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# Palms in Baja California\*

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No one needs a botany course to know a palm tree. The palms are such a distinctive family and "palm" such a distinctive concept that people know palms at first sight. Well, usually; and at least in Baja California, mistakes are unlikely. The palm is usually tree-size, with an unbranched trunk and a crown of large fan-shaped or feather-shaped leaves: large leaves necessarily go with an unbranched trunk to give the tree enough green spread.

The palms are a large family, with 2500 or more species, mostly tropical and so giving a tropical impression. They are most important to mankind, providing food, building and roofing materials, fibers, waxes and oils, and other products. The date and coconut palms come at once to mind as basic to the lives of countless people; but many others also are important.

Baja California has five native fan palms—four on the peninsula and one on Guadalupe Island—one extending into Alta California as our only native palm. Such eminent plants put their distinctive mark on any landscape but especially on a land of low or sparse vegetation. Their leaves are widely used in Baja California as thatch for roofs and walls, their trunks are used for timber, and their fruits may be eaten.

Coconut palms are planted on some southern beaches, as at La Paz, and a very few other exotic palms are grown sparingly in towns. But the Old World date palm is commonly seen, giving character not only to such large oases

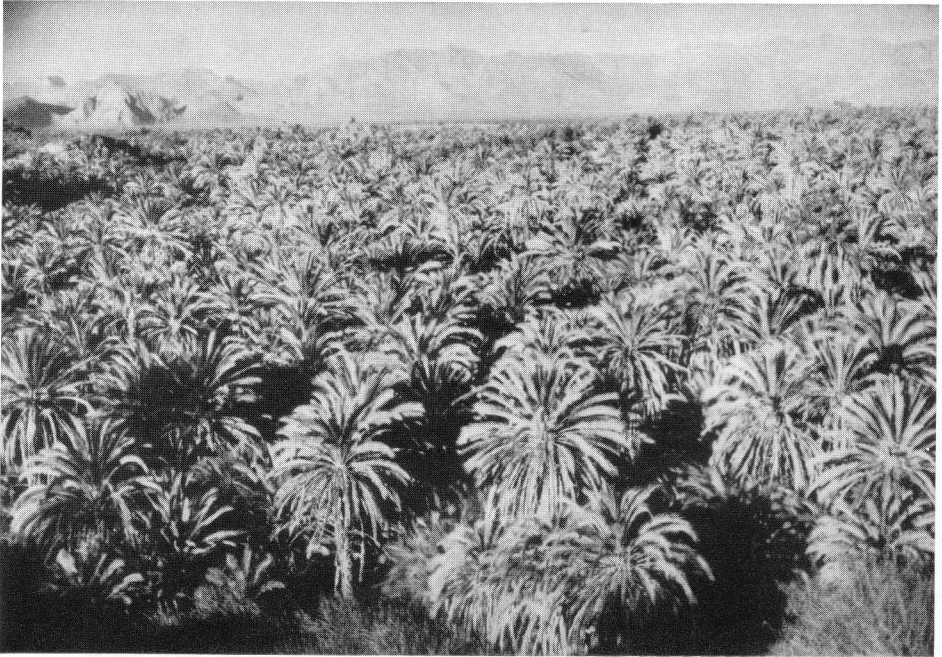
as Mulegé and San Ignacio but also to isolated and lonely springs, where some traveler long ago paused for lunch and dropped a date seed. Although dates might seem to improve any spring, they may take so much water that none is left in the spring, let alone in the summer. Dates came in Mission days and are now an important crop. Both coconut and date have feather-shaped leaves, in contrast to the fan-leaves of the native palms.

## California Fan Palm

The California fan palm (*Washingtonia filifera*) occurs in the deserts of southern California at such palm-named oases as Palm Springs, Twenty-nine Palms, and Borrego Palm Canyon. It also extends to northern Baja California, in the Sierra de las Cucapás south of Mexicali and on the east side of the Sierra Juárez, and to western Arizona. Needing a stable water supply, it grows either in canyon washes or at hillside seeps, as along the San Andreas Fault. The canyon oases suffer occasional destructive floods, which may clear out a canyon and leave the alluvial fan below strewn with palm trunks.

