



Joshua Tree Guide

A planning guide for visitors
to Joshua Tree National Park
Spring 2007



Photo by Wayne Bakowski

Planning Your Spring Visit

The park entrance fee is \$15 per vehicle. It is good for seven days. The cost of a Joshua Tree annual pass is \$30. If you plan to visit several parks or other federal lands this year, an interagency annual pass is available for \$80. On March 1, camping fees will increase by \$5 per-site, per-night. Black Rock, Cottonwood, and Indian Cove campsites will go to \$15 per night and Belle, Hidden Valley, Jumbo Rocks, Ryan, and White Tank campsites will cost \$10 per night. A group site at Cottonwood will be \$30 per night and the Indian Cove and Sheep Pass group sites will range from \$25 to \$40, depending on the number of occupants.

Ranger-guided walks, talks, and evening programs are a good way to increase your appreciation of the plants, animals, and natural and cultural features of Joshua Tree National Park. Weekly schedules are available at entrance stations and visitor centers and are posted on campground bulletin boards. We also post them at www.nps.gov/jotr.

When we hear “desert,” we often think “hot.” That is not always the case however, especially during early spring when temperatures can be chilly after the sun sets or on a windy day. So don’t forget to bring your jacket, even for a day trip. And, if you will be attending an evening program or camping, you will want to have additional warm clothing and a warm hat. A temperature graph is located on page nine.

Kids, stop at an entrance station or visitor center and pick up a Junior Ranger booklet. Complete the activities inside and return it to a ranger at an entrance station or visitor center. When you’ve finished, you’ll receive a Joshua Tree Junior Ranger badge.

This spring a half-million people will visit Joshua Tree National park. Many will come hoping to see desert wildflowers in bloom. Because the park has received less than an inch of precipitation this fall and winter, they may be disappointed.

The extent and timing of the spring wildflower blooms in the deserts of California can vary greatly from one year to the next. Fall and winter precipitation and spring temperatures are key environmental factors affecting when and where flowers will be produced.

Most wildflowers need a good soaking rain to get started.
continued on page 12



Pancake prickly pear cactus in bloom

Photo by Bill Truesdell

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VISITOR CENTER HOURS

Oasis	8 a.m. – 5 p.m.
Joshua Tree	8 a.m. – 5 p.m.
Cottonwood	9 a.m. – 3 p.m.
Black Rock	October – May
Daily (except Fridays)	8 a.m. – 4 p.m.
Fridays	Noon – 8 p.m.

EMERGENCIES

Call 909-383-5651 or dial 911 or contact a park ranger. Cell phone coverage in the park is spotty.



 Joshua tree national park
 74485 national park drive
 twenty-nine palms, ca 92277

— Important information

accessibility

The nature trails at Bajada, Cap Rock, and the Oasis of Mara are accessible. Keys View is accessible and Site 122 at Jumbo Rocks Campground is wheelchair accessible.

all terrain vehicles

ATVs may not be used in the park.

bicycling

Bicycling is permitted on public roads, both paved and dirt, but not on trails. There are no bicycle paths and many roads are narrow, so ride cautiously.

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.

emergency phones

In an emergency call San Bernardino Dispatch at 909-383-5651. Call collect. A pay phone is located at the visitor center in Twentynine Palms. You can find pay phones in the towns of Yucca Valley and Joshua Tree and at Chiriaco Summit (12 miles southeast of Cottonwood). Emergency-only phones are located at the ranger station in Indian Cove and at Intersection Rock.

environment

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, five 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 \$15 per vehicle and is good for seven consecutive days. A Joshua Tree Pass may be purchased for \$30 and a Federal Lands Pass, which is good for all federal recreation sites, costs \$80. Both are good for 12 months. A Senior 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.

food storage

Store food in hard-sided containers or in your vehicle to prevent ravens, coyotes, and other wildlife from eating it.

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 publication on horse use before you come.

international visitors

Park 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 weans them from their natural food supplies, causes overpopulation,

and turns them into aggressive creatures as they lose their fear of humans. It is also illegal!

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, upsets delicate drainage patterns, compacts the soil, and leaves visual scars for years. Plants are crushed and uprooted. Wildlife shelters are destroyed, and food and water supplies are altered or obliterated.

overnight parking

There is no overflow parking in the park, at visitor centers, or park headquarters. Unattended vehicles may not be parked outside of campgrounds and backcountry boards between 10 p.m. and 6 a.m.

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 and cannot be more than 100 feet from a road, picnic area, or campground; 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 bolting 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 just one rock or one plant, 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 Oasis Visitor Center is located in Twentynine Palms and is open 8 a.m. to 5 p.m. The Joshua Tree Visitor Center, located in Joshua Tree Village, is also open 8 a.m. to 5 p.m. The Cottonwood Visitor Center serves the southern entrance to the park and is open from 9 a.m. to 3 p.m. and Black Rock Nature Center, located in Black Rock Campground, is open October through May.

wildflowers

Spring blooming periods vary with elevation, temperature, and the amount of moisture in the soil. You can get current information on the park website: www.nps.gov/jotr.

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.

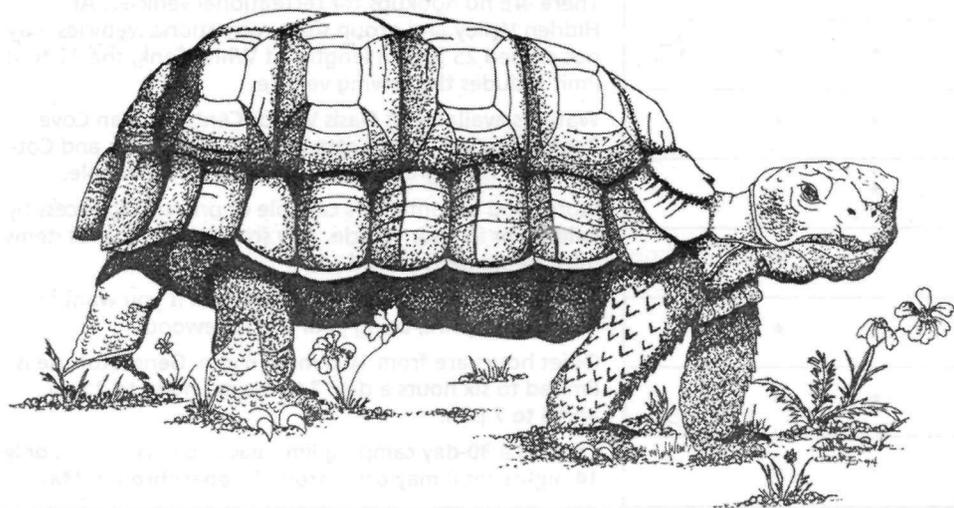
you are responsible

You are responsible for knowing and obeying park rules. Check at visitor centers, at entrance stations, on bulletin boards, and on the park website: www.nps.gov/jotr to find out what they are. When in doubt, ask a ranger.

