

# ***Brahea sarukhanii*, a New Species of Palm from Mexico**

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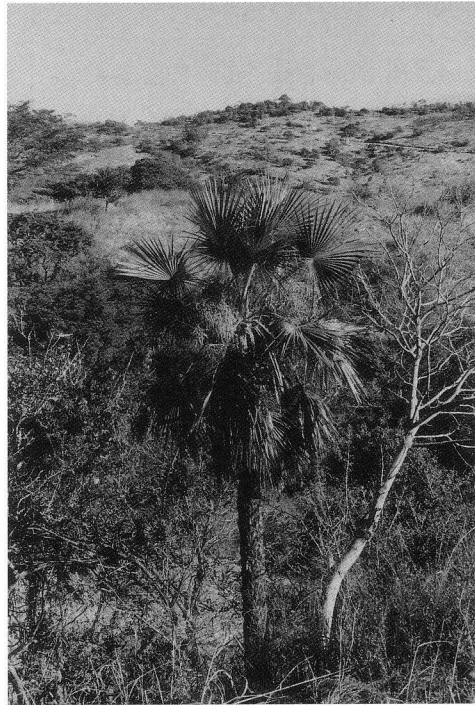
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1. *Brahea sarukhanii* growing in a disturbed Median Dry Forest of Jalisco.

The genus *Brahea* was described by Martius in 1837 while *Erythea* was described by S. Watson in 1880. The latter genus has been considered by many authors as synonymous with *Brahea*. However, I have maintained the two genera because *Erythea* has ternately glomerate flowers, big subglobose fruits with blunt subapical stigmatic scars and always grows on igneous or neutral soils, while *Brahea* has solitary flowers, small ellipsoid or falcoid fruits with apiculate stigmatic scars and always grows on limestone soils.

During recent intensive field exploration in order to collect specimens of *Brahea* and *Erythea*, I observed populations of *Erythea pimo* growing on limestone and igneous soils while populations of *Brahea dulcis* and *Brahea nitida* were found growing on both types of soils. On the other hand, *Brahea decumbens* which grows in limestone soils has big subglobose fruits. As the elements that I used to separate both genera are insufficient to distinguish the two genera, I now use *Brahea* as the valid genus which includes two subgenera and 12 species, all of them growing in Mexico, although three of them extend to Central America.

Upon studying the numerous collections and field observations made for my monograph of *Brahea*, I realized that the palms growing in the states of Nayarit and Jalisco did not correspond to populations of other species of *Brahea* occurring in the surrounding regions, nor with any other species known. I concluded that there are remarkable differences sufficient to consider the palms from Nayarit and Jalisco as belonging to a new species.

