

Palm Hunter in the Wastelands

RANDALL HENDERSON

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Tattered troopers of General Stephen W. Kearney's Army of the West had been straggling across the southern Arizona and California deserts from waterhole to waterhole for weeks. Then on November 29, 1846, an advance detachment following the course of Vallecito Creek, which drains to the desert from California's Sierra Nevada, spied green foliage against the drab hillside in the distance.

Green trees on the desert could mean water, and when the soldiers turned aside to investigate, they found a spring surrounded by a group of trees which some of them were able to identify. Lieut. William H. Emory of the Topographic Engineers, accompanying the Army, records the incident in his diary, later published as *Notes of a Military Reconnaissance from Fort Leavenworth to San Diego*. Emory wrote:

"A few miles from a spring called Oro Grande... several scattered objects were seen projecting against cliffs, hailed by the Florida campaigners, some of whom were along, as old friends. They were cabbage trees, and marked the locale of a spring and small patch of grass."

Many Floridans still call them cabbage trees, or cabbage palmettos, but to Californians they are palms—the *Washingtonia filifera*, which grows wild on the Southern California desert and south into Baja California.

Lieut. Emory's reference was the first recorded observation of California's native palms by an Anglo-American. The palms seen by the Kearney troopers are in San Diego County, and are located at the desert entrance to a canyon in the Laguna Mountains. The oasis is known

today as Mountain Palm Springs.

I visited this oasis in 1931, and on this and subsequent camping trips in the area counted 57 palms in the group mentioned by Lieut. Emory, and an additional 238 palmettos in four other groups in the immediate vicinity. The Mountain Palm Springs oasis probably has changed little since General Kearney and his weary army came this way 115 years ago. The "cabbage trees" are still there—"green foliage against a gray hillside" where thirsty travelers may come for clear, sweet water and shade.

My interest in the wild palms of the Southern California desert dates back to 1920 when on a visit to my old prospector friend, Gus Lederer at Corn Springs in the Chuckawalla Mountains, I spent two days loafing in the shade of the palm fronds which formed a canopy over his one-room cabin. That was my introduction to one of the most interesting botanical phenomena of the Great American Desert. I have never ceased to be amazed and delighted at the paradox of palms growing wild in the arid desert, for this tree must have abundant water at its shallow roots.

The quest for these isolated palm oases became a hobby which has occupied literally hundreds of my weekend jalopy—and later jeep—outings during the last forty years. So far I have logged and photographed 88 separate groups on the American side of the international boundary, and I am confident that the total will exceed 100. On the Mexican side of the border the palm canyons extend more or less intermittently the entire length of the Baja California peninsula.

There are few places where these palm

oases may be observed from paved highways. Generally they are in remote canyons and sometimes may be reached only after miles of hiking beyond the point where the terrain becomes impassable for a jeep. The clues to their whereabouts came to me from many sources: prospectors, hunters, cowhands and old maps. These trees thrive in both the Upper and Lower Sonoran botanical zones. At Dos Palmas spring, near the western end of Salton Sea, they are growing below sea level, and at another spring, also known as Dos Palmas, in the Santa Rosa Mountains, they are vigorous trees at the 3500-foot elevation. In my note book is reference to a report that a small group of the native palms are seen at 4200 feet in San Diego County—but that is a report yet to be confirmed.

On an old map accompanying the report of Col. J. W. Barlow of the U.S.-Mexican boundary survey of 1892-96, I saw a notation "palm spring" along a remote sector of the international border of Southern California. This region of ninety square miles is a blank white space on all published maps. During the next three years I made four trips into this area by jeep and on foot before I located them. There were 27 mature trees in the bottom of an obscure canyon in the Inkopah Mountains, watered by a trickle that flowed a few hundred feet from a spring, and then disappeared in the sand.

On the hunch that there might be more palms in this little-known corner of the Colorado Desert, Arles Adams and I explored the area on a backpack trip in March 1946. Arles is a mill superintendent in El Centro, California, with the hands of a mechanical genius and an artist's delight in the primitive freedom of the unexplored wilderness. He has been my companion on many excursions

into the unmapped geography of the Southwest.

We travelled light. Our sleeping bags, food for two days, and a quart canteen of water each added up to twenty-pound packs. Leaving U.S. Highway 80 near Mountain Springs, during the first hour we passed one small group of palms, and before noon had arrived at another where the blackened ceiling of a cave and a huge boulder with nine mortar recesses in its top surface were mute evidence that the site had been the home of prehistoric tribesmen. Later in the day we passed another group of 17 palms huddled together in a lovely picture that will remain in my memory as one of the highlights of the trip.

