Rubiacearum Americanarum Magna Hama V. *Amphidasya* in Mesoamerica and Western South America

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ABSTRACT. The neotropical genus *Amphidasya* includes 13 species in northern South America and adjacent Central America. A key to all the species of this genus is presented; the new combination *Amphidasya longicalycina* (Dwyer) C. M. Taylor is made, based on *Hoffmannia longicalycina* Dwyer, for the most commonly collected species in Central America; and the following new species are described and illustrated: *A. amethystina* J. L. Clark & C. M. Taylor from western Ecuador, *A. brevidentata* C. M. Taylor from western Colombia, *A. elegans* C. M. Taylor from southwestern Colombia and central Ecuador, and *A. panamensis* C. M. Taylor from Panama.

Key words: *Amphidasya*, Central America, Isertieae, Rubiaceae, South America.

The neotropical genus *Amphidasya* Standley comprises about 13 species, and has been relatively little studied. Its greatest species diversity is in Panama and northwestern South America, and thus a review of *Amphidasya* in this region is necessary for preparation of the *Flora Mesoamericana*. This genus has long been classified in the tribe Isertieae of the subfamily Cinchonoideae (Robbrecht, 1988, 1993), but species of *Amphidasya* have raphides while other genera of Isertieae lack these (Robbrecht, 1988). