Joshua Tree Guide

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accessibility
The nature trails at Bajada, Cap Rock, and the Oasis of Mara are accessible. Assistive listening systems and sign-language interpreters are available for some programs with prior notice.

all terrain vehicles
ATVs may not be used in the park.

bicycling
Bicycling is permitted on public roads, both paved and dirt, and on designated bike trails. There are no bicycle paths along roads. Bikes are prohibited on backcountry and nature trails.

bus tours
Several companies offer tours of the park by bus or van. Contact a travel agent for additional information.

campfires
Campfires are permitted in campgrounds and in picnic areas where fire grates are provided. Campfires are not allowed in the backcountry. Collecting vegetation, living or dead, is prohibited, so bring firewood.

climate
Days are typically clear with less than 25 percent humidity. Temperatures are most comfortable in the spring and fall, with an average high/low of 85°F and 50°F respectively. Winter brings cooler days, around 60°F, and freezing nights. It occasionally snows at higher elevations. Summers are hot, over—sometimes well over—100°F during the day and not cooling much below 75°F until the early hours of the morning.

commercial filming
When filming or photography involves advertising a product or service, the use of models, sets, props, or the use of a restricted site, a film permit is required.

day-use and restricted areas
Some areas within the park are privately owned; others protect wildlife or historical sites. Entering these areas is prohibited. Day-use areas are set aside to protect sensitive populations of wildlife. They are closed from dusk to dawn.

dehydration
It is easy to become dehydrated in arid desert environments. Even if you only plan to drive through the park, you should have some water with you. If you are going to camp, we recommend one gallon of water per person per day. If you are going to be hiking or biking, you will want to take along two gallons per person. Drink the water and do not economize. When the water is half gone, it is time to turn back.

deky phones
In an emergency call San Bernardino Dispatch at 909-383-5651. Call collect.

Pay phones are located at the visitor center in Twentynine Palms and at Black Rock Campground. You can find pay phones in the town of Joshua Tree and at Chiriaco Summit (12 miles southeast of Cottonwood). Emergency-only phones are located at the Indian Cove ranger station and at Hidden Valley Campground.

evironment
Two deserts, two large ecosystems whose characteristics are determined primarily by elevation, come together at Joshua Tree National Park. Below 3,000 feet, the Colorado Desert encompasses the eastern part of the park and features natural gardens of ocotillo and cholla cactus. The higher, moister, and slightly cooler Mojave Desert is the special habitat of the Joshua tree. Joshua tree forests occur in the western half of the park, which also includes some of the most interesting geologic displays found in California’s deserts. In addition, live fan palm oases dot the park, indicating those few areas where water occurs naturally and where wildlife abounds.

entrance fees
Admission to the park is $10 per vehicle and is good for seven consecutive days. A Joshua Tree Pass may be purchased for $25 and a National Parks Pass, which is good for all National Park Service sites, costs $50. Both are good for 12 months. A Golden Age Pass may be purchased by any U.S. citizen 62 or older for $10, and it is good for life.

firearms and weapons
Firearms, including fireworks, traps, bows, BB guns, paint-ball guns, and slingshots are not allowed in the park.

food, lodging, services
There are no concessions within the park. However, surrounding communities can fulfill most visitor needs. Contact local chambers of commerce for information. Their telephone numbers and web addresses are listed on page six of this publication.

getting to the park
The park is located about 140 miles east of Los Angeles via I-10. Entrances to the park are located off CA HWY 62 (Twentynine Palms Highway), at the towns of Joshua Tree and Twentynine Palms. A third entrance is located about 25 miles east of Indio off I-10.

horses
Horseback riding is a popular way to experience the park. Because of the special requirements for stock in desert areas, you will want to request the site bulletin on horse use before you come.

international visitors
Information is available at visitor centers and entrance stations in Dutch, French, German, Italian, Japanese, and Spanish.

keep wildlife wild
Feeding coyotes, squirrels, and other animals means they from their natural food supplies, causes overpopulation, and turns them into dangerous creatures as they lose their fear of humans.

leave no trace
During your visit please pick up trash around campgrounds and trails. Your actions will inspire other park visitors.

lost & found
Report lost, and turn in found, items at any visitor center or ranger station. Lost articles will be returned if found.

off-road driving
Vehicles, including bicycles, are prohibited off established roads. The desert ecosystem is fragile. Off-road driving and riding creates ruts, upsetting delicate drainage patterns, compacting the soil, and leaving visual scars for years. Plants are crushed and uprooted. Wildlife shelters are destroyed, and food and water supplies are altered or obliterated.

parking
Park roads, even the paved roads, are narrow, winding, and have soft, sandy shoulders. Accidents occur when visitors stop along the road to admire a view or make a picture. There are many pullouts and parking lots, so wait until you get to one before stopping.

pets
While pets are allowed in the park, their activities are restricted. They must be on a leash at all times, they are prohibited from trails, and they must never be left unattended—not even in a vehicle.

potable water
Water is available at the visitor center in Twentynine Palms, at Black Rock and Cottonwood campgrounds, at the entrance station south of Joshua Tree, and at the Indian Cove ranger station.

rock climbing
Climbers may replace existing unsafe bolts, and new bolts may be placed in non-wilderness areas using the bolt checklist. Bolting in wilderness requires a permit. Bolting checklists and permit applications are available at entrance stations and visitor centers.

stay out and stay alive
Mining was an important activity in this area and numerous mining sites can be found within the park. If you choose to visit them, use extreme caution and do not enter old mine workings.

take only pictures
Over 1.25 million people visit Joshua Tree National Park each year. If each visitor took only one rock or one branch from a bush, the park, our national heritage, would soon be gone. Removal, disturbance, destruction, or disfigurement of anything in the park is unlawful.

trash
Our dry desert climate cannot quickly decompose such things as orange peels, apple cores, egg shells, and other picnic remains. Loose paper blows into bushes creating an unsightly mess, and plastic six-pack rings can strangle wildlife. Dispose of your trash in a responsible manner and recycle whatever you can.