To the hiker, the desert escarpment of the Inkopah range is just a succession of ups and downs. We found it necessary to make a tedious detour around a 30-foot dry waterfall. A half hour later we were descending a 500-foot precipice of gray and white marble. It was a beautiful formation, but we were too busy clinging to the rocks and trying to find hand and toe holds to think much about the coloring at the time. On an almost vertical descent a twenty-pound pack, swaying with each movement, calls for rather critical balancing at times.

During the morning we had been able to refill our canteens at springs along the way. But as the afternoon shadows began to lengthen, water supply became our chief concern. When darkness came we found a little sheltered cove where there was enough dead ironwood for warmth. We were thirsty, but not painfully so, and made dry camp for the night.

The next morning we continued down the canyon and within an hour came to a series of *tinajas*, still holding water from the last storm. I use the Spanish term because I like the Mexican pronun-

ciation of *Tená has* and it is a specific term whereas the English "natural tank" is neither exact nor accurately descriptive.

Now, for the first time since we had started our hike twelve miles to the north, I knew where we were. I had seen these *tinajas* on one of my previous trips into this region in quest of the palm springs. Unknowingly, we had crossed the international border and were in Mexico. The boundary monuments are far apart in this region.

We spent the day revisiting the palm spring and hiking back along the floor of the desert, at the toe of the range, to Coyote Well on Highway 80, where our car was to meet us. The two-day backpack trip had added three new groups to my roster of palm oases, and also the location of several prehistoric Indian sites, one of them identified by well-preserved petroglyphs on the rocks. We had seen no wildlife and few game trails, for this is indeed arid country, but all along the way we had been serenaded by the musical call of the canyon wren, which to me is the sweetest sound on the desert.

Owing to the sparsity of boundary markers in this remote area, I am not sure yet whether the little oasis to which I gave the name Boundary Palm Spring, to distinguish it from many other palm oases in Southern California, is in the United States or Mexico. However, on the map which I published in *Desert Magazine* at the time of the re-discovery of this little oasis, I gave Uncle Sam the benefit of the doubt. The other three groups are identified in my notes as Mortero Palm Spring, where we found the old grinding mortars, Juniper Palm Spring, and Mesquite Palm Spring.

On these palm-hunting excursions I always carry a mechanical counter to record the number of trees. While I have not yet completed the census, and the

numbers change from year to year as scarred veterans topple before storm winds and new trees are constantly taking root, I estimate there are 11,000 native palms on the Southern California desert, and perhaps another 18,000 in Mexico within fifty miles of the international border.

There is one group of 57 Washingtonias on the Arizona side of the Colorado River in a precipitous canyon in the Kofa range. I learned about the Arizona palms from Albert Stitt of the U.S. Reclamation Bureau. He had seen them during a previous tour of duty with the U.S. Agricultural Station at Bard, near Yuma. He offered to serve as guide on a trip to the Kofa, and we arranged to go.

We crossed the Colorado River at Yuma, and then turned north over the suspension bridge which spans the Gila River. Just beyond this bridge a sign warns the motorist: "No water, no gas, no oil for 72 miles." The sign-maker might have added "no bridges." This is unimportant in dry weather, but the road crosses hundreds of arroyos between that point and the next service station at Quartzsite, and on those rare occasions when rain is falling these desert dips run full of water. I had once attempted this route after such a storm. At each arroyo I would wade out with a shovel to sound the depth of the torrent, while my companion drove the car. We navigated two of them, but at the third flood stream the handle of the shovel disappeared in the water. In this land of seldom-seen roads we had to make a 200-mile detour to reach our destination.

But we had fair weather for our trip to the Kofa, and camped that night at the base of the mountain which rises 2000 feet almost perpendicularly from the floor of the desert. The Kofa is

a strange mountain, virtually without water. During many trips over and around the mountain I have never found a spring big enough to fill a canteen. There are *tinajas* which hold water for a few weeks after a rain, but during long periods of drouth the Kofa massif is as dry as the Sahara. Yet despite this apparent lack of moisture, every tiny ledge and crevice has luxurious green vegetation the year 'round. Evidently the huge block of volcanic rock which comprises the bulk of the mountain is shattered and porous, and stores great quantities of storm water within its mass. Dr. L. H. Bailey, the eminent botanist at Cornell University, who had visited the palm canyon, referred to it as a "fantastic mountain."