What is a Tortoise?

Family Tortoise, Testudinidae

Genus & Species *Gopherus Agassizii*



Description Desert tortoise are terrestrial reptiles (unlike turtles, who spend most of their time around water). Their shells are dome-shaped with pronounced growth rings (which are not indicative of age) and their limbs are stocky with blunt nails.

Food They eat leaves and flowers of desert plants and scavenge bones from the scats of raptors and coyotes in order to obtain the calcium.

Life History Mating occurs in both fall and spring. Eggs are laid from mid-April through June but only about 50% hatch. The hatchling tortoises immediately disperse. Baby tortoises are able to survive many months on the absorbed egg yolk but only 50% survive their first year due to predation—increasingly by ravens.

Habitat The tortoise is found through much of the park except in truly mountainous areas. Like other reptiles, tortoise require heat from the sun for energy, but too much heat will cause a tortoise to cook in its own body moisture. Therefore, tortoises are active from early March to October when temperatures are optimal and spend the other months inside of burrows. If you see one you are fortunate: these animals spend almost 95 percent of their time underground!

Activity Tortoises are active during much of the day in spring and become bi-modal (early morning and late afternoon) by early summer. In the heat of the day the tortoise rests in the shade of a bush or in a shallow summer burrow. On warm nights it may fashion a pad under a bush and remain on the surface. It digs a deeper burrow for the winter.

Tortoises know the location of burrows, mates, water catchments, and mineral licks within their home range, which can be from one to two acres in size. They only occasionally make journeys outside their home range.

When two tortoises meet they usually nod heads vigorously and often circle one another. In the case of two males, a fight is likely to occur. The combatants charge each other with heads slightly drawn in, using their extended gular horns to try and overturn the opponent. Once overturned, a tortoise must right itself quickly or succumb to the desert heat.

Status It is estimated that desert tortoises have existed for 15 to 20 million years. But, however well adapted to living in the desert, tortoises are not adapted to living with destruction of their burrows and food supply by road and building construction, grazing sheep, and off-road vehicles. Road kills, hunting, and respiratory disease are additional threats. Today they are listed by the U.S. Endangered Species Act as “Threatened.”

Protection

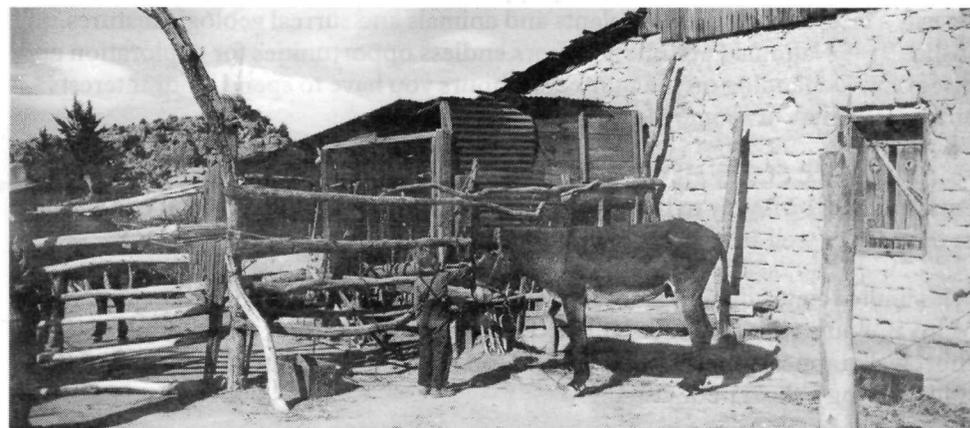
It is important not to pick up a tortoise and illegal to do so. Like a young child who may wet his pants when afraid, a tortoise will “void” its bladder if frightened. This could have life-threatening consequences for the animal if it is not able to replenish its water supply. That said, if you notice a tortoise crossing a road where it is in danger of being run over, you should pick it up, keeping it level, and carry it in the direction it was heading (it knows where it wants to go), then gently place it off the road and in the shade.

It is both dangerous and illegal to release pet tortoises into the park as they may carry a number of diseases that will spread to the wild population. Used to being cared for, a domesticated tortoise, even a healthy one, is unlikely to be able to fend for itself after being dumped in the desert. Beyond that, tortoises are highly territorial and an intruder will not be tolerated for long.

A significant number of tortoises get run over by cars and trucks each year because drivers fail to see them crossing the road or do not notice them in the shade under their vehicles. It is therefore extremely important to drive slowly on park roads and to check under and around your vehicle before getting in and driving away.

Visit Keys Ranch

on a ranger-guided walking tour



NPS

Historical Photo

One of the park’s most popular historic sites is the Desert Queen Ranch, known locally as Keys Ranch, after longtime park resident William “Bill” Keys. Originally an immigrant from Russia, Bill Keys arrived in the Joshua Tree area in 1910. He served for a while as the hired caretaker and assayer of the Desert Queen Mine. Eventually, he acquired the mine and a five-acre mill site as payment for back wages. He homesteaded additional acres and named his place the Desert Queen Ranch. Miner, rancher, farmer, engineer, handyman, and desert survivor, Bill Keys, along with his wife Frances, created a life and educated his children in this remote desert canyon.

Bill led a colorful life and is famous as the survivor of a gun battle with Worth Bagley over a disputed right-of-way. He also had small parts in two Disney films, *Chico, the Misunderstood Coyote* (1960), and *Wild Burro of the Desert* (1961).

Over the years, the ranch grew into a rambling collection of buildings, cabins, shacks, mining equipment, old cars, and the remarkable assortment of

odds and ends needed to support Keys’ many endeavors at his isolated desert homestead. Following Keys’ death, the Desert Queen Ranch was added to the National Register of Historic Places.

You may visit the ranch on ranger-guided tour that lasts 90 minutes. Tours are offered daily at 10 a.m. and 1 p.m.

Tickets for adults and children 12 years and over cost \$5.00. Tickets for children 6 to 11 are \$2.50. Senior and Access pass holders will pay \$2.50.

