



Coccothrinax viridescens (Arecaceae: Coryphoideae), a new species

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Abstract

A new species of *Coccothrinax* is described and illustrated. Currently it is only known from cultivation, but it breeds true from seed. Consulted experts in the genus and palm specialists from Cuba and the Dominican Republic are unfamiliar with this species. Historical aspects point to a Cuban origin. It is currently being cultivated in various localities in South Florida and so far only known from this country. This palm is clearly distinguished by its compact crown, short petioles, tiny seed, almost imperceptible short costa and lack of a silvery abaxial leaf surface. A detailed description, illustration, and images are provided.

Keywords: Cuba, South Florida, Arecaceae, Cuban short petiole *Coccothrinax*, Coryphoideae

Introduction and History

Although not the norm, there are certainly historical examples of palms described from garden collections. For example, Joao Barbosa Rodrigues (1900, 1903) described new species from palms he found growing at the Botanical Garden in Rio de Janeiro, Brazil, even though their precise origin was unknown, i.e. *Cocos quinquefaria* Barbosa Rodrigues (1900: 13). Hal Moore described *Veitchia montgomeryana* H.E. Moore (1957: 492) based on cultivated plants in the Montgomery collection in Florida, now Montgomery Botanical Center. Herein, we also describe a palm currently only known from cultivation with the hope that it will inspire a search for it in the wild.

We are aware of at least seven locations for this unique palm (Fig. 1) in South Florida, but Zoo Miami is the best known. The palm specimens at Zoo Miami were planted by Lenny Goldstein (Fig. 2), who reported: “The palms came from Louise Futch’s yard. They were always described only as ‘Cuban Short Petiole’ *Coccothrinax*. I think that Louise obtained them from Erik Beers, for whom she worked for a long time. Louise liked Caribbean palms, and got a number of *Coccothrinax* species from Erik. I believe that the three plants on the Promenade [at Zoo Miami] have been in the ground since about 2000. They were part of a group of palms donated by Louise’s sons to the SFPS [South Florida Palm Society] for planting at the zoo.”

Paul Craft, a former nurseryman and palm consultant, who is familiar with this palm and with Cuban palms in general (Craft, 2018), related: “That *Coccothrinax* is indeed quite a puzzle. Erik Beers was an old time collector who had quite a palm collection in Ft Lauderdale. He passed a number of years ago and many of the palms he had have moved on to other gardens. Keith Lane moved many of them. I went through the Garden before any palms were moved and did not see any of this *Coccothrinax* there. The origin of this mystery palm has always seemed to be from Louise Futch. Perhaps she got all the plants from Erik. I asked Raul [Verdecia], Celio [Moya] and other people down in Cuba about this palm and no one knew of it. The three we had at Ziff [Gemini Botanical Garden] flowered, but never produced seed. Jeff Searle has one that produced seed once but they never sprouted. I noticed in your photos there are quite a bit of fruit developing on one palm [from Zoo Miami]. Has anyone had any luck germinating the seed? Have they been checked for embryos? The source of the original seed seems unknown.”

Andrew Street, the second author of this paper, and his father, Mike Street, have germinated and grown a number of this palm species from seed collected from the zoo, however even they admit that the palm is difficult to germinate. They initially experienced low germination, however as the zoo specimens mature, germination has improved slightly. In addition, this palm species does grow true to form after germination.