This palm is a massive tree, sometimes reaching 90 feet, with a stout trunk and a large open crown of grayish-green fan-shaped leaves. Since palm trunks do not thicken with the years, they keep no growth-ring record of their age; but estimates from growth in known periods place the maximum for this palm at about 200 years. The dead leaves hang on the trunk as a shag or skirt, which may persist to the

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1. Old World date palms, and a few skydusters, in the oasis of Mulegé.

ground even in old trees, adding to the unique beauty of the tree (see front cover). However, the shag often has been burned from wild trees, and it commonly is trimmed from cultivated ones, at least below, partly to prevent burning by vandals. The many tiny flowers, followed by small blue-black fruits, are borne on long arching branches among the leaves.

This palm is familiar throughout southern California and in other parts of the world with similar climates. In foggy places near the coast, it is subject to crown rot; so in San Diego it is planted less than its more slender relative, the skyduster. After the coconut and date, these two Washington palms are among the most widely planted of palms.

The California fan palm was very important to the Cahuilla Indians of Alta California: it seems likely that the Yuman people of northern Baja Cali-

fornia may have used it in some of the same ways and that other Baja California palms found similar uses. For the Cahuillas, large palm oases were permanent village sites and smaller ones campsites—with water, a milder microclimate, small game, and other useful plants besides the palm itself. Palm leaves were used for making houses and sandals and their fibers for basketry. The wood of petioles was used for implements and the pithy wood of floral branches for making fire by friction. And the abundant pea-size fruits were an important and reliable food, the thin datelike flesh eaten fresh in summer or the whole fruit dried for later grinding.

Cahuillas burned the shag of dead leaves, apparently to improve fruit yield by destroying insect pests, and perhaps burned oases to improve access: and fires still are started carelessly or deliberately by man. Fires

may also start from lightning and doubtless always have. Usually the palm is not killed by burning of the shag or even by repeated burning of the oasis. However, the undergrowth and litter may become dense enough to support a fire that will injure or kill some palms. Repeated fires may reduce the thickness of the trunk and hence the water supply to and size of the crown. Nevertheless, palms are much more tolerant of fire than most associated plants, and periodic fires probably help maintain the palm grove. Removal of undergrowth and litter by fire creates the opening that shade-intolerant palm seedlings need for best growth; and though it may scorch those seedlings already present, it will not necessarily kill them. Thus the palms seem adapted to occasional fires. Also, removal of undergrowth reduces water loss, increasing spring flow and soil moisture, again helping the palm seedlings.

The size of the palm grove is limited by the water available over the long period: too many palms could cause a critical water shortage. Because of their longevity, the palms need reproduce only about once a century to maintain their numbers. There may be no seedlings for many years; but one year of favorable conditions, including exceptional rainfall, may produce many. Coyotes, which eat many palm fruits, are agents in spreading seeds from one oasis to another; and Indians apparently planted some groves.

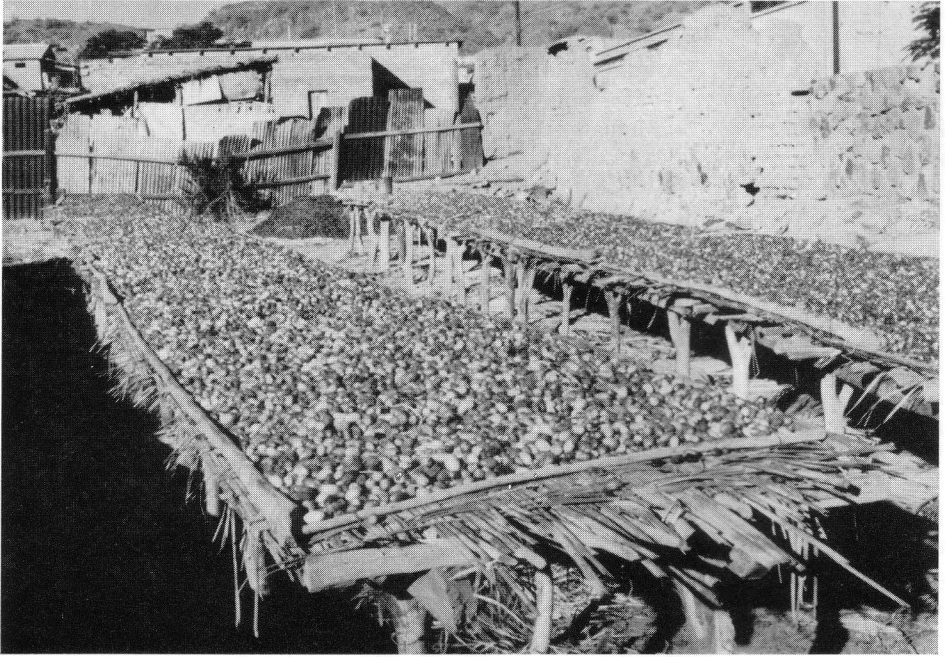
Though mainly a desert-oasis tree, this palm also occurs west of the mountains, at Valle de las Palmas (Palm Valley), 25 miles southeast of Tijuana. The place name puzzled me until I found C. R. Orcutt's account of 1883: "We entered Valle de las Palmas, where we made our next camp among mesquite, screwbean, and other trees—but no palms! The next morning we pro-

