

# PALM OASES

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CENTS

## of JOSHUA TREE NATIONAL MONUMENT



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*Lost Palms Oasis*

## The Area

This is the story of the palm oases of Joshua Tree National Monument. Here as in other stories, characters interact to create a total picture. Some of the characters are alive, while others are not, such as water, fire, rock and soil, and even climatic and geologic forces. All are players in the complex drama of the palm oases.

The story is set in four areas: the Twentynine Palms (Oasis of Mara) and Fortynine Palms Oasis in the north, and the Cottonwood Spring and Lost Palms Oases in the south (see map). While the four areas have much in common, important differences exist among them. Each has its own personality and leaves the visitor with a unique set of impressions.

The Twentynine Palms Oasis is situated in the open desert and is surrounded by a growing human community, in contrast to the other sites which are tucked away in isolated canyons. Cottonwood Spring Oasis, the smallest of the four areas and the only one which is largely man-made, impresses even the most casual visitor with the richness and diversity of its bird life. Fortynine Palms Oasis will be remembered for its pools of open water ringed with cattails and its position on a steep canyon wall. Lost Palms Oasis, the least accessible of the four, is reached by a four-mile hike through dry desert washes. The hike serves to heighten the sense of discovery when one arrives at the rim of a canyon containing the largest oasis in the Monument.

Despite their differences, the oases have one basic thing in common: an abundance of water in relation to the surrounding desert. Where does the water come from, and why is it found only in these areas? The geology of the region suggests answers to these questions.

The very active San Andreas Fault zone skirts the Monument's southwestern boundary, and the entire region is geologically unstable. At some locations movements in the earth's crust have generated cracks, or faults, which cut through nonporous rock and layers of dirt, sand and gravel found near the surface.

These breaks allow water under pressure in deep-seated strata to escape upward through the nonporous levels. The Twentynine Palms, Fortynine Palms, and Lost Palms Oases developed along such faults, perhaps many thousands of years ago. The spring at Cottonwood is also of such ancient origin, although its water did not support a palm oasis until historic times.

Though the drama of the oases has been unfolding for thousands of years we are concerned here with only the last two centuries of the story and with the rapid change which has accompanied them. Most of the important changes occurring during this period have been the result of man's changing role, and for that reason deeply involve human history.

## Two Hundred Years Ago

Two centuries ago only three of the palm oases existed. A flowing spring existed at Cottonwood. The water supported a growth of mesquite, squaw baccharis, and a few other small plants favoring moist conditions. The palms and cottonwoods would arrive later with the beginning of a new era.

At Twentynine Palms two clans of Serrano Indians camped as their ancestors had done since ancient times. Other Indians sometimes camped at Lost Palms or Fortynine Palms, but they never stayed as long as these people at "Mar-rah," the place of "little springs and much grass."

The Serrano at Twentynine Palms were Shoshonean. They spoke a language which was similar to that of the Chemehuevi, their Shoshonean neighbors on the river to the east. The people of Mar-rah had much in common with the Chemehuevi—similar language, similar customs, a similar way of life. Their well-being depended on the land around them and on the water which flowed from the ground at their home.

They knew the land well. They knew each plant and animal—where and how each lived, and how each could help them by providing food, clothing, or shelter. And they were grateful for the things the land provided.

They ate flowers and fruit of the California fan palm<sup>1</sup> and made baskets, hats, and sandals from its leaves. The catkins and inner bark of the cottonwoods<sup>2</sup> yielded food and medicine. River-reed<sup>3</sup> provided arrow shafts and pipestems. The people ground the dried beans of the catclaw acacia<sup>4</sup> and mesquite<sup>5</sup> into a meal which they used in mush and cakes and in other ways. They knew that the bitter seeds of the goat-nut<sup>6</sup> contained a nutritious oil and could be eaten raw or parched for later use. Grasses<sup>7</sup> provided material for basket weaving and seeds for food.

When the people left the Oasis on hunting and gathering trips, they could find water by looking for the kinds of plants and animals that grew at their home. The palms, mesquite and squaw baccharis<sup>8</sup> which grew at Mar-rah were signs of water elsewhere, as were such familiar plants as arrow-weed<sup>9</sup> California fuchsia,<sup>10</sup> and alkali goldenbush.<sup>11</sup> A sighting of mourning doves, mountain or Gambel's quail, house finches, or goldfinches<sup>12</sup> indicated that water was nearby too, for these birds needed more water than others. In the spring the cricket-like trill of the red-spotted toad or the quacking note of the California treefrog could be followed to isolated potholes.