Tickets can be purchased in advance by calling the park reservation office at 760-367-5555 Monday through Friday between 9 a.m. and 3 p.m. Tour tickets can also be purchased in person at the Oasis Visitor Center in Twentynine Palms from 8 a.m. to 5 p.m. It is recommended that you call ahead to ensure that tickets are available for your preferred date and time.

Tour fees are used to support the Desert Queen Ranch tour program and to restore, maintain, and preserve the historic character of the ranch property.

Campgrounds	Elevation	Sites	Group Fee	Group Sites	Horse Camp	Water	Flush Toilets	Chemical Toilets	Tables	Fire Grates	Dump Station
Belle	3800'	18	\$10					*	*	*	
Black Rock	4000'	100	\$15		\$15	*	*		*	*	*
Cottonwood	3000'	62	\$15	3	\$30	*	*		*	*	*
Hidden Valley	4200'	45	\$10					*	*	*	
Indian Cove	3200'	101	\$15	13	\$25/40			*	*	*	
Jumbo Rocks	4400'	125	\$10					*	*	*	
Ryan	4300'	31	\$10		\$10			*	*	*	
Sheep Pass	4500'			6	\$25/40			*	*	*	
White Tank	3800'	15	\$10					*	*	*	

Campsites are limited to six people, three tents, and two cars. Group sites accommodate ten to 60 people.

Obtain reservations up to six months in advance for sites at Black Rock, Indian Cove, and all group sites by calling 1-877-444-6777. Other campgrounds are first-come, first-served. Camp only in designated campsites.

There are no hookups for recreational vehicles. At Hidden Valley and group sites, recreational vehicles may not exceed 25 feet in length. At White Tank, the 25-foot limit includes the towing vehicle.

Water is available at Oasis Visitor Center, Indian Cove Ranger Station, West Entrance, and Black Rock and Cottonwood campgrounds. Showers are not available.

Store food in containers capable of preventing access by wildlife or in your vehicle. Any scented or odorous items must be similarly stored.

All vegetation in the park is protected. If you want to make a campfire, bring your own firewood.

Quiet hours are from 10 p.m. to 6 a.m. Generator use is limited to six hours a day: 7 to 9 a.m., noon to 2 p.m., and 5 to 7 p.m.

There is a 30-day camping limit each year. However, only 14 nights total may occur from October through May.

Be an inspiration to others; leave your campsite cleaner than you found it.

What To See And Do

Viewed from the road the desert may appear bleak and drab. Closer examination reveals a fascinating variety of plants and animals and surreal geologic features. 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 or take a longer hike; several are listed on page 7 of this publication. A ranger-led program will add enjoyment and understanding to your visit. Check at visitor centers and on campground bulletin boards for listings. Or, call ahead and reserve a spot on the popular Keys 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 the article titled Backcountry Roads in this publication.

Joshua Tree has gained international attention as a superb rock-climbing area. Many visitors enjoy watching the rock climbers in action.

WITH MORE THAN ONE DAY IN THE PARK, your options increase. There are nine campgrounds and backcountry camping is permitted. You will find information concerning camping and backcountry use elsewhere in this publication.

Books and topographic maps give information needed for longer hikes. For "peak baggers," the park has ten mountains over 5,000 feet (1,524 m) in elevation. Or make it your goal to hike to all the park oases. Other trails lead you to remnants of the gold mining era, a colorful part of the park's cultural history.

Whatever you choose, your time will be rewarding. The desert holds much more than what is readily apparent to the casual observer. A NOTE OF CAUTION: The desert, fascinating as it is, can be life-threatening for those unfamiliar with its potential dangers. It is essential that you carry water with you—even if you are only driving

Backcountry Roads

for mountain bikes and 4-wheel drive vehicles

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.

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 of Pinto 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. Use extreme caution when exploring old mines.

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.

Queen Valley Roads

A network of roads, totaling 13.4 miles (21.7 km), crosses this valley of boulder piles and Joshua trees. A bike trip can begin at Hidden Valley or the dirt road opposite Geology Tour Road. Bike racks have been placed in this area so visitors can lock their bikes and go hiking.

Geology Tour Road

An 18-mile motor tour leads through one of the park's most fascinating landscapes. The road turns south from the paved road two miles (3.2 km) west of Jumbo Rocks Campground. There are 16 stops and it takes approximately two hours to make the round trip. The distance from the junction to Squaw Tank is 5.4 miles (8.8 km). This section is mostly downhill but bumpy and sandy. Starting at Squaw Tank, a 6-mile (9.7 km) circular route explores Pleasant Valley. A descriptive brochure that highlights each stop is available at the beginning of the road.

Covington Flats

The dirt roads in Covington Flats offer access to some of the park's largest Joshua trees, junipers, and pinyon pines. From Covington Flats picnic area to Eureka Peak is 3.8 miles (6.2 km) one-way. The dirt road is steep near the end, but the top offers views of Palm Springs, the surrounding mountains, and the Morongo Basin. Your trip will be 6.5 miles (10.5 km) longer if you ride or drive over to the backcountry board, a starting point for excellent hiking.

BACKCOUNTRY CAMPING, HIKING, and HORSEBACK RIDING

Joshua Tree National Park is a back-packer's dream with its mild winter climate and interesting rock formations, plants, and wildlife. It embraces 794,000 acres, of which 585,040 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.

Hiking

It is easy to get disoriented in the desert: washes and animal trails crisscross 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 or GPS unit and learn how to use them before you head out. Cell phones are often not usable inside the park.

Know your limitations and don't take risks. You should not attempt to climb 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.

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 maps at the backcountry boards) and make certain to camp outside their boundaries.

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 a dump station are also available. For horse owners, a separate area is provided for camping or for staging a ride.

Campers 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 you plan a hike or other activity. Maps, books, nature guides, and children's activity books may be purchased there.

The hills behind the campground offer a variety of hiking

Washes may seem like 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.

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 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 additional information be mailed to you.

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.

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, scrub-jays, and roadrunners. A lucky 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 could become aggressive and harm you.



