Wildflowers—When & Where

This spring a half-million people will visit Joshua Tree National park. Many will come hoping to see desert wildflowers in bloom.

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. 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. Plants such as the desert lily require enough rain to soak down and 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.

Fall and winter precipitation (including several inches of snow in November) has been plentiful in the park this year and desert dandelions mixed with a few poppies, lupine, chia, evening primrose, and forget-me-nots are already blooming along the boundary of the park south of Cottonwood Spring.

In addition, green leaf rosettes of many desert annuals were covering large areas of the park by mid-January. Leaves of desert dandelion, fiddleneck, forget-me-not, pincushion, brown-eyed primrose, dune primrose, and others have appeared. Now these plants will wait for warm-enough temperatures to start putting up their flower stalks.

Spring of 2004 was an especially colorful wildflower season with a large variety of different species in bloom throughout the park. Spring of 2005 could be another great wildflower season. Stop by a park visitor center or check www.nps.gov/jotr for the latest information.

article and photo by Volunteer Naturalist Bill Truesdell

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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. There are no bicycle paths and many roads are narrow, so ride cautiously. Bikes are prohibited on backcountry and nature trails.

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 Indian Cove ranger station and at Intersection Rock parking area.

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 $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  
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.

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 and cannot be more than 150 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 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 camp­
ground 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.

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.californiadesert.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.
A Land of Plenty

"Oooohhh! Look at all of that food!" Katherine Saubel, a native-speaking Cahuilla describes how she felt the first time she flew over the desert as a guest of the Bureau of Land Management. Mrs. Saubel knows very well that her description points out the difference between the native point of view and the way most people see our desert here in Joshua Tree National Park.

It probably is as difficult for most park visitors to picture the desert as a land of plenty as it was for the early surveyors of this area. A scout for the U.S. Railroad Survey in 1853 reported that "A mountain range extends from San Bernardino Mountain in a southeasterly direction nearly, if not quite, to the Colorado. Between these mountains and the mountains of the Mohave nothing is known of the country. I have never heard of a white man who had penetrated it. I am inclined to the belief that it is barren, mountainous desert composed of a system of basins and mountain ranges. It would be an exceedingly difficult country to explore on account of the absence of water and there is no rainy season of any consequence." This dire description slowed "progress" for only a few years. In 1855 the first survey of the area was made by Colonel Henry Washington who changed the name of the oasis that the natives called Mara, to "Twentynine William." The following year a deputy surveyor reported that "Near the springs the land has the appearance of having been cultivated by the Indians. There are Indian huts in Section Thirty-three. The Indians use the leaf of the palm tree for making baskets, hats, etc. Around the springs there is a growth of cane of which the Indians make arrows for their bows."

By 1913, all of the natives were gone from the Oasis of Mara. The Smithsonian Institution reported in 1925 that the Oasis originally belonged to the Serrano people. The author of the article considered the relative merits of the argument that the area was the territory of the Chemehuevi but concluded that "Intrinsically, it is of little import who exercised sovereignty in this tract: to all purposes it was empty."

The vanished people of the Oasis of Mara and its surroundings were the Serrano, the Chemehuevi (sometimes called the Southern Paiutes), and the Cahuilla. The Chemehuevi migrated into Southern California approximately four hundred years ago and their territories included Pinto Basin and the Cuyocmb Mountains in the eastern portion of Joshua Tree National Park. In the late eighteenth century they moved to the Colorado River but when warfare with the Mojave broke out in 1867, the Chemehuevi were forced to leave the river. They returned to the Oasis of Mara which had been abandoned temporarily by Serrano survivors of a smallpox epidemic. Relationships changed and they slowly returned to the Colorado River re-establishing their former territory although a small group of Chemehuevi remained at Twentynine Palms.

The Chemehuevi territory extended from the Colorado River to the San Jacinto plain outside of Riverside. The Cahuilla, like the Serrano, lived in small villages near reliable water sources and exploited the resources of their territory which is thought to have included both the western and the southern portions of Joshua Tree National Park. The Chemehuevi, during spring and summer, went on seasonal hunting and gathering forays and lived in temporary base camps. When it became colder, the Chemehuevi gathered in large villages and stayed for longer periods of time in snug winter structures whose floors were shallow pits in the ground.