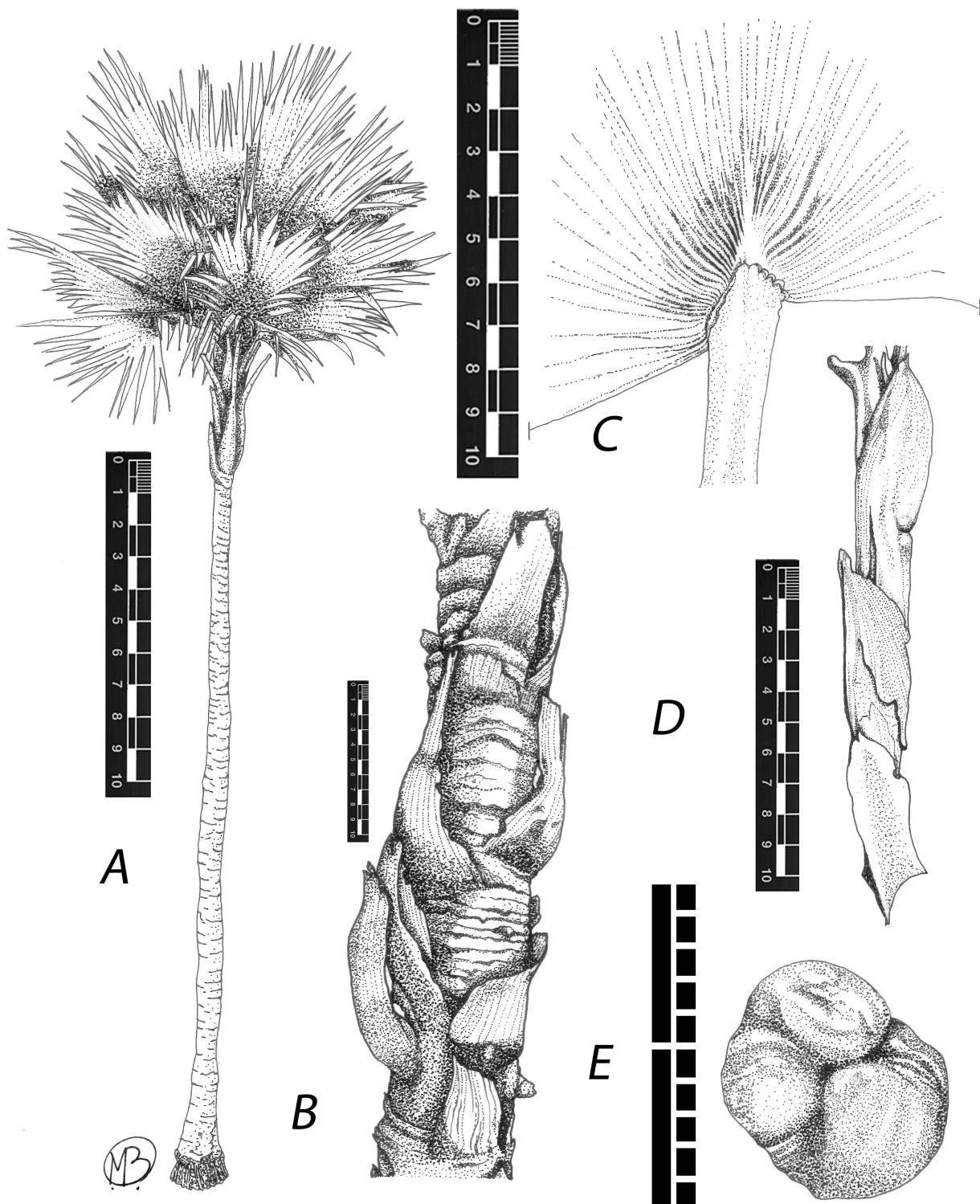


FIGURE 1. Diagnostic plate. A. Palm habit showing compact head. B. Stem details with a few persistent leaf bases, when present, but never any fibrous sheaths present. C. Abaxial or lower side of leaf showing a very short costa present. D. Peduncle of inflorescence showing lower prophyll bract, followed by the peduncular bract and finally the first rachilla bract. E. Tiny grooved seed. Scale in decimeters for A, in cm for B, C, and D, and in mm for E.



FIGURE 2. *Coccothrinax viridescens*. A. Habit with Laurie Danielson and Andrew Street on the Promenade at Zoo Miami. B. Canopy with inflorescences at anthesis. C. Canopy leaves with infructescence. D. Persistent leaf bases and fibrous sheaths just below the crown.

Recently we learned of two more plants that Louise Futch had personally given to her friend, Kurt Decker, a well-established Fort Lauderdale nurseryman. Decker knew they were something special, and he has protected them in his nursery and has continued to grow them as potted palms (Fig. 3C, D) rather than risking planting them out. When Andrew Street approached him about our interest in describing this new species, he was kind enough to donate them to Montgomery Botanical Center. Decker says that Louise was always convinced that this *Coccothrinax* had come from Cuba (Decker, pers. comm.). None of the current Dominican Republic palm researchers we contacted recognized this species. So we accept Cuba as the probable origin of *Coccothrinax viridescens*. We speculate that it may have come from a small locally endemic Cuban population that may possibly even be extinct and therefore unfamiliar to local experts.

