

JOSHUA TREE JOURNAL

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CLIMBING AND HIKING SAFETY IN JOSHUA TREE

Tom Patterson
Lost Horse District Ranger

Joshua Tree National Monument is the premier location in the country for winter rock climbing activity. On any given weekend between October to May as many as 300 or more climbers may be observed scaling a variety of challenges from low angle friction slabs to overhangs.

When it is raining and snowing elsewhere, Joshua Tree's pleasant climate attracts world-class climbers from many countries such as Japan, Switzerland, France, Germany and Canada. Even the British Commandos have been known to train here.

For many years Joshua Tree was a well-kept secret among Yosemite rock climbers who would migrate here during the fall to stay in shape for the big wall assaults in "The Valley." Our own "Hidden Valley" has recently formed the hub of climbing activity which has exploded in popularity within the last ten years.

Climbing Accidents

With an increase in the sport came an increase in trauma-related injuries associated with falls. The Joshua Tree Search and Rescue Team, which is composed of rangers, naturalists and volunteers routinely responds to rescue stranded and injured visitors at no cost to the victim. During the past five years the team has completed 67 technical high-angle evacuations and back country carryouts of trauma patients who often are located in difficult and hard-to-reach places. The team may be seen practicing their skills on Sunday afternoons at Intersection Rock, near the entrance to Hidden Valley Campground. The training incorporates the Monument's PSAR (Preventative Search and Rescue) program and was implemented in 1983 as a response to several fatalities of persons engaged in free solo climbing.

Free solo climbers are usually rock athletes who are very experienced and know their limitations. As the name implies, free soloists have no climbing partner and use no safety equipment. Due to the intense risk, practicing free solo climbers stay within their abilities, for failure

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Washington Palms, largest of the plants in the oasis.

MARA: THE UNNATURAL OASIS

By Alice J. Turner

There are at least seven palm oases in Joshua Tree National Monument and many more within the deserts of the southwest. Each has its own personality depending on location, geology, plant and animal life and number of palms. Mara ("the place of small springs and plenty grass"), often called the Twentynine Palms Oasis, is unique, not only because of its location but also because of the long-term impact man has had on it.

Many palm oases in the deserts of the southwest are found in canyons where water flowing downward finds a good collecting place, and an ideal ecosystem is formed for the establishment of the Washington Palm (*Washingtonia filifera*), the most noticeable plant of the oases, plus many other water loving plants and animals that establish themselves within the system.

Only Oasis Not in a Canyon

What makes Mara's location unique is that it is on an alluvial plain southeast of the city of Twentynine Palms, not in a canyon. From where does the water then come? An aerial view of the oasis would show a fault line — the Pinto Mountain Fault to be exact — running right through it. The water that filters down from the mountains to the south comes to a halt when it hits the north "wall" of less permeable material that the fault moved into place, forming an underground reservoir. A scarp delineating that "wall" can easily be seen along the trail on the north edge of the oasis.

Early Use by Indians

This location triggers the other circumstance that makes Mara an unnatural oasis. Because of the accessibility of the oasis it has probably at

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Ravens mate for life A MARRIAGE MADE IN HEAVEN

By Rick McIntyre

Which Joshua Tree resident is the best role model for marital stability? Without a doubt, the raven would be the ideal candidate. Ravens mate for life, have a zero divorce rate and set the record for marital longevity. Since they pair off early in life and can live to 69 years, some raven couples may eventually celebrate their 65th wedding anniversary!

A young raven begins to think about romance just after its first birthday. When an unattached male finds an eligible female, he'll try to attract her attention by performing aerial tricks. He'll do loops upside down and pull out of crash dives at the last second. If she's impressed by these displays, he'll glide over, sit beside her and continue the courtship. Both birds will fluff their feathers, jump up and down, make soft cooing sounds and rub their beaks together. This marriage ceremony bonds them together for the rest of their lives.

Raising a Family

Breeding may not occur for another two years. After it takes place, both birds work together to build a nest. The male feeds his mate while she incubates the eggs and later he brings food and water to the chicks. Within four weeks of hatching, the young are out of the nest and flying.