The name Kofa is derived from the King of Arizona, a long-abandoned mining property near the southern base of the mountain. The old prospectors had another name for it—one that could hardly be used in polite society. They called it S. H. Mountain, and that name appears on some of the old maps. When one drives along the Yuma-Quartzsite road with the mountain outlined against the eastern sky, there is observed a conspicuous butte which suggested the descriptive term used by the old-timers.

The palms grow in a narrow slot of a tributary canyon, accessible only by hand and toe ascent. There must be water at their roots, otherwise the palms would not be there. But it would require the pick and drill of a hard rock miner to get a drink there. The scarcity of water probably explains the absence of potsherds, petroglyphs or other evidence of previous Indian habitation near the mountain.

The daddy of the palm oases in California is the widely-publicized Palm Canyon, near the resort city of Palm Springs. There are approximately 3000 trees in

this group, extending along the floor of the canyon for several miles, and fed by a live stream of water. They are multiplying, as is true in nearly all the oases where there is running water. Palm Canyon is on the agenda of the National Park Service as a possible national monument, but little progress has been made toward the acquisition of the oasis for this purpose because most of the palms are on the reservation lands of the Cahuilla Indians. The Cahuilla Tribal Council derives considerable income from a nominal charge for entrance to the canyon.

One circumstance which confirms the conclusion that the wild palms are increasing in numbers is that the old-timers who were responsible for the original naming of many of the oases frequently referred to them by number. For instance, Twenty-nine Palms, near the town of that name and the headquarters for the National Park administration of the Joshua Tree National Monument, was given the name by Col. Henry Washington, chief of the survey party which established California's San Bernardino Base and Meridian in 1852. Today only fourteen of the original palms are still standing, their age evidenced by the deep fire scars and the stooped angle of their trunks. However, young trees have more than replaced the fallen veterans. Incidentally, this is the northernmost of the wild palm groups in California. A few miles away, within the Monument, is another group known as 49 Palms.

Prospectors, who tramped this desert nearly a century ago, probably were responsible for the original naming of 17 Palms in the Borrego Badlands sector of the Anza-Borrego State Park. The popularity of this historic waterhole is attested by the old foot-trails which approach it from every direction. The last time I visited this oasis only five of the

original trees were standing, but I counted 25 young trees ranging from 2 to 25 feet in height.

At Dos Palmas spring, on the desert slope of the Santa Rosa mountains, the original two palms have increased to five, with several additional trees downstream below the spring. At Dos Palmas, on the old Bradshaw freight route, there are now 27 trees.

The native palms of California are all of the fan type, the species *Washingtonia filifera*. The scientific name was given by a German horticulturist, Herman Wendland, in 1879. He saw young trees growing in a hothouse at Ghent, Belgium, from seed brought from the United States. The name was given to honor George Washington, leader of the American Revolution, and first president of the U. S. A.

In later years, other botanists added four other species to the genus *Washingtonia*. These were *W. gracilis*, *W. sonorae*, *W. robusta* and *W. arizonica*. The latter classification was given in 1923, by O. F. Cook of the U. S. Department of Agriculture, to the palms in Arizona's Kofa mountains. The other three species are natives of the states of Sonora and Baja California in Mexico.

In 1936, Dr. Bailey of Cornell published a monograph in which he suggested that the variations in *robusta*, *gracilis* and *sonorae* were so slight it would greatly simplify the identification of the three if they were all reclassified as *robusta*. He regarded *arizonica* as *filifera*. Thus, on the authority of the Cornell scientist, we now have but two species in the genus *Washingtonia*, *robusta* and *filifera*. The two are readily distinguished. *Robusta* is a tall slender tree sometimes reaching a height of 50 or 60 feet. It is widely planted as an ornamental tree in the Southwest. *Filifera* is a thick-trunked tree seldom growing

higher than 35 or 40 feet.

Along the desert escarpment of the Sierra Juárez range, just south of the international boundary in Baja California, is another fan palm distinguished by the bluish cast of its fronds, and, when in fruit, by its seeds. It grows large clusters of marble-sized seeds compared to the pea-size of the *Washingtonia* genus.

During trips to the canyons of the Sierra Juárez many years ago I noted this strange palm growing in the same canyons with the *Washingtonias*. Later I brought out some of the seeds and sections of the frond stems and sent them to botanist friends for identification. Evidently they were passed along to Dr. Bailey for I received a letter from him asking for information as to the habitat. A year later, the scientist sent word that on his next trip West he would like to visit one of the canyons where the trees were growing. The trip was arranged, and it proved to be one of the most delightful experiences in my years of palm hunting. The eighty-year-old botanist revealed amazing stamina during the four-mile hike along the rocky trail into Taos Canyon. Along the way he entertained the members of our party with his experiences around the world in assembling the fine herbarium at the Cornell campus. When we reached the palms he immediately confirmed his previous conjecture that they were one of the blue palm species, the *Erythea armata*. This species is found within 25 miles of the American border, but I have never found a single tree north of the boundary.