vehicle laws
Park roads are narrow and winding. Some areas are congested. Speed limits are there for your safety and well-being. State and federal vehicle laws apply within the park.

visitor activities
Ranger-led programs are offered on the weekends from mid-October through mid-December and from mid-February through May. Check at visitor centers, at entrance stations, and on campground bulletin boards for a current schedule.

visitor centers
The park’s main visitor center is located at the Oasis of Mara in Twentynine Palms. It is open 8 a.m. to 5 p.m. The Cottonwood Visitor Center is open from 8 a.m. to 4 p.m. Books, videos, maps, and related items are available, as well as cultural and natural history exhibits, and park rangers to answer your questions.

wildflowers
Spring blooming periods vary with elevation, temperature, and the amount of moisture in the soil. You can get current information by calling the park.

wildlife viewing
It is a thrill to see wild animals in the park, but remember: this is their home and they should not be disturbed. This includes the use of artificial light for viewing them.

world wide web
If you are “connected,” check out the National Park Service publications on the web at www.nps.gov. We are adding more information all the time. For information about other desert attractions in California, surf over to www.californiadeseert.gov.

you are responsible
You are responsible for knowing and obeying park rules. Check at visitor centers, at entrance stations, and on bulletin boards to find out what they are. When in doubt, ask a ranger.
"I Speak for the Trees"  
Dr. Seuss, The Lorax

Surrounded by twisted, spiky trees straight out of a Dr. Seuss book, you might begin to question your map. Where are we anyway? In wonder, the traveler pulls over for a snapshot of this prickly oddity; the naturalist reaches for a botanical guide to explain this vegetative spectacle; and the rock climber shouts “Yowch!” when poked by dagger-like spines on the way to the 5.10 climbing route.

Joshua Tree, <i>yucca brevifolia</i>, is a giant member of the lily family. Like the California fan palm, <i>Washingtonia filifera</i>, the Joshua tree is a monocot, in the subgroup of flowering plants that also includes grasses and orchids. Don’t confuse the Joshua tree with the Mojave yucca, <i>yucca schidigera</i>. This close relative can be distinguished by its longer, wider leaves and fibrous threads curling along leaf margins. Both types of yuccas can be seen growing together in the park. The Joshua tree provides a good indicator that you are in the Mojave Desert, but you may also find it growing next to a saguaro cactus in the Sonoran Desert in western Arizona or mixed with pines in the San Bernardino Mountains.

Years ago the Joshua tree was recognized by American Indians for its useful properties: tough leaves were worked into baskets and sandals, and flower buds and raw or roasted seeds were made a healthy addition to the diet. Researchers believe that below freezing temperatures may damage the growing end of a branch and stimulate flowering, followed by branching. You may notice some Joshua trees grow like straight stalks; these trees have never bloomed—which is why they are branchless! In addition to ideal weather, the pollination of flowers requires a visit from the yucca moth. The moth collects pollen while laying her eggs inside the flower ovary. As seeds develop and mature, the eggs hatch into larvae, which feed on the seeds. The tree relies on the moth for pollination and the moth relies on the tree for a few seeds for her young—a happy symbiosis. The Joshua tree is also capable of sprouting from roots and branches. Being able to reproduce vegetatively allows a much quicker recovery after damaging floods or fires, which may kill the main tree.

Many birds, mammals, reptiles, and insects depend on the Joshua tree for food and shelter. Keep your eyes open for the yellow and black flash of a Scott’s oriole busy making a nest in a yucca’s branches. At the base of rocks you may find a wood rat nest built with spiny yucca leaves for protection. As evening falls, the desert night lizard begins poking around under the log of a fallen Joshua tree in search of tasty insects.

You may be at ease with pine or hardwood, or find shade under the domesticated trees in your city park, but in the high desert, Joshua is our habitat for numerous birds, mammals, insects, and lizards. Joshua tree forests tell a story of survival, resilience, and beauty borne through perseverance. They are the silhouette that reminds those of us who live here that we are home. Like the Lorax we speak for the trees, but often the trees speak to us.

By Vegetation Specialist Jane Rodgers

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CAMPGROUND ASTRONOMY

Camping away from city lights gives many of us city dwellers a chance to see the sky as we have never seen it. A great way to introduce someone to the "dark sky" is to tour the Milky Way with binoculars. First just lie back on the ground and gaze at the band of light. Notice how it is brighter in places, with clumps of light and dark streaks where stars seem to be absent. Realize that the glow of light is from stars so far away that we can’t quite make them out. The dark lanes are actually interstellar dust that blocks our view. The clumps of light are clouds of stars.

Find one of those star clouds and, without taking your gaze away from it, raise your binoculars to your eyes. The cloud will resolve into hundreds of stars, with perhaps smaller clumps and hazy patches in the field of view.

Notice how the Milky Way seems to be very bright and dense to the south near the horizon? You are looking toward the center of our galaxy, where the stars are richest. The constellations Sagittarius and Scorpio lie in this direction.

Just west of Sagittarius is Scorpio, one of the few constellations that looks like its name. Scorpio is distinguished by the bright red star Antares, located in the scorpion’s neck. Look at Antares with binoculars. See the large fuzzy ball of light next to it? That is a large globular cluster.

Turn your attention northward, above and to the left of the stars of Sagittarius. You will see a large cloud of stars. This is the Scutum star cloud. With binoculars you should easily see a hazy patch of light. This is a beautiful open star cluster.

As we move farther north, higher in the sky, we see the star clouds in the constellation Cygnus, the swan. This constellation also looks like its name. We can see the neck pointing south, and the wings stretched east and west. The bright star behind the wings is Deneb, the “tail” of Cygnus.