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Raven

DESERT BIGHORN

By Rick McIntyre

As you travel through Joshua Tree, it's likely that someone will be watching you. From a high cliff or mountain top, a bighorn sheep may be following your every move. With patience, luck and good eyesight, perhaps you'll spot it and return the stare.

Desert bighorn sheep are found from Southern California to Texas as well as in Mexico. They are closely related to the Rocky Mountain bighorn and Alaskan Dall Sheep.

In most of the Southwest, bighorn numbers have drastically declined over the past century due directly or indirectly to humans. Development has taken many former mountain ranges away from the sheep. Competition with domestic livestock, wild burros and wild horses has reduced the supply of food and water on remaining territories. Diseases, spread from livestock to the wild sheep, have weakened or killed large numbers of animals.

Luckily, Joshua Tree National Monument was set aside in time to give the local bighorn a stronghold which has protected them from the worst of the above problems. Our sheep population is estimated to be 175, a number which seems to be in good balance with the habitat.

Conserving Water

To survive in the desert, you have to know how to conserve water. The bighorn have become experts at this. In the cool winter months, they get most of their moisture from plants and can go for weeks without visiting a spring. During the summer, they can go four or five days between drinks if necessary. When they do come into a spring, they really tank up. One ram was measured to drink 4 1/2 gallons at one sitting.

Bighorn travel in small bands, usually ranging from 3 to 12 animals.

Except for the late summer mating season, rams and ewes live in separate bands. In the female bands, the leader is usually the oldest and most experienced ewe. She knows the best places to feed and water and leads by example not force.

Fighting Rams

For rams, dominance is the most important issue. Each band works out a pecking order, going from the top ram down to the lowest ranking animal. The dominant ram is almost always the one with the biggest horns. Rams with large horns rarely have to fight to prove their status. On seeing their massive horns, potential rivals will defer to them rather than fight.

An all-out heading butting contest would only occur when two rams are nearly equal in size and each refuses to defer to the other. Both will back off, rear up like stallions and charge forward. Each can run 30mph so the head-on collision occurs at a combined speed of 60mph! Despite the tremendous impact, it's unusual for either ram to be seriously injured. The heavy horns and thick skulls shield their brains and spines from damage. Fights between evenly matched rams go on for some time. One sheep researcher witnessed a duel which lasted for 25 hours!

Eventually, one of the warriors will back off, the signal that he is admitting defeat and is agreeing to the dominance of his opponent. The winner is magnanimous in his victory. He allows the loser to remain in the area as long as he continues to defer to his former rival.

Growing Up

The ultimate purpose of these fights involves breeding. The top dominant rams do almost all of the mating. Their position at the peak of the hierarchy proves that they are strong, healthy, fit animals. The next crop of lambs will be stronger and fit-

ter if they are fathered by these rams.

Breeding takes place in late summer and the lambs arrive sometime in February or March. If born healthy, they can run and climb within a day or two. Within a week, they will be spending hours every day chasing each other up and down the steepest cliffs. To the lambs, it's just a game, but the play is the perfect way for them to develop strength, coordination and agility.

Horns begin to show at the end of summer. By their first birthday, the youngsters will be weaned and fairly independent. The young ewes normally remain with the same band as their mother. Rams, on reaching their third or fourth year, have a tendency to leave the ewe band and wander off in search of a group of bachelor rams. They will join up and likely stay with the band for the rest of their lives.

Because of their small size, they will be on the bottom of the pecking order and will be pushed around by all of the bigger rams. Gradually, however, they will grow bigger in body size and horn length. By the time they are six to nine years old, they will be ready to challenge the top ram for the dominant position.

A successful ram is one who has reached the top of the hierarchy and has done a lot of breeding. This success, however, involves a heavy price. During the four to six week rut, the top rams are so involved in fighting each other and chasing ewes, that they don't have time to eat. Once the mating season is over, most of them are in poor condition and may not last the year. Some bighorn studies have found that these rams die at a rate eight times higher than the non-breeding rams. To be successful, a ram ends off trading off several years of his life span. They may die young but hopefully, they die happy.