***Brahea sarukhanii* Quero, sp. nov.** Figs. 1–4.

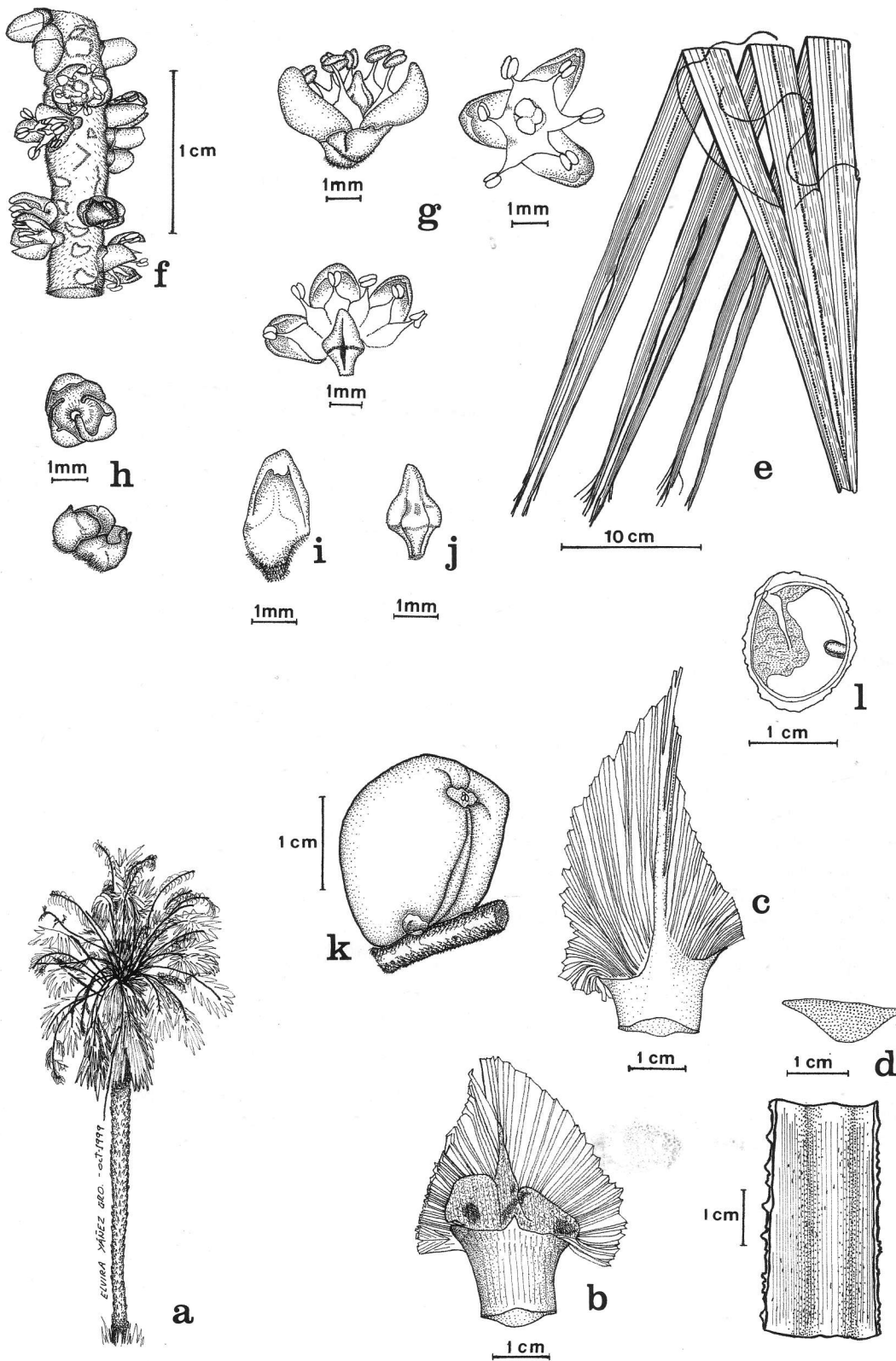
Palma mediocris, usque ad 5 m alta, trunco simplici, erecto, 10–15 cm diametro. Folia mediocria, lamina usque ad 80 cm lata, ambitu orbiculari; petiolis denticulatis, apice 10–12 mm, base 15–22 mm latis; lamina in 52–67 segmentis divisa, centralibus usque ad 80 cm longis, 20–40 mm latis, supra sinus persaepe bifurcatis, palman longitudine 1/4–1/3 laminae. Inflorescentiae ascendentes vel diffusae. Flores solitarii in rachilla conferti; calyce in indumento impresso, ca 1.2–1.5 mm longo, petala 2.6–3.0 mm longa per 1/3 longitudine connata; pistillum ca 2.0 mm longum, ovariis 3 discretis, stipitatis, stylo communi unico. Fructus ellipsoideus vel oblongus, 18–20 × 12–16 mm, glaber. Semen oblongum 14–16 × 12–13 mm.

Typus: Mexico, Nayarit: 20 km SE of Ixtlan del Rio on road to Guadalajara, *Quero 3791* (Holotypus MEXU; isotypi BH, NY, US).

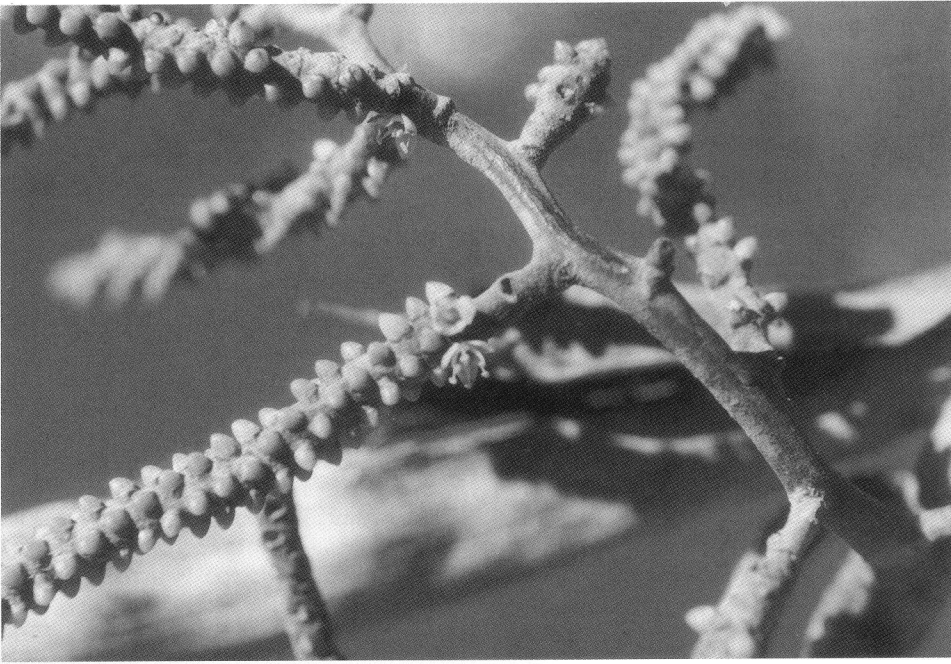
Palms to 5 m tall. Trunk solitary, 10–15 cm diam. with persistent sheaths and petiole bases through almost all its length. Crown with ca. 12–18 leaves. Leaf to 1.60 m long; petioles glabrous, 45–90 cm long, 15–22 mm wide at the base, 10–12 mm wide at the apex, armed with small teeth ca. 1.2 mm long at least toward the base, usually flat above convex below, abaxially projected in a small costa 5–9 cm long, hastula triangular with short membranaceous point; blade scarcely costapalmate, circular in general outline, 80–115 cm diam., with 52–67 segments and a palman of 30–50% of the radius of the blade, at least in the