To help identify the many objects you will find with binoculars, you will want a star chart. A circular “star finder,” also known as a “planisphere,” will show the location of many celestial objects.
What to See and Do

To a first-time visitor the desert may appear bleak and drab. Viewed from the road, the desert only hints at its vitality. Closer examination reveals a fascinating variety of plants and animals. A rich cultural history and surreal geologic features add to the attraction of this place. Joshua Tree National Park offers visitors endless opportunities for exploration and discovery. Depending on the number of hours you have to spend, your interests and energy, here are some ideas to consider:

IF YOU HAVE FOUR HOURS OR LESS, begin your tour at a park visitor center. Park staff will be happy to provide you with current information about conditions in the park as well as answers to your questions.

With limited time you may want to confine your sightseeing to the main park roads. Many pullouts with wayside exhibits dot these roads. A list of nature trails and short walks appears in this publication. Consider experiencing at least one of these walks during a short park visit.

On clear days the vista from Keys View extends beyond Salton Sea to Mexico and is well worth the additional 20-minute drive.

IF YOU PLAN TO SPEND AN ENTIRE DAY, there will be time to walk several nature trails. A ranger-led program will add enjoyment and understanding to your visit. Check at visitor centers and on campground bulletin boards for listings. If solitude is what you are after, plan an all-day hike. A list of hikes is included in this publication and trail information can be obtained from visitor centers. Or, call ahead and reserve a spot on the popular Desert Queen Ranch guided walking tour.

Some visitors like to experience the desert from the seat of a mountain bike. The park offers an extensive network of dirt roads that make for less crowded and safer cycling than the paved main roads. A selection of road trips is included in this publication. Mountain bikes and 4-wheel drive vehicles are welcome in the park. For your own safety and for the protection of natural features, stay on established roads. Mountain bikes and 4-wheel drive vehicles are welcome in the park. For your own safety and for the protection of natural features, stay on established roads. Tire tracks on the open desert can last for years and will spoil the wilderness experience of future hikers. Clean up after yourself.

Paved roads in the park are narrow with soft shoulders. Curves, boulder piles, and Joshua trees restrict the vision of bikers and motorists. The unpaved roads in the park are safer for bikes and offer many opportunities to explore the area. Here is a sampling:

**Pinkham Canyon Road**
This challenging 20-mile (32.4-km) road begins at Cottonwood Visitor Center, travels along Smoke Tree Wash, and then cuts down Pinkham Canyon. Sections of the road run through soft sand and rocky flood plains. The road connects to a service road next to I-10.

**Black Eagle Mine Road**
Beginning 6.5 miles (10.5 km) north of Cottonwood Visitor Center, this dead-end dirt road runs along the edge ofPinto Basin, crosses several dry washes, and winds through canyons in the Eagle Mountains. The first nine miles (14.5 km) are within the park boundary. Beyond that point is Bureau of Land Management land and a number of side roads. Several old mines are located near these roads but may be too dangerous to approach.

**Old Dale Road**
This 23-mile (37.3 km) road starts at the same point as Black Eagle Mine Road. The first 11 miles (17.8 km), cross Pinto Basin, a flat, sandy dry lake bed. Leaving the basin, the road climbs a steep hill, then crosses the park boundary. A number of side roads veer off toward old mines and residences. The main road leads to CA HWY 62, 15 miles (24.3 km) east of Twentynine Palms.

Backcountry Roads

FOR MOUNTAIN BIKES AND 4-WHEEL DRIVE VEHICLES

Mountain bikes and 4-wheel drive vehicles are welcome in this area. Be an inspiration to others; leave your campsite cleaner than you found it.
**Backcountry Camping, Hiking, and Horseback Riding**

Joshua Tree National Park is a backpacker’s dream with its mild winter climate and interesting rock formations, plants, and wildlife. It embraces 794,000 acres of which 574,000 acres have been designated wilderness. By observing the guidelines below, your venture into the backcountry should be safe and enjoyable. If you have questions, ask a ranger.

It is your responsibility to know and abide by park regulations.

**Registering**

If you will be out overnight, register at a backcountry board. The map in this publication indicates the location of the twelve backcountry boards. An unregistered vehicle or a vehicle left overnight somewhere other than at a backcountry board is a cause for concern about the safety of the vehicle’s occupants. It is also subject to citation and towing.

**Locating your camp**

Your wilderness camp must be located one mile from the road and 500 feet from any trail. Make yourself aware of any day-use areas in the vicinity (they are indicated on the topo maps at the backcountry boards) and make certain to camp outside their boundaries. Washes may seem inviting places to sleep because they are relatively level, but it is important to realize that they got that way because flash floods “bulldozed” the rocks and vegetation out of the way.

**Domestic issues**

Water sources in the park are not potable and are reserved for wildlife, so you will have to carry in an adequate supply for drinking, cooking, and hygiene. You will want to give some thought to the trade-off between the water required to hydrate dried foods and the heftier weight of canned and fresh foods. If you want to heat something you will need to pack in a stove and fuel as open fires are prohibited in the backcountry.

Bring plastic bags to hold your garbage and pack it out. Buried trash gets dug up by animals and scattered by the wind; it is not a pretty sight. Do bury human waste in “cat” holes six inches deep. Don’t bury your toilet paper; put it in plastic (zip-locks work nicely) and pack it out. Leave no trace, as they say.

**Hiking**

It is easy to get disoriented in the desert: washes and animal trails cross the terrain obscuring trails, boulder piles are confusingly similar, and there are not many prominent features by which to guide yourself. Do get yourself a topographic map and compass and learn how to use them before you head out.

Know your limitations. You should not attempt to climb cliffs or steep terrain without adequate equipment, conditioning, and training. Accidents can be fatal.

Carry a minimum of one gallon of water per person per day just for drinking, two gallons in hot weather or if you are planning a strenuous trip. You will need additional water for cooking and hygiene.

And don’t forget the other essentials: rain protection, a flashlight, a mirror and whistle, a first-aid kit, pencil and paper, a pocket knife, and extra food.

**Coping with the weather**

That old desert sun can damage eyes as well as skin. Wear a hat and sunglasses and use sun-blocking lotion liberally.

Temperature changes of 40 degrees within 24 hours are common. Bring a variety of clothes so you can layer on and off as conditions change.