COYOTE QUIZ

By Rick McIntyre

- 1) An average Joshua Tree coyote weighs...
 - a) 20 pounds
 - b) 35 pounds
 - c) 50 pounds
- 2) Average territory size is...
 - a) 1 square mile
 - b) 10 square miles
 - c) 100 square miles
- 3) Who is the fastest?
 - a) coyote
 - b) jackrabbit
 - c) roadrunner
- 4) Who is the slowest?
 - a) coyote
 - b) jackrabbit
 - c) roadrunner
- 5) If a coyote ate only jackrabbits, how many would it need per year?
 - a) 50
 - b) 75
 - c) 150
- 6) Do coyotes form packs?
 - a) yes
 - b) no
 - c) sometimes
- 7) In the last century, the coyote range in North America has...
 - a) increased
 - b) decreased
 - c) stayed the same
- 8) Coyotes can interbreed with dogs and wolves.
 - a) true
 - b) false
- 9) The Cahuilla Indian word "easil" means coyote as well as...
 - a) a lazy person
 - b) one who doesn't learn from his mistakes
 - c) an anthropologist
 - d) all of the above
- 10) In roadrunner cartoons, coyote's first name is...
 - a) Cary
 - b) Carlos
 - c) Wiley

Answers on page 4

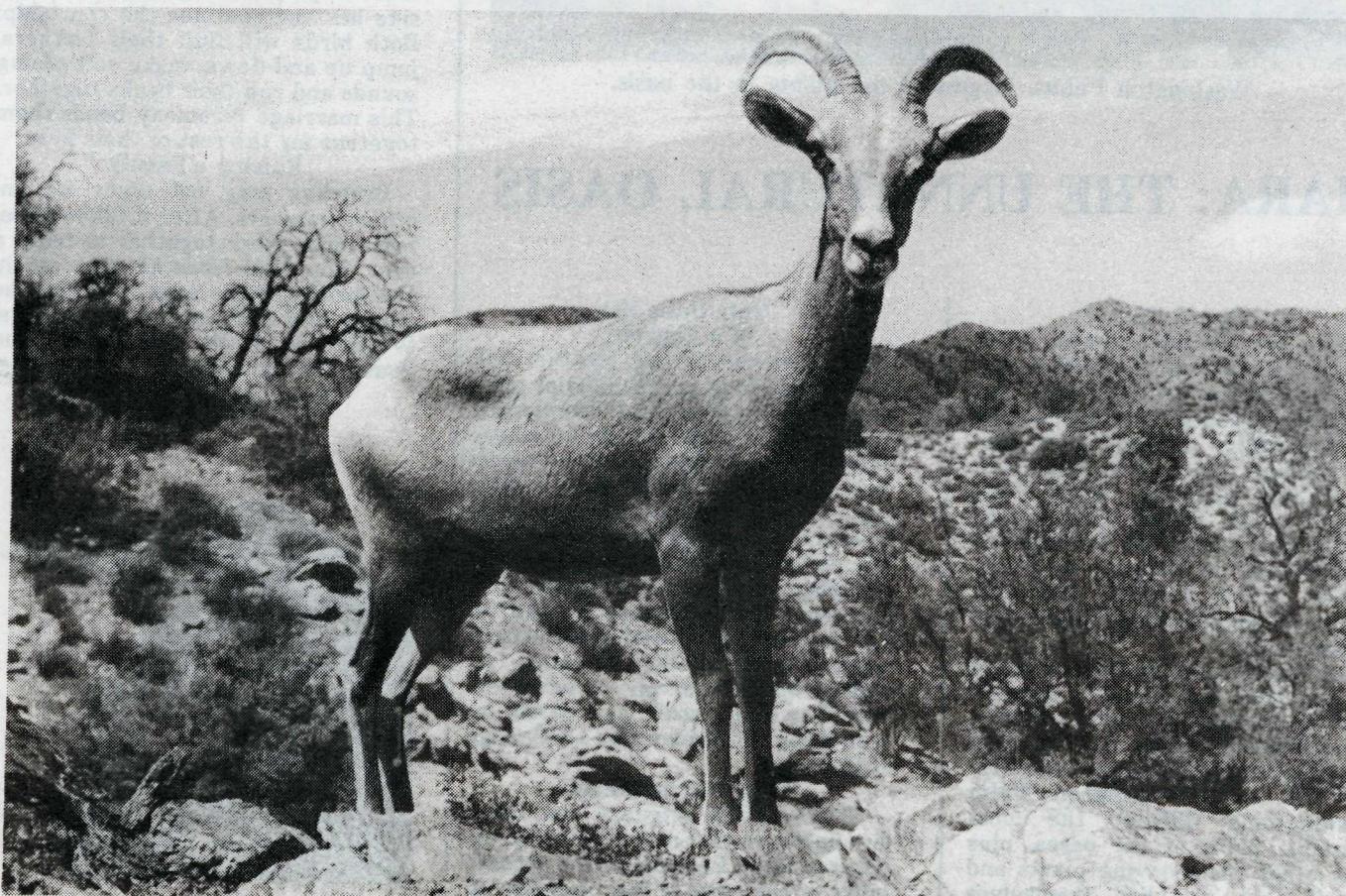
SNAKE BITS

How fast can a rattlesnake travel?

Absolute maximum: 3 mph for very short distances. Humans walk faster if they are in a hurry.

How often do rattlesnakes feed?

On the average, once every 10 to 16 days, depending on the age and size of the snake, the season, and the amount of activity undertaken.



Desert Bighorn Sheep

BIRDING AMONG THE JOSHUA TREES

Oftentimes people think of deserts as waste lands devoid of life. For those of us who venture away from the controlled environment of our vehicles with binoculars in hand to explore the surrounding scenery, we discover that indeed certain areas do seem to be lifeless. Further exploration, perhaps down a desert wash or among the boulder piles, we find microhabitats suitable for wildlife. These microhabitats are what attract birds to Joshua Tree National Monument.

Birds are some of the most obvious wildlife observed during daylight hours. Because of their ability to fly, birds are capable of taking advantage of the best habitats within the Monument. Resident species of birds that can be found here all year long use these areas on a daily basis. When the weather becomes too demanding, either excessively hot or cold, many species will migrate from the area. Likewise, when conditions are favorable migrants will use microhabitats as stopover places to rest and refuel prior to continuing their voyage.

