

Principes, 38(4), 1994, pp. 177–181

In Search of *Phoenix roebelenii*: The Xishuangbanna Palm

SASHA BARROW

The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, United Kingdom

This short paper is written in response to a growing interest among palm enthusiasts in an elegant, clustering form of *Phoenix roebelenii* O'Brien (Hoffman 1994). The solitary form of *P. roebelenii* (otherwise known as the Pygmy Date Palm) is well-known in cultivation and familiar to all palm growers, but the clustering, tall-stemmed form is never seen out of Indo-China. This account aims to give the reader an historical background to the species, and discusses various aspects of the palm's distribution, habit, ecology, and conservation status.

History of *P. roebelenii*

The name *Phoenix roebelenii* dates back to 1889, when James O'Brien described a dwarf palm from Indo-China. He published a brief description and illustration based on leaf material only, with no flowers or fruit, and named the palm after the German orchid collector, C. Roebelen, who had collected it from Laos. Only two months later, Mr. Roebelen himself published short notes on the habit of *P. roebelenii* in its native habitat on the banks of the Mekong River in Laos:

It grows in great abundance along the rocky banks of the majestic river Mekong, as far north as 22° latitude, and where the temperature drops to 5°C in December and January. Although I looked eagerly for seeds and flowers I could discover none, but was told by the natives that monkeys and wild cats are very fond of the small berries, and carry them to their hiding-places where I really could find thousands of seedlings. The stems of this exceedingly graceful pygmy palm never attain more than 60 cm in height, and the plant generally grows in large clumps.

The lack of flowers and fruit with which to make a complete description of *P. roebelenii* led to confusion over the nature and classification of the palm, particularly concerning its relationship with *P. loureiri* Kunth. *P. loureiri* refers to a small palm with a thick stem to 60 cm high, briefly described by Loureiro (1790) from Hue in Vietnam. In the absence of flowers and fruit of *P.*

roebelenii, O. Beccari, the Italian palm botanist, considered *P. roebelenii* to be synonymous with *P. loureiri* in his monograph of the genus (Beccari 1890). Furthermore, he made *P. loureiri* a variety of an Indian species—*P. humilis* var. *loureiri*.

Beccari later revised this decision and gave *P. roebelenii* species status, separate from *P. loureiri* (Beccari 1910). By this stage, *P. roebelenii* had flowered in Europe and the distinctly pointed petals and sepals of the species clearly indicated to Beccari that *P. roebelenii* was unique among the Asian species of *Phoenix*. In fact, only one other species of the genus shows such sharply pointed petals, *P. reclinata* Jacq. in sub-tropical Africa.

Further accounts of *P. roebelenii* in Indo-China added to Roebelen's description. In 1923, A. Chevalier published the observations of M. Miéville of *P. roebelenii* in the upper River Noire, near Lai-Chau in N.W. Vietnam. The palm was found on steep river banks at 200–400 m altitude, between 23–25° latitude, growing in the cracks of large limestone boulders, and sometimes on slaty shale. It was not found further than 25 m from the river bank and consequently was submerged by high water every year, presumably in the rainy season. In contrast to Roebelen's description of a dwarf palm only 60 cm tall, Miéville reports a palm of up to 3 m tall, often with a twisted stem.

M. Magalon (1930) published an account of the palms of Indo-China, including *P. roebelenii*, which he describes as an elegant, clumping palm with a slender stem often twisted and recurved, up to 2 m in height, and about 10 cm in diameter, and ringed with leaf-base scars. The center of each scar is marked by a short stump, which is the vascular remains of the interior face of the leaf sheath (see Fig. 3). Magalon reports *P. roebelenii* from regions of north Vietnam, Yenbay Province, and in the forests on the right bank of the Fleuve Rouge, near Lai-Chau, and from the valley of the Nam Ou, in the region of Pak Lay



1. A cluster of *Phoenix roebelenii* palms growing at the Golden Triangle, overlooking the Mekong River.

in Laos. This account was later supported by Gagnepain (1937) in "Flore Générale de l'Indo-Chine", leaving no doubt that *P. roebelenii* is a well-defined species of limited distribution in the northern regions of Laos and Vietnam, and areas of Yunnan in S.W. China (Shengji and Sanyang 1991).

***P. roebelenii* Habitat**

All this information from the literature suggests that *P. roebelenii* is found closely associated with riverside or cliff habitats, its elegant, clustering habit enabling it to survive potentially damaging floods. Recent anonymous reports from Laos add to the observations of early plant hunters by noting that *P. roebelenii* is found actually growing in rivers. This rheophytic habit is rare within the palm family, as noted by Dransfield (1992). Rheophytes are defined by Van Steenis (1981) as plant species which are in nature confined to the beds of swift-running streams and rivers and grow there up to flood-level, but not beyond the reach of regularly occurring flash floods. Other rheophytic palms include *Ravenea musicalis* Beentje and

Vonitra crinita Jumelle & Perrier from Madagascar, *Chamaedorea cataractarum* Mart., *Geonoma linearis* Burret, *G. schottiana* Mart. and *G. brevispatha* Barb.-Rodr. in South America, *Pinanga rivularis* Becc., *P. tenella* (H. A. Wendl.) Scheff. and *Areca rheophytica* J. Dransf. in Borneo, and a *Hydriastele* species in New Guinea.

Phoenix roebelenii in Cultivation

Since its introduction to Europe, *P. roebelenii* has become a popular and widely cultivated ornamental. The palm that we know as *P. roebelenii* in cultivation is rigidly upright, usually small and solitary, and without smooth, pale stems. The *P. roebelenii* described by Chevalier, Magalon and Gagnepain, is a much taller, clustering palm, with twisted and often pale stems. This raises a very interesting question. Are the cultivated and wild forms really the same species? A set of distinctive characteristics apply to both the cultivated and the wild forms and this suggests that they are both *P. roebelenii*. If this is so, then we have to ask



why the habit of the cultivated form is different from that of its wild relatives. Perhaps the change in habitat and local ecology of the palm, associated with its cultivation, is responsible for the habit differences. This was first reported by Miéville, who noted that cultivation gave the palm “une belle ampleur” (a beautiful fullness); the leaves hanging down in a gracious curve, the young leaves forming a light and slender bunch at the top. Alternatively, the cultivated palm, so common in tropical and sub-tropical gardens all over the world, could represent a single provenance of the species—that is, an original collection of just a few individuals of the shorter, solitary form provided the stock for all those plants brought into cultivation. However, if this is the case, then we would expect to find individuals of *P. roebelenii* in the wild that are similar to the cultivated form. No



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2. Wild-collected *Phoenix roebelenii* palms on sale in Northern Thailand. 3. The pale, slender stems of wild *P. roebelenii*, showing the distinctive pattern of leaf-base scars, each marked by a central stump of remnant vascular tissue.

reports of such plants, to my knowledge, have been made. A third hypothesis must be considered. It is possible, considering the ease with which *Phoenix* species hybridize with each other (Uhl and Dransfield 1987), that the *P. roebelenii* that we know in cultivation is the product of a series of hybridization events with other cultivated *Phoenix* species, and somewhere along this series the clustering ability was lost.

Conservation Status of *P. roebelenii*

Earlier this year, I spent five weeks in Thailand studying and collecting specimens of various *Phoenix* species for the monograph of the genus on which I am working. A literature search at the library of the Royal Botanic Gardens, Kew, informed me that fieldwork in Thailand would yield specimens of *P. loureiri*, *P. acaulis* and *P. paludosa*, but *P. roebelenii* could not be found wild in that country, and this proved to be true. However, while wandering around the plant stalls of Bangkok's Sunday Market with John Dransfield, we came across several clustering, elegant *P. roebelenii* palms, up to 2 m tall, for sale. These had quite clearly been dug up from the wild and transported to the city, where they were being sold for large sums of money. Where had these plants come from? No one knew for sure, but it seemed that they could be bought at the Golden Triangle, by the Mekong River, which forms a natural border between Thailand, Laos and Myanmar (Burma).

Two weeks later I was there, standing on the bank of the Mekong looking across to Laos. I was accompanied by Rachan Phuma, of Huay Kaew Arboretum in Chiang Mai, who had kindly offered to join me on this *P. roebelenii* search. Among the stalls selling tourist souvenirs, *P. roebelenii* was for sale, but at a very high price. I could glean only limited information from the people selling the palms: namely, that they are known as Xishuangbanna Palms and that they are collected wild from up-river in Yunnan, S.W. China. Feeling rather frustrated at not discovering more about the palms, we drove further along the Mekong to Chiang Saen, where we could join the main road back south to Chiang Rai. On the road out of Chiang Saen we passed a field in which hundreds of *P. roebelenii* clumps stood bagged up in sackings. Up until then we had seen only small numbers of the palm for sale, the high price perhaps limiting the trade. But here at Chiang Saen, there was a veritable *P. roebelenii* forest on sale, consisting

of wild collected individuals in a quantity which, considering the limited natural distribution of the species, raises serious questions about the survival of the palm in the wild. According to the woman selling the palms, the trade began five years ago, with *P. roebelenii* collected wild from northern Laos. As the trade increased, the natural populations of the palm in Laos diminished to such an extent that the traders had to venture further afield, into Xishuangbanna in Yunnan, in order to satisfy the demand.

