

Some Field Observations of *Brahea* in Tamaulipas, Mexico

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During January, 1990, I was fortunate in being able to visit populations of several *Brahea* species in the state of Tamaulipas, Mexico. These species are rare in cultivation and mature plants are virtually unknown outside of Mexico. Specimens at the Huntington Botanical Gardens, California, are among the oldest in the United States. Even with more than 20 years' growth most of these slow-growing plants are only beginning to show adult characteristics. At present these palms are best seen in their natural habitat.

As a group, *Brahea* of northeastern Mexico prefer rocky limestone regions of 1,000-2,000 m elevation. They are distinct from others in the genus by their particularly small seeds and lack of a midrib existing beyond the petiole. There are also some startling differences within this group. *Brahea decumbens* J. Rzedowski and *B. moorei* L. H. Bailey are among the most distinctive species in the genus and we hoped to locate them on this trip.

Travelling east through the state of San Luis Potosi into Tamaulipas during January, fellow enthusiast and traveller Scott Hewett and I were doubtful that any palms would be found. It seemed incredible that populations of the distinctive *Brahea decumbens* could exist here. Unlike such desert palms such as *Washingtonia robusta* H. A. Wendl. and *B. armata* S. Watson, which prefer to grow in canyons in the vicinity of ground moisture, *B. decumbens* exists on seemingly dry slopes. Originally described in 1955 from plants in the vicinity of Guadalucazar, SLP, *B.*

decumbens was not evident on the distant hills. Wishing to avoid any fruitless long distance excursions on foot, we continued on into Tamaulipas.

Late in the day, near the picturesque town of Palmillas, we found the palm for which the town was named. Shimmering in the sunlight, the hillside was speckled with clumps of the silvery-blue *B. decumbens*. A closer investigation followed the next day.

The population grew on rocky limestone slopes (Fig. 1) with seedlings taking root in pockets of humus. Despite the underlying limestone I wondered if the humus was actually alkaline. It is possible that limestone is not needed in cultivation, at least when young. Most plants occurred somewhat above scrub forest in direct sun on the drier portions of the slope in association with such xerophytes as *Agave*, *Dasyllirion*, *Euphorbia antisiphilitica* Zucc., and various Cactaceae. It was clear that things were not altogether dry despite appearances, as evidenced by ferns and *Tillandsias* on the lower slopes.

B. decumbens is a very distinctive palm in its brilliant glaucous leaves and suckering, decumbent trunk (Fig. 2). Old specimens form thickets similar to those of *Serenoa repens* (Bart.) Small. The trunks are fairly straight and lie on top of the ground as if they have fallen except for the vertical orientation of the leaves. One particularly large individual had a main trunk length of 2.4 m. Interestingly the leaf glaucescence is not present in young plants or new offsets but develops only on



1. *Brahea decumbens* colony growing on a dry hillside near Palmillas, Tamaulipas, Mexico. 2. *Brahea decumbens* showing exposed decumbent trunk (center).



3. *Brahea* cf. *berlandieri*, a clump with fire-blackened trunks.

mature foliage. Leaves were surprisingly small at this site, being about 72 cm across and divided about three quarters of the way into the leaf. The petiole was generally about 32 cm long and smooth except for fine teeth near the base. The inflorescence on these palms does not extend beyond the leaf tips. Some root formation was seen at the base of some offsets but in general it seemed most offsets depended on the main trunk for their continued existence.

Later, after a day on the hot shadeless hillside, we downed our refrescos at a roadside establishment and contemplated a trip into the village of Palmillas, which was well off the main highway and nearly out of sight. With a fine old church and cobblestone streets, Palmillas seemed of an earlier time—no stores, hotels, or cars, with nothing to spoil the illusion. Most unnerving of all, there was no evidence of any people! As we admired the town and its quiet ambience from the central square, we detected a few faint noises as we were

watched by curious residents within the old brick houses. Later it was quite a surprise to us when we met a man here who knew the local palms were of the genus *Brahea* and other technical details about the plants. It was a reminder to us that local resources should not be underestimated.

Continuing our trip, we saw sporadic palms on the rocky limestone hills as we travelled northeast. These were giants compared to *B. decumbens*, with stout, erect trunks of more than 2 m in height. These palms have been considered to be *B. berlandieri* Bartlett; however, at a population we visited not far from Ciudad Victoria, some characteristics of *B. dulcis* C. Martius were present. Old specimens commonly had offsets at the base, forming attractive clumps. The rachillae were longer than described for *B. berlandieri* and in length more similar to those of *B. dulcis* except that they lacked the dense brown tomentum usually present on the rachillae of *B. dulcis*. Whether leafbases were persistent could not be determined as all large trunks were blackened from fires (Fig. 3). Leaves, about 1 m across, were most often dull green but varying degrees of glaucescence was present in some individuals. Petioles were about 90 cm long and armed near the base, but spine length was quite variable.