Where to Find Birds

The secret to birding in Joshua Tree National Monument is to know where these places can be found, and when migrating birds use them.

Water can be a limiting factor to bird distribution in the desert, although some species such as the Gambel's Quail can survive on insects, seeds and the tender sprouting tips of vegetation without ever taking a drink. That's not to say that they won't drink when water is available.

Birds of prey can go long periods surviving on the moisture received from their prey, provided that conditions are not overly severe.

Areas with available water have richer plant communities which attract insects and in turn, birds. Barker Dam (No. 4 on the park brochure) and Grand Tank provide areas of open water available to migrating waterbirds and willows where a variety of species can be located during Fall and Spring migrations (Sept.-Oct. and March-April respectively). Ruby-crowned Kinglets, Mountain Chickadees, Dark-eyed Juncos, Bewick Wrens and Say's Phoebes frequent these areas.

Boulders and Higher Elevations

Boulder formations throughout the Monument are good places to find Rock Wrens, Canyon Wrens, Ravens and raptors such as Red-Tailed Hawks and the occasional Golden

Eagle. Keep an eye out for Prairie Falcons using the boulders as look-out perches.

At higher elevations you'll find Plain Titmice and Pinon Jays among the pines and junipers. Scrub Jays, Cactus Wrens, Scott's Orioles, Loggerhead Shrikes and a variety of woodpeckers can be seen frequenting the groves of Joshua Trees within the Monument.

Short walks up some of the washes leading from the campgrounds can be rewarding to the desert bird watcher. Le Conte's Thrashers are found near Indian Cove Campground, and often times the darker California Thrasher is seen at Jumbo Rocks Campground.

Areas containing shrubs are good for sparrows, including Black-Throated Sparrows, Sage and Brewer's Sparrows. At dusk it is possible to hear Great Horned Owls calling if you venture away from the campground noises.

Black Rock Canyon Campground in the Northwest section of the Monument is a great area to find Roadrunners, Scrub and Pinon Jays, Plain Titmice, Scott's Orioles and Ladder-Backed Woodpeckers. You may also want to explore the Covington Flats area when looking for higher elevation species.

