

CERATOZAMIA MICROSTROBILA (ZAMIACEAE), A NEW
SPECIES FROM SAN LUIS POTOSÍ, MEXICO

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ABSTRACT

Ceratozamia microstrobila is described from southeastern San Luis Potosí, Mexico. It is compared with *C. zaragozae* Medellin-Leal and *C. hildae* Landry & Wilson, to which it is mostly closely related.

We believe the genus *Ceratozamia* is highly variable, and the possibility of natural hybrids exists. We have found differences within and between populations of the same species in leaflet width and length, as well as in mature cone sizes. However, we feel the genus seems to form two main groups: large plants with large trunks, many leaves, and large cones, of which *C. mexicana* Brogn. is typical; and a group of small plants with small, almost subterranean trunks, bearing few small leaves and small cones, to which belong *C. zaragozae* Medellin-Leal, *C. hildae* Landry & Wilson, and the species described below.

***Ceratozamia microstrobila*, Vovides & Rees, sp. nov.**

Truncus ovoideus vel subcylindricus, usque ad 24 cm longus et usque ad 10 cm diametro; folia pinnata usque ad 70 cm longa; petiolus inermis, basi tomentosus; cataphylla triangula, tomentosa, cauli adnata, 3-5 mm longa; foliola lanceolata, 15-18 cm longa, 2.8-3.2 cm lata, ad marginem subrevoluta, apice acuta, strobilus masculinus, 17 cm longus, 2.3 cm diametro, brunneus, pedunculatus; pedunculus inermis, tomentosus, 5 cm longus; microsporophylla bicornia, 7 mm longa, 5 mm lata, cornua 2 mm longa, parte sterili inter cornua 2 mm longa; strobilus femineus pedunculatus, subcylindricus, viridi-brunneus, 6 cm longus, 4.4 cm diametro; megasporophylla peltata, 1.7-2.1 cm lata, 12-13 cm longa, bicornia, cornua 2 mm longa; pedunculus inermis, tomentosus, 6 cm longus (Fig. 1).

Trunk almost subterranean, ovoid to subcylindric, up to 24 cm long, 10 cm maximum diameter, protected by the persistent leaf bases, light brown in color. Leaves 2-4, pinnate, up to 70 cm long, unarmed;

