
Waltheria berteroi (Sterculiaceae, Hermannieae),¹ a New Combination from Colombia and Venezuela

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ABSTRACT. A new combination in Sterculiaceae, Hermannieae, *Waltheria berteroi* (Sprengel) J. G. Saunders, is created and lectotypified. *Waltheria subcordata* Standley from Colombia and Venezuela is newly synonymized to *W. berteroi* on the basis of shared bract, leaf, and inflorescence characters. Additional isotypes of *W. subcordata* are newly cited for *Smith 493*, and further clarification of non-type *Smith 493* specimens is given. *Waltheria berteroi* has been confused with *W. lophanthus* J. R. & G. Forster from the South Pacific Ocean but differs in its leaf vestiture, leaf apices, stipules, bracts, thrum stamen tube, and stigma, as well as characters of the fruit and seed. Apparent morphological intermediates of *W. berteroi* with *W. glomerata* Presl or *W. involucrata* Benthham are noted to occur outside the Colombian Sierra Nevada de Santa Marta, western Eastern Cordillera, and Sahagun vicinities.

Key words: Colombia, Hermannieae, *Malachra*, Malvaceae, Marquesas Islands, Society Islands, Sterculiaceae, Venezuela, *Waltheria*.

A new combination is necessary for a primarily Colombian species now called *Waltheria subcordata* Standley (Sterculiaceae, Hermannieae). Sprengel earlier described a Bertero collection of the same species from Colombia as *Malachra berteroi* Sprengel [as “*berterii*”] in Malvaceae (1826: 94): “*M. caule fruticoso aspero tomentoso, foliis ovato-oblongis duplicato-dentatis supra stellato pubescentibus, subtus venoso-reticulatis tomentosis, racemis axillaribus, involucri foliolis cuneatis coloratis nervosis. Ad fl. Magdalen., Bertero.*” According to Lanjouw and Stafleu (1954), Bertero collected in northern Colombia during 1820–1821; duplicates of these specimens can be found at B, HAL, L, MEDEL, MO, and S.

Garcke (1863), a curator at Halle (Stafleu & Cowan, 1976), apparently examined the type of *Malachra berteroi* (at that time at Halle, later trans-

ferred to B in 1890 (Stafleu & Cowan, 1985), now presumably lost) and concluded it was in complete agreement with Sprengel’s original diagnosis. Moreover, he concurred with the determination by Balbis for a Bertero collection of the same plant (Berlin Herbarium specimen F photo 9568 and Garcke, 1863) that Bertero’s collection was not a *Malachra* but a *Waltheria*. Whereas Balbis had designated the plant to be *W. lophanthus* J. R. & G. Forster auct. non Willdenow (Willdenow, 1800) [nom. illegit., = *W. tomentosa* (J. R. & G. Forster) H. St. John; see J. R. & G. Forster s.n., K, F Berlin Herbarium specimen-photo 9568 and MO Bernhardt Herbarium specimen 3261414], Garcke differed in the species determination, stating that *W. lophanthus* was a different species, but a valid combination was not made. Gürke (1892), following Garcke, excluded *M. berteroi* from *Malachra* but treated it as a synonym of *W. lophanthus* J. R. & G. Forster.

As Garcke (1863) pointed out, Balbis and later Gürke misidentified the Bertero specimens at the species level. *Waltheria tomentosa* is endemic to the Marquesas Islands and Society Islands of the southeastern Pacific Ocean and differs from Sprengel’s species of Colombia. *Waltheria berteroi* is distinct from *W. tomentosa* by its overall vestiture, which is finely stellate-pubescent and shorter rather than woolly-pannose, stellate-tomentose; by its leaf blades, which are ovate, with acute to acuminate-acute apices, with rounded to narrowly cordate bases, and adaxially pubescent, abaxially tomentose, rather than widely to very widely ovate, with mostly obtuse-angled to obtuse-rounded apices, with cordate to deeply cordate bases, and canescent on both faces; by its stipules, which are narrowly triangular-subulate and compressed, rather than triangular and planar; by its less compact inflorescences; by its narrowly oblanceolate or obovate-spathulate bracts rather than narrowly triangular-subulate bracts; by its longer thrum stamen filament tube to 1.5(2.0) mm rather than 0.7(0.9)

¹ Hermannieae including *Waltheria*, formerly in Sterculiaceae, is now placed in the Byttnerioideae basal to Grewioideae, formerly in Tiliaceae, in an expanded Malvaceae s.l. (Bayer & Kubitzki, 2003).

mm long; by its more distended-plumose stigma; by its pubescent rather than sericeous capsule; and by its longer seed to 2.5 mm rather than to 2.2 mm long (cf. Saunders, 1995: 330–337, 780–793). The Colombian species was validly described as *Waltheria subcordata* by Standley (1916), who was unaware of the earlier name, based upon another type. However, both types are conspecific, sharing the distinctive loosely condensed inflorescences, showy mostly distinct obovate bracts with obtuse apices and cuneate bases, and leaf shapes.