Although rain is relatively rare in the desert, when it does come it can really pour down. Even when it isn’t raining where you are, rain in the mountains can run off so fast as to cause flash floods. Stay alert.

**Horseback riding**

Horseback riding is a popular way to experience the backcountry and there are 253 miles of equestrian trails and trail corridors that traverse open lands, canyon bottoms, and dry washes.

Because of the special requirements for horses, care should be taken in planning your trip. You may call 760-367-5500 and request that a horse bulletin be mailed to you.

But you don’t have to hike to enjoy the Black Rock Canyon area. Wildlife sightings are frequent in the campground. Visitors often encounter ground squirrels, jackrabbits, and cottontails. Frequent bird sightings include cactus wrens, Gambel’s quail, great horned owls, jays, and roadrunners. A serious birder might be rewarded with a glimpse of a Scott’s oriole, pinyon jay, or LeConte’s thrasher. More elusive species such as bobcat, bighorn sheep, mountain lions, desert tortoises, and mule deer have all been seen in the area. As the sun sets, listen for the “singing” of coyotes living on the outskirts of the campground.

Please do not feed wild animals in Joshua Tree National Park. People food is unhealthy for them and they can become aggressive and harm you.

Black Rock Canyon Offers Good Hiking and More

Located in the northwest corner of the park, the road to Black Rock Canyon dead-ends at the campground. Campsites are located on a hillside at the mouth of the canyon surrounded by Joshua trees, junipers, cholla cacti, and a variety of desert shrubs. Spring blooms usually begin with the Joshua trees in late February followed by shrubs and annuals through May.

This quiet, family campground is a good introduction for first-time campers. Each campsite has a picnic table and fire ring with rest rooms and water nearby. If you forget to bring your firewood, shopping facilities are only five miles away in the town of Yucca Valley. Campsites vary in size and can accommodate both tents and RVs. A day-use picnic area and dump station are also available. For horse owners, a separate area is provided for overnight camping or staging a ride.

Campsites register and pay camping fees at the nature center located in the middle of the campground. The staff at this small visitor center can help plan your hikes and sightseeing. Maps, books, nature guides, and children’s activity books may be purchased there.

The hills behind the campground offer a variety of hiking trails including the Hi-View Nature Trail. The interpretive guide for this trail, available at the nature center, identifies the vegetation along this scenic 1.3-mile walk. For those looking for longer trails, Eureka Peak, Panorama Loop, and Warren Peak take hikers to ridge lines overlooking the often snowy peaks of San Jacinto and San Gorgonio. The trailhead for a 35-mile section of the California Riding and Hiking Trail is located at Black Rock. Backpackers can register at the backcountry board here for overnight wilderness trips.

Welcome to Joshua Tree National Park, an increasingly popular destination for people from throughout the United States and the world. Some come seeking solitude, others recreation; some come to learn about the natural and cultural wonders of this desert region, still others to be reassured that there are still areas offering a glimpse of the natural world as it once existed.

During your visit, I encourage you to get out of your vehicle and take the opportunity to look, listen, smell, and explore. Rangers are available to assist you with questions about the many attractions and activities in this desert environment.

The future of the National Park Service is as strong as the support and commitment of the people we serve. With your assistance Joshua Tree will survive intact for the enjoyment of generations to follow. Rest assured that the staff and volunteers at Joshua Tree National Park are committed to doing our part to defend and protect this special place.

Should you have any concerns or recommendations for improving the management of your national park, please write me at 74485 National Park Drive, TwentyNine Palms, CA 92277-3597 or email ernie_quintana@nps.gov.

Ernest Quintana, Superintendent
**Area Information**

For information about accommodations and attractions in surrounding communities, you may contact the following chambers of commerce:

- **Palm Springs Area**
  -www.pscc.org
  -PSChamber@worldnet.att.net
  -Palm Springs Chamber of Commerce
  -251 S. Palm Canyon Drive
  -Palm Springs, CA 92262
  -phone: (760) 365-6323
  -fax: (760) 365-6116

- **Joshua Tree Area**
  -www.29chamber.com
  -29 Palms Chamber of Commerce
  -63300 29 Palms Hwy.
  -Twentynine Palms, CA 92277
  -phone: (760) 366-5555
  -fax: (760) 366-5556

- **Yucca Valley Area**
  -Yucca Valley Community Chamber of Commerce
  -P.O. Box 435
  -Yucca Valley, CA 92284
  -phone: (760) 355-9530
  -fax: (760) 355-9531

**Desert Queen Ranch Tours**

Call 760-367-5555 for reservations.

**SPRING RANGER PROGRAMS**

Desert Queen Ranch Tours

For information about accommodations and attractions in surrounding communities, you may contact the following chambers of commerce:

<table>
<thead>
<tr>
<th>Site</th>
<th>Mileage</th>
<th>Time</th>
<th>Starting Point</th>
<th>Trail Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch Rock</td>
<td>3 miles (4.8 km)</td>
<td>1-2 days</td>
<td>Indian Cove backcountry trail or Keys View backcountry trail</td>
<td>Several stands of fan palms, evidence of past fires, and pools of water are found at the oasis. The plants in this area are especially fragile, so walk lightly. Moderately strenuous.</td>
</tr>
<tr>
<td>Borrego Badlands Access</td>
<td>25-mile loop (40 km)</td>
<td>9-12 days</td>
<td>South of Cottonwood Visitor Center</td>
<td>Several stands of fan palms, evidence of past fires, and pools of water are found at the oasis. The plants in this area are especially fragile, so walk lightly. Moderately strenuous.</td>
</tr>
<tr>
<td>Barker Dam</td>
<td>1 mile loop (1.6 km)</td>
<td>1 day</td>
<td>Barker Dam parking area</td>
<td>At the junction of Park Blvd and Keys View Road</td>
</tr>
<tr>
<td>Cap Rock</td>
<td>4 miles loop (6.4 km)</td>
<td>1 day</td>
<td>Cap Rock parking area at the junction of Park Blvd and Keys View Road</td>
<td></td>
</tr>
<tr>
<td>Cholla Cactus Garden</td>
<td>25-mile loop (40 km)</td>
<td>9-12 days</td>
<td>South of Cottonwood Visitor Center</td>
<td></td>
</tr>
<tr>
<td>Cottonwood Spring</td>
<td>1-mile loop (1.6 km)</td>
<td>1 day</td>
<td>Cottonwood Spring parking area</td>
<td></td>
</tr>
<tr>
<td>Hidden Valley</td>
<td>1-mile loop (1.6 km)</td>
<td>1 day</td>
<td>Hidden Valley picnic area</td>
<td></td>
</tr>
<tr>
<td>Jumbo Rocks Campground</td>
<td>30-mile loop (48 km)</td>
<td>3 days</td>
<td>South of Cottonwood Visitor Center</td>
<td></td>
</tr>
<tr>
<td>Indian Cove</td>
<td>4 miles loop (6.4 km)</td>
<td>1 day</td>
<td>Keys View</td>
<td></td>
</tr>
<tr>
<td>Keys View</td>
<td>25-mile loop (40 km)</td>
<td>3 days</td>
<td>Keys View</td>
<td></td>
</tr>
<tr>
<td>Oasis of Mara</td>
<td>0 miles</td>
<td>1 day</td>
<td>Oasis Visitor Center</td>
<td></td>
</tr>
<tr>
<td>Ryan Campground</td>
<td>16 miles (25.8 km)</td>
<td>3 days</td>
<td>Northwest of Black Rock Campground</td>
<td></td>
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<tr>
<td>Sheep Pass Campground</td>
<td>1-mile loop (1.6 km)</td>
<td>1 day</td>
<td>West of Indian Cove Campground</td>
<td></td>
</tr>
<tr>
<td>White Tank Campground</td>
<td>1 mile loop (1.6 km)</td>
<td>1 day</td>
<td>Indian Cove, a short loop just beyond loop 1.</td>
<td></td>
</tr>
</tbody>
</table>

**Hiking Trails**

The Joshua Tree Guide is produced by the employees and volunteers of Joshua Tree National Park and Joshua Tree National Park Association and is published by Joshua Tree National Park Association. It is printed on recycled paper.
The Desert Fan Palm: A California Native

In an otherwise hot and sparse environment, palm oases are a luxuriant gift of shade and solace. The verdant display requires a constant supply of water so oases often occur along fault lines, where uplifted layers of hard impermeable rock forces underground water to the surface. There are only 158 desert fan palm oases in North America. Five are located in Joshua Tree National Park.

The desert fan palm, Washingtonia filifera, is native to the low hot deserts of Southern California where it can live for 80 to 90 years. Towering up to 75 feet, the desert fan palm is among the tallest of North American palms. It is definitely the heaviest: a mature desert fan palm can weigh as much as three tons. Its distinctive leaves are shaped like a fan and folded like an accordion. They measure up to six feet in length and are nearly as wide. Looking much like “petticoats,” the fan palm’s dead leaves remain attached to its trunk until removed by fire, wind, or flood.

Fire is beneficial for palms and rarely kills an adult. In palms the vascular bundles, those tubes that transport water and nutrients, are scattered throughout the trunk. This arrangement provides insulation from the heat of a fire. In contrast, other trees such as oaks have all their vascular tissue in a ring just beneath the bark. Fire does kill young palms, but it also removes competitors and opens up space for palm seeds to germinate. In fact, desert fan palms increase seed production immediately after fires. A healthy palm can produce as many as 350,000 seeds.

People have been attracted to palm oases since prehistoric times. Native Americans ate the palm fruit and used the fronds to build waterproof dwellings. The Cahuilas (pronounced: Ka-wee-yahs) periodically set fire to oases in order to increase fruit production and to remove the sharp-edged palm fronds littering the oasis floor. The Cahuilas also planted palm seeds in promising locations.

WHERE IN THE PARK IS COTTONWOOD SPRING?

Cottonwood Spring Oasis, one of the best kept secrets in Joshua Tree National Park, is just seven miles from the southern entrance to the park. The spring, the result of earthquake activity, was used for centuries by the Cahuilla Indians, who left bedrock mortars and clay pots, or ollas, in the area.

Cottonwood Spring was an important water stop for prospectors, miners, and teamsters traveling from Mecca to mines in the north. Water was necessary for gold processing, so a number of gold mills were located here. The remains of an arrastre, a primitive type of gold mill, can be found near the spring, and concrete ruins mark the sites of two later gold mills in the area.

The cottonwoods that give their name to the spring are not native to this area. They were planted around the turn of the century by some early resident, and the palms were planted in the 1920s. A number of hikes begin at Cottonwood Spring. A short, easy walk down Cottonwood Wash leads past a second oasis to a dry falls. In wet years, the falls can become a scene of rushing water and red-spotted toads. Big horn sheep often come up the wash for water in the early hours. An old teamster road drops down past the falls to the lower wash. A short hike leads through palo verde and desert willow trees to the remains of Moorten’s Mill Site.

The three-mile loop trail to Mastodon Peak offers spectacular views, interesting geology, the Mastodon Mine, and the Winona Mill Site. And, for those looking for a longer hike—eight miles round trip—and the largest stand of fan palms in the park, the Lost Palms Oasis trail is a sure winner.

But you don’t have to hike to enjoy Cottonwood Spring. This is one of the best birding spots in the park, so bring your binoculars and sit a spell.

The campground, which has water and rest rooms, is located one-half mile from Cottonwood Spring via a signed trail; there are also shaded picnic tables in the campground. To learn more about the plants, birds and history of this fascinating place, join a ranger-led hike, walk, or campfire program, offered most weekends.

Water is a necessity. Desert fan palms suck up water using a mass of pencil-wide rootlets so dense that the roots of other plant species cannot penetrate. This mass may extend as far as 20 feet from the trunk in all directions. But water, in the form of flash floods, is also the most common cause of death for desert fan palms living in narrow canyons.

