiting Nipton Road) with the southern near Goffs, Calif.

Hotel Nipton
NPS exhibits; privately operated hotel, store, & campground; for information call 760-856-2335 or email at stay@nipton.com. Built in 1910, this charming hotel reflects the railroad, ranching, and mining history of the small community at Nipton.

Caruthers Canyon
Primitive camping, hiking, no signs or services. About 5.5 miles west of Ivanpah Road on New York Mountains Road, then 2.7 miles north on an unpaved dirt road. High clearance and four-wheel drive recommended.

Fort Piute & Piute Spring Trails, wayside exhibits, no services. Willow, cottonwoods, and rushes thrive along a half-mile section of Piute Creek. Fort Piute (still visible) was one of a string of military outposts built along the Mojave Road. Please don’t climb on the foundations or remove anything.

Zzyzx Road
Six miles southwest of Baker on I-15, Zzyzx Road leads 5 miles south into the preserve along the western shore of Soda Dry Lake.

Zzyzx/Soda Springs
Self-guiding trail, wayside exhibits, pit toilets, no-potable water, picnic area.

Nipton Road
Along the shore of Soda Dry Lake. Please do not disturb participants when classes are in session.

Dirt Road Driving
Prepare Your Vehicle
Be sure to carry plenty of drinking water and emergency supplies. 

Sand & Mud Driving Tips
Avoid driving in sand or mud. 

Nipton Valley
No signs or services. Mojave Desert Outpost, a privately-owned campground, is located here. For information call 951-782-3179.

Launiupuk Valley
Mojave National Preserve 3
Remote Backcountry Habitat Harbors the Rugged Desert Bighorn Sheep

By Robert Mills

Those who have had the joy of witnessing a Desert Bighorn Sheep standing on a jagged peak, silhouetted against a sun-blit blue sky, would be quick to agree that they have seen one of the most majestic animals to roam Mojave National Preserve.

Shy and inhabiting remote and rugged desert terrain, they travel across valleys from one mountain to the next, avoiding other creatures. It is a fortunate photographer who captures these magnificent creatures on film, as photo opportunities are fleeting. The Bighorn (Ovis Canadensis nelsoni) is surprisingly fast and agile on the rugged terrain, so merely keeping an eye on the band of stars in the tree branches above helps you appreciate in dark, arid clean-air landscapes in Mojave and other remote nation- al parklands in the desert Southwest.

As a mature set of horns to nose-to-nose contact for two months. Four infected animals were then penned to- dally. The Bighorn Sheep began dying of pneumonia two weeks later. All 43 died within a short time.

An experiment to establish a connection between contact with domestic sheep and the Bighorn deaths was conducted. Scientists extracted the bacteria that caused the Bighorn deaths from four healthy domestic sheep, tagged it with fluorescent dyes, and then reintroduced it into the four sheep.

The Bighorns and domestic animals were penned 33 feet apart for one month, with the Bighorns showing no symptoms of pneumonia. The animals then were allowed to have nose-to-nose contact for two months. Four Bighorn Sheep contracted the marked virus. The infected animals were then penned to- gether, and all four Bighorns died within nine days.

In ten experiments, all 23 Bighorn sheep involved died of respiratory disease following contact with domestic sheep.

In August of 2011, following reports of dom-estic sheep roaming Desert Bighorn habitat in the Nevada Snowstorm Mountains, Big- horns began dying of pneumonia in great numbers. This has become all too common in the American West, and, unfortunately, the Bighorns of the Preserve were not spared.

In 2012, biologists discovered about 40 dead Bighorns in the Mojave within or near the Preserve. All showed indications of having died from the suspect pneumonia. Upon investigation, range found domestic sheep carcasses and domestic sheep pellets in areas of the park.

Not all Bighorn die-offs can be linked to con- tact with domestic animals. The 1995 die-off was related to botulism. But investigation usu-ally finds evidence that domestic sheep were in the area before a die-off occurred.

On the question of preventive measures, incclusions work for only a short time, and capturing the animals in their rugged habitat would be extremely difficult. The only effect- ive course of action to protect the Bighorn is to ensure that there is absolutely no contact between them and domestic animals—espe- cially sheep and goats.

To this end, signs have been posted at Preserve entrances barring transport or grazing of dom-estic goats and sheep. It is hoped that with this precaution and the ongoing attention of wildlife biologists, the remaining Bighorns will survive to regenerate the population.