Garcke (1863) noted that Sprengel erroneously cited the provenance of the Bertero collection as coming from the Río Magdalena. The labels of both Sprengel's sheet (*Bertero s.n.*) and the duplicate annotated by Balbis at B indicated "S. Marthe" (Santa Marta, Colombia) with labels in Balbis's handwriting (verified by reference samples in Burdet, 1972). It is easy to understand the confusion about specific locality data. The Bertero collections appear to have been distributed without attached original label data, as the only early labels on the F isotype photo and MO specimen are in Balbis's own handwriting bearing "S. Marthe," written between 1820 and 1821 (probable collection dates of Bertero's Colombian collections listed in Lanjouw & Stafleu, 1954) and 1831, the date of Balbis's and Bertero's deaths (Stafleu & Cowan, 1976). Balbis moved to Lyon in 1814 from Torino (Stafleu & Mennega, 1992), and apparently visited the Berlin herbarium during the period between 1820 and 1831, probably 1824, as noted, but illegibly, by Kunth on the Berlin duplicate (see F 9568, photo of B isotype [destroyed]). The source for Sprengel's locality information or even Balbis's locality notations is elusive. Presumably, one or the other was in correspondence with Bertero, or had access to knowledge obtained about the localities. An asterisk in Sprengel's (1826) original description indicates living material was studied, so perhaps separate horticultural records account for the discrepancy in localities. The Magdalena River empties into the ocean about 120 km southwest of the present city limits of Santa Marta in the Dpto. Magdalena in Colombia, but is near to the general locality that appears to have been broadly designated as Santa Marta by early collectors.

Waltheria berteroi (Sprengel) J. G. Saunders, comb. nov. Basionym: *Malachra berteroi* Sprengel [as "berterii"], Syst. Veg. 3: 94. 1826. TYPE: Colombia. Santa Marta, 1820–1821, [*C. G.*] *Bertero s.n.* (lectotype, designated here, MO 3261414; isotypes, F 9568, photo of B isotype destroyed).

Waltheria subcordata Standley, Contr. U.S. Natl. Herb. 18: 117. 1916. Syn. nov. TYPE: Colombia. Masinga, 500 ft., 25 Oct. 1898–1901, *H. H. Smith 493* (holotype, US 533011; isotypes, A, E, F, MO, MPU, NY, S).

Distribution, habitat, and phenology. Northern and eastern Colombia (Atlántico, Magdalena, Bolívar, César, Santander, La Guajira, Vichada) and northwestern and central Venezuela (Falcón, Zulia, Apure, Amazonas, Bolívar). It is mostly and best represented (*W. berteroi* s. str.) from Colombia in and below the western Sierra Nevada de Santa Marta, up to 1600 m, along the western Eastern Cordillera, and near Sahagun. Elsewhere in Colombia (Magdalena River mouth to Baranóa; El Cerrejón) and Venezuela it is less representative (*W. berteroi* s.l.) with intermediate forms (see below) particularly near the middle Orinoco River from Samariapo to San Vicente. Shrubs to 3 m in tropical savannas in openings or borders of dry forest, along rivers or streams, roadsides, or in foothills, occurring from 10 to 1613 m elevation. Flowering October through March, peaking in December and January, with flowers presumably diurnal.

Additional isotypes of *Waltheria berteroi* have been sought at L (absent), MEDEL, and S, because Bertero's Colombian collections are there (Lanjouw & Stafleu, 1954). They were not sought at HAL, as Sprengel's herbarium at HAL was transferred to Berlin (Stafleu & Cowan, 1985).

Additional conspecific collections given the same number (*Smith 493*, LL, MICH, NY, U, WIS) but from a different locality in Magdalena at Bonda, 250 ft., on a different date, 13 May, are excluded from the type of *Waltheria subcordata* and noted below in specimens examined. Ayers and Boufford (1988) discussed the common assignment of the same collection number from different localities and dates for presumably conspecific plants in Smith collections and established that his collection data exist on NY material in most cases. Isotypes for *W. subcordata* from E, MPU, and S supplement those listed there. The non-type collections of *Smith 493* can be readily identified upon comparison with the NY non-type specimen that bears a handwritten collection label stating "Bonda." The non-type specimens also differ by their smaller leaves, thrum rather than pin flowers, and aspect of more arid growing conditions. As Standley (1916) noted, *Smith 493* duplicates were distributed from NY as *W. involucrata* Benthham, "narrow bracted form."