In Xishuangbanna the palms are said to be found clustering on cliffs overlooking the Mekong, and perhaps even along the river's edge, thus further supporting the hypothesis of *P. roebelenii* as a rheophyte.

Each year a large shipment is transported down the Mekong from Xishuangbanna during the three-month rainy season. It is only then that the river is high enough to allow such shipments. From our discussion with the palm seller, it seemed that there will not be another shipment for several years. The reasons for this are three-fold. First, there is now a glut of *P. roebelenii* for sale in Chiang Saen, the high price severely limiting the size of the market. Second, the natural populations of the palm in Xishuangbanna are now so diminished that the traders cannot obtain enough tall, mature palms to make the long journey worth their while. Third, the plant sellers have collected large quantities of seed, which they are having no problems in growing. A successful trade in the resulting seedlings would lessen the need for gathering the palm from the wild.

The consequences of such trade on a palm of limited distribution such as *P. roebelenii* do not bode well for its status in the wild. If it is true that the trade is easing off, then populations in Laos and S.W. China might be offered temporary respite from attack, but the long-term conservation status of the species is still not clear. Further information relating to its distribution and frequency is needed and potential threats to its survival must be identified if this very beautiful, ornamental palm is to be ensured a safe future.

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CHAPTER NEWS AND EVENTS (Continued from page 176)

iae in Southern California. The meeting began at 11:30 a.m., with a tour led by Bill Dickenson of the dry palm area just past the Clark Victorian house, followed by a potluck picnic lunch. After lunch, Ralph Velez gave a slide presentation on Palms of Venezuela taken at the June IPS Biennial. This was followed by the raffle and auction. Louie and Carol Hooper invited members and guests to view their palm garden in La Habra after the Arboretum meeting.

On Saturday, September 24, there was a tour of the palms at Quail Botanical Gardens in Encinitas. Garden staff member and horticulturist Charlie Korn conducted the tour and gave a brief overview of palms and their economic importance.

A tour of Lotusland was held on the afternoon of October 15, arranged by Pauleen Sullivan. This tour followed a palm sale from 8:00 a.m. to noon at Ventura College, from which car pools to Lotusland originated.

The November meeting was held in San Diego, with tours of two private gardens not previously toured by the Chapter. The meeting started at 10:30 a.m. at the garden of Dennis Willoughby (4438 Pescadero, phone 224-2516) in the western Point Loma area of San Diego. Dennis's garden features the largest number of *Livistona* species planted out in Southern California as well as many other thriving genera. This was followed by a late morning tour of the nearby garden of Lee and Cindy Cooley (4408 Osprey, phone 223-8090), which features large *Roystonea regia*, *Gaussia maya*, *Prestoea montana*, several large *Pinanga* and many other mature palms. At 12:30, the group left for the Bahia Hotel, 998 West Mission Bay Drive, about 10 minutes away, where the lecture was held. The speaker was David Besst, well-known palm author and nurseryman from Florida, who talked about wild palm species seen on adventures into eastern Mexico.

The Southern California Chapter's Annual Banquet was scheduled for January 21, 1995.

News from the Broward County Chapter

On September 9 and 10, the Broward County Palm and Cycad Society (BCP&CS) held a field trip to McLean's Autumn Safari, 325 Farmington Drive, Plantation. Participants saw an extraordinary xeriscape and palm-filled yard, with plants available for sale.

The group met on September 22, 1994, in Davie. Tom Broome, the owner of B&B Landscape in Lakeland, gave a presentation on hands on experience with *Cycas* pollination. He has been growing cycads for six years and has 112 species in his collection.

On September 24 and 25, the Chapter held their "Beautify South Florida, Plant a Palm Sale" at Flamingo Gardens, Ft. Lauderdale. This was followed by the "Plant Affair West" there on October 8 and 9.

A "Plant Extravaganza" was scheduled for the Holiday Park, Ft. Lauderdale, on October 29 and 30.

In late November, the BCP&CS had their Society Picnic at Eric Beers's garden.

News from the South Florida Chapter

The South Florida Chapter met on October 19 to finalize plans for "The World's Largest Palm Sale". This activity has grown tremendously since its inception. Sales are over \$80,000 per year and are forecast to exceed \$100,000 soon. The sale not only raises funds for the Chapter and for the Fairchild Tropical Gardens, but also distributes over 1,000 species of palms to the community.

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