Look Up for a Wonder of Mojave’s Clear, Tranquil Summer Evenings

By Phillip Gomez

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early years of the Preserve. The cleanup with hazardous heavy metals and low-level pipeline ruptured at the site, spilling incurred fed-

The company near the Preserve.

Clark Mountain that name), oper-

ated an open-pit mine and chemical-processing facility between Clark Mountain and Interstate 15 near the Preserve. The company incurred fed-

ceral, state, and county liabilities after a wastewater pipeline ruptured at the site, spilling 150,000 gallons of water contaminated with hazardous heavy metals and low-level radioactive waste.

The spill represented up to 100 acceptable levels, according to Eric C. Nys-

rom, a historian of the early years of the Preserve. The cleanup cost the mining company $3.6 million. It also diverted Preserve staff from their regular duties to install four miles of fenc-

ing to keep tortoises away from the ground

that was polluted with toxic waste.

By the late 1990s, Chevron Corp. had acquired UNOCAL, Molycoy’s owner since 1977, and with that purchase came the liabilities for Molycoy’s spill. Chevron and its subsidiary, Chevron Environmental Management Co., now had to deal with the legacy of the spill.

Ordinarily, under the Endangered Species Act, compensation paid to a federal agency for dam-

ages to habitat would be settled with the purchase and donation of selected land parcels. Instead, an idea arose for construction of a seven-acre research facility in the Pre-

serve to help the recovery of the TOPLACER预测结果的种保护 species.

“It’s basically just what we wanted for compensation,” says Hughson. “Chevron also provided $500,000 for research and operating expenses.” The National Park Trust handles the funds transfer for the National Park Service.

The facility is used to conduct experiments to support the recovery work, including a study that would help identify habitat pref-

erences. In these experiments, researchers attach tiny radio transmitters to tortoises that are then released and tracked.

Previous studies discovered their attract-

ions. In these experiments, researchers

were able to follow tortoises in the wild. Researchers hope that the benefits of nur-

urging the researchers in this new generation of tortoise will have a significant impact.

“This is the idea to augment the natural popula-

tion in the wild,” Hughson says. “The baby tortoises are protected from preda-

ors in regulated pens, segregated by age.”

Most have minimal interactions with the researchers to maintain their fear of hu-

mans—also necessary for their survival.

The project is intended to continue indefi-

nitely, addressing new tortoise manage-

ment issues as they arise.

“It’s not just for the Preserve and other parks administered by the Park Service, but for tortoises found on BLM lands and in Fish and Wildlife reserves, too,” she said. “It’s for the recovery of the species.”

By David Moore, Chief of Maintenance

On Monday, September 9, 2013, the care and management of the 165 miles of paved roads and 70 miles of dirt roads within Mojave Na-

tional Preserve (Mojave NPres) became the responsibility of the National Park Service following a Federal Court decision removing them from the jurisdiction of San Bernardino County. This created a big change in mainte-

nance operations which had formerly been responsible for only a few miles of dirt roads.

Many of today’s major paved roads in Mojave NPres had not been improved until the 1970s and ’80s. This was done to increase the safety for passenger vehicles to drive through Mojave NPres. But the need for good travel routes in the desert dates well before these fairly recent times.

Early Europeans, like Father Francisco Garcés, a Spanish Franciscan priest living at Mission San Xavier, near present-day Tucson, Arizona, recorded the existence of a route across the Alamo Desert in the 1770s. His group was guided several times by members of the Mo-

jave Tribe of the Colorado River through the Mojave Desert to the California Central Valley and The San Gabriel Mission. The Mojave and other tribes had traded pottery, seeds, and other goods with coastal tribes for centuries. In later years, those who traded and explored in the Mojave Desert on these same routes found it to be a long walk between known springs. Commerce areas continued to impact the desert as miners in the 1800s searched for and found gold and silver. They established dirt roads between their mines and nearby towns to get their ore to markets.

In April 1912, the National Old Trails Road Association was formed to create a trans-

continental trail (road) system that linked Baltimore and Los Angeles. The Automobile Club of Southern California began posting signs to define a proposed route that came through Southern California, and by 1917 much of the route was in place. This route, a hardened dirt road, was very difficult to drive. This National Trails Highway would later be known as Route 66.

It wasn’t until the late 1920s that this road was hardened and oiled. Oiling roads quickly became the preferred method over watering them as dirt had a harder time of rain and freezing temperatures in the winter.

