

# ***Coccothrinax torrida*, a Newly Described Species from Southeastern Cuba**

CARLO MORICI

*Departamento de Ecología,  
Universidad de La Laguna,  
38206 Tenerife, Canarias,  
Spain  
cmorici@ull.es*

AND

RAÚL VERDECIA PÉREZ

*Jardín Botánico de Las  
Tunas,  
Carretera del Cornito Km. 2,  
Las Tunas, Cuba  
verdecia@ltunas.inf.cu*

1. *Coccothrinax torrida* grows in one of the driest regions of Cuba.



*Coccothrinax torrida* was formally described as a new species four years ago (Morici & Verdecia 2006). The new palm was brought to light after extensive herbarium research and a series of trips to SE Cuba performed between 1995 and 2003. It is a new addition to the Caribbean palm genus *Coccothrinax*, which is rich in narrowly endemic species in the Greater Antilles.

There are no recent revisions of *Coccothrinax*, and different authors recognize from 14 species (Henderson et al. 1995) to 53 species, 5 of them being divided in 13 subspecies (Govaerts & Dransfield 2009). Despite the plethora of names in the genus, we described this new palm because it is abundantly distinct, both geographically and morphologically. It is a xeromorphic, small palm from rocky coastal slopes. The epithet of this species refers to the torrid environment in which the palm lives, which is one of the hottest and driest areas of the Caribbean basin.

### Distribution and habitat

*Coccothrinax torrida* (Fig. 1) occurs on the hot, dry coast of SE Cuba, in magnificent coastal scenery hosting a protected environment. Borhidi (1996) defined the climate of the area as semi-desert, with 9 or 10 dry months, in the rain shadow of Sierra del Purial and Sierra de Imías. His records for Baitiquirí (22 km W of the palm's habitat) reported 28°C annual average temperature and 412 mm of rainfall.

Southeastern Cuba is rich in palm species; the dry environment of this southerly exposed landscape contrasts sharply with the wet northern coast of Guantánamo or the neighboring cooler highlands. Fertile river valleys reach the dry coast with stands of *Roystonea lenis* and *Sabal domingensis*. The latter

attains very large sizes and frequently dominates the landscape. The karstic cliffs of the neighboring coastal hills are home to three rock-dwelling *Coccothrinax* species with similarly short and narrow leaves. One of them is *C. torrida*, the other two are found on the coastal hills to the west (*C. munizii* Borhidi) and to the east (*C. alexandri* ssp. *nitida* (Leon) Borhidi & Muniz). A fourth species, to the west, is *Coccothrinax hioramii* León, found in flat or gently sloping areas away from rivers.

*Coccothrinax torrida* occurs in only one isolated location, called Loma del Cuero or Loma del Chivo, which is a karst limestone mountain located just by the coast. It is restricted to highly drained soilless cliffs with no access to underground water. Palms live with little rain, in hot temperatures and intense sunlight, but significant humidity comes regularly from the neighboring sea (Fig 2). The vegetation surrounding the palm is a xeromorphic open scrub, rich in low spiny shrubs, cacti and lianas. According to IUCN criteria, the new taxon is vulnerable. The habitat shows little sign of alteration, but population size is small, the species is known from only one location, and the area of occupancy is very restricted.

### A new species

*Coccothrinax torrida* is one of the smallest species in the genus in terms of trunk and leaf

2. The habitat of *Coccothrinax torrida* is very close to the Caribbean Sea.





size. The small fruits are peculiar in having smooth, creamy-white epicarps. Leaves have a bright colored palman, and the sheath is unevenly coated by wax. The fiber sheaths and inflorescences are similar to *C. pauciramosa* Burret, which we considered the most closely related species. *Coccothrinax pauciramosa* is adapted to much higher rainfall areas on soils derived from serpentine and differs in having orbicular leaves without wax, segments held strongly reflexed (rather than flat) and larger, red-purple fruits and a number of characters that makes it clearly different (Morici & Verdecia 2006).

### Stem and leaves

*Coccothrinax torrida* is a small, solitary palm, up to 8 (–14) m tall. Trunks are gray and thin, with barely noticeable rings. Mature specimens show vertical cracks in the lower trunk, suggesting thickening with age. A cone of roots encircles the base of older specimens, which can be up to 40 cm tall and wide at the base. Protected specimens which grow at the base of the cliffs retain a skirt of dead leaves up to 3 m long, while exposed individuals, on crests and outcrops, shed dry leaves and conserve sheath fibers just on the upper part of their trunks (Fig. 3).

The leaves are small, semi-orbicular (i.e. segments form a semi-circle) and flat, with a wedge-shaped outline. Few specimens bear leaves up to  $\frac{3}{4}$  orbicular. There are 16–19 segments, and the central two are more deeply divided than the others. The blade is 24–30(–42) cm long, green, with an uneven coating of white wax on the adaxial surface. The wax is absent from youngest and oldest leaves, and the abaxial surface has silvery deciduous indumentum. The palman is characteristic in being small and brightly colored, with thick yellow ribs on the adaxial side, ending in a thicker sinus with a brown scar. A bright yellow waxy fan of thick “ribs” radiates from the wide and short hastula, contrasting with the glaucous background of the blade. These ribs are the reinforced unions between leaflets where they are still united in the palman. The leaf sinus between each pair of leaflets contains a brown almond-shaped scar, which in dry material becomes very dark, contrasting with the paler surrounding tissues. As leaves become older these structures crack in the middle. The underside of the leaf is green with a silvery deciduous indument. The adaxial hastula is triangular and acute but it is not often prominent. Sheath fibers are straw-



3. The trunk is covered with stiff sheath fibers.

colored, unarmed and flexible. When a new leaf sheath emerges, the fibers are joined at their tips, confluent, forming an acuminate, free flap. As new leaves are produced, old ones are pushed apart, and older sheaths split. New sheaths are covered by a whitish deciduous tomentum that rapidly disappears from exposed parts.

### Inflorescences and fruits

Inflorescences are about twice as long as the leaves and tower above the crown (Fig. 4). Two to three fresh ones are produced at a time while older dead ones still hang on the plant. They measure 90–109 cm, from base to tip, they are branched to two orders and curved at their end. The whole structure changes in color as flowers and fruits develop, from a green-white to a green-yellow-brown. Bracts are thin and green at first, they turn whitish when flowers open and later become brown or semi-transparent as they dry out. Flowers are sessile, creamy white, mildly and sweetly scented. As fruits grow larger, the rachis bends. Unripe green fruits are 2–4 mm in diameter and are densely packed together on the rachilla and have a prominent “nipple” on their tip



4. The inflorescence extends well beyond the crown.

corresponding to the stigmatic scar. As they grow and ripen, many of them abort and shed.

Ripe fruits are creamy white, globose, 4.8–6.3 mm in diameter, smooth. Overripe fruits become brown, partially dried and cracked, with the seed partially exposed, probably as the result of sunburn. Seeds are small, 3.4–4.5 mm in diameter, globose, slightly compressed, with 3 or 4 grooves. Average dry weight of a clean fresh seed is 51.6 mg. Seeds of the geographically close *C. munizii* are even smaller and average 29.7 mg.

#### White fruits in a purple-fruited genus

Most species of *Coccothrinax* bear fruits that range from pale pink to dark purplish black, while two white-fruited species have been described so far. One is the subject of this paper and the other, described by Burret (1929), is *C. montana*, a high-altitude species endemic to slopes of the broadleaf montane and submontane forests in Hispaniola. The color of the epicarp has been popularly used in the past to distinguish *Coccothrinax* species from the white-fruited related genera *Thrinax*,

*Hemithrinax*, *Leucothrinax* and *Zombia*, since León (1939) stated that *Thrinax* produces pale to white fruits while *Coccothrinax* bears “black to more or less intense red” fruits, but that distinction is invalid. Besides the two species described, there are now recent reports of other *Coccothrinax* species bearing white fruits (L. Mera, D. Holton, Á. Leiva. pers. comm.).

#### Germination and cultivation

Seeds have been distributed to various botanical institutions and expert growers. Seeds collected in 2000 produced vigorous, young plants at Fairchild Tropical Botanic Garden. Seeds sown in Las Tunas and Tenerife took 5 or 6 months to sprout and produced 3 or 4 leaves during their first year. Three years later they started producing palmate leaves. Seedlings develop a cotyledonary petiole 10–14 mm long and a narrow ligule at the base of eophyll 7 or 8 mm long. The eophyll is stiff and flat, 1.2–1.4 × 80–90 mm, with 3 veins and an exposed, elongate petiole. The new species seems to be a difficult, slow plant, much like other small-seeded, cliff-dwelling *Coccothrinax* species from dry habitats. It needs extreme drainage, high light, hot weather and regular, light watering. It quickly died where conditions were not met.

#### LITERATURE CITED

- BORHIDI, A. 1996. Phytogeography and Vegetation Ecology of Cuba. Akadémiai Kiadó, Budapest.
- BURRET, M. 1929. *Palmae cubenses et domingenses*. Kungliga Svenska Vetenskapsakademiens Handlingar ser. 3. 6 (7): 1–28.
- GOVAERTS, R. AND J. DRANSFIELD. 2005. World Checklist of Areaceae. The Board of Trustees of the Royal Botanic Gardens, Kew. Published on the Internet; <http://www.kew.org/wcsp/> accessed 02 October 2009.
- HENDERSON, A., G. GALEANO AND R. BERNAL. 1995. Field Guide to the Palms of the Americas. Princeton University Press, U.S.A.
- LEÓN, HNO. 1939. Contribución al estudio de las palmas de Cuba. III Género *Coccothrinax*. Mem. Soc. Cub. Hist. Nat. Vol. 13: 107–156.
- MORICI, C. & R. VERDECIA. 2006. *Coccothrinax torrida* (Areaceae), a new species from southeastern Cuba. Brittonia. 56: 189–193.