ceeded through the valley till we noticed at our right, in a large cañon, two novel trees which proved to be palms (*Washingtonia filifera*). On further exploration we found 20 still standing but over 50 lying dead—cut down by the enterprising ex-governor that he might cover his house with their leaves!" Four mature palms now grow in Cañada Sesma, on the south side of Valle de las Palmas—which is near the old Ensenada road and perhaps is Orcutt's canyon. In Cañada de las Palmas, to the west, 69 palms are scattered over about a mile, at 1200 to 1500 feet elevation. There seems no doubt that they are native.

If Orcutt resolved one mystery, he created another when he reported this palm at the mouth of Arroyo Socorro, on the west coast 170 miles below the border. It does not grow there today, nor is it known wild within 80 miles. The blue palm does occur farther up the arroyo and might once have extended to the mouth; but since Orcutt mentioned seeing blue palms earlier in the trip, presumably he saw something else at Socorro.

### Skyduster

The second Washington fan palm (*Washingtonia robusta*) occurs farther south in Baja California, starting a quarter of the way down, and across the Gulf in Sonora. It is often called Mexican fan palm, but Mexico has so many fan palms that the distinctive name of "skyduster" seems better. It outgrows the California fan palm, with a thinner trunk, enlarged at the base, and a smaller and denser crown of shorter bright green leaves. In young plants the leaves are stiff; but mature trees have a very different appearance, with gracefully drooping leaf segments. The shag of dead leaves may persist for years, but parts of it may slip down, exposing the trunk.



2. Date crop at Mulegé.

Skydusters also are widely planted in southern California and abroad, and they are more common than the California fan palm in San Diego. They are our tallest palms, sometimes growing almost out of sight and leaving a row of trunks, like so many telephone poles, along the street below. Both Washington palms are beautiful trees, especially in groups, where there is room to admire them from a distance; but they are not for the small garden. A tall one stands across the mall just southwest of the Museum.

According to Miguel del Barco, writing two centuries ago, the Indians of southern Baja California learned from the Spaniards that the terminal buds of "palma colorada" were edible; and they soon destroyed many palm groves. Since each palm has but one terminal bud, each salad costs the life of a tree. It is not clear whether he referred to

the skyduster or to the Brandegee palm. Indians of the Cape Region used leaves of the skyduster in their burials.

### Hesper Palms

The other three fan palms of Baja California are sometimes called Hesper palms. Since one of them occurs on Guadalupe Island, far off the west coast, a genus for them was fancifully named *Erythea* for one of the Hesperides, Greek-mythological daughters of the Evening or West, who "dwelt on an island on the western edge of the world and guarded the golden apples there." It is hard to think up new names. And now the botanists have united *Erythea* with *Brahea*, named for Tycho Brahe (1546-1601), a Danish astronomer whose connection with the palms is probably even more tenuous.