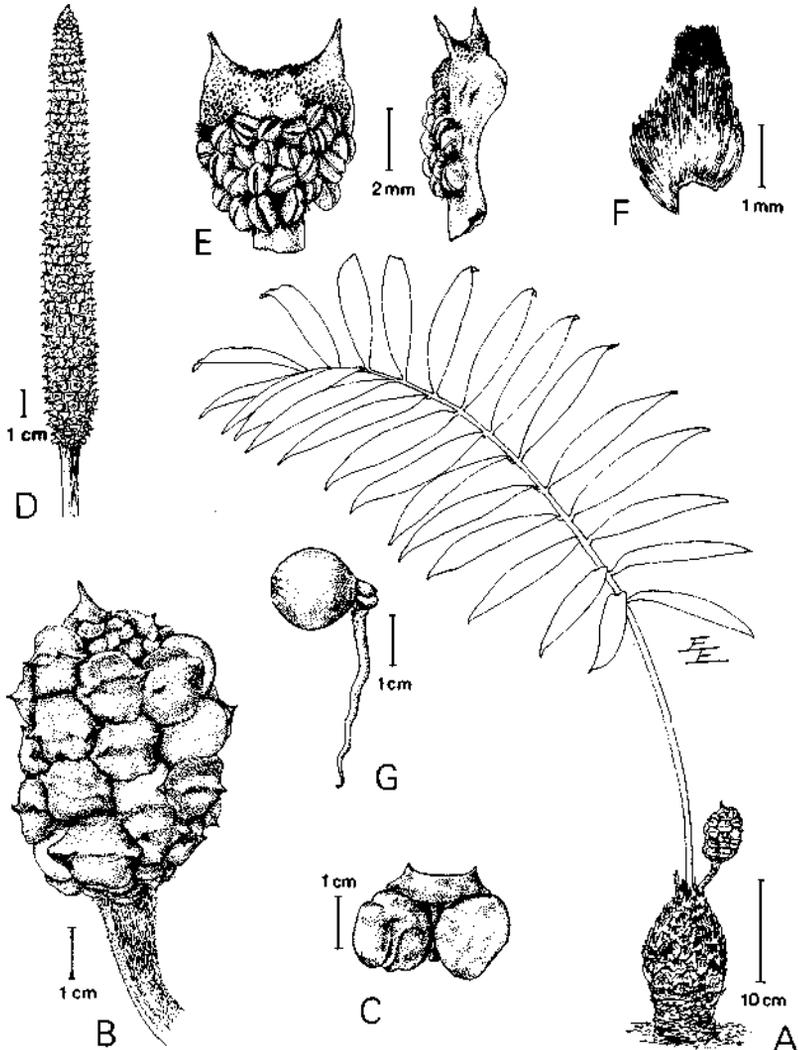


FIG. 1. *Ceratozamia microstrobila* Vovides & Rees. A. Habit of female plant. B. Female cone. C. Megasporophyll with attached seeds. D. Male cone. E. Microsporophyll. F. Cataphyll. G. Seed with emerged radicle and taproot.

petiole tomentose at base. Cataphylls triangular, tomentose, 3-5 mm long. Leaflets lanceolate 15-18 cm long, 2.8-3.2 cm wide, alternate, subopposite or opposite, acute at apex, coriaceous, entire, subrevolute, lustrous green on adaxial surface, lighter green on abaxial surface;

nerves more or less visible. Male cone 17 cm long, 2.3 cm diameter, brown; peduncle 5 cm long, unarmed, tomentose; microsporophylls (from median part of cone) 5 mm wide, 7 mm long, horns 2 mm long, 4.5 mm apart, length of infertile portion between the horns 2 mm. Female cone greenish brown, 4.4 cm in diameter, 6 cm long; peduncle 6 cm long, unarmed, tomentose; cataphyll triangular, 4 mm long, heavily tomentose; megasporophylls peltate, 1.7-2.1 cm wide, 1.2-1.3 cm long, pubescent at edges, horns 2 mm long, spaced 1.4 cm apart; seeds slightly elongate, 1.4 cm in diameter, 1.8-1.9 cm long. $2n = 16$.

TYPE: México, San Luis Potosí, Municipio of Ciudad del Maiz, at Ejido las Abritas, 850 m, ♂, 7 ov 1974, *J. Rees 1613* (Holotype: XAL).

PARATYPE: Mexico, San Luis Potosí, Municipio of Ciudad del Maiz, at Ejido las Abritas, 24 Sep 1977, *J. Rees 1681* (MEXU).

The new taxon is known only from Ejido las Abritas at 850 m. It grows in shallow reddish clay soil, rich in humus, on limestone outcrops. The site is located in the transition zone between low deciduous forest (selva baja caducifolia) and mixed oak woodland. Genera present at the site include: *Quercus* spp., *Ostrya* sp., *Ulmus* sp., *Dendropanax* sp., *Cupania* sp., *Sabal* sp., *Bursera* [aff. *simaruba* (L.) Sarg.], and *Hamelia* sp. Also present are two other cycads: *Dioon edule* Lindl. and *Zamia fischeri* Miq.

Vegetative key

Leaflets fasciculate.

Leaflets 1 to 3 cm wide, arranged in clusters of 2 to 4 along rachis, up to 11 pairs of clusters. 1. *C. hildae*

Leaflets not fasciculate.

Leaves irregularly twisted; leaflets linear lanceolate, not exceeding 1 cm in width, up to 19 pairs 2. *C. zaragozae*

Leaves not irregularly twisted; rachis unarmed; leaflets lanceolate, 15 to 18 cm long, 2.8 to 3.2 cm wide, up to 16 pairs 3. *C. microstrobila*

These three small *Ceratozamia* species from eastern Mexico form separate populations and are morphologically distinct from each other. *Ceratozamia microstrobila* is distinguished from *C. hildae* Landry & Wilson by having lanceolate, not fasciculate, leaflets, and from *C. zaragozae* Medellin-Leal by not having irregularly twisted leaflets. The chromosome numbers and karyotypes of the three small species are similar to those of *C. mexicana*, as published by Marchant (1968); however, each of the species differs in the number of satellites present (Vovides, unpubl. data).

Additional field collections are needed of the small *Ceratozamia* species from eastern Mexico. They have been collected at only a few sites, where they are being removed rapidly by commercial collectors.

Their ranges, variation, and cytology have not been adequately studied. The morphology and cytology of these plants and their relationships to the larger *Ceratozamia* species are now undergoing study by authors.

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