Water also draws animals such as bighorn sheep, Gambel’s quail, and coyotes to palm oases. Coyotes help spread palms by eating palm fruit at one location and depositing the undigested seeds at another. The cool shade of an oasis provides habitat for animals that live nowhere else. After dark, a flash of yellow-orange might be a hooded oriole preparing to build its woven sack-like nest under the large green leaves of a desert fan palm. The dime-sized holes seen in the trunks of palms are exit holes of the two-inch, blue-black, giant palm-boring beetle, Dinapate wrightii, who lives exclusively in palm oases.

The larvae of the Dinapate beetle spend about five years chewing tunnels within the trunks of desert fan palms. The chewing is so loud that woodpeckers use the noise to locate the larvae. Successful larva pupate within the trunk then chew their way out. Because their rear end is wider than their front end, they exit going backwards to avoid getting stuck. Emerging in June, males and females mate and then die within a few weeks. Eventually these beetles can kill a palm, but they only inhabit older trees. Giant palm-boring beetles keep the palm population young and vibrant. The presence of these beetles is actually a sign of a healthy oasis.

Palms stand straight and tall, looking proud and invincible. But they aren’t. Any place can be overloved. As you explore these oases of wonder, take care. Use existing paths. Watch out for young palms—seedlings look like thick blades of grass. We do not want the presence of people to be a sign of a declining oasis.

Think Globally, Act Locally

Bring your aluminum and metal cans, glass, and plastic to a campground recycling center. Share or recycle this Joshua Tree Guide when you have finished reading it. Participate in recycling in your community.
The Weather

Measurements were taken at 1,960 feet. You can expect seven to 12 degrees cooler temperatures and 3.5 inches more precipitation at higher elevations.

Rockpiles

The geologic landscape of Joshua Tree has long fascinated visitors to this desert. How did the rocks take on such fantastic shapes? What forces sculpted them?

Geologists believe the face of our modern landscape was born more than 100 million years ago. Molten liquid, heated by the continuous movement of Earth's crust, oozed upward and cooled while still below the surface. These plutonic intrusions are a granitic rock called monzogranite.

The monzogranite developed a system of rectangular joints. One set, oriented roughly horizontally, resulted from the removal, by erosion, of the miles of overlying rock, called gneiss (pronounced "nice"). Another set of joints is oriented vertically, roughly paralleling the contact of the monzogranite with its surrounding rocks. The third set is also vertical, but cuts the second set at high angles. The resulting system of joints tended to develop rectangular blocks. (figure 1) Good examples of the joint system may be seen at Jumbo Rocks, Wonderland of Rocks, and Split Rock.

As ground water percolated down through the monzogranite's joint fractures, it began to transform some hard mineral grains along its path into soft clay, while it loosened and freed grains resistant to solution. Rectangular stones slowly weathered to spheres of hard rock surrounded by soft clay containing loose mineral grains. Imagine holding an ice cube under the faucet. The cube rounds away at the corners first, because that is the part most exposed to the force of the water. A similar thing happened here, but over millions of years, on a grand scale, and during a much wetter climate. (figure 2)

After the arrival of the arid climate of recent times, flash floods began washing away the protective ground surface. As they were exposed, the huge eroded boulders settled one on top of another, creating those impressive rock piles we see today. (figure 3) Visitors also wonder about the "broken terrace walls" laced throughout the boulders. These are naturally occurring formations called dikes. Younger than the surrounding monzogranite, dikes were formed when molten rock was pushed into existing joint fractures. Light-colored dikes formed as a mixture of quartz and potassium minerals cooled in these tight spaces. Suggesting the work of a stonemason, they broke into uniform blocks when they were exposed to the surface.

The Desert Institute

The Desert Institute is the educational branch of the nonprofit Joshua Tree National Park Association. We are proud to offer outdoor classes in science, history and the arts of Joshua Tree National Park and the Mojave Desert. Classes are taught by experts in their field and are offered on weekends, varying in length from one to three days. Optional college credit offered through UC Riverside*. Course fees vary: $50 to $125 for non-credit classes and $150 to $200 for credit classes.

Spring Classes

- Native American Basketry February 16 & 17
- Map and Compass Skills I – basic March 1 & 2
- Map and Compass Skills II – advanced March 2 & 3
- *Trees and Shrubs of Joshua Tree NP March 8, 9, & 10
- Ancient Surfaces / Landforms March 9 & 16
- Desert Survival March 15 & 16
- Desert Tracking / Lost Proofing March 16 & 17
- Archeology of Joshua Tree NP March 22 & 23
- Wildflower Wanderings April 7 or May 12
- Entomology of the Mojave April 12
- Lander's Earthquake Fault Tour April 13 or May 4
- Visions of the Desert April 19, 20, & 21
- *Venomous Animals of the Mojave April 26, 27, & 28
- *Birds of Joshua Tree NP May 3, 4, & 5
- *Reptiles & Amphibians of Joshua Tree NP May 10, 11, & 12
- Plein Air Poetry May 18

For a brochure or to sign up for a course, contact us on the web at: www.joshuatree.org, by phone: 760-367-5535, fax: 760-367-5583, or email: desertinstitute@zippnet.net.

Of the dynamic processes that erode rock material, water, even in arid environments, is the most important. Wind action is also important, but the long-range effects of wind are small compared to the action of water.

The erosional and weathering processes operating in the arid conditions of the present are only partially responsible for the sculpturing of the rocks. The present landscape is essentially a collection of relic features inherited from earlier times of higher rainfall and lower temperatures.
A Step Back in Time

Ever wonder what Joshua Tree National Park looked like twenty years ago, or fifty, or even seventy? By comparing historic photographs with current ones, we can step back in time and literally see how our desert landscape has changed.

This monitoring technique, called repeat photography, is an inexpensive way to examine ecological dynamics across an environment: to detect changes in vegetation, gain insights into the effects and dynamics of geomorphic processes such as flashfloods, and to measure the effects of trampling, grazing, fire, and other natural and human caused events.