Riedlea berteriana Balbis ex DC., a synonym of *Waltheria glabra* Poirét, is a similar epithet to *berteroi*, but would not be considered a homonym (ICBN, Art. 53.3 ex. 10, Greuter et al., 2000).

Specimens that in my opinion are representative of *Waltheria berteroi* s. str. are cited below. Other Colombian populations of *Waltheria berteroi* s.l. from the departments of Atlántico (e.g., *Dugand & Jaramillo 4034*, US; *Elias 195*, F), and Guajira (e.g., *Bunch et al. s.n.*, MO), and Venezuelan populations from Falcón (e.g., *Wingfield 6009*, CTES) and Zulia (e.g., *Nucette 164*, CTES) appear to be morphologically intermediate with *W. glomerata* Presl by their compact, glomerate inflorescences and smaller bracts. *Waltheria glomerata*, from Meta, Guaviare, Boyacá, and Uribe in Colombia, and Panama to Mexico, otherwise differs by its white petals, its leaves often elliptical or rhombic, later rugose, and its differently shaped bracteoles and bracts, with more fusion. In contrast, the middle Orinoco River-associated Venezuelan populations of *W. berteroi* s.l. from Amazonas (e.g., *Gröger & Barcroft 295*, MO; *Stergios 3170*, CTES), Apure, and Bolívar (e.g., *Amyard & Stergios 3340*, MO; *Trujillo 11785*, MY), and the Colombian ones from Vichada appear to be morphologically intermediate with *W. involucrata* (Saunders, 1995: 49, 335–337, 575–589). All intermediate populations associated with the lower Orinoco River are placed with *W. involucrata* s.l., occurring only east of the Caroní River but not known between the Chaviripa River and west of the Caroní River, where non-intermediate *W. involucrata* s. str. occurs. Their bracts are wider, more elliptically or rhombicly but variably shaped, sometimes with the middle two or three slightly to mostly fused rather than mostly distinct, with margins irregular, serrulate, undulate, or partly entire rather than entire. When bracts are together cupuliform as in *W. involucrata*, but 4-shallowly lobed and 1-parted, as occurs near the lower rather than middle Orinoco River in the Venezuelan departments of Bolívar, east of Río Caroní, and in Delta Amacuro, the intermediates are unequivocally placed with *W. involucrata*. *Waltheria berteroi* s. str. differs from *W. involucrata* s. str. in non-intermediate populations by its essentially distinct bracts that are spatulate, with margins generally entire, rather than entirely fused bracts that are urceolate, with lobes that are 1–1.7 mm long, and dentate; by its calyx lobes that are (1.2)1.6–1.9 mm wide rather than 1.1–1.5(1.6) mm wide; and by its anthers that are 0.8–1.0(1.2) mm long rather than (1.0)1.1–1.5 mm long. Also, usually the calyx tube of *W. berteroi* is shorter, 3.5–4.2 mm long, rather than (3.0)4.0–6.0 mm long as in *W. involucrata*.

Selected specimens. COLOMBIA. **Cordoba:** Sahagun, 27 Jan. 1918, *Pennell 4085* (NY). **César:** Mpio. Valledupar, Inspección a Atanquez, entre Atanquez y Guatapuré, 18 Nov. 1968, *Jones & Pinto 2856* (NY); Poponte,

Magdalena Valley, 8 Dec. 1924, *Allen 826* (MO). **Magdalena:** Minca, 1941, *Bro. Apolinar 528* (US); Cincinati, 1932, *Giacometto 111* (US); Ocana, 11 Dec. 1879, *Kalbreyer 1266* (K); Sta. Marta, Uranieta, Valle de Alpar, *Karsten s.n.* (W); Sta. Marta, *Purdie s.n.* (K); Camino de La Gran Vía a San Pedro, *Romero-Castañeda 10644* (F, MO, NY); Tucurica, Oct. 1947, *Romero-Castañeda 614* (F, US); La Bonda, 250 ft., 13 May 1898–1901, *H. H. Smith 493* locale & date differ from type for *W. subcordata* (LL, MICH, NY, U, WIS). **Santander:** Bucaramanga & vic., 29 Dec. 1926, *Killip & Smith 16251* (A, F, GH, NY).

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