Perhaps the Indians sometimes went to Fortynine Palms where the pools of water were smaller than those at Mar-rah, but where they could find more cattails.<sup>13</sup> The starchy roots and young shoots of the cattails were good food, and the fluffy down made a very good wound dressing. Here they also found willows<sup>14</sup> which could be used in the same ways as the cottonwoods at Mar-rah. At Lost Palms they found an abundance of deergrass which was very good for making baskets.

Hunting was good at the oases, for the bighorn sheep, pronghorn antelope, mule deer, and coyotes came to drink. Snakes and lizards came too, although they came in search of food rather than water. The snakes came mainly for the birds and small mammals that frequented the oases while the lizards searched for plants and insects—and smaller lizards.



## Beliefs Inspired by the Land Also Shaped It

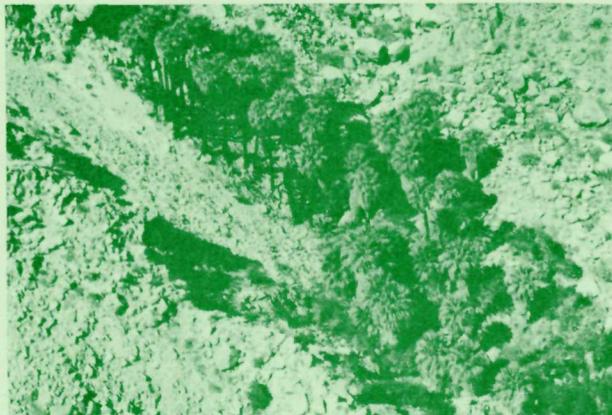
The Serrano's intimate relationship with the land had a profound influence on his religious beliefs. These beliefs often strongly affected the way in which he interacted with the other characters in the oasis story. The cycle was complete—the oases affected his beliefs, and his beliefs, in turn, affected the oases.

The Serrano believed that the drooping dead fronds on the palm trees were the home of evil spirits (a belief which is understandable if you have ever listened to the fronds rustling in the wind at night!). To drive away the spirits, the Indians periodically set the trees afire, and in the process the entire oasis often burned.

When the oasis burned, different plants were affected to different degrees. The palms themselves were well-adapted, having a terminal bud protected deep in the interior of the trunk. Often the palms sprouted new fronds just days after the fire and produced more seeds than they had before the fire occurred. Grasses resprouted vigorously after burning and became more important because shrubby plants had been burned away. Arrow-weed and cattails had underground stems (rhizomes) which were capable of producing new shoots after a fire, and their recovery was usually swift. Mesquite, alkali goldenbush, cottonwoods, and willows were usually killed outright by burning although the fire produced sites which were favorable for seedling plants to replace those that were lost.

Animals were also affected to varying degrees. Those requiring the cover provided by such shrubby plants as mesquite were nearly eliminated. A reduction in the small animal population also reduced the numbers of predatory animals such as snakes which sought out the areas for prey. Animals which used the oases primarily as places to drink were much less severely affected.

The Indians maintained the oases as open grassy areas relatively free from shrubs such as mesquite and catclaw. The use of fire had several advantages for them in addition to eliminating the dead fronds. The increased number of palm and grass seeds after burning meant a large food supply. Removal of shrubs also allowed more sunlight to reach palm seedlings, thereby helping the palms to reproduce. These advantages, however would not be as important to later people at the oases and the burning would be stopped. The exclusion of fire produced some important changes.



*Fortynine Palms Oasis*

## New Arrivals

Colonel Henry Washington wiped the sweat from his brow and took another look through his transit. He had been surveying the San Bernardino Base Line for several weeks now, working under contract of the U.S. Geological Survey. Realizing that no previous written record had been made of this place, he entered in his notes: "June 29, 1855 . . . from this corner an Indian Wigwam (near a spring of good water, supposed to be permanent) bears N51°W, and a small cluster of Cabbage Palmettos bear N27°W." He had just "discovered" the Twentynine Palms Oasis. He was in a hurry, however, and had no real desire to spend the afternoon making contact with an unknown band of Indians. He moved on.

The Serrano at Twentynine Palms had probably met a few prospectors even before Washington's discovery, and such sporadic contacts with European man undoubtedly continued afterward. Prospectors and miners would eventually produce profound changes at the oases, but for the time being their influence remained slight. Before European man established himself solidly in the area, another important chapter in the Indian history of the oases would unfold.