Repeat photography requires not only skill on the part of the photographer, but also extensive experience exploring in the park because locating and reoccupying the exact camera position of a previous photographer and taking a photo exactly like the old one is not so easy as it sounds. There is also the issue of lighting: if the hill in the historical photo is shaded, you need to re-shoot it at the right time of day to achieve similar shading.

The bushes are sparse in the photograph of Hidden Valley taken in 1963. By 2001 they have filled in and grown larger. What might have been the cause? We know cattle were grazed in the Hidden Valley area until 1936, so we might be looking at how the vegetation has changed since cows were removed from the park. On the other hand, and more likely, we might be looking at how greater rainfall in recent years has affected this area.

It is important to verify what you see in the photographs. In the background of the repeat photo, the hills appear to have lost their pinon pine trees. Could they have been burned during the 1999 Juniper Fire? To find out, we locate Sentinel Rock and the general direction the photograph was shot on a topographic map. We can then see that our mountains are those east of Lost Horse Ranger Station, and not the mountains burned in the 1999 Juniper Fire. The “missing” trees are actually still there, faded somewhat in the digital photo taken in 2001.

This historical photograph was taken in 1936 next to the old Benito Homestead and shows the tallest known Joshua tree in the park. Settled in 1927, this area was likely cleared to make room for the Benito’s chicken ranch. The ranch was abandoned soon after, and native shrubs and grasses have since returned. Notice in the repeat photo, taken in 2001, how the Joshua tree has aged, getting that droopy look that these trees evidence in later years. It is interesting how little this huge specimen has grown over the past 70 years; perhaps much of its growth occurred during the wetter period earlier in the last century. If you look closely, you can also see the loss and renewal of the trees in the background.

In this third set of photos, you might recognize Intersection Rock, now a popular formation for rock climbing. Rock climbing enthusiasts might also recognize Old Woman Rock and The Blob in this photo set. The obvious changes here are the new park road in the foreground and the fallen Joshua tree in the center of the picture. Esteemed desert photographer Stephen Willard took the older photograph between the late 1920s and early 1940s. Willard was a pioneer in desert photography, and his works have often been showcased in local museums and publications. Some of his pictures are included in The California Deserts: Today and Yesterday (Cornett 1998), a collection of repeat photographs available at park visitor centers.

The repeat photographs shown here were taken by Gary Garrett. The historical photograph of the large Joshua tree and Hidden Valley are NPS photographs. The final historical picture was taken by Stephen Willard as noted above. Vegetation Specialist Jane Rodgers provided the photographic analysis.
Publications to help you plan a visit to Joshua Tree National Park

The following publications have been selected for their value in planning your trip to Joshua Tree National Park. These items and many more may be ordered by mail, telephone, FAX, or on the web from Joshua Tree National Park Association.

Getting to Know Joshua Tree National Park

Road Guide to Joshua Tree National Park, Decker. Guides visitors on a driving tour through the land where the Mojave and Colorado Deserts meet. 48 pages PB $5.95

On Foot in Joshua Tree, Fur bush. A comprehensive hiking guide featuring 90 park hikes, 40 photos and illustrations, and 26 maps and reference charts. 152 pages PB $11.95

A Visitor's Guide to Joshua Tree, Cates. A delightful, informative guide blending human and natural history. Equally enjoyable by desert rats and first-time visitors. 100 pages PB $6.95

Hiking California's Desert Parks, Cunningham. Presents 111 hikes and backcountry trips in Anza Borrego, Joshua Tree, Death Valley, and Mojave. 373 pages PB $16.95

The Joshua Tree, Gossard. An easy-to-read book filled with fascinating facts and stories about the symbol of the Mojave Desert. 112 pages PB $9.95

Joshua Tree Video. Excellent introduction to Joshua Tree National Park. 30 minutes VHS $12.95; PAL $15.95

Recreation Map of Joshua Tree, Harrison. Colorful map of Joshua Tree National Park highlighting points of interest, campgrounds, picnic areas, topographic features, and backcountry roads and trails. $8.95

Trails Illustrated Topographic Map of Joshua Tree National Park. Includes elevations, backcountry camping, hikes, routes, and safety. Waterproof and tearproof. $9.95

Joshua Tree, The Story Behind the Scenery, Vuncannon. Full of color photos and fascinating text, the perfect introduction to the park. 48 pages PB $8.95; $9.95 for French or German.

Wildflowers of Joshua Tree. Pocket guide to the common flowering plants of Joshua Tree National Park. Includes a map and over 50 color photographs to help with identification in the field. PB $.95

50 Best Short Hikes, Kist. Covers Joshua Tree, Death Valley and Mojave. Hikes range from easy nature trails to more challenging routes suitable for a full day of hiking. 204 pages PB $12.95

Education to enhance your visit to Joshua Tree National Park

The Desert Institute of Joshua Tree National Park, the education program of the Joshua Tree National Park Association, sponsors one and two day field classes on weekends from September to July. Each class examines a natural or cultural feature of the Mojave Desert and is focused for teachers, volunteer interpreters, park visitors, and others interested in learning about the park and the Mojave Desert. College credit is available through University of California Riverside Extension.

Members of the Joshua Tree National Park Association are automatically enrolled in Partners in Nature Education (PINE), which qualifies them to receive a 20 percent discount on all Desert Institute classes, as well as University of California Riverside Extension Outdoor Study courses. For information on becoming a Joshua Tree National Park Association member, call 760-367-5535.

A Catalogue of Desert Institute Classes is available at park visitor centers, or you may call 760-367-5535 and request one by mail. An electronic copy has been published on our website: www.joshuatree.org.