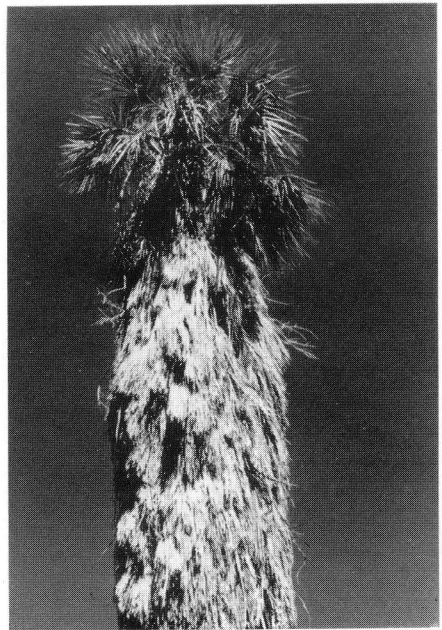
The Hesper palms are similar to Washington palms but somewhat



3. Skydusters towering above surrounding desert vegetation, with their feet in Arroyo Cataviña.

smaller, with larger and more edible fruits. Though less widely grown, all three are seen in southern California, and each has special merit as a cultivated tree.

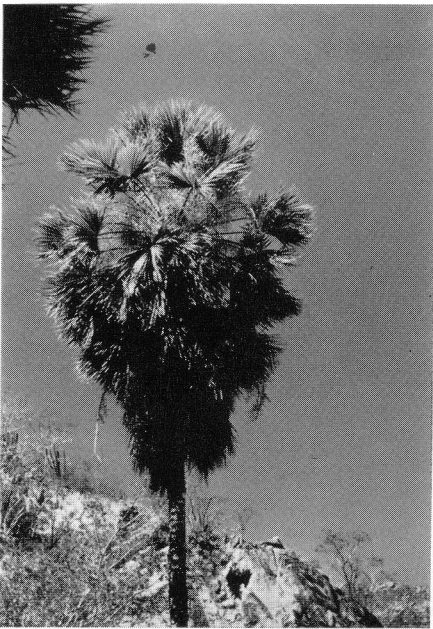
The blue palm (*Brahea armata*) is endemic to the northern half of Baja California, including Angel de la Guarda Island in the Gulf. It occurs mainly in desert canyons and arroyos, often with Washington palms; but at elevations of 4000 or 5000 feet it also grows in crevices in bare expanses of granite. It is a tree, becoming 30 to 50 feet tall, with bluish to silvery leaves and with striking feathery-branched floral stems arching out far beyond the crown. Several trees have recently been planted in the new desert garden just northeast of the Museum, and a few very fine old specimens about San Diego show the potential of this palm as an ornamental.



4. About half of a tall blue palm, with shaggy trunk, Angel de la Guarda Island.



5. Blue palms with fruiting branches, in Tajo Canyon, east slope of Sierra Juárez.



6. Brandege palm at Potrero de Almenta, in the Cape Region mountains.

The blue palm occurs in the canyons on the east side of the Sierra Juárez, at least to within 15 miles of the United States border. It may yet turn up in San Diego County, since our droll former Curator of Birds and Mammals, Laurence Huey, used to amuse himself by planting seeds on our side of the line.

The Brandege palm (*Brahea brandegeei*) is endemic to the mountains of the southern half of Baja California, where it grows along canyon bottoms, often with the skyduster, and on north slopes. It reaches about 50 feet, with a slender trunk often covered with a shag of old leaves, and with a rather small crown. The fruits, known to the natives as "taco," become yellow, then black; when yellow they are very good to eat, tasting much like dates. The species was named for its discoverer, T. S. Brandege, a Californian bota-



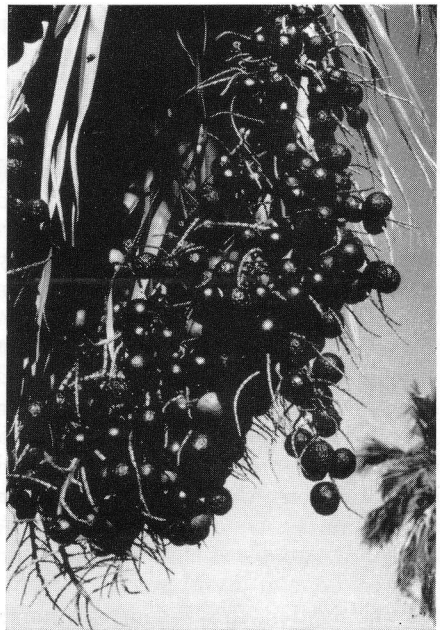
7. Palm forest high on north slope of Guadalupe Island.

nist then living in San Diego and a member of our Society, who was a pioneer botanical explorer of Baja California. The natives call it *palma de taco*.