Roughly defined boundaries once divided the territories inside and outside the park. If the territorial boundaries themselves were not of great importance to the people living in the area (none appear to be marked), the resources within these territories certainly were. The native people who lived near what is now Joshua Tree National Park knew the big secret: it was a very large "super market!" Among other plant resources, acorns, mesquite pods, pinon nuts, seeds, berries, and cactus fruits were available for the taking. The natives used plants for making bows and arrows, cordage, baskets, mats, seed-beaters, and other articles as well as for medicines. They hunted bighorn sheep, deer, rabbits, birds, amphibians, and reptiles. And, they had been doing so for literally thousands of years. Radiocarbon dates indicate that the occupation of Pinto Basin occurred at least as early as 9,330 years ago. Amateur archaeologists, Elizabeth and William Campbell, writing in the 1930's, believed that there had been a river flowing through Pinto Basin but more recent research by geologists dispels the notion that there was either a river or a lake in Pinto Basin by the time humans occupied the area. Native people were in the Pinto Basin area before bows and arrows or pottery were invented.

The Campbells arrived in Twentynine Palms in 1925 looking for a place to restore William's failing health (as a result of his service in WWI). They pitched their tent at the Oasis of Mara. They soon struck up an acquaintance with a local prospector, William McHaney, who had been working in the area since 1879. McHaney's stories about the Indians who had previously lived in the area fascinated the Campbells. They contacted the Southwest Museum in Los Angeles to offer a collaboration and eventually began collecting artifacts under a Federal Permit. "Salvage archaeology," collecting artifacts for museums before they were collected by people who sold them to private collectors, was the state of the art at the time that the Campbells began their career. The Campbells bequeathed their large collection of ollas, bowls, baskets, and lithic (stone) artifacts from the Twentynine Palms area to Joshua Tree National Park where they are preserved in the park's museum collections.

The spirits of the Serrano, the Chemehuevi, and the Cahuilla are still with us in the rock formation, the pictographs and petroglyphs, and in the archaeological sites which dot the landscape. One hundred and twenty-one plants are now identified as having been used as food, medicine, or as raw materials for making objects. We too, are learning to see Joshua Tree National Park as a land of plenty!
Joshua Tree has gained international attention as a superb rock-climbing area.

Whatever you choose, your time will be rewarding. The desert holds much more
your options increase. There are nine

With more than one day in the park,

Many visitors enjoy watching the rock climbers in action.

White Tank
3800’ 15 $5

In the park as well as answers to your questions.

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

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Books and topographic maps give information needed for longer hikes. For “peak
bagger’s,” 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.

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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
through. Cars break down; keys get locked inside; accidents happen.

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,

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
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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 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.

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.

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.

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Keep Wildlife Wild

Don't feed coyotes!
People food is not healthy for them. It makes them into beggars, and they might bite you. Also, it is against the law, and a ranger will give you a ticket, then you will have to pay a big fine!
Area Information

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

Indio
82103 Hwy 111
Indio, CA 92201
(760) 347-0676
indochnb@aol.com
www.indiochamber.org

Joshua Tree
P.O. Box 600
Joshua Tree, CA 92252
(760) 365-6323
www.joshuatreechamber.org

Palm Springs
190 W. Amado Rd.
Palm Springs, CA 92262
(760) 365-6323
pschamber@worldnet.att.net
www.pschamber.org

Yucca Valley
56300 29 Palms Hwy.
Yucca Valley, CA 92284
(760) 365-6323
chamber@yuccavalley.org
www.yuccavalley.org

Hiking Trails

<table>
<thead>
<tr>
<th>Trail</th>
<th>Round-Trip Mileage</th>
<th>Time</th>
<th>Starting Point</th>
<th>Trail Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scout Trail</td>
<td>16 miles (25.8km)</td>
<td>1-2 days</td>
<td>Indian Cove backcountry board</td>
<td>Scenic trail through the western most edge of the Wonderland of Rocks. See backcountry board for information on overnight use. Moderate.</td>
</tr>
<tr>
<td>49 Palms Oasis</td>
<td>3 miles (4.8 km)</td>
<td>2-3 hours</td>
<td>Parking area at end of Canyon Road</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>Lost Horse Mine/Hill</td>
<td>4 miles (6.4 km)</td>
<td>3-4 hours</td>
<td>Parking area 1.2 miles (1.9 km) east of Keys View Road</td>
<td>Site of ten-stamp mill and foundations. Summit elevation: 5278 feet (1609 m). Moderately strenuous.</td>
</tr>
<tr>
<td>Lost Palms Oasis</td>
<td>7.5 miles (12.1 km)</td>
<td>4-6 hours</td>
<td>Cottontwood Spring or Cottontwood Campground</td>
<td>A canyon with numerous palm stands. A side trip to Victory Palms and Manila Canyon involves boulder scrambling. Moderate to easy one-hour hike. Easy.</td>
</tr>
<tr>
<td>Mastodon Peak</td>
<td>3 miles (4.8 km)</td>
<td>2-3 hours</td>
<td>Cottontwood Spring or Cottontwood Campground</td>
<td>Excellent views of the Eagle Mountains and Salton Sea. Summit elevation: 5371 feet (1637 m). Moderate.</td>
</tr>
<tr>
<td>Ryan Mountain</td>
<td>3 miles (4.8 km)</td>
<td>2-3 hours</td>
<td>Ryan Mountain parking area or Sheep Pass Campground</td>
<td>Excellent views of Lost Horse, Queys, and Pleasure Valley. Summit elevation: 5461 feet (1674 m). Moderately strenuous.</td>
</tr>
</tbody>
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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.