The care of our paved and dirt roads has been a top priority and a challenge for Mojave NPres. Since 2013, we have hiring temporary road crews, gained assistance from Death Valley and Joshua Tree National Park road crews, and purchased some road maintenance equipment and materials to help us with this new work load.

At Mojave NPres, a lot can be accomplished with everyone working together. On April 4 and 5, 2013, a road rescue team was formed with volunteers from our visitor protection, admin-

istration, fire crew, maintenance, interpretive, and resource management staffs. Our Super-

intendent, Rich Sowell, also joined the work. The rescue team cleaned roadways, hauled asphalt, controlled traffic, and shoveled the heavy black filling material into potholes.

Smiles and brightly colored vests used by highway crews were the order of the day as we all worked together on that beautiful spring

morning to improve the roads for visitors. I am typically tied to a desk and a computer during my work day, so being outside and getting that huge sense of instant accomplishment of filling a pothole was welcome.

There is hope that special measures like this won’t be needed in our future.

By the end of June 2015, 40 miles of our paved roads received a new chip seal top coat of a special asphalt emulsion covered by gravel. The road work included patching, thin-pavement overlays, and crack sealing. Crack sealing plac-

es specialized materials into or above cracks to prevent the intrusion of water and other mate-

rials and reinforces the adjacent pavement. The roads treated included the northern three miles of Ivanpah Road, followed by Morning Star Mine Road, Kelso Cima Road, and Zzyzx Road.

In 2016, the majority of the remaining 110 miles of paved roads in Mojave NPres that were not treated this year will be resurfaced, subject to available federal funds. All the resurfaced paved roads will then be placed on a multi-year cyclic re-treatment program, again subject to available funding.

All that brings a smile to my face.

Mojave National Preserve – 5

Average Annual Precipitation

Average High / Low

Average Elevation

Average Zyxys
Backcountry Guidelines & Regulations

Backcountry travel and camping—backpacking, roadside camping, and horsepacking—require careful planning in order to ensure a safe and rewarding experience. Visitors should adhere to National Park Service regulations and are further encouraged to follow Leave No Trace guidelines to minimize their impact on the fragile desert environment. Additional regulations apply for roadside camping (see below) and horsepacking (talk with a park ranger or visit us online for more information: www.nps.gov/moja).

Leave No Trace principles are rooted in scientific studies and common sense. The message is framed under seven Leave No Trace guidelines to minimize their impact on the fragile desert environment.

1. Plan Ahead and Prepare
   - There is no permit or registration system for backcountry camping at Mojave National Preserve; be sure to notify others of your travel itinerary.
   - Few established trails exist; carry a good map and familiarize yourself with desert travel and survival skills before beginning your trip.

2. Travel and Camp on Durable Surfaces
   - Reuse existing campsites (required for roadside camping—see below).
   - Do not make camp in a dry wash; flash floods develop quickly in the desert.
   - Camping is limited to a maximum of 14 consecutive days per visit/stay and 30 total days per year.
   - Campsites must be more than 200 yards from any water source.
   - Camping is not permitted: within 1/4 mile of any paved road, within 1/2 mile of Fort Piute or Kelso Depot; within 1 mile north (i.e., the crest of the dunes) or 1/4 mile south of the Kelso Dunes access road. (Exceptions may apply for roadside camping—see below.)

3. Dispose of Waste Properly
   - Store all food and garbage in a manner that will prevent access by wildlife. Carry plastic bags and pack out all trash.
   - Bring your own toilet paper and hygiene products.
   - Pet excrement must be collected and disposed of in garbage receptacles.

4. Leave What You Find
   - Disturbing, defacing, or collecting plants, animals, rocks, and historic or archeological objects is prohibited.
   - Do not make camp in a dry wash; flash floods develop quickly in the desert.
   - Do not camp along roadways or in day-use areas, and stay at least 200 feet from water, camp, and trails. Pack out all toilet paper and hygiene products.

5. Minimize Campfire Impacts
   - Campfires are allowed in established fire rings only, or with use of a portable firepan (be sure to pack out ashes). Do not leave fires smoldering or unattended.
   - Cutting or collecting any wood, including downed wood, is prohibited. All firewood must be brought into the preserve.