In 1867 the Chemehuevi were driven from their Colorado River homeland by the Mohaves. Many sought refuge at Twentynine Palms. They brought with them a knowledge of irrigation and farming, and finding conditions favorable at the Oasis, began the cultivation of gardens. Most of the Chemehuevi eventually returned to the river, but a small band remained. The Serrano accepted the new arrivals peacefully—their cultures were similar in many ways, and each group found it advantageous to adopt some of the ways of the other in their new situation. They intermarried. The culture of the river-dwellers became dominant in most respects, however, and by 1900 all of the Indians at the Oasis were considered to be Chemehuevi.

Gold was discovered near Twentynine Palms in 1873. The Oasis suddenly became a center of activity as miners and their freight wagons arrived from the west and south. A prospector filed on the Indian camp as a homestead and shortly thereafter a Spanish arrastra for grinding ore was constructed on the north side of the Oasis. However, the homestead was apparently abandoned within a few years as mining activity in the area declined.

It was not until gold was discovered in the Dale District, seventeen miles east of Twentynine Palms, that people other than Indians became solidly established in the area. Activity around Dale spanned the period 1883 to 1935 and produced profound changes at Twentynine Palms and Cottonwood Spring. These oases became overnight stops on the freight wagon roads approaching Dale from Banning or Mecca. At Twentynine Palms a few houses were built, wells were dug, and cattle were grazed in the grassy areas between the palms. The teamsters, who sometimes used willow switches on uncooperative livestock, often left branches sticking in the wet sand. Some of them took root, and willows were introduced to Twentynine Palms. A few fig trees were also left behind by passers-by as gifts for favors rendered by Oasis residents.

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### SCIENTIFIC PLANT NAMES

1. *Washingtonia filifera*
2. *Populus Fremontii*
3. *Phragmites communis* var. *Berlandieri*
4. *Acacia Greggii*
5. *Prosopis juliflora* var. *Torreyana*
6. *Simmondsia chinensis*
7. *Distichlis spicata*
8. *Baccharis sergiloides*
9. *Pluchea sericea*
10. *Zauschneria californica*
11. *Haplopappus acradeniis*
12. Lawrence's and lesser goldfinches
13. *Typha* sp.
14. various *Salix* spp.
15. *Phoradendron californicum*

At Cottonwood the teamsters planted the trees which gave the Oasis its name. This area was also homesteaded, though somewhat later than Twentynine Palms. An old photograph taken between 1915-1920 shows the existence of one fan palm. Sometime later a date palm was added, but has since been removed.

Lost Palms and Fortynine Palms remained relatively untouched throughout the mining years although facilities for collecting water were eventually built at both oases. Lost Palms water was piped to Chiriaco Summit, eight miles to the south, while Fortynine Palms water was used by a homesteader in the canyon below.

Pronghorn antelope made their final visits to the oases sometime during this period. Competition with cattle and hunting by ranchers eliminated them from the area.

Although the Chemehuevis were promised the Twentynine Palms Oasis as a reservation, an error in surveying placed the Oasis on the lands of the Southern Pacific Railroad. Another reservation was set aside about a mile to the southwest, but the Indians continued to occupy the Oasis until 1913 when the last family decided to move to the Morongo Reservation near Banning.

The decline in mining activity was accompanied by a reduction in freight traffic along the old routes. While this caused Cottonwood Spring to become relatively quiet in the early 1930s, development continued around the Oasis at Twentynine Palms. Veterans who had been victims of gas attacks in World War I were attracted by the area's clean, dry, air, and many homesteaded. Today the town of Twentynine Palm surrounds the Oasis.



*Old adobe house in the Twentynine Palms Oasis*

Monument in 1960. The western portion is privately owned.

All of the oases except the one at Twentynine Palms were included within the Joshua Tree National Monument proclaimed by President Roosevelt in 1936. The eastern portion of the Twentynine Palms Oasis was donated to the United States by the Twentynine Palm Corporation in 1950, and became a part of the

## Modern Man and Change

The appearance of "modern" man on the southern California desert scene resulted in many changes at the oases. The obvious ones—construction of buildings, digging of wells, introduction of new plant species—have already been noted. Other changes have been more subtle but are no less important. The exclusion of fire is one such change.

Not sharing the Indian's motivations for burning the oases, the newcomers viewed fire as being totally destructive. As a result the only oasis fires which have occurred during the last eighty years have been caused by accident or vandalism. The Monument's portion of Twentynine Palms, and Cottonwood Spring have had no fires during that time. Lost Palms burned in the 1940s and part of Fortynine Palms in 1948 and 1971.

A look at the Twentynine Palms Oasis shows what has happened. The Oasis is no longer the place of "much grass." The lack of fire has enabled such shrubby plants as mesquite to become very well established. With the mesquite has come the parasitic mistletoe<sup>15</sup> which grows in large brown masses on the branches of its host.