National Park Service
U.S. Department of the Interior

Joshua Tree National Park

Designations

National Park – 1994
Biosphere Reserve – 1984
National Monument – 1936

Size

794,000 acres

Superintendent

Curt Sauer

Park Information

760-367-5500

Web Site

www.nps.gov/jotr/

Mailing Address

74485 National Park Drive
Twentynine Palms, CA 92277

E-mail

jotr_info@nps.gov

Fax Number

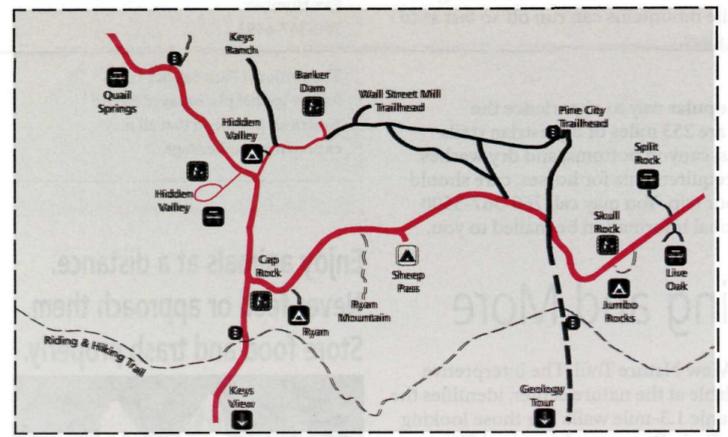
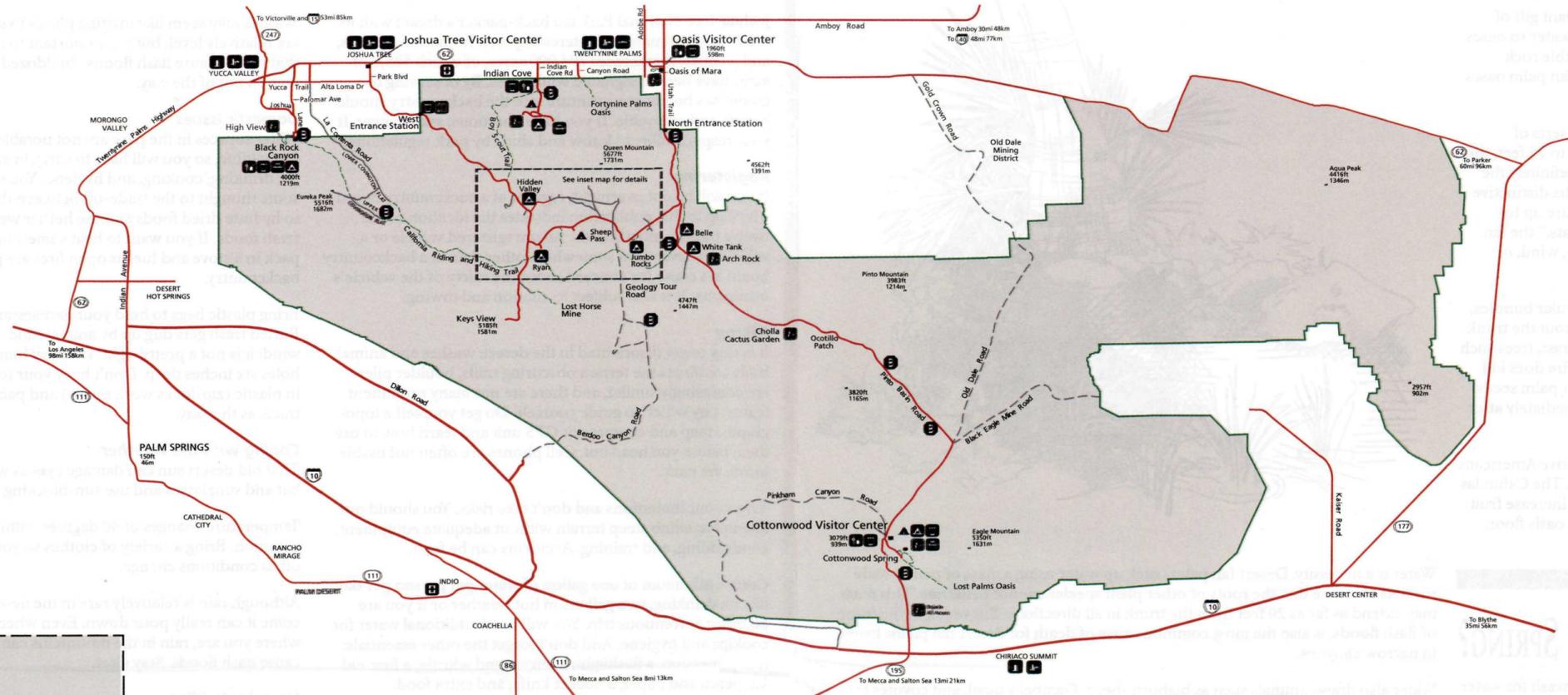
760-367-6392

The National Park Service cares for the special places saved by the American people so that all may experience our heritage.

Enjoy animals at a distance.
Never feed or approach them.
Store food and trash properly.



How Far Is It?	Oasis VC	Cottonwood VC	Joshua Tree VC
Belle Campground	9	28	28
Black Rock Canyon	27	65	9
Cap Rock/Keys View Road	19	40	16
Cholla Cactus Garden	18	20	36
Cottonwood Spring	38	0	56
Geology Tour Road	13	35	21
Hidden Valley	20	42	14
Indian Cove	10	48	8
Interstate 10	45	7	56
Jumbo Rocks Campground	12	34	23
Keys Ranch Tour	22	44	16
Keys View	24	45	21
Oasis of Mara	0	38	24
Pinto Basin Road/Park Blvd.	8	30	26
Ryan Campground	18	39	16
Sheep Pass Campground	16	37	19
White Tank Campground	11	27	29



NATURE TRAILS



Trail	Mileage	Starting Point
Arch Rock	.3-mile loop (.5-km)	White Tank Campground, opposite site 9
Bajada All-Access	.25-mile loop (.4-km)	South of Cottonwood, one-half mile from the southern entrance to the park
Barker Dam	1.1-mile loop (1.8-km)	Barker Dam parking area
Cap Rock	.4-mile loop (.6-km)	Cap Rock parking area, at the junction of Park Blvd. and Keys View Road
Cholla Cactus Garden	.25-mile loop (.4-km)	20 miles north of Cottonwood Visitor Center
Cottonwood Spring	1-mile (1.6-km)	Cottonwood Spring parking area
Hidden Valley	1-mile loop (1.6-km)	Hidden Valley picnic area
Hi-View	1.3-mile loop (2.1-km)	Northwest of Black Rock Campground
Indian Cove	.6-mile loop (1-km)	West end of Indian Cove Campground
Keys View	.25-mile loop (.4-km)	Keys View
Oasis of Mara	.5-mile loop (.8-km)	Oasis Visitor Center, Twentynine Palms
Skull Rock	.25-mile (.4-km)	Jumbo Rocks Campground

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.