6. Respect Wildlife

7. Be Considerate of Other Visitors
   - No dumping or utility hookups.

Campgrounds

Hole-in-the-Wall Campground
   - Facilities: pit toilets, trash receptacles, potable water, fire rings, picnic tables, dump station; no utility hookups.
   - Fees: $12 per site per night, $6 for America the Beautiful Senior/Access Pass holders.
   - Reservations: not accepted; campsites available on a first-come, first-served basis. At 4,400 feet in elevation, Hole-in-the-Wall Campground is surrounded by sculptured volcanic rock walls and makes a great basecamp for hikers (see p. 7) and for exploring nearby Mitchell Caverns in the Providence Mountains State Recreation Area. Thirty-five campsites accommodate RVs and tents; two walk-in sites are also available.

Mid Hills Campground
   - Facilities: pit toilets, trash receptacles, potable water, fire rings, picnic tables; no dumpster or utility hookups.
   - Fees: $12 per site per night, $6 for America the Beautiful Senior/Access Pass holders.
   - Reservations: not accepted; campsites available on a first-come, first-served basis.

Black Canyon Equestrian & Group Campground
   - Facilities: corrals, pit toilets, trash receptacles, potable water, fire ring, grill, picnic shelter with tables.
   - Fees: $35 per group per night.
   - Reservations: required; call 760-928-2572 or 760-252-6104.

Nearby Camping Areas

Afton Canyon
   - 25 miles southwest of Baker on I-15; has a BLM campground with tables and fire rings for $6 per night.

Commercial camping is also available at Baker, Barstow, Needles, and Nipton, Calif.

Nearby Roadside Campsites

Roadside vehicle camping is permitted in areas that have been traditionally used for this purpose. By reusing existing sites, you help protect the desert from further damage. Sites with existing rock or fire ring sites should be considered disturbed and suitable for roadside camping. Many roadside camping sites cannot accommodate multiple vehicles; please don’t enlarge them. Do not camp along paved roads or in day-use areas, and stay at least 200 yards from all water sources.

The National Park Service encourages roadside campers to use the following, selected sites:

Near Kelbaker Road:
   - Rainy Day Mine Site
   - 15.2 miles southeast of Baker on Kelbaker Road, then 0.3 miles northeast on the unsigned and very sandy road to the Rainy Day Mine. Four-wheel drive recommended; no RVs.
   - Granite Pass
   - 6.1 miles north of I-40 on Kelbaker Road, just north of Granite Pass, then west on one of several access roads. Campsites are located just north of the granite spires. High clearance vehicle recommended; no RVs.
   - Kelso Dunes Mine
   - 4 miles west of Kelbaker Road on the unpaved Kelso Dunes Road. One campsite is located south of the road, 1/4 mile past the marked trailhead. Several others are available 1/2 mile beyond, near a clump of trees. Except at these sites, roadside camping is prohibited along Kelso Dunes Road (including at the trailhead).

Near Cima Road:
   - Sunrise Rock
   - 12 miles south of I-15 on the east side of Cima Road. Campsites are behind the White Cross World War II Memorial. Trailhead for Bunsen Peak Trail is nearly on the opposite side of Cima Road.

Near Black Canyon Road:
   - Black Canyon Road (East)
   - 4 miles south of Hole-in-the-Wall Information Center on the east side of Black Canyon Road, above a wash and near a hill with views of the Providence Mountains. Another site is located about 4 miles further south, near rock piles.

Near Ivankah and Cedar Canyon Roadways:
   - Caruthers Canyon
   - 5.5 miles west of Ivankah Road on New York Mountains Road, then 1.5 to 2.7 miles north to campsites. High clearance and four-wheel drive recommended; no RVs.
Developed Trails

1) Lake Tuendae Nature Trail
   Trailhead: Zzyzx parking area, 5 miles south of I-15 on Zzyzx Road. Enjoy an easy, self-guided, 1½-mile stroll along the Little Desert National Wildflower Preserve. Explore the world’s densest Joshua tree forest. An interpretive trail follows the Originally known as “The Oasis,” this area is home to a variety of riparian plants and animals. Return to your vehicle via an unused trace of the Mojave Railroad. 

2) Teutonia Peak Trail
   Trailhead: 12 miles south of I-15, on 5 miles north of Cima, Calif. on Cima Road. This popular trail offers a loop hike to the summit of Teutonia Peak. The trail begins by crossing the Zzyzx parking area on Cedar Canyon Road. 