middle; central segments 60–80 cm long, 1.8–4.0 cm wide, the free portion deeply bifurcate, each portion with entire apex, and prominent, numerous closely spaced secondary nerves with connecting cross veinlets visible underneath. Inflorescence arching, equal to or slightly exceeding the leaves, 120–150 cm long; prophyll bicarinate with triangular apex, opening apically, ca. 20 cm long, 35–40 mm wide; peduncular bracts 2; rachis bracts with triangular apices; peduncle less than 1/3 the length of the inflorescence; primary branches 7 (–9), rachillae 8.0–14 cm long, 3.0–3.5 mm diam., densely woolly-tomentose. Flowers solitary, creamy-white, 3.5 mm long; floral bracts and the base of calyx sunken in the tomentum; calyx 1.2–1.5 mm high, sepals canescent in the upper inner surface, free and imbricate; corolla at least twice the length of the calyx, petals triangular ascendent, imbricate and connate at base, valvate above, 2.5–3.0 mm long, strongly costate when dry, canescent at the outer base; stamens shorter than the petals, anthers 1.5 mm long; pistil ca. 2.0 mm long with connate styles, ovary pyramidal, lightly stipitate with free carpels, canescent at the base, shorter than the style, stigma punctiform. Fruit ellipsoid to nearly oblong, sometimes slightly falcoid, 18–20 × 12–16 mm with blunt subapical ventral stigmatic remnant and a median ventral groove, creamy and canescent when young, black and glabrous at maturity; epicarp smooth, mesocarp fleshy and fibrous to 2.5 mm thick, endocarp cartaceous. Seed oblong, smooth, 14–16 × 12–13 mm, endosperm homogeneous intruded by a horny ventral postament; embryo subbasal.

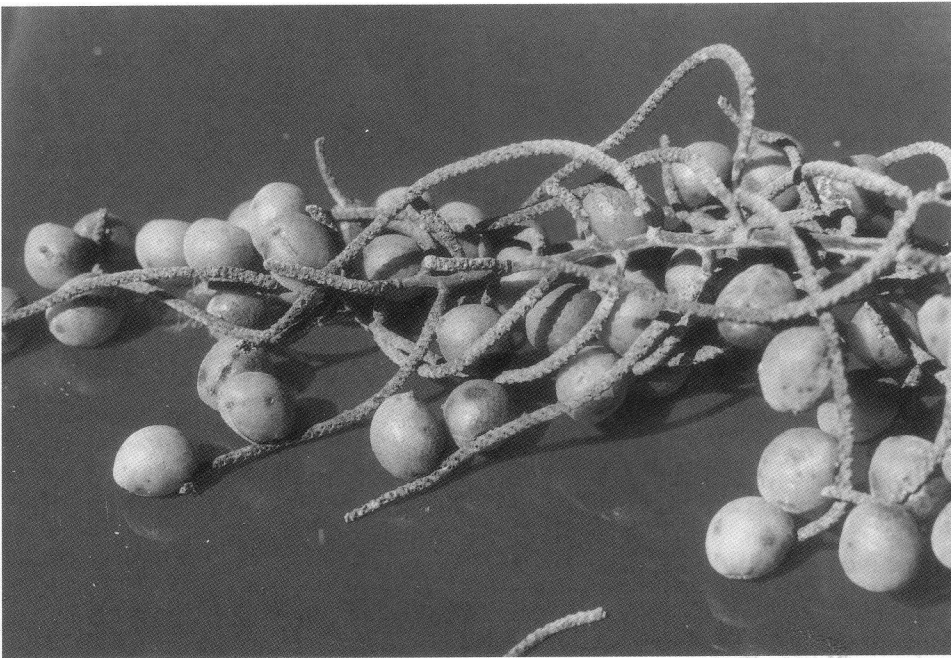
SPECIMENS EXAMINED: MEXICO: NAYARIT: 20 km SE of Ixtlan del Rio on road to Guadalajara, *Quero 3791* (Holotype MEXU, isotypes BH, NY, US); 19.5 km SE of Ixtlan del Rio, *Quero 3792* (MEXU); 19 km S of Ixtlan del Rio, *Quero 3567* (MEXU). JALISCO: 120 km SE of Tepic, along highway 15, *F. C. Boutin 2092* (BH); Km 800 on highway from Guadalajara to Tepic, near the border between Jalisco and Nayarit, *H. E. Moore & V. Cetto 6043* (BH, NY); Municipio Hostotipaquillo, 2 km W of Plan de Barrancas, *Ornelas 1544* (IBUG); 13 km NW of Ameca, beyond the Realito on road to Guachinango, *Gonzalez Villarreal 653* (IBUG); 3 km from Nayarit border along road from Tepic to Guadalajara; *S. Zona, O. Dorado, O. Tellez 246* (FTG); 2.5 Km E of the border between Nayarit and Jalisco, *Quero 3701, 3702* (MEXU); 3 Km E of the border between Nayarit and Jalisco, *Quero 3766, 3767* (MEXU); 7 km NW of tollbooth Plan de Barrancas, on the tollroad Guadalajara–Tepic, *Quero 3624* (MEXU); Platanal bridge, 5 km SE the border between Nayarit and Jalisco, on the