Oases

The oases of the Monument can be particularly rewarding, not only for the relief from the Summer sun, but also because of the rich avifauna found there. Hooded Orioles will often nest in the palms, while Rufous-Sided Towhees, Gnatcatcher, Northern Mockingbirds and Phainopeplas frequent the closely associated mesquite thickets.

In the Southern part of the Monument the oasis at Cottonwood Springs and the hike into Lost Palm Oasis are good bets for bird watchers.

The Oasis of Mara at the Twentynine Palms Visitor Center, and the 49 Palms oasis are both excellent locations for bird watching in the Northern portion of the Monument. Roadrunners and Gambel's Quail are commonly seen from the Twentynine Palms Visitor Center.

For tips on finding birds during your stay at Joshua Tree National Monument, stop by a visitor center or ask a ranger. Bird checklists are available at all contact stations or at the pamphlet dispenser boxes located throughout the Monument. Good birding!



Practice Rescue Exercise

CLIMBING AND HIKING SAFETY

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results in death or critical injury. Joshua Tree policy discourages the practice of free solo climbing due to the influence it has on non-climbers who believe that rock climbing without the proper training or equipment must be easy, as they admire world-class climbers performing moves which mimic ballet. Within recent years the taxpayer has absorbed approximately \$7,000 for the rescue and recovery of free solo climbers in Joshua Tree National Monument. Most of these accidents were avoidable and occurred to persons with little or no previous training. There are many reputable schools which teach rock climbing within the Monument. They all have excellent safety records.

Backpacking and Hiking

Backpacking and hiking are also rewarding activities which could get you into trouble if you don't follow a few common-sense rules. First it is always advisable to notify a responsible person of your destination and estimated time of return. Backcountry registration boards are located at all trailheads as well. If you are reported overdue, valuable information can be obtained from the registration tag left at the departure point which will aid in finding the missing party.

Joshua Tree National Monument has some of the most rugged terrain in the desert. It is very easy to get disoriented without a map and compass in some areas. Although daytime temperatures can be warm, it is not uncommon to have 40-degree temperature drops after sundown, so

that extra clothing carried will greatly enhance your comfort and survival during the unexpected night out.

To prevent dehydration, it is recommended that each hiker carry a minimum of one gallon of water per day. Carry a whistle, for the sound travels farther than voice. A flashlight or headlamp is good insurance should your day hike become prolonged.

Children's Safety

Children occasionally become separated from their parents. By having your youngsters stand on a piece of aluminum foil, a positive sole impression will be available for our trackers to inspect in case the little curiosity-seeker gets away.

Remember that children are also attracted to rocks like magnets and can perform some rather intricate climbing moves by instinct. Without close supervision, your child could very rapidly climb up 100 to 200 feet while exploring. Anatomically, the human body was designed to climb up. Attempting to downclimb places your center of gravity off balance while searching for the next foothold. If a child does become stranded on a rock ledge, it is best to have him remain in place to be lowered safely by the Park rescue team.

Most of the juvenile climbing accidents have occurred during an unroped descent attempt.

Rock climbing and backpacking can be a most memorable experience in Joshua Tree National Monument. With the proper training and equipment the inherent dangers can be minimized.



Screech Owl



Sparrow Hawk



View of Ruins at Lost Horse Mine

MARA: THE UNNATURAL OASIS

Continued from page 1

tracted man for hundreds of years. In modern history we know the Serrano Indians (a branch of the Southern Paiute) lived there and not long after came the Chemehuevi. These people used, not only the pure, cold water bubbling out of the ground, but also hunted the animals for food, cut mesquite for fire wood, burned palm thatch to encourage growth of the small dates and cut arrowweed for personal use and trade. Later, near the end of the 1800s, they were farming in the oasis.

Destructive Activities of Europeans

By the mid-nineteenth century European man had added his impact to this well-known oasis. Exotic plants were introduced, more wood was cut, mining support activities that needed water were begun and dogs and cats were allowed to run loose, eating the smaller mammals and birds that weren't already being used for human food.

Through the mid-twentieth century the "Smokey-the-Bear" syndrome was in force and nothing was allowed to burn. All fires were considered "bad" by the land managers.