On the Road in California

California Deserts, Schad. Color photographs of the California Desert Conservation Area, Mojave National Preserve, Joshua Tree National Park, Death Valley National Park, and Anza-Borrego Desert State Park. 103 pages PB $14.95

California's Wilderness Areas, Wuerthner. Seventy-four wilderness areas were created by the 1994 Desert Protection Act. Provides the information visitors need to explore these places. 320 pages PB $27.95

Life in the Desert

Desert Survival Handbook, Lehman. Explains how to deal with emergencies that might arise in a desert environment. Filled with examples, narratives, and illustrations to aid understanding. 91 pages PB $7.95

How Indians Used Desert Plants, Cornett. An informative account of the ways early natives used a variety of desert plants for food, tools, building materials, and as an integral part of their daily lives. 62 pages PB $9.95

The Joshua Tree, Cornett. Up-to-date information about this symbol of the Mojave Desert and namesake of our national park. 32 pages PB $6.95

Growing Up at the Desert Queen Ranch, Keys, Kidwell. The true story of the Keys family and their struggle to survive on an isolated desert ranch in the 1920s and '30s. It is a look into a now lost American way of life. 118 pages PB $14.95

Wildlife of North American Deserts, Cornett. A concise introduction to the most commonly encountered animals in the five North American deserts. 211 pages PB $9.95

Desert Palm Oasis, Cornett. An exploration of the lush, water-loving fan palms that are such a wonderful surprise in arid desert environments. 47 pages PB $10.95

Watchable Birds of the Southwest, Gray. A full-color guide to 68 of the Southwest's fun-to-watch species, big and small. Organized by habitat. 187 pages PB $14.00

100 Desert Wildflowers, Bowers. Color photos and easy-to-read text highlight some of the most common wildflowers of the deserts in the southwest corner of America. 56 pages PB $8.95

Shrubs and Trees of the Southwest Desert, Bowers. An easy-to-use guide full of descriptions and line drawings of over 100 desert shrubs and trees. 140 pages PB $11.95

70 Common Cacti, Fischer. Colorful photographs and easy-to-read descriptions demonstrate the unique beauty of the common cacti of the Southwest. 70 pages PB $8.95

Mojave Desert Wildflowers, Stewart. Presents a condensed view of the nearly 2,000 species of plants known to occur throughout the Mojave Desert region. 210 pages PB $14.95

Poisonous Dwellers of the Desert, Dodge. This classic provides accurate, useful information and debunks superstitions about poisonous desert critters. 40 pages PB $6.95

Ordering Information

Telephone orders are encouraged to ensure that you are ordering the publications best suited to your needs or order from our website at www.joshuatree.org.

By mail, enclosed check or credit card number and expiration date. CA residents include 7.75% sales tax. Prices are subject to change without notice.

Postage & Handling Rates

U.S. & Canada: $6.00 for first item, each add’l item $0.50.
Foreign airmail: $8.00 for first item, each add’l item $2.00.
Lizard Lifestyles

Viewing wildlife is often a priority for visitors to national parks. Arguably the most conspicuous critters abroad in the daytime in Joshua Tree National Park are the lizards. Wherever you go in the park, spring, summer, or fall, you are likely to see lizards. In spring, they are especially abundant.

There are 18 species of lizards in Joshua Tree. Some are very common; others are rare. Lizards are such a visible part of the desert environment because reptiles are pre-adapted for making a living in the desert. Two things required by all animals, food and water, are scarce in the desert. Lizards require much less food than a bird or mammal of the same size because of their low metabolism. And during winter, when food is often scarce, most lizards hibernate and require no food. Lizards need less water than birds or mammals because they excrete their metabolic wastes as a solid (uric acid) instead of dissolved in water (urine).

In reality, the various species of desert lizards differ markedly in their times and places of activity. Some are early risers, up at sunrise, but others do not get up until late morning. The desert banded gecko is active only at night. Certain species climb around in the rocks, others spend most of their lives underground or under cover; still others live on the ground surface or among the branches of desert plants. Such spatial and temporal differences enable different species to live in close proximity without competing for the same food resources.

In the desert, there are two general communities of lizards. One lives on the desert flats, the other in rocky areas. There are often two different, but similar species playing the same ecological role in their respective community. Each community has a top predator lizard, one with a big tyrannosaurus-type head, long teeth, and powerful jaws. On the desert flats this role is occupied by the long-nosed leopard lizard; in rocky areas the role is played by the Mojave collared lizard.

Each community has a large herbivorous lizard. On the desert flats it is the desert iguana, in the rocky areas it is the chuckwalla. This finely tuned division of resources is common in communities with many species. Even though the lizard communities of North American deserts are simple compared with those of Australia and South Africa, this complex partitioning of resources among finely adapted species is apparent here.

When active, most desert lizards maintain a body temperature that is favorable for metabolism by basking in the sun until they reach about 95°F. It is this practice of basking that makes lizards a conspicuous part of the desert scene. Most desert lizards feed on insects, but our two largest—the chuckwalla and desert iguana—eat mainly flowers and leaves.

Many of the smaller species of lizards have special “break points” in the tail bones. The tail beyond these points can be discarded in an emergency, such as being seized by a predator. They are then able to grow a new tail over the following weeks, although the regenerated tail is usually smaller and plainer than the original.

There are two lizards commonly seen around campgrounds by visitors. The small, 4-inch, California side-blotched lizard is brown in color. It is usually seen on top of small boulders. The side-blotched is common in all parts of the park. The other lizard most often seen is the Great Basin fence lizard. This is a larger species, five to seven inches. It is usually very dark in color: gray, black, or even bluish in spring. It is limited to the higher elevation part of the park where it basks on large rock outcrops, often high above ground level.

For the opportunity to see the largest of our lizards, the western chuckwalla, drive along Pinto Basin Road, slowing where it passes through areas with rocky outcrops. Although they are much less numerous than they were 40 years ago, you might just catch a glimpse of a large (12 inch), heavy-bodied lizard sitting near the very top of an outcrop.

Park chuckwallas are very wary, and can seldom be approached closely. Please don’t disturb them. They need to bask in the sun in order to absorb the heat necessary to digest the plants they have consumed.

by Dr. Harold De Lisle, herpetologist