Visitors to Palm Canyon, near Palm Springs, note there is considerable variation in the thickness of the trunks of mature trees, some of them approaching the graceful lines of the *robusta* species. Where the water supply is ample and the trees grow in a dense forest, as in the



7. *Washingtonia filifera* in Palm Canyon, where the palms grow in small and large groups, in dense groves and as stragglers. The canyon is only a fifteen-minute drive from Palm Springs, California. Photograph by Peter Bisset, courtesy U.S. Department of Agriculture.

natural park above Hermit's Bench in this canyon, the trunks tend to be more slender than where the growth is scattered or the water supply more limited.

As the tree grows and puts out new fronds at its crown, the lower fronds die, but do not pull loose from the trunk as do the leaves of most other trees. They hang close to the trunk, forming a thick skirt. These skirts are highly inflammable, and generally on the older trees have been burned away. Sometimes the fires have been started by campers, and at other times by lightning. Prehistoric Indians who camped at the palm oases are said to have burned the dead fronds because they believed the thatch was the hiding place of evil spirits.

I have slept on the ground beneath these wild palms many times, and I can understand the reasons for the Indian superstition. Bats, wrens, insects and even rodents sometimes find shelter among the dead fronds. More than once I have been awakened by a faint rustling in the dry skirts overhead.

During the late spring and early summer the mature trees throw out creamy plumes of blossoms among the living fronds. These develop into tiny seed berries and by October great clusters of the dark brown seeds dangle from the foliage. The berry consists of a hard seed covered by a thin sweet skin. The Indians crushed these seeds in crude mortars and made them into a porridge. In Guadalupe Canyon, in Baja California, I once came upon a hermit cutting the tender crown out of the young trees for food. I have never found evidence that the Indians did this. To them the tree was too valuable a source of food and shelter to be destroyed in this manner.

In seeking out the location of palm groups when I had no other clues for guidance, I learned a lesson from the prospectors. In their search for free gold

they not only panned the sand of the arroyos, but they kept a sharp eye for float—for pieces of ore which may have broken loose and been washed downstream from a ledge higher up on the mountain. And so I learned to scan the creek beds of the lower canyons for palm float—a bit of frond, a seed stem, or perhaps a section of trunk washed down the canyon. Such evidence unfailingly led to living palm trees higher up.

Whence came these wild palms to the Southern California desert? No one can answer with certainty. It is not true—as some unknowing persons have suggested—that they were planted by the Spanish padres who first came to this region. Undoubtedly the Franciscan fathers, who first established missions in the Californias in the 18th century, planted seeds and grew palms in their settlements. But the palms were here many thousands of years before the white man came to this western hemisphere. Probably they were here before primitive man inhabited the earth. *The California Highway and Public Works* magazine reported in January, 1932: "Near Bridge Canyon north of Castaic school the fossilized imprint of a palm leaf was found embedded in limestone. The depth at which the fossil was found was estimated at from 25 to 30 feet below the present surface of the ground."

The Los Angeles Museum has a fossil imprint of a palm frond, presumably a fragment of *Washingtonia*, collected at Austin quarry, Calabasas, California, which scientists believe dates back to the Miocene period. Baja California's palm trees were mentioned by Father Juan Crespi, historian of the Portola expedition, as long ago as 1769, and Father Junípero Serra, who founded the California missions, recorded seeing them the same year.

There is good reason to believe the

trees date back to a period when the desert as we know it today was partially inundated, or threaded with swamps and bayous, for there is no escaping the fact that the palm is a water-loving tree. Its shallow root system bears out the conclusion that it has made no evolutionary progress in adapting to dry arid soil or deep water tables, as have the smoke tree and other desert shrubs with long tap roots. Its fronds thrive in the desert sun, and its trunk conserves moisture—but its roots must have a generous supply of water.

My study of the desert palms has convinced me that the original trees in this area survived along the fault lines which more or less parallel the Salton Sea on both sides. These fault lines, where water rises close to the surface of the ground, may accurately be followed from an airplane overhead by noting the extra growth of vegetation which marks them. These stringers of vegetation often include palm trees.