By the time the Oasis of Mara was donated to Joshua Tree National Monument in the 1950's, it was far from a natural oasis, and it was a virtual impossibility to return it to its natural state. Therefore, the Resources Management Division, with the Maintenance and Interpretation Division, now manipulates Mara.

Park Management Restores the Oasis

Water use by a growing community, a cycle of drier weather and the periodic shifting of the Pinto Mountain fault all contribute to the missing

"spring of clear, cold water" that once was found on the surface at the eastern end of Mara. Oh! the water isn't far away — only 10 or 12 feet under the surface in some places (but more than 60 feet from the surface on the north side of the fault). Those eye-catching palms need water near their roots which only reach 10 or 15 feet down, so there are now pipes running underground so that each clump of palms can be watered if the water level drops too far.

Recreating a Marsh

Another bit of water manipulation is found at the pond. Years ago there was a large marshy area somewhere in the western section of Mara that is now under private ownership. That marsh was home to a variety of birds no longer seen in the area (a list was kept) along with a probable population of animals not found in the vicinity any more.

A common wet-ground loving plant found in some oases is the Yerba mansa (*Anemopsis californica*). To give visitors a chance to see a small version of the marsh and hopefully, to attract some of the long missing creatures back, the pond was created.

Plants were brought in from the Fortynine Palms Oasis (ferns, grasses and even a beautiful little native orchid) as well as pollywogs of the Red-spotted toad (*Bufo punctatus*) and California tree frog (*Hyla cadaverina*). These were planted along with the Yerba mansa and seem to be thriving though the visitor would not guess that they are being watered from a pipe, not a spring.

Prescription Burns Replace Natural Fires
During the years that the oasis was

being protected from fire, several things occurred. Lightning now struck power poles and TV antennas instead of the tall palms, and no Chemehuevi burned the thatch to dispel the evil spirits that kept the fruit from growing. So the dry, dead fronds grew long and nearly reached the ground.

The mesquite (*Prosopis juliflora*) was not being burned either, nor was it being cut for firewood nor cleared for gardens. Consequently, it grew thick, keeping the sun from reaching the ground and the several native grasses that grew there. Desert mistletoe (*Phoradendron californicum*) attached itself to the mesquite trees and almost everything else was pushed out. The oasis was deteriorating as far as variety of life was concerned.

Now, walking through Mara, blackened patches of mesquite and charred trunks on palms can be seen. Fires called "prescription burns" are set on a regular and very controlled basis. Sure, maybe it seems ugly but look closely. The giant Common reed (*Phragmites australis*) and other grasses are growing abundantly upon banks where not long ago nothing but mesquite was to be found.

Birds and Animals Return

Yes, the birds love the mistletoe on the mesquite, and there is still plenty left. But now there is a niche in the grass clumps for a dusky-footed woodrat (*Neotoma fuscipes*) or perhaps some round-tailed ground squirrels (*Citellus tereticaudus*). If there are enough of them around, that means hawks and owls may take up residency. And so the ecosystem becomes a bit more complete and resembles the oasis that once was "natural" but now flourishes with a little help from its friends.

ANSWERS TO COYOTE QUIZ

Continued from page 2

- 1) a
- 2) a
- 3) b
- 4) c
- 5) b
- 6) c
- 7) a
- 8) a
- 9) d
- 10) c

RAVENS

Continued from page 1

The family stays together for several more months while the parents train their children in desert survival techniques.

Only Death Ends Marriage

The only event which would end the marriage would be the death of one of the partners. At the time of death, as in life, ravens continue to show emotional commitment to their mates. The surviving spouse, along with nearby relatives, conducts a short funeral ceremony for the departed.

Ravens know the secret of making marriages work. Divorce, custody battles and separate vacations are unknown among raven couples. With luck and good health, the mated pair will experience many decades of marital bliss.

Watch for ravens during your Joshua Tree visit. If you spot one, notice whether it's alone or with a friend. Almost always, it will be paired off with another raven. Take a moment to watch them interact and, if they are within earshot, compliment them for being such a good role model for human couples.



Raven

JOSHUA TREE RECORDS

Warmest Day: 118 degrees
(July 11, 1961)

Coollest Day: 11 degrees
(January 22, 1937)