HIKING TRAILS

Trail	Round-trip Mileage	Time	Starting Point	Trail Description
Boy Scout Trail	16 miles 25.8km	1-2 days	Indian Cove backcountry board or Keys West backcountry board 0.5 mile (0.8km) east of Quail Springs Picnic area	Scenic trail through the western most edge of the Wonderland of Rocks. See backcountry board for information on overnight use. Moderate.
49 Palms Oasis	3 miles (4.8 km)	2-3 hours	Parking area at end of Canyon Road, 4 miles (6.4 km) west of Twentynine Palms off Hwy 62	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.
Lost Horse Mine/Mt.	4 miles (6.4 km)	3-4 hour	Parking area 1.2 miles (1.9 km) east of Keys View Road	Site of ten-stamp mill and foundations. Summit elevation: 5278 feet (1609 m). Moderately strenuous.
Lost Palms Oasis	7.2 miles (11.6 km)	4-6 hours	Cottonwood Spring or Cottonwood Campground	A canyon with numerous palm stands. A side trip to Victory Palms and Munsen Canyon involves boulder scrambling. Moderate to oasis overlook, then strenuous.
Mastodon Peak	3 miles (4.8 km)	2-3 hours	Cottonwood Spring or Cottonwood Campground	Excellent views of the Eagle Mountains and Salton Sea. Summit elevation: 3371 feet (1027 m). Moderate.
Ryan Mountain	3 miles (4.8 km)	2-3 hours	Ryan Mountain parking area or Sheep Pass Campground	Excellent views of Lost Horse, Queen, and Pleasant Valleys. Summit elevation: 5461 feet (1664 m). Moderately strenuous.

Thirty-five miles of the California Riding and Hiking Trail pass through the park. Access to the trail is at its junction with Covington Flats, Keys View, and Squaw Tank (Geology Tour) Roads; at Ryan Campground; south of Belle Campground; and near the north entrance to the park. This allows for shorter hikes of 4, 6.7, or 11 miles (6.4, 10.7, or 17.6 km). Two to three days are required to hike the entire length of the trail.

Area Information

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

- Indio**
82-921 Indio Blvd.
Indio, CA 92201
760-347-0676
indiochmbr@aol.com
www.indiochamber.org
- Joshua Tree**
P.O. Box 600
Joshua Tree, CA 92252
760-366-3723
www.joshuatreechamber.org
- Palm Springs**
190 W. Amado Rd.
Palm Springs, CA 92262

- 760-325-1577
PSChamber@worldnet.att.net
www.pschamber.org
- Twentynine Palms**
6455 Mesquite Ave. Unit A
Twentynine Palms, CA 92277
760-367-3445
www.29chamber.com
- Yucca Valley**
56300 29 Palms Hwy.
Yucca Valley, CA 92284
760-365-6323
chamber@yuccavalley.org
www.yuccavalley.org

Ranger Programs
 Keys Ranch tours,
 Evening campground talks,
 Discovery walks,
 Star parties,
 And much more.
 Pick up a current schedule at an entrance station or visitor center; or look on campground bulletin boards. We also publish program schedules on our website: www.nps.gov/jotr.

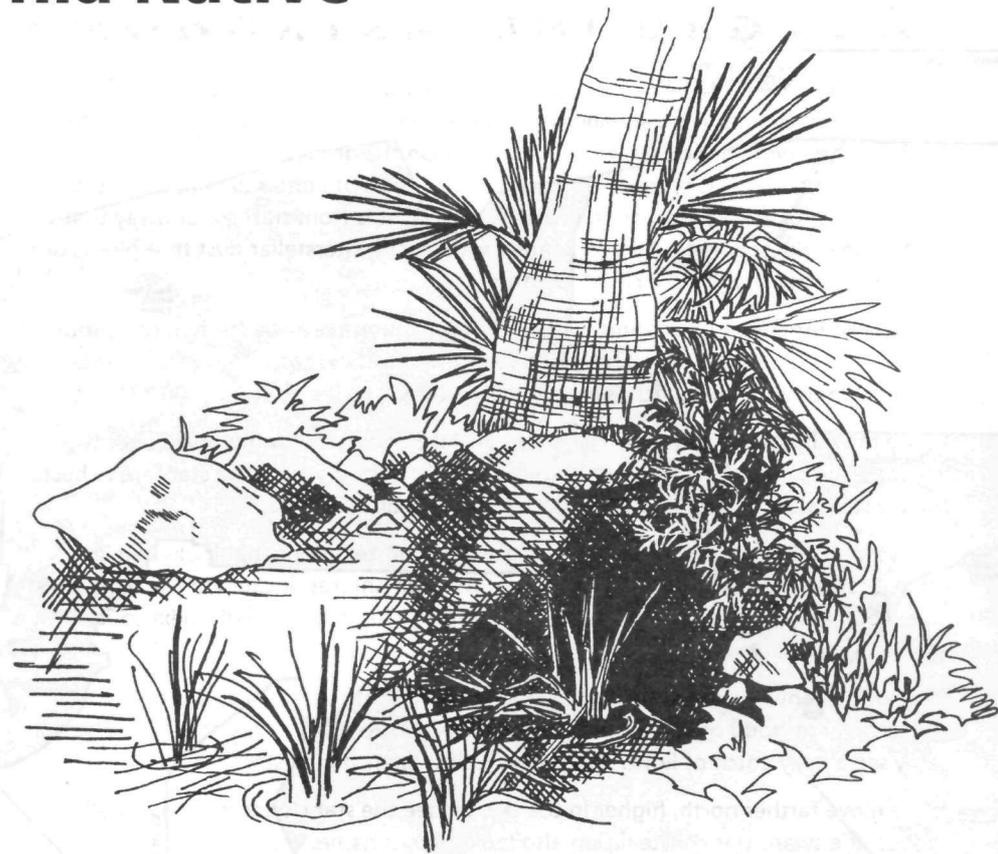
The Desert Fan Palm: A California Native

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, 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 Cahuillas (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 Cahuillas also planted palm seeds in promising locations.



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 rush of air may be caused by the passing of a western yellow bat—they only roost in palms. During the day, 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 overly loved. 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.

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 arrastra, 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.

Cottonwood Spring was first mentioned in a gold mine claim filed in 1875, indicating that the trees are native. Fan palms first appear around 1920, perhaps growing from seeds deposited by a bird or coyote.