NATURE TRAILS

Trail | Mileage | Starting Point |
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<td>4.4-mile loop (7km)</td>
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<tr>
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<td>25-mile loop (40km)</td>
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<tr>
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</tr>
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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 Cahuilla (pronounced: Ka-wei-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 Cahuilla 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 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.

Emergency: dial 909-383-5651

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.

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 restrooms, 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.

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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 3)

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 parallelizing 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.

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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.

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 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 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, 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.

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. 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 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.

"I Speak for the Trees" 
Dr. Seuss, The Lorax

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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

Unlock the Mystery of Amboy Crater
Feb 19

Map & Compass Basic Skills
Feb 25, 26

Native American Basket Weaving I
Feb 26, 27

Rocks and Minerals of Joshua Tree National Park*
Mar 4, 5, 6

Native American Basket Weaving I, II
Mar 5, 6

Mystery of the Wonderland of Rocks
Mar 12

Geology of Rattlesnake Canyon
Mar 13

Discover Lost Palms Oasis
Mar 19

Wildflower Wanderings
Mar 20

Drawing the Desert
Apr 2

Watercolor Painting in the Park
Apr 3

Flora of Joshua Tree National Park*
Apr 8, 9, 10

Explore Lost Horse Mine
Apr 9

Butterflies of the Desert
Apr 15, 16

Indians of the California Desert
Apr 16

Plant Ecology of Joshua Tree National Park
Apr 17

Photography Up Close and Personal
Apr 22, 23

Basic Desert Survival
Apr 24

Map & Compass Basic Skills
Apr 29, 30

Map & Compass Advanced Skills
Apr 30, May 1

Birds of Joshua Tree National Park*
May 6, 7, 8

Plein Air Poetry
May 7

Desert Night Sky
May 7

Edible Plants of the Desert
May 14, 15

Basic Desert Survival
May 15

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Contact us for a brochure or to sign up for a course: www.joshuatree.org / tel. 760-367-5535 / fax 760-367-5583 / eMail desertinstitute@zippynet.net.
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**, 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


**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

**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

**Joshua Tree Video**, Excellent introduction to Joshua Tree National Park. 30 minutes VHS $13.95; 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**, Vencannon. 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

**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**, 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

**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 $5.95

**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

**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

**Desert Solitaire**, Lehmans. An exploration of the natural world. 224 pages PB $14.00

**California's Wilderness Areas**, Wuerthner. Provides the information visitors need to explore the 74 wilderness areas created by the 1994 Desert Protection Act. 320 pages PB $27.95

**California Trail**, Dodd and Gnass. This colorful book chronicles travels over the California-Oregon Trail in search of the land of El Dorado. 64 pages PB $9.95

**California's Wilderness Areas**, Wuerthner. Provides the information visitors need to explore the 74 wilderness areas created by the 1994 Desert Protection Act. 320 pages PB $27.95

**On the Road in California**

**California Roadmap**, Includes a list of public recreational areas and places of interest. $3.95

**The Living Desert**, exploring national parks and monuments through natural sounds. Tape $10.95; CD $15.95

**The Complete Guide to America's National Parks**, Fodor's. Up-to-date guide to all 384 National Park Service sites. 448 pages PB $19.00

**California's Wilderness Areas**, Wuerthner. Provides the information visitors need to explore the 74 wilderness areas created by the 1994 Desert Protection Act. 320 pages PB $27.95

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

**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

**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.

**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, enclose 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: $7.00 for first item, each add'l item $0.50.