2. *Brahea sarukhanii*. a) general appearance of the palm; b) adaxial part of the leaf; c) abaxial part of the leaf; d) cross section and basal part of petiole; e) central segments of the leaf; f) rachilla with open and bud flowers; g) open flowers; h) calyx; i) petal; j) pistil; k) fruit; l) cross section of seed.



3. *Brahea sarukhanii*: close up of rachilla with mature and unopened flowers.



4. *Brahea sarukhanii*: primary branch with fruits.

tollroad, *Quero* 3678 (MEXU); Km 85.5 on the tollroad Guadalajara–Tepic, *Quero* 3774 (MEXU); 27.8 km W of Ameca on road to Mascota, *Quero* 3775 (MEXU); 29 km W of Ameca on road to Guachinango and Mascota, *Quero* 3732, 3733 (MEXU); 30 km W of Ameca on road to Guachinango and Mascota, *Quero* 3731 (MEXU). In addition, numerous observations and measurements were made from randomly distributed plants in each population.

**DISTRIBUTION AND ECOLOGY.** This new species is known only from the mountain regions of Ameca, Jalisco and near the border between the states of Nayarit and Jalisco (Fig. 5), on hillsides with abundant basaltic rocks. It is an important element of the physiognomy of the Dry Tropical Forest and Pine-Oak Forest of that region where it grows at an elevation between 1100 and 1650 m. The most similar species to the new one are *Brahea aculeata*, *B. dulcis* and *B. pimo*; however, *B.*



5. Distribution of *Brahea sarukhanii*.

*sarukhanii* differs from *B. aculeata* in its smaller oblong fruits and the scarce, small teeth of petioles. From *B. dulcis* it differs in that the fruits are nearly double the size and the rachillae are shorter. In contrast with *B. pimo*, it has thicker rachillae, larger fruit and more sparsely armed petioles.

Key to the *Brahea* species from western Mexico

- 1. Petioles strongly armed with teeth 4–5 mm long at least at the base; rachillae less than 3 mm diam.
  - 2. Leaves lepidote-tomentose at least at the apex of petiole and base of blade, fruits less than 15 mm diam. .... *Brahea pimo*
  - 2. Leaves almost always glabrous, never lepidote-tomentose, fruits more than 20 mm diam. .... *Brahea aculeata*
- 1. Petioles sparsely armed, but teeth never more than 3 mm long; rachillae thick, more than 3 mm diam.
  - 3. Trunk with remains of sheaths and petioles on the upper third; petals more or less deltoid, fruit apiculate, less than 12 mm long and less than 10 mm diam. .... *Brahea dulcis*
  - 3. Trunks with remains of sheaths and petioles along most of their length; petals triangular, fruit not apiculate, more than 18 mm long and 15 mm diam. .... *Brahea sarukhanii*

This species is named in honor of Dr. José Sarukhán, eminent Mexican botanist and ecologist, General Coordinator of the Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) and former director of Instituto de Biología de la Universidad Nacional Autónoma de México.

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