



1, 2: *Coccothrinax munizii*, in its natural habitat, photographed at the end of the rainy season, Cuba.

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Coccothrinax munizii

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Coccothrinax munizii, from the southeastern tip of Cuba, is one of the most unusual palms of the subtribe Thrinacinae. It grows in a place where nobody would expect to find a palm, a hot and dry strip of soilless coral rock and has developed some features that its relatives lack (see centerfold).

Why so Peculiar?

With its leaves so small and very narrow, it is a most unusual looking species of *Coccothrinax* (Figs 1, 2). The genus *Coccothrinax* displays a great diversity of leaf shapes and one of the distinctive characters is the degree of orbicularity of the leaf (i.e., the portion of surface of a hypothetical circle covered by the leaflets). *C. munizii* leaves are only 1/3 orbicular, some other species cover the whole circle with their segments touching the petiole and a few even overlap the outermost leaflets, covering up to 5/4 of the circle. *C. munizii* leaves are also stiff and silvery and the sheath has hardened spinelike extremities. The stem is one of the thinnest of the genus and can be only 5 cm in diameter (Fig. 5) and more than 10 m tall.

These features of leaf and stem are probably adaptations to the xeric habitat. *C. munizii* is one of the most obviously xeromorphic of all palms, showing adaptations to very warm, dry and windy conditions. It is the dry extreme of a whole range of variation found in the polymorphic genus *Coccothrinax*.

The most striking characters of its reproductive parts, quite rare in the genus, are the homogeneous endosperm and the muricate, or minutely warty, ovary and fruit.

C. munizii, together with its Hispaniolan counterpart, *C. ekmanii*, stand alone in subsection *Haitiella* of the section *Coccothrinax*. Recently, Henderson et al. (1995) suggested to reduce dramatically in size the genus *Coccothrinax* and proposed the synonymy of *C. mu-*

nizii Borhidi with *C. ekmanii* Burret, from Hispaniola.

C. ekmanii is a more widespread species, maybe less abundant, from limestone soilless areas of Hispaniola. The most striking difference I have noted between the two species is that the sheath fibers of *C. ekmanii* are much less robust than those of the Cuban species (Fig. 4). Whether this is sufficient to retain the two as distinct species seems doubtful but, until a detailed study is carried out, I feel it better to continue to use *C. munizii* for the palm from Cuba.

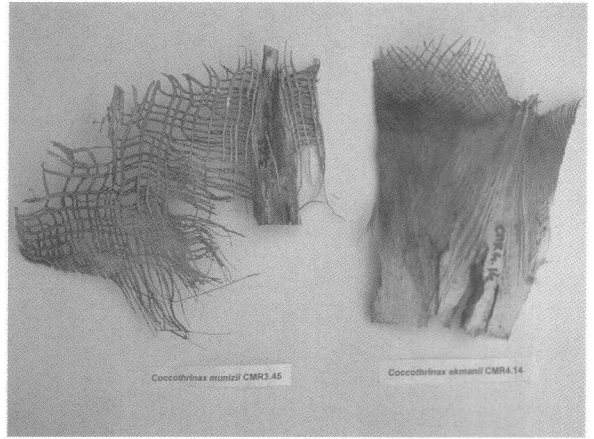
Its Native Habitat

Coccothrinax munizii grows in a narrow strip of coast in the southern part of the Guantánamo Province, where the average yearly rainfall is only 700 mm and the average annual temperature is 27–28°C (80–83°F) (Inst. Cub. de Geod. y Cart 1978 and Borhidi 1991). Furthermore it is restricted to the dogtooth rock of the “terrazas levantadas”. These sea-facing limestone slopes are ancient coral banks which have been tectonically uplifted to different levels and then partially eroded. From a close view, they still look like coral reefs taken out of the water, but seen from a distance they resemble a giant staircase with 30–100 m tall steps. The most striking fact (for a plant) is that they harbor very little soil (Fig. 3). The scant vegetation that share these cliffs with *C. munizii* is mostly composed of specialized xerophytes, such as *Agave albescens* Trelease, *Melocactus harlowii* (Britt. & Rose) León or *M. acuñaí* León and the pachycaulous shrub *Plumieria lanata* Britt. Borhidi (1991, p. 567) listed the most abundant/dominant species that grow in this plant association of xeric limestone.

Two more *Coccothrinax* species grow in the same low rainfall area; *C. hioramii* grows on the nearby hills on sandy soil and the other species, as yet unidentified, grows at the bottom of the terraces, where soil accumulates. Neither of



3. *Coccothrinax munizii*: a young plant growing in a fissure of the limestone.



4. Fibers of *Coccothrinax munizii* compared with those of *C. ekmanii* in the Herbarium ORT (Tenerife).

these two species shows the extreme adaptations of the soilless specialist *C. munizii*.

Adaptations to an Exposed Habitat and Comparison with *Thrinax ekmaniana*

Curiously but not surprisingly, the most xeromorphic *Coccothrinax* shares some characters with the most xeromorphic species of the genus *Thrinax*, which is *T. ekmaniana* (Burret) Borhidi & Muñiz, also from Cuba. They both have extremely thin trunks and wedge-shaped leaves. Also their seeds are very small, between 3 and 4 mm in diameter and their eophylls (the first leaves of the seedlings), as observed in plants grown at the Palmetum of Santa Cruz, barely exceed 1 mm in width. Eophylls of all the other Caribbean *Thrinacinae* that I sampled (18 species) are about three times larger, between 3 and 6 mm wide (except *T. compacta* which has eophylls 2 mm wide and a few species with much wider eophylls). *Coccothrinax boschiana*, a new species from Hispaniola described in 1997 by M. Mejía and R. García, is another saxicolous specialist from exposed locations. Its eophylls are as thin as those of *T. ekmaniana* and *C. munizii*. The eophylls of these three species are the thinnest I have observed in palms. *C. munizii* and *T. ekmaniana* in their habitats probably are among the slowest growers of the palm family, but no demographic studies have been published. The tallest specimens of *C. munizii*, that exceed 10 m in height, could be very, very old.

Conservation Status

C. munizii is probably in the safest place in the island. The driest area of Cuba has the lowest human density and the lowest population growth (Inst. Cub. de Geod. y Cart 1978). *C. munizii* is the only Cuban *Coccothrinax* that I have seen that grows near a road and shows no signs of exploitation. The whole environment is apparently intact and pristine and the distribution area is sufficiently large—about 50 km long and, in some places 5 km wide. The palms grow on the “terrazas levantadas” by the thousands and are doubtlessly non transplantable for marketing as their roots are tightly anchored within the solid rock. The only apparent menace to *C. munizii* is the possible introduction of alien weeds. A weedy grass, *Pennisetum setaceum*, is causing problems to the native vegetation of the dry parts of the Canary Islands. This species, or a similar one, could spread quickly in the semi-desert areas of Cuba and fill all the fissures in the rock where *C. munizii* seedlings get established.

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5. *Coccothrinax munizii*: thin trunk of an adult plant.



6. *Coccothrinax munizii*: detail of the thick sheath fibers.

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