This palm is found growing at seven locations: a garden in SW Miami, Jeff Searle's, Chip Jones' and Mike Street's nurseries, a private garden in the Florida Keys, Gemini Botanical Garden and Zoo Miami. The property owner in SW Miami-Dade has just one healthy specimen, which came from Mark Katz of Bent Palm Nursery in Homestead and was used for the habit illustration (Fig. 1A). Unfortunately, Mark does not remember from where he obtained this palm. Jeff Searle has a specimen at his nursery in Davie, Florida, at the Searle Brother's Nurseries, which he obtained from Louise Futch in April 1996. Jeff's tree is smaller than the ones at the zoo, which may mean that they are younger. Chip Jones and Mike Street both have specimens in the ground and Mike has a couple of larger palms in containers and about a dozen seedlings germinated from seed collected at Zoo Miami. A private garden in the Florida Keys also has a couple of specimens. Three more can be found at the Gemini Botanical Garden in Manalapan, Florida, owned by the Ziff family before it was sold. A total of four specimens are growing at Zoo Miami, which were transplanted directly from Louise's estate, three of which are located on the main Promenade (Fig. 2). In summary, it would appear that the oldest collections came from Erik J. Beers, who gave plants or seed to Louise Futch, who then distributed plants to Jeff Searle and Kurt Decker and whose own palms were later donated by her sons and transplanted to the zoo by Goldstein after she died and her house was sold. Finally, we can now add an eighth locality with the three donated specimens to MBC, two from Kurt Decker and one from Mike Street along with seven seedlings recently germinated from seed collected from the type specimen at the zoo.

Coccothrinax characters

There are many *Coccothrinax* Sargent (1899: 87) characters (Dransfield *et al.* 2008) found in this new species that verify that it belongs to that genus. *Coccothrinax* is taxonomically diverse with 67 currently accepted names (Govaerts *et al.* 2019). Like many other *Coccothrinax* species, it is a small to moderate, unarmed palm, which has a slender, closely ringed, solitary stem. The leaves are induplicate and basically palmate, with more ascending rather than spreading leaves. The leaf blade is composed of long, narrow leaf segments with bifid tips. The segments are glabrous adaxially and somewhat silvery abaxially at least in the younger leaves either as silvery flecks (Fig. 3B) or as a silvery sheen (Fig. 4B). The leaves have an adaxial hastula (Fig. 4C, D, E), which is triangular to round in shape. The transverse veinlets are rather inconspicuous in this species. Inflorescences are shorter than the leaves and branched to 2-orders. The peduncle is short and slender, surrounded by a tubular, two-keeled prophyll at the base (Fig. 1D), followed by an inflated peduncular bract and similar but successively smaller, slightly overlapping rachillae bracts subtending the base of each rachilla, each rachilla also has an additional prophyllar bract at its base (Figs. 5A, B, C). The hermaphroditic flowers (containing both stamens and pistil in the same flower) are white, solitary and short pedicellate (Fig. 5D). The perianth is cuplike, uniseriate and usually contains ca. 7 points (5–9 points in most *Coccothrinax*); stamens are 8–11 in number (6–13 for most *Coccothrinax*), filaments are short and flat, broader at the base and slightly connate and not inflexed at the apex, anthers are oblong and somewhat sagittate, dorsifixed near the base. The gynoecium or pistil has one carpel, is unilocular and globose with a laterally compressed stigma. The fruit is globose, epicarp is smooth and purple-black when mature with stigmatic apical remains (Figs. 6A, B, C), mesocarp is fleshy, succulent, the fibrous endocarp is hardly noticeable and both are easily removed from the seed. Seed is more or less globose, deeply grooved (Figs. 1E, 6D) and the endosperm is homogeneous except for the grooves in the seed.



FIGURE 3. *Coccothrinax viridescens* young plants. A. Compact juvenile plant with short petioles, and apparent lack of silvery leaves. B. Close up of lower surface of leaf showing only silvery flecks. C. Juvenile plant donated by Kurt Decker, note no silver abaxial leaf surface. D. Fibrous leaf sheath fibers on juvenile palm.



FIGURE 4. *Coccothrinax viridescens* leaf. A. Upper (adaxial) leaf surface. B. Lower (abaxial) leaf surface, note silvery sheen on abaxial surface, which is absent in older leaves. C, D, E. Variable hastula shape on adaxial leaf surface. F, G, H. Variable short costa on abaxial leaf surface.

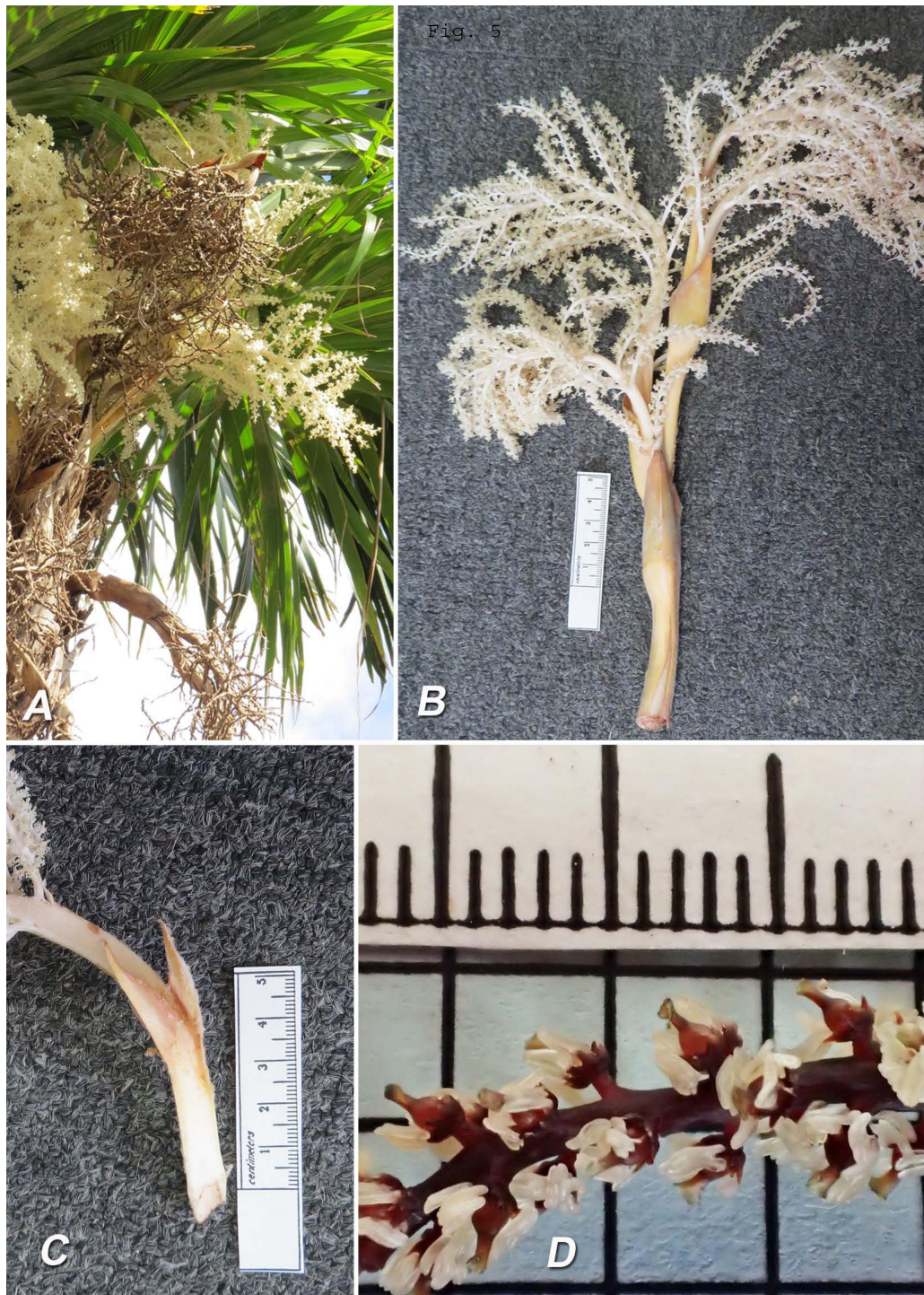


FIGURE 5. *Coccothrinax viridescens* inflorescence and flowers. A. Inflorescences on the palm at anthesis. B. Inflorescence with mature flowers and prophyll. Scale 5 cm. C. Prophyllar bract normally hidden within each rachis bract at the base of a rachilla or partial inflorescence. Note bifid nature of bract. Scale ca. 5 cm. D. Hermaphroditic flowers with white stamens, pistil, and cupule-like corolla usually white but discolored due to preservation in ethanol (mm scale with 5 mm squares).



FIGURE 6. *Coccothrinax viridescens* infructescences, fruit and seed. A. Infructescences on the palm. B. Fresh infructescence with immature and mature fruit. Scale ca. 15 cm. C. Close-up of maturing fruits. D. Grooved seeds. 5 mm squares.

Taxonomic Treatment

Coccothrinax viridescens Noblick & Street *sp. nov.* (Figs. 1, 2, 3, 4, 5, and 6)

Type:—United States of America, Florida, Miami-Dade county, Miami, Miami Zoo [Zoo Miami], 12400 SW 152 Street, parking lot near West B parking, 3.35 m elevation, 25° 36' 43.9" N, 80° 23' 51.16" W (25.6122, -80.3975), 8 December 2017, *L.R. Noblick, A. Street, & L. Danielson*, 5718 (holotype FTG!, isotypes NY!, K!, F!)

Diagnosis:—Medium-sized palmate-leaved palm to 2–4 m tall with thin stem 7–8 cm in diameter and lacking a fibrous covering; crown compact with palmate green leaves that are often lacking the abaxial silvery sheen seen in most *Coccothrinax* species; leaf with an unsymmetrical hastula adaxially and often with a very short costa abaxially; petiole short ca. 18–25 cm long; and seed unusually small, ca. 5–6 mm in diameter, grooved.