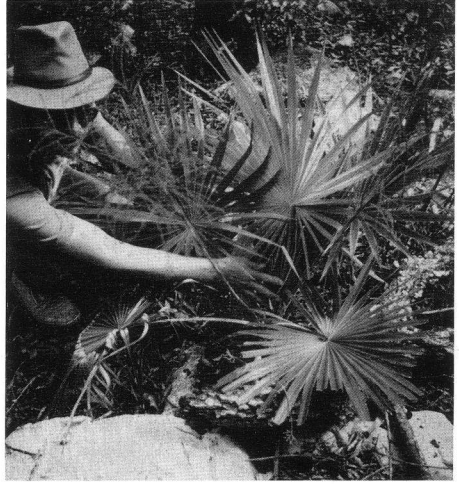
The differences between *B. dulcis* and *B. berlandieri* are not clear from a practical point of view. In *B. dulcis* the significant differences are its longer rachilla length, dense rachilla tomentum, and offsetting habit. It is noteworthy, however, that this population of *B. berlandieri* has offsetting trunks and long rachillae or perhaps this is a hybrid population. The leaves may be green or glaucous on either species. Tomentum may be a poor character, as it is lacking on a herbarium specimen of *B. dulcis* from western Mexico in the Huntington herbarium. The plant described as *B. bella* L. H. Bailey from Coahuila differs only slightly from *B. berlandieri* and is

generally thought to be synonymous. It is hoped that future investigations will clarify these relationships.

With some excitement, we found the elusive *B. moorei* (Fig. 4) in the shade of oaks in this same area, growing with *Dioon edule*. There was also a single juvenile example of a palm similar to if not identical with *Chamaedorea radicalis* Martius. An attractive miniature, *B. moorei* was first described by Bailey in 1951. It is similar to *Sabal minor* (Jacq.) Persoon not only in lacking an above ground trunk but also in its similar erect inflorescence extending well above the leaves. Most distinctive are the leaf surfaces. The underside is so extremely chalky white that it was evident on our hands after handling the leaves. The radically different upperside was dark green giving the plants a distinctive two-tone appearance. The petioles were unarmed and about 45 cm in length, the leaf diameter was about 70 cm and the proportionately long inflorescence reached 1.2 m. An excavation at the base of a particularly large individual revealed a short, vertical, subterranean trunk about 14 cm in diameter.

There is a *Brahea* in cultivation at Huntington gardens, identified as *B. moorei*. Quite different from the Ciudad Victoria plants, it is a seedling of a cultivated plant from Hidalgo state. The leaves on this plant are much less pruinose on the underside. More significant, it is more proliferous than any other *Brahea* I have seen; this small plant has already developed eight stems. In Tamaulipas not a single example of off-setting was seen. It is possible that significant differences exist between these two widely spaced populations.

Scott and I spent a good deal of time in the palm-covered hills above Ciudad Victoria searching for seed but to no avail until it was discovered that old animal droppings contained the small seeds of these *Brahea*. A thorough search ensued and some seeds were found in droppings that had been baking on the hot asphalt road-



4. *Brahea moorei*, mature plant with an inflorescence.

way, probably for months. Fortunately I did not find it necessary to explain what I was doing to any locals. The 6–8 mm diameter seeds were extremely hard and desiccated. It was quite a surprise when the first of these seeds germinated successfully 9 months later.

This site possesses a large and healthy population of palms. There are several environmental factors that may be beneficial to supporting *Brahea* in the area. The effect of periodic fire was noted in the fire blackened but otherwise healthy trunks. The ground surface was generally lacking in other plants and many palm seedlings were seen sprouting in the exposed pockets of humus. Animal droppings may be an effective dispersal agent, perhaps even benefiting germination.

No more *Brahea* were seen as we travelled south of Ciudad Victoria, as the lower elevations seem to discourage their growth. Severe frost damage to cultivated palms and citrus was evident throughout the region, no doubt a result of the cold spell of December, 1989. No frost damage was detected on any of the native *Brahea* species. It is not known what low temperatures occurred at these higher elevations but it

is likely that the native *Brahea* are fairly hardy.

On the return trip through the mountains of the Sierra Madre Oriental into San Luis Potosi, *B. decumbens* was again seen. Perched high above the Rio Verde and its deep canyon, the plants looked stunning with their stiff blue leaves radiating from near-vertical cliffs. It occurred to me that

these beautiful palms seem to have developed a most exquisite taste in their choice of scenery.

Among others, I would particularly like to thank Jim Mintken for contributing to my interest in *Brahea*, Myron Kinnach for his helpful expertise, and Scott Hewett for motivating this most rewarding trip.

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