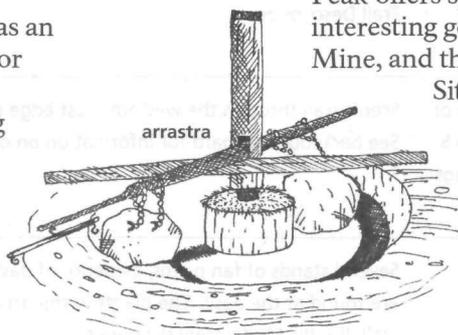
A number of hikes begin at Cottonwood Spring. A short, easy walk down Cottonwood Wash leads past a second oasis to a dry falls. In wet years, the falls can become a scene of rushing water and red-spotted toads. Bighorn

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.

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, animals, and history of this fascinating place, join a ranger-led hike, walk, or campfire program, offered most weekends.





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.

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.

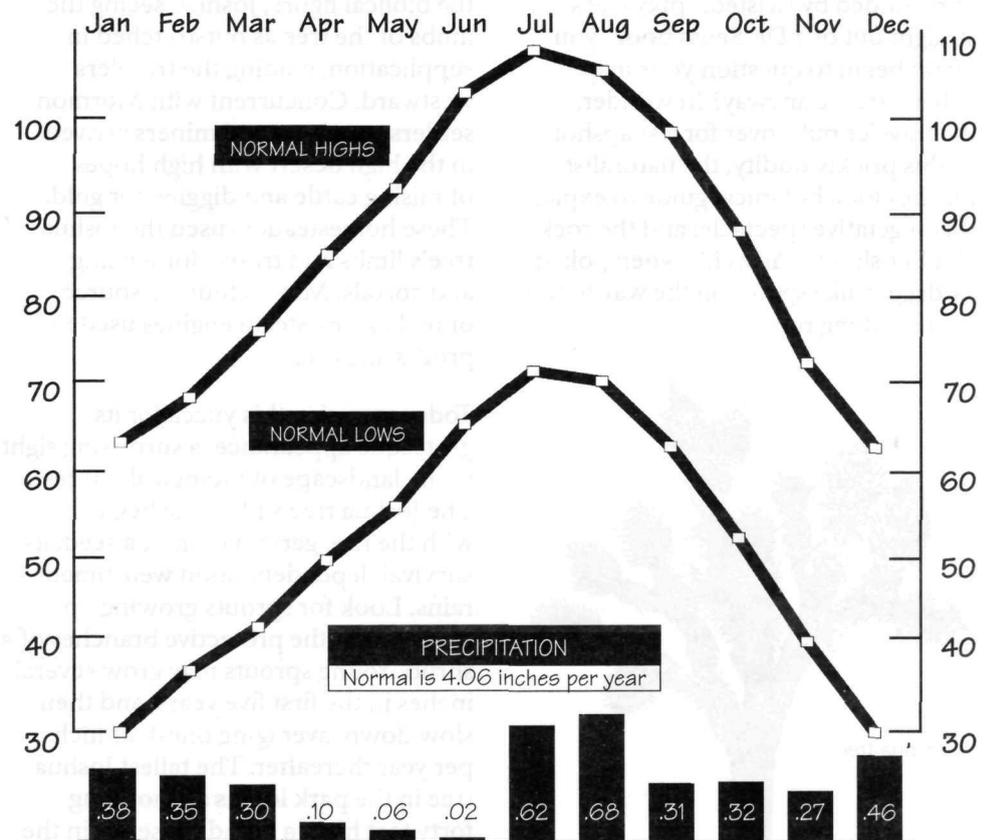
Just west of Sagittarius is Scorpio, one of the few constellations that looks like its name. Scorpio is distinguished by the bright red star Antares, located in the scorpion's neck. Look at Antares with binoculars. See the large fuzzy ball of light next to it? That is a large globular cluster.

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.

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?

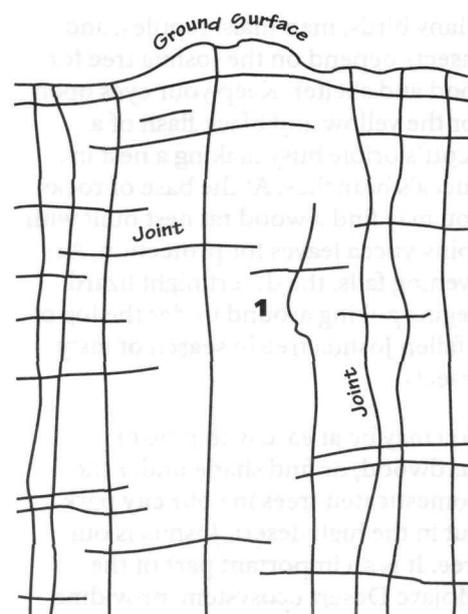
Geologists believe the face of our modern landscape was born more than 100 million years ago. Molten liquid, heated by the continuous movement of Earth's crust, oozed upward and cooled while still below the surface of the overlying rock. These plutonic intrusions are a granitic rock called monzogranite.

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



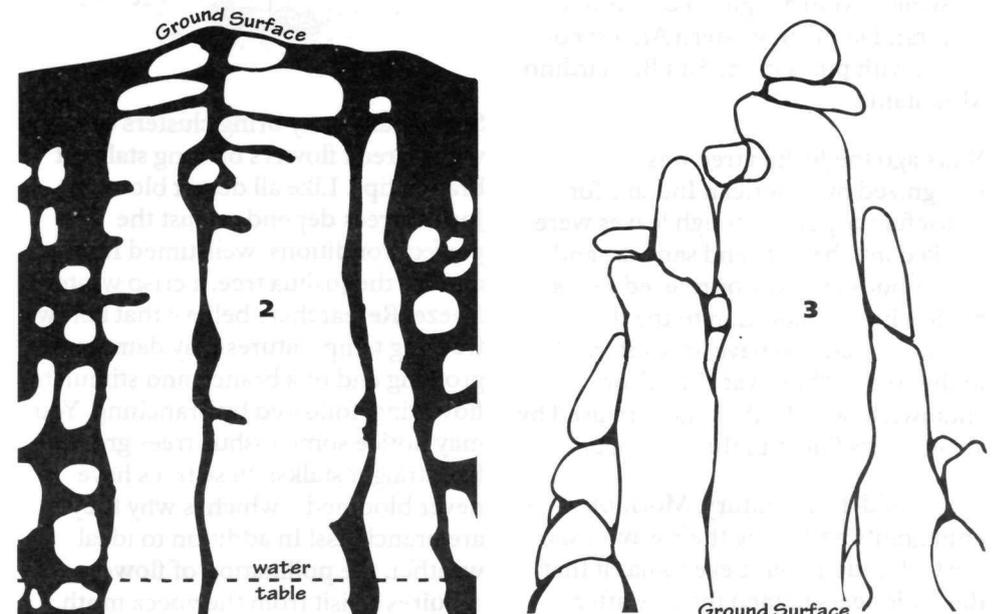
away the protective ground surface. As they were exposed, the huge eroded boulders settled one on top of another, creating those impressive rock piles we see today. (figure 3)

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.