Small to moderately-sized, solitary palm. **Stem** 2–4 m × 7–8 cm, caulescent, erect, with a columnar stem, self-cleaning for the most part, sometimes with persistent leaf bases just below the crown, stem lacking the persistent fibrous sheath often seen in most *Coccothrinax* species. **Leaves** palmate, spirally arranged and strongly ascending, with an asymmetric hastula, and often with a very short costa, 12–15 in a rather compact crown; lamina slightly silvery on abaxial surface on newer leaves, but sluffing off and soon becoming green on older leaves, *sheath* ca. 10 cm long; *petiole* short, 18–25 × 1.3–1.4 × 0.6–0.8 cm; *hastula* 1.5–2.0 cm long; *leaf segments* 33–35 along each side of the blade, linear, rigid, even at the tips, medium green to slightly silvery on the lower surface of younger leaves, with acute to acuminate tips, which may be split for a distance of 7–18 cm, bifid, ; basal leaflets 10–19 × 0.4–0.8 cm, often overlapping, middle leaflet segments 37–48 × 2.6–2.8 cm, apical leaflet segments 45–57 × 2.0–3.2 cm. Central palman of fan leaf measures 19–21 cm long near the central axis of the leaf. Splits between the leaf segments measure 22–32 cm long, representing free for 48–56 % of their length. **Inflorescence** white; *prophyll* 6 × 5.5 cm, two keeled; *peduncular bract* thin, chartaceous, 9–16 cm long, slightly inflated at its tip, expanded part 8–12 × 1.5 cm, 4.5 cm perimeter, strongly keeled, especially near the apex, initially with a bit of wooly pubescence, becoming glabrous with age; *peduncle* 4–10 cm long and laterally compressed 1.5–2.0 × 0.8–1.0 cm; *inflorescence axis* 30–45 cm long; *rachis* 19–28 cm long; rachis bracts chartaceous, somewhat inflated at their tips, often with some wooly pubescence when young, but becoming glabrous with age, similar in appearance to the peduncular bracts but becoming successively smaller towards the apex and keeled only near their tips, the basal ones 12–16 cm long and the apical ones 8–10 cm long, prophyllar bracts often concealed by the rachis bracts are chartaceous, at least the basal prophyllar bracts separating at their tips into two inflated portions which are keeled at their tips and sparsely covered with wooly tomentum initially becoming glabrous with age, *rachillae* 5–6, basal ones 20–32 cm long and apical ones 18–19 cm long; *flowers* arranged spirally on the rachilla, 2.2–3.5 mm long and 1.8–2.0 mm wide, perianth uniseriate 6–7 parts or teeth, sepals 1.0–1.4 mm long, glabrous with no distinct venation, 8–11 stamens 1.2–2.0 mm long, anthers 1.2–1.6 mm long, filaments 0.9–1.0 mm long, pistil with one carpel, 2.0–2.7 × 1.0–1.4 mm, glabrous, stigma 0.8–1.3 mm long, fanned out at the tip, glabrous. **Flowers** globose, 9–10 mm in diameter, epicarp smooth, pink or magenta, maturing to purple and then to purple-black when mature, mesocarp thickness 2 mm, fleshy and succulent; *seed* tiny, ca. 5–6 mm in diameter and deeply grooved, endosperm homogeneous. Germination remote-tubular.