The palms in the canyons, where the greater numbers are found, are migrants from the floor of the desert. Their seeds from the parent trees along the fault lines were brought into the canyons by Indians and coyotes, and possibly, in the case of Kofa Palm Canyon, by birds. The Indians carried them, as they did mesquite beans and chia seed, for food. The coyotes eat the fruit as it falls to the ground, but digest only the sweet skins. Undigested palm seeds may be seen in coyote dung in nearly all the desert canyons where there is water. The coyote is despised as a chicken thief and camp robber—but I believe this wild dog of the desert must be credited, more than any other agent, for the fine stand of palmettos in Palm Canyon and the many other canyon oases where the *Washingtonia* thrives today.

Since a palm tree has no growth rings

by which its age may be determined, I have sought the answer in other directions. There are canyons where I can identify three different generations—all of them fully mature. The separate generations may be determined by the fire scars on the trunk, for all the aged trees have been burned, and by the length of the dead frond skirts. It is not uncommon to find a fire-scarred veteran of perhaps 150 years growing close beside another tree which has a full skirt of dry fronds. Considering the inflammability of the dead fronds, it is obvious the older tree reached full maturity before the adjacent tree had sprouted.

Fortunately, the fire which strips the palm of its dry fronds seldom kills the tree. The outer surface of the trunk may be charred and the green fronds at the crown singed until they wilt and die, but within a few weeks a new growth of fronds emerges and the vitality of the tree appears in no way impaired by the flames. Actually, the burned tree almost invariably grows a heavier crop of seed the following season—as if Nature had stepped up its reproductive process to compensate for any destruction that may have been caused by its flaming enemy.

The effect of water supply on the growth of the *Washingtonia* has been demonstrated by trees I have grown domestically. Twelve years ago I transplanted some native seedlings given me by Paul Wilhelm of Thousand Palms Canyon. They were three years old and 2½ feet high. Part of them were planted where they received only a weekly irrigation. They now average less than six feet in height. Others were planted where for six months of the year they received daily irrigation of warm water, the waste from a refrigeration cooling system in a nearby building. These palms are now twenty feet high.

The root system of the tree consists

of hundreds of small rootlets, each no thicker than a lead pencil, which spread through the ground immediately below the surface. The sap flows from roots to crown in the porous heart of the tree. It is this characteristic of the tree that enables it to survive even when the bark—if the outer covering of the trunk may be called bark—is blackened with char.

Why does a person, presumably in his right mind, spend his weekends for many years hunting for palm trees? I can only answer that by suggesting other questions: Why do men and women climb mountains, or run the treacherous rapids of the Colorado River in wooden boats?

To active-minded human beings life would be meaningless without goals. They cannot all set out as did Christopher Columbus in quest of a new world, or Admiral Byrd in search for the South Pole. Most of us have to be content with more modest projects. But in nearly every member of the human species there is the built-in urge for conquest—for exploration. This is especially true of youth. And so we embark on whatever form of adventure our environment

will suggest and our circumstances will permit.

Oh, I know, the psychologists have a more scientific—and incomprehensible—explanation for human impulses than I am suggesting. But the basic urges in human nature really are not as complicated as some of the minds in the ivory towers would have us believe. If parents and teachers and law-makers better understood the basic emotions which are the dynamo of human conduct I am sure there would be less alcoholism, fewer love triangles, and certainly less crime and juvenile delinquency than plague our society today.

I am sure no winner of the Indianapolis Sweepstakes or the Open Golf championship or the Kentucky Derby ever experienced a deeper sense of achievement or a more lasting satisfaction than came to me the day, after six fruitless weekends spent scaling the rocks and plodding up the sand canyons of the Inkopah Mountains of Southern California, I finally got my first glimpse of the pretty palm oasis near the fantastic rock formation known as Dos Cabezas.

Landscape Grouping of Palm Species*

H. F. LOOMIS

Palms have been used in landscaping for many years in countries fortunate enough to be able to grow them outdoors. Several methods have been followed, the most usual being the planting of a single specimen in an open space where it might be seen to the best advantage or placing it to lend a special accent adjacent to shrubs, trees, a doorway, corner of a building or to break an expanse of wall. Thus single plants of several or more species may be seen scattered in yards, gardens and parks or along streets, with little artistic relation to each other.

A somewhat more studied effect has been achieved by placing several individuals of the same species in loose or close group arrangement. This is more commonly done with single-trunked kinds than with those that form natural clumps and occasionally may be an attempt to simulate a clumping species without running the danger of having the group expand greatly, as with some multiple-trunked palms.

A third common landscape use of palms is the planting of many of the same kind, usually a single-trunked one, in a row at the side or front of a door-