Of the dynamic processes that erode rock material, water, even in arid environments, is the most important. Wind action is also important, but less so than the action of water.

The 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.



"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.



a Joshua tree

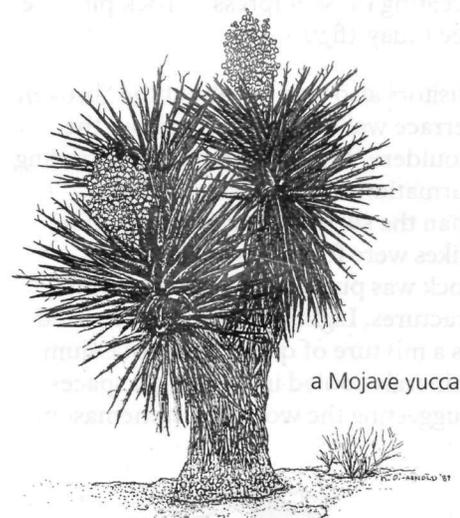
the biblical figure, Joshua, seeing the limbs of the tree as outstretched in supplication, guiding the travelers westward. Concurrent with Mormon settlers, ranchers and miners arrived in the high desert with high hopes of raising cattle and digging for gold. These homesteaders used the Joshua tree's limbs and trunks for fencing and corrals. Miners found a source of fuel for the steam engines used in processing ore.

Today we enjoy this yucca for its grotesque appearance, a surprising sight in the landscape of biological interest. The Joshua tree's life cycle begins with the rare germination of a seed, its survival dependent upon well-timed rains. Look for sprouts growing up from within the protective branches of a shrub. Young sprouts may grow several inches in the first five years, and then slow down, averaging one-half inch per year thereafter. The tallest Joshua tree in the park looms a whopping forty feet high, a grand presence in the Queen Valley forest; it is estimated to be about 300 years old! These "trees" do not have growth rings like you would find in an oak or pine. This makes aging difficult, but you can divide the height of a Joshua tree by the average annual growth of one-half inch to get a rough estimate.

Known as the park namesake, the Joshua tree, *Yucca brevifolia*, is a giant member of the lily family. Like the California fan palm, *Washingtonia filifera*, 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, *Yucca schidigera*. 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 made a healthy addition to the diet. The local Cahuilla have long referred to the tree as "hunuvat chiy'a" or "humwichawa"; both names are used by a few elders fluent in the language.

By the mid-19th century, Mormon immigrants had made their way across the Colorado River. Legend has it that these pioneers named the tree after



a Mojave yucca

Spring rains may bring clusters of white-green flowers on long stalks at branch tips. Like all desert blooms, Joshua trees depend on just the perfect conditions: well-timed rains, and for the Joshua tree, a crisp winter freeze. 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.

Desert Institute

The Desert Institute, the educational field program sponsored by Joshua Tree National Park Association, a not-for-profit organization, offers outdoor classes related to Joshua Tree National Park and the California deserts. Taught by experts in their field, classes vary in length from one to three days. Optional college credit is offered through University of California Riverside Extension for course titles followed by an asterisk (*). Course fees vary from \$45 to \$200.

Spring Class Schedule

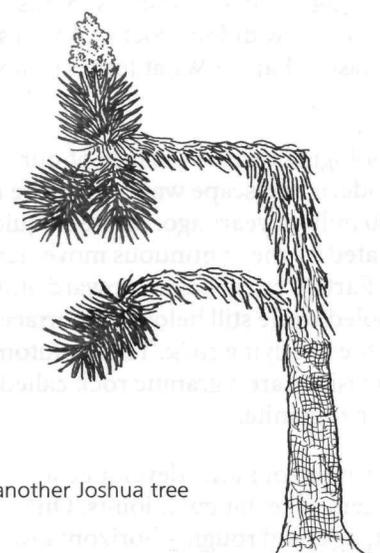
Hiking for Health & Wellness	Feb 17
Map & Compass Basic Skills	Feb 23, 24
Map & Compass Advanced Skills	Feb 25
Queen Mountain: A View From the Top	Mar 3
Pinto Basin Desert Ecology	Mar 4
Rocks & Minerals of Joshua Tree National Park*	Mar 9, 10, 11
Geology of Rattlesnake Canyon	Mar 17
Integrating Map & Compass with GPS	Mar 18
Flora of Joshua Tree National Park*	Mar 24, 25
Wildflower Wanderings	Mar 31
Basic Desert Survival	Apr 1
Desert Night Sky	Apr 7
Plant Ecology of Joshua Tree National Park*	Apr 13, 14, 15
Photographing Joshua Tree Up Close and Personal	Apr 20, 21
Venomous Animals of the Desert	Apr 22
Edible Plants of the Desert	Apr 28, 29
Birds of Joshua Tree National Park*	May 4, 5, 6
Plein Air Poetry®	May 12

Contact us for a brochure or to sign up for a course: www.joshuatree.org / tel. 760-367-5535 / fax 760-367-5583 / e-mail desertinstitute@zippnet.net.

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 tree. It is an important part of the Mojave Desert ecosystem, providing



another Joshua tree

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

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 at www.joshuatree.org.

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, Furbush. A comprehensive hiking guide featuring 90 park hikes, 40 photos and illustrations, and 26 maps and reference charts. 173 pages PB \$14.95

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

Joshua Tree The Complete Guide, Kaiser. Filled with invaluable tips, maps, and trail descriptions to help you make the most of your time in Joshua Tree. 207 pages PB \$19.99

Joshua Tree Desert Reflections, Trimble. Dazzling photos and lyrical narrative make this book both the perfect introduction to the park and a treasured memento. 40 pages PB \$9.95

Cragcam's Guide to Joshua Tree National Park, Breaks park activities into three easy to use areas: hiking, rock climbing, and camping. DVD \$21.95

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 \$9.95; \$10.95 for French or German.