Common name:—Locally known as the “Cuban short petiole” *Coccothrinax*.

Etymology:—The specific epithet, “viridescens”, means becoming green, which refers to its younger leaves starting out with a bit of silvery sheen or flecking abaxially and becoming greener with age as the silver sheen sluffs off.

Distribution and habitat:—Unknown. This palm is currently only known from cultivation from a few locations in South Florida from West Palm Beach, Broward, Miami-Dade and Monroe counties. However there is traditional understanding passed by word of mouth that the species originated in Cuba.

Conservation:—Unknown from the wild and rare in cultivation.

Phenology:—This palm species likely flowers and fruits year round. It was found with both flowers and ripening fruits in the month of December. Many *Coccothrinax* species have a flowering peak around June and July and fruiting peak around August and September according to our phenology observations at Montgomery Botanical Center.

Uses:—With its small to medium size, its compact foliage, self-cleaning stem, it is a candidate for the landscaping industry. It would fit well into a small garden situation, especially where a slow growing palm is desired.

Taxonomic note:—This species distinguishes itself from other species belonging to the genus in several characters. It frequently, but not always, has an inconspicuous short costa (Figs. 1C, 4F, G, H). It lacks the massive fibrous network

or masses of slender to stout fibers that typically cover the stems of most other juvenile *Coccothrinax* species (Figs. 1A, B, 2A, B). The leaves for the most part detach and often cleanly fall off the stem and are not marcescent nor do they tend to leave behind persistent fibrous sheaths, in other words, the palm is relatively self-cleaning with leaf sheath fibers only present in the crown itself or in very young specimens (Figs. 1A, B, 2A, B, 3D, 6A). The leaf petiole is shorter than its leaf blade, making for a more compact crown (Figs. 1A, 2A, B, 3A). The petiole is actually shorter than most other *Coccothrinax* species (18–25 vs 35–80 cm) and thus the common name, Cuban short-petiole *Coccothrinax*. Juvenile leaves are green and have only abaxial silvery flecking (Fig. 3B). This little silvery flecking or sheen on the abaxial side of the leaf soon sluffs off, leaving the older leaves noticeably greener abaxially (Figs. 2A, B, 3C). Instead of the prophyll being followed by 2–3 peduncular bracts, only one peduncular bract was seen in this species, followed immediately by the first rachilla bract, and rachilla or partial inflorescence (Fig. 1D). The prophyllar bracts, which are concealed beneath the rachilla bracts are apically bifid (Fig. 5C) and slightly keeled. The bifid nature of the prophyllar bract may or may not be unique to this species. The seed are very tiny (ca. 5 mm), and the grooves make them look rather asymmetrical rather than typically globose or oblate (Figs. 1E, 6D).

Specimens examined:—Only known from the type collection deposited at FTG with duplicates at F, K and NY.

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