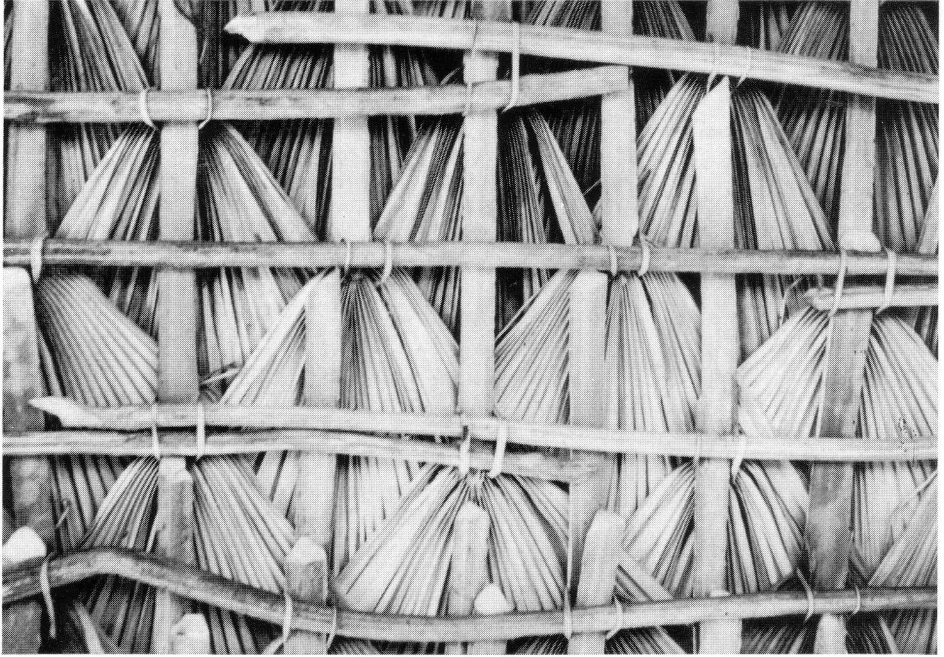
Kate Sessions, well-known San Diego horticulturist and tree planter, in 1902 went with Mr. Brandegee to the Cape Region of Baja California and by mule into the mountains. They brought back seeds of the Brandegee palm and established it in southern California. The two tall fan palms in the courtyard of the House of Hospitality in Balboa Park are from this collection; and a grove of them grows on the canyon-side below the west end of the Laurel Street bridge.

### Guadalupe Island Palm

The Guadalupe Island palm (*Brahea edulis*) is native only on Guadalupe Island, 250 miles south of San Diego



8. Fruits of Guadalupe Island palm, eaten by man and beast.



9. Palm thatch makes not only an effective roof but also a beautiful ceiling. No nails or wire, just palm fronds.

and 157 miles off the peninsula of Baja California. This is a rugged volcanic island 22 miles long and 4300 feet high. Several thousand palms make a forest, with a few scattered pines and oaks, high on the north slope, in beautiful contrast to the blue waters below; and smaller numbers grow in canyons farther south. For more than a century the island has been overrun with goats, which have destroyed much of the native vegetation. Since the goats eat seeds and seedlings, only old palms survive; and if the goats remain, the palm seems doomed on its native island. Fortunately, it is securely established in cultivation—widely planted as an ornamental in southern California. A beautiful example stands across from the west door of the Museum.