Joshua Tree National Park Geology, Trent and Hazlett. Explores the geology and evolution of the Joshua Tree landscape. Includes sections on plate tectonics, regional geology, and seismic activity. PB \$9.95

50 Best Short Hikes, Krist. 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

On the Road in California

California Deserts, Schad. Takes you on a journey through the hottest, driest, lowest, and loveliest places in North America. 103 pages PB \$14.95

California Road & Recreation Atlas. Detailed maps include landscape, recreation guides, GPS grids, and freeway exit numbers. 143 pages PB \$24.95

The Living Desert, exploring national parks and monuments through natural sounds. CD \$15.95.

National Audubon Society Field Guide to California, Alden, Health. A complete overview of California's natural history including an extensive sampling of the state's parks, preserves, beaches, forests, islands, and wildlife sanctuaries. 450 pages \$19.95

Geology Underfoot in Southern California, Sharp and Glazner. An inside view of the southland's often active, sometimes enigmatic, and always interesting landscape. 224 pages PB \$14.00

Life in the Desert

Desert Survival Tips, Tricks, & Skills, Nester. Explains how to deal with emergencies that might arise in a desert environment. Filled with examples, narratives, and illustrations to aid understanding. 70 pages PB \$10.95

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

Desert Solitaire, Abbey. The author's recollection of summers spent as a ranger in the canyon and rim country of southern Utah, including observations of the natural world. 269 pages PB \$14.00

The Lizard-Watching Guide, Sanborn. More than a typical field guide, Sanborn details seventeen common lizards found in the Mojave and Colorado deserts. 36 pages PB \$8.95

Wildflowers of Joshua Tree National Park. Fifty-eight color photos of blooming wildflowers, shrubs, and cacti taken by park staff provide a handy reference for visitors. \$1.50

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 \$7.95

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 \$14.95

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

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 \$7.95

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

The Sibley Field Guide to Birds of Western North America, Sibley. An indispensable resource for birders seeking an authoritative and portable guide to the birds of the west. 474 pages PB \$19.95

Poisonous Dwellers of the Desert, Dodge. This guide not only enables the reader to identify potentially dangerous species but encourages appreciation of the animals' natural history. 40 pages PB \$5.95

Education to enhance your visit to Joshua Tree National Park

THE DESERT INSTITUTE AT JOSHUA TREE NATIONAL PARK, the education program of the Joshua Tree National Park Association, sponsors one, two, and three day field classes on weekends from September to May. Each class examines a natural or cultural feature of the Mojave Desert and is geared to 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 \$10 discount on each Desert Institute class, as well as discounts on 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 on-line class catalogue is available on our website: www.joshuatree.org.

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Bladder pod may be seen along the roadways.

Some seeds are coated with inhibitors that must be dissolved or abraded before germination can occur. Normally desert annuals germinate between September and mid-January. However, if no winter rains occur, rain in February and March can trigger later germination followed by a rapid flowering before the weather becomes too warm.

What blooms in spring depends on how much and when precipitation falls. September and October rains favor certain species while later rainfall favors others. The desert lily requires enough rain to reach bulbs that may be more than a foot below the surface.

When fall and winter rainfall has been sufficient, spring flowering will begin as temperatures rise—at elevations below 3,000 feet in February and at higher elevations in March and April. On mountain tops above 5,000 feet, blooms appear as late as June. How long the blooming period lasts depends on how hot daytime temperatures get. Heat quickly withers desert wildflowers.



Joshua trees don't bloom every year.

Coyote Concerns

Canis latrans, is an amazingly adaptive animal found in forty-nine states and numerous national parks. Many park visitors see coyotes as living symbols of the wild. So it's little wonder that people sometimes seek the thrill of approaching, photographing, or even feeding these wild creatures.

Doing so allows us to connect with the natural world, reaching for a moment beyond our tame and separate existence. Yet doing so threatens the very creatures with whom we seek to connect.

The Advantage of Adaptability

Coyotes are an integral part of the ecosystem here. And they live successfully in the natural world because of their adaptability, particularly when it comes to food. Coyotes are omnivores and scavengers, which means they eat anything they can find—dead or alive. Rodents comprise sixty percent of their natural diet. But they also eat berries, bean pods, fruits, lizards, fish, rabbits, and birds. With such a varied diet, coyotes rarely go hungry.

Coyotes are wary, if not shy. You may have seen one at Joshua Tree, furtively crossing a road or standing silently along a ridge. Frequently confused with wolves or even domestic dogs, coyotes may be golden, gray, or brown. Their tails are quite bushy and their snouts are tapered and pointed. Coyotes stand about two feet at the shoulder and weigh about 35 pounds.

When left alone, coyotes remain within their natural ecosystem, playing an important role that contributes to its overall balance and stability.

The Threat

The very adaptability that helps coyotes live successfully in the natural world can get them in trouble when their world meets ours. You may have seen a coyote strolling through a campground or picnic area, looking very much at home. If so, you saw an individual who has adapted to being around humans and to eating human foods. Coyotes are intelligent, clever, and, at least in one way, similar to us. They quickly learn to follow the path of least resistance. So when we feed a coyote directly or leave food scraps near a campsite or car, the coyote learns to associate humans with food. This begins a pattern that is difficult to break and may lead to the coyote's premature and unnatural death.

This can happen in several ways:

- First, if coyotes adapt to accepting human food, they may stop hunting for their natural diet. Then, when the tourist season ends in the summer, they may starve.
- Second, extra food provided by humans creates an artificial abundance for the coyote triggering the birth of more pups than summer food supplies can support.
- Third, some coyotes learn that cars mean food, so they sit or lie on roads, unaware that they can be struck and killed by these same vehicles.
- Finally, though coyotes adapt to being fed by humans, they remain wild animals: they will bite if they feel threatened, and they may carry rabies or other serious diseases. There have also been several recent incidents in southern California where coyotes have attacked small children at community parks.

For these reasons, we at Joshua Tree National Park must consider visitor safety and either relocate or shoot a coyote that has adapted to human food. Because coyotes are often too smart to get caught in relocation traps, they usually have to be killed if they become a nuisance.

Don't Feed Coyotes

It's a simple solution—and an effective one. If we don't encourage coyotes to adapt to human food, they'll be much less likely to get hit by cars, starve during the summer, or be shot for visitor safety.

Coyotes can find plenty of natural food in the desert. Please don't endanger their lives or yours by feeding them. With your cooperation, coyotes can use their adaptability to remain a wild and natural part of Joshua Tree for years to come.

This article, which originally appeared in Death Valley's Visitor Guide, has been adapted for Joshua Tree.



Adolescent coyote



Baby coyotes



Singing coyotes



Healthy adult coyote