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IDELFONSO CASTAÑEDA NOA

Coccoloba howardii* (Polygonaceae), a new species from Cuba*Abstract**

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Coccoloba howardii, a new species from the north-central region of Cuba, is described and illustrated. It appears to be closely related to *C. subcordata*, from which it differs primarily in the spiral arrangement of the short branches and leaf features such as the petiole inserted at the base of the ochrea, a membranous blade and alternate primary veins not grouped at the base.

Additional key words: *Caryophyllales*, endemism, taxonomy, West Indies, Greater Antilles

Coccoloba P. Browne is a neotropical genus of about 120 species of trees and shrubs, sometimes with long twining branches (Mabberley 2008; Brandbyge 1990, 1993). It belongs to the subfamily *Erigonoideae* of the *Polygonaceae*, where it has been shown to be sister of the genus *Neomillspaughia* S. F. Blake (Sánchez & al. 2009; Burke & al. 2010). In the West Indies it is highly diversified, with around 60 species, of which c. 80 % are endemic (Howard 1957a, b, 1958; Brandbyge 1990). The last revision for Cuba dates back to León & Alain (1951), who largely based their treatment on Howard (1949), including 28 species. Later Alain (1960) and Borhidi & Muñiz (1971, 1976–77) published seven additional new taxa for the Cuban flora. In the context of a modern revision of *Coccoloba* for the Flora de la República de Cuba, the author has carried out extensive field and herbarium work. According to this, there are 34 species in Cuba, growing on serpentine, sandy and limestone soils.

In the flora of Cuba, the genus *Coccoloba* has a high level of endemism (25 species). Ongoing molecular phylogenetic work suggests that these probably are the result of a radiation on the island also spanning Hispaniola (Castañeda, Fuentes & Borsch in prep.). In fact, *Coccoloba* may constitute one of the larger radiations in the Antilles, coming next to *Buxus*, *Malpighia* and others that contribute to the endemism of the flora with a significant number of species.

Some plants collected on sandy soils in central Cuba (Camagüey Province) do not correspond to any species known so far. Detailed morphological revision of specimens of *Coccoloba* in various herbaria revealed additional plants with similar characteristics from serpentine soils in the Las Tunas Province.

During a visit to the Herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem (B) in 2010, abundant material from the West Indies was compared

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Fig. 1. *Coccoloba howardii* – photo of the isotype specimen at B.

for the taxonomic revision of Cuban *Coccoloba*, confirming that the above mentioned gatherings belong to a new species that is described below.

***Coccoloba howardii* Castañeda, sp. nov.**

Holotype: Cuba, Camagüey, Guáimaro, maniguas sobre suelo arenoso, al norte de Monte Grande, 12.5.1976, *Areces, Bisse, González & Lippold HFC 31465* (HAJB!; isotypes: B!, HAJB!, JE!) – Fig. 1.

Shrub or small tree to 3 m tall; *lateral branches* with their branches spirally arranged and usually short, puberulent when young, with nodes slightly tumid. *Ochreae* 2–4 mm long, membranous, puberulent, cylindrical, oblique at the apex, longitudinally split opposite to the petiole. *Leaves* with a *petiole* 0.4–0.5 mm long, puberulent, inserted toward the base of the ochrea; *leaf blade* ovate to elliptic-ovate, 1.2–1.7 × 1.1–1.5 cm, membranous, glabrous, obtuse or rounded but not emarginate at the apex, truncate at the base; *midrib and primary veins* impressed above and slightly prominent below, primary veins in 3–5 pairs, alternate, not grouped at the base, arcuate and anastomosing toward the margin, *secondary venation* reticulate, not prominent. *Inflorescence* terminal to lateral, 1.8–2 cm long, rachis striate, puberulent. *Pistillate flowers* solitary at each node of the rachis, bracts ovate, membranous, less than 0.3 mm long, ochreolae several, membranous, persistent, to 0.5 mm long, glabrous; *flowering pedicels* 1.5 mm long; *hypanthium* 0.5 mm long; *perianth lobes* ovate, about 0.5 mm long. *Staminate flowers* and *fruit* non seen.

Additional specimens seen. — CUBA: Province Las Tunas, municipality Manatí, Manatí–Tunas road, “serpentine of Tabor”, *Noa & Verdecia 9479* (HMC, ULV).

Eponymy. — The epithet honours Richard A. Howard, who studied the genus *Coccoloba* throughout its neotropical range. His work greatly improved our understanding of the genus and clarified the classification of many of its species.

Affinities. — *Coccoloba howardii* resembles *C. subcordata* (DC.) Lindau, endemic to the island of Hispaniola (Haïti and the Dominican Republic), in its small leaves and inflorescences up to 2 cm long. On the other hand, *C. subcordata* differs from the new species by the short branches arranged in one plane (spirally in *C. howardii*), the petiole inserted above the base of the ochrea (at the base in *C. howardii*), a widely suborbiculate to ovate leaf blade (ovate to elliptic-ovate in *C. howardii*) that is subcoriaceous (membranous in *C. howardii*), emarginate at the apex and cordate at the base (obtuse to rounded at the apex and truncate at the base in *C. howardii*), with primary veins grouped (not grouped in *C. howardii*) towards the base and the secondary veins forming a prominent conspicuous reticulum on the lower surface (not promi-

nent in *C. howardii*). Based on morphological evidence, it is suggested that *C. howardii* and *C. subcordata* form a species pair, underscoring the close relationship between Cuban and Hispaniolan *Coccoloba*. Further work using molecular tools will clarify this.

Distribution and ecology. — *Coccoloba howardii* is only known from Cuba, growing in scrub vegetation on sandy soil and in xerophytic thorny scrub on serpentine. It grows together with *C. microphylla* Griseb. and *C. praecox* C. Wright ex Lindau; other associated species include *Acidocroton oligostemon* Urb., *Belairia spinosa* A. Rich., *Bourreria microphylla* Griseb., *Brya ebenus* DC., *Byrsonima lucida* (Sw.) DC., *Coccothrinax salvatoris* León, *Copernicia roigii* León, *Diospyros crassinervis* (Krug & Urb.) Standl., *Machaonia tiffina* Urb. & Ekman, *Phyllanthus orbicularis* Kunth and *Randia spinifex* Standl.

Conservation. — *Coccoloba howardii* is considered a very rare species. It must therefore be assessed as Critically Endangered (CR) according to the Red List categories and criteria of the IUCN (2001). So far the existence of this species is only documented in two localities with a total of less than 50 mature individuals. The overall extension of its range is smaller than 100 km² and the occupation area smaller than 10 km².

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References

- Alain [bro.] 1960: Novedades de la flora cubana XI. – *Candollea* **17**: 99–111.
- Borhidi A. & Muñiz O. 1971: Combinationes novae florum cubanae I. – *Bot. Közlem.* **58**: 175–177.
- Borhidi A. & Muñiz O. 1976 [“1975”]: New plants in Cuba IV. – *Acta Bot. Acad. Sci. Hung.* **21**: 221–230.

- Borhidi A. & Muñíz O. 1977 [“1976”]: Plantas nuevas en Cuba V. – Acta Bot. Acad. Sci. Hung. **22**: 295–320.
- Brandbyge J. 1990: The diversity of micromorphological features in the genus *Coccoloba* (*Polygonaceae*). – Nordic J. Bot. **10**: 25–44.
- Brandbyge J. 1993: *Polygonaceae*. – Pp. 531–544 in: Kubitzki K. (ed.), The families and genera of vascular plants **2**. – Berlin, etc.: Springer.
- Burke J., Sánchez A., Kron K. & Luckow M. 2010: Placing the woody tropical genera of *Polygonaceae*: a hypothesis of character evolution and phylogeny. – Amer. J. Bot. **97**: 1377–1390.
- Howard R. A. 1949: The genus *Coccoloba* in Cuba. – J. Arnold Arbor. **30**: 388–424.
- Howard R. A. 1957a: Studies in the genus *Coccoloba*, III. The Jamaican species. – J. Arnold Arbor. **38**: 81–106.
- Howard R. A. 1957b: Studies in the genus *Coccoloba*, IV. The species from Puerto Rico and the Virgin Islands and from the Bahamas. – J. Arnold Arbor. **38**: 211–242.
- Howard R. 1958: Studies in the genus *Coccoloba*, V. The genus in Haití and the Dominican Republic. – J. Arnold Arbor. **39**: 1–48.
- IUCN 2001: IUCN Red List categories and criteria: version 3.1. – IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, UK, also published at <http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria>.
- León [bro.] & Alain [bro.] 1951: Flora de Cuba 2, Dicotiledóneas: Casuarinaceas a Meliaceas. – Contr. Ocas. Mus. Hist. Nat. Colegio “De La Salle” **10**.
- Mabberley D. 2008: Mabberley’s plant-book, ed. 3. – Cambridge: Cambridge University.
- Sánchez A., Schuster T. & Kron K. 2009: A large-scale phylogeny of *Polygonaceae* based on molecular data. – Int. J. Pl. Sci. **170**: 1044–1055.