3) Hole-in-the-Wall Nature Trail
   Trailhead: Hole-in-the-Wall Information Center and Campground. 20 miles north of I-40 on Essex and Black Canyon roads. Learn to identify desert plants on this easy, 1/2-mile round-trip hike. Trailsides at Hole-in-the-Wall Information Center and Campground. 

4) Rings Loop Trail
   Trailhead: Hole-in-the-Wall Information Center parking area, 20 miles north of I-40 on Essex and Black Canyon roads. Discover how Hole-in-the-Wall got its name as you ascend narrow Banshee Canyon with the help of metal rings mounted in the rock. The 1½-mile round-trip hike connects to the Mid Hills to Hole-in-the-Wall Trail and Barber Peak Loop Trail (see below). 

5) Mid Hills to Hole-in-the-Wall Trail
   Trailheads: Across the road from the entrance to Mid Hills Campground, and about 2 miles west of Black Canyon Road on the south end of Black Horse Canyon Road. Hike 8 miles, one-way, through a maze of washes decorated with barrel and cholla cacti, then through the Hackberry Fire burned area. Total elevation gain from south to north is 1,200 feet. Watch carefully for trail route markers. 

6) Barber Peak Loop Trail
   Trailhead: Hole-in-the-Wall Picnic Area, beyond Hole-in-the-Wall Information Center. The preserve’s newest trail, this 6-mile loop encircles Barber Peak just west of Hole-in-the-Wall Campground, passes the Quail Canyon Cliffs, and returns to Hole-in-the-Wall via Banshee Canyon. 

7) Kelso Dunes
   Start: 3 miles west of Kelbaker Road on the well-groomed, unpaved Kelso Dunes Road. Hikers at sunrise and sunset are treated to both cooler temperatures and the rose-colored glow of the dunes. The roughly 3½-mile round-trip hike might take several hours as you slog through the sand, then slide down the dunes. 

8) Rock Spring Loop Trail
   The 1 mile round-trip trail starts at the Rock House and leads to a well-known watering hole and site of an 1860s military outpost. Trail starts at Rock House, 5 miles east of Black Canyon Road on Cedar Canyon Road. 

Recommended Routes

Warning: The routes described below are not established trails; trailheads might be unidentifiable or nonexistent. Check a detailed map or guidebook—available at all information centers—and consult a park ranger for route information. 

9) Quail Basin
   Start: 12.5 miles north of I-40 on Kelbaker Road, then 1 mile east on an unmapped dirt road. Park at junction with closed dirt road heading south. High clearance and four-wheel drive recommended. Follow the route to the south to a road that leads around a small valley. After walking the loop, return via the same route. The 6.5-mile round-trip route leads past jumbled rocks into a small valley of Mojave yucca and juniper surrounded by granite outcroppings. 

10) Keystone Canyon
    Start: 18 miles south of Nycton Road on Ivanpah Rapid. Then 2.5 miles west on an unmapped dirt road. Bear left at the first fork, right at the second; return to a parking area. Four-wheel drive recommended. 

11) Caruthers Canyon
    Start: Primitive campsites in Caruthers Canyon, 5.5 miles west of Ivanpah Road on Nycton York Mountains Road, then 2.7 miles north on an unsigned road. Four-wheel drive recommended. 

12) Castle Peaks Corridor
    Start: 4.9 miles east of Ivanpah Road on signed Hart Mine Road; left at fork, then 0.9 miles, left at fork, then 3.4 miles, crossing an earthen berm, left at fork, then 1 mile more to where road ends. Four-wheel drive recommended. 

13) Plute Creek
    Start: 9.5 miles east of the junction of Lanfair and Cedar Canyon roads on a dirt utility road, then 0.5 miles north. High clearance and four-wheel drive recommended. 

Reaches up through colorful Plute Gorge and explores the Run of Fort Plute, built and manned in the 1860s to protect mail and travelers on the Mojave Road. A perennial stream near the Fort, rare in the Mojave, supports riparian plants and animals. Return to your vehicle via an unused trace of the Mojave Road. 

Hiking

Although there are few established hiking trails in Mojave National Preserve, abandoned dirt roads, washes, and ridge lines offer an abundance of cross-country hiking opportunities. Numbers on map show general locations of trails and routes listed below. 

All trails and routes listed below are shown on the National Geographic Trail Illustrated topographic map for Mojave National Preserve. This and other maps are available for purchase at all information centers (see page 2 for locations and other info).