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Several Southwest Indian tribes have names for him that translate into English as “God’s Dog.” The name we use, “coyote,” descends from the ancient Aztecs, who called him “coyotl” (co-yo-til), which the Spanish mispronounced, and which in turn have twisted to the shape of our culture’s tongue. To the Cahuilla of southern California, our predecessors and present-day neighbors in this desert, he is simply a glutton and a depto and a clown and a mischief-maker, all condensed into a single skin. That skin, by the way, gets terribly abused in Cahuilla stories. In one story, Coyote is brought back from the dead only to have his head split open at the story’s conclusion. It’s a familiar punchline to any of us who grew up watching Wile E. Coyote play with dynamite while chasing a certain roadrunner. When we were children, we laughed when the bomb exploded and Wile E. Coyote’s smoking frame stood in the aftermath. As we got older, we started to pity the poor cartoon coyote. Couldn’t he catch that crazy roadrunner just once?

The fact is, human beings have always had mixed feelings about coyotes.

Picture a campfire. It could be a thousand years ago, or it could be tonight. Low voices, laughter, the smell of food cooking. Suddenly, everything in the desert stops and listens to a chilling chorus—howling, howling, howling, then sporadic yipping and barking. The wild dogs sound as if they’re just over the next pile of rocks. Are you concerned for your family’s safety? Or do you look at your children’s eyes and share with them awe at the boldness of these creatures? If you’re honest, you’ll probably discover some combination of these emotions inside you.

Encountering Canis latrans, the desert coyote, is a powerful experience for human beings. It always has been. The main difference between now and a thousand years ago is that most of us who encounter coyotes today do not grow up hearing stories about them. Traditional coyote stories are about more than an anvil falling on a scruffy creature’s head. True, native Coyote stories have plenty of jokes; however, they are also embedded with poetry, mythology, ecology, and vivid lessons about the harmful consequences of greed or lust or laziness. A child who hears, during the winter story cycle, how Coyote’s insatiable appetite gets him into trouble would surely never throw food scraps to such an animal. Why, that would be worse than wasting food! Even children know that catering to Coyote’s hunger leads to larger problems. Or at least, the children used to know.

Today we have a problem in Joshua Tree National Park. Put simply, people who visit the park are throwing their food to coyotes.

The natural diet of coyotes includes a great deal of vegetable matter (about 40 percent by mass of their total intake is plants), and small animals that they catch: grasshoppers, mice, rabbits, kangaroo rats, and ground squirrels, among others. The natural diet of coyotes does not include greasy slices of pizza, salt-laden corn chips, glucose-rich candy bars, nor anything else that may be packed in your picnic basket. Feeding coyotes human food will lead to unhealthy animals. The coyotes can certainly survive on our scraps, but long-term complications like hair loss and liver damage can occur from a steady diet of human food. Even worse, feeding any wild animal encourages a dependence upon human beings. The fed coyote associates people with food, and adapts its behavior to this new food source.

So, we now have coyotes that beg. And they, in turn, are teaching their pups to beg. The result of this dependence on human beings is as predictable as it is tragic. Wildlife professionals have documented across a number of species (including Canis latrans) that fed animals become increasingly bold in their approach to people. Inevitably, a human being gets bitten, scratched, or attacked by one of these dependent animals.

What happens next? The offending animal is hunted down and destroyed, often along with any others in the neighborhood.

This is what passes for a coyote story in our culture. A nine-year-old girl is having lunch with her family at Hidden Valley Picnic Area. It is early summer; heat radiates in waves from the desert floor. The girl thinks she sees something moving beside the juniper tree. She wanders away from Mom and Dad, exploring in that beautiful, fluid way that is natural for children. There is a half-eaten ham sandwich in her hand. She has forgotten about it. When she finally makes eye contact with the coyote, it is less than five yards away. This coyote has been fed many times in the spring, but it is summer now, and fewer tourists are coming. This coyote is very, very hungry. The ham has a strong smell. The girl is smaller than most people the coyote has seen. This story does not end in a punchline. It ends with a seriously injured girl and a dead coyote, and no one is laughing.

At Joshua Tree National Park, we believe that our story is being written right now, as people visit this desert and interact with the plants and animals who live here. How do we, as park managers and park visitors, want our story to end? Surely not in tragedy, nor in death. And yet, a few ignorant people continue to feed coyotes. "Ignorant" is not meant to be insulting. People new to the desert honestly believe they’re helping coyotes by feeding them. They don’t know how harmful these actions can be.

Well, the word is out now. Let the new story start here, and let it spread around campfires; let it be whispered and shouted and yes, even howled, until everyone knows. It is not too late to steer the events of this tale toward a wiser course, one that incorporates both the modern principles of ecology and the ancient knowledge of cultures that have lived in this desert for thousands of years. This new version would truly be a wonderful Coyote story, one well worth passing on to our children, and to our children’s children.

— Ruby Modesto, from Not for Innocent Ears, Spiritual Traditions of a Desert Cahuilla Medicine Woman

by Park Ranger Mike Cipra