The increased amount of protective cover afforded by the shrubby plants has enabled such birds as the hooded and Bullock's orioles, brown towhee, Lincoln's and song sparrows, and phainopepla to thrive. The latter have become especially numerous because the succulent mistletoe berries are an ideal food for them. The phainopepla has in turn aided in the spread of the mistletoe by acting as a seed disseminator. After eating mistletoe berries the bird carries the seeds in its digestive tract and deposits them in its dropping on other living twigs or limbs where they germinate and grow.

The oases which have burned more recently support fewer shrubby plants. As a result of the fires Lost Palms and Fortynine Palms remain generally open and probably resemble rather closely their appearance before the arrival of modern man. Cottonwood Springs is also a relatively open area although its condition is not due to fire. Cottonwood Campground was located at the Oasis until 1964, and heavy use of the area prevented many plants from becoming established.

In the meantime, the level of ground water under the oases has dropped. At Twentynine Palms the mesquite is partially responsible. It send its roots down as far as sixty feet in search of water, and also rapidly loses to evaporation the water it has drawn out of the ground. The main cause of the drop, however, has been the drilling of many deep wells in the region. On the average, the water table is dropping one foot per year in response to the removal of ground water. Open pools of water which occurred at Lost Palms, and Twentynine Palms in the late 1940s, have long since dried up. This is important to the oases because it is doubtful that palm trees can survive if the water table drops to more than twenty feet below the surface.



*Cottonwood Spring Oasis*

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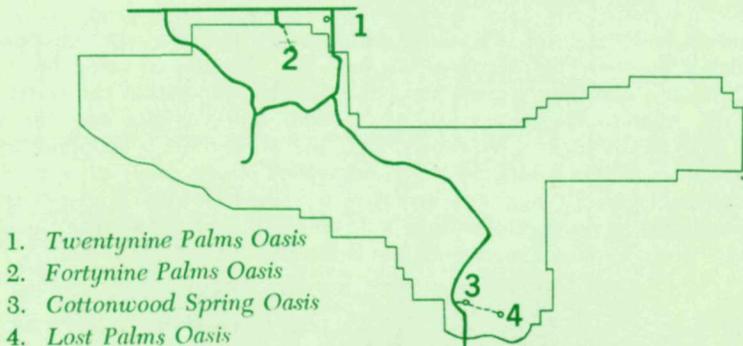
## Preservation and People

Man has been a part of the oasis story for thousands of years. The Indians living in the oases played an important role in the story but did not dominate it. The effects of their actions were checked and balanced by the story's other characters. The coming of the miners and prospectors brought an end to man's dependence on the oases and surrounding desert for survival. By bringing food, fuel, and building materials from outside of the desert, modern man made the oases story a part of a larger story. As he did so, human impact increased tremendously.

As man's influence becomes greater, the danger of irreparable damage increases. The dropping water table is an example of the way in which problems facing the entire region can directly endanger the oases. The impact of increased Monument visitation has also become evident in recent years—soil compaction, trampling of plants, and littering have all become problems.

Today the oases are places where we can slow down for a while. By taking a moment to experience their sights and sounds, we move a step closer to nature and a new understanding of our place in it. A visit to an oasis leaves us with the realization that we also have become a part of the story. By acting wisely in a newfound respect for the land, we do our part to insure that the story will continue for centuries to come.

### JOSHUA TREE NATIONAL MONUMENT



## 1776 U.S. BICENTENNIAL 1976

### JOSHUA TREE NATIONAL MONUMENT

Joshua Tree National Monument is one of the areas administered by the National Park Service, a bureau of the U.S. Department of the Interior. The Monument was established to preserve the richness and variety of the resources of this desert area. Preservation extends to all natural, archaeological and historic objects, so that visitors today and for generations to come may enjoy this desert in its natural state.

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a non-profit organization pledged to aid in the preservation and interpretation of the scenic and scientific features of the Monument.



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1974

*Joshua Tree  
National Monument  
Twentynine Palms, California 92277*



### A WORD OF CAUTION

Researchers believe that an oasis fire today would be much more destructive than the fire set periodically by Indians. The thick growth of mesquite which has developed since the last fires would burn very hot if ignited, perhaps hot enough to kill some or all of the palms. Alternate methods of removing some of the mesquite to restore the Twentynine Palms Oasis to its former appearance are currently under study.

Please help protect the oases from fire by observing Monument regulations. Camping and open ground fires are prohibited and "no smoking" signs may be posted by rangers during periods of high fire danger.