In cultivation, this is indeed a handsome palm. Dr. Francesco Franceschi, a noted Italian horticulturist who spent

20 years in Santa Barbara, called this the most elegant fan palm of the North American continent—though actually it is a little off the continent, as he well knew from visiting its island home. Though it is not a towering tree like the Washington palms—reaching only 30 or 40 feet—the crown of bright green leaves is ample and symmetrical. Early fall of old leaves makes a clean trunk. The arching floral branch bears first the numerous small cream-colored flowers and later a heavy cluster of purplish-black fruit, each about the size of a plum.

The fruit was originally reported to be eaten by man, goats, birds, and mice. It is somewhat edible if caught at the proper stage between greenness and decay, when it tastes like a second-rate date that has been frightened by a prune. In fact, the word “*edulis*” in the name means edible. Also, this is



one of many palms known as cabbage palms because the large bud of young leaves is eaten—or, in this case, used to be. And the leaves, like those of other palms, have been used for thatch. Clearly the goats are not to blame for the lack of palms in the canyon above Northeast Anchorage—site of various early settlements—where remnants of palm stumps may still be seen.

Guadalupe Island is the tip of an ancient volcano, formed by an outpouring of lava from the floor of the sea. It is thus an oceanic island, never connected with the mainland (and so part of Baja California only politically). The plant life of the island must therefore be derived from chance immigrants across the water, mostly seeds, that have floated or been carried by wind or by birds, or, most recently, in the case of weeds, by man. As mentioned above, two related palms grow on the peninsula; but how the ancestral palm seed ever reached the island is a question to ponder. Neither the seed nor the fruit of the present palm will float, even in salt water. A fruiting branch might float, but the branches

remain on the tree long after fruit fall; and should a fruiting branch become detached, it would not go down a dry arroyo to the sea and could scarcely be carried by turbulent storm runoff and still retain the fruit. The seeds are almost too large to be carried by the wind or accidentally by a bird; and it would take a very enterprising bird, with great singleness of purpose, to carry a seed so far just for the future perplexity of botanists. It is true that related palms have somewhat smaller seeds and that the ancestral seed may have been smaller; but that fact scarcely diminishes the problem. Since the island is at least seven million years old and only about 10 million inches from shore, the distance works out to less than two inches per year; and almost any bird could carry, or push, a seed that far. But that, of course, is nonsense, which an alert editor should have deleted. So how the palm got to Guadalupe Island remains one of those intriguing puzzles to which you will not find the answer on page 27 of the next *Environment Southwest*.

## CLASSIFIED

WALT DISNEY WORLD is presently trying to locate specimen palms for use in their landscape. They would appreciate learning the whereabouts of palm specimens hardy in Orlando, Florida, such as the following: *Phoenix canariensis*, *P. dactylifera*, *P. humilis*, *P. reclinata*, *P. rupicola*, *P. sylvestris*, *Washingtonia filifera*, *W. robusta*, *Aiphanes acanthophylla*, *Rhaphidophyllum hystrix*, *Acoelorrhaphe wrightii* (*Paurotis wrightii*), *Livistona australis*, *L. chinensis*, *L. decipiens*, *Jubaea chilensis*, *Brahea armata* (*Erythea armata*), *Dictyosperma album*, *Chamaerops humilis*, *Butia capitata*, *B. capitata* var. *strictior*, *B. yatay*, *Butia* × *Arecastrum* hybrids, *Borassus flabellifer*, *Arikuryroba schizophylla*, *Arenga engleri*, *Parajubaea cocoides*, *Copernicia alba* (*C. australis*), *Acrocomia aculeata*, *Trithrinax acanthocoma*, *T. brasiliensis*, *T. campestris*, *Trachycarpus fortunei*, *T. caespitosus*, *T. martianus*, *T. nanus*, *T. takil*, *T. wagneranus*, *Syagrus insignis*, *S. macrocarpa*, *S. weddelliana*, *Serenoa repens*, *Sabal minor*, *S. palmetto*, *S. causiarum*, *S. texana*, *S. domingensis* (*S. umbraculifera* Hort.), *S. etonia*, *S. exul*, *S. mauritiiiformis*, *Rhopalostylis sapida*.

Please send information to Dyle Jones, Grounds Maintenance, WALT DISNEY WORLD, P. O. BOX 40, Lake Buena Vista, Fla. 32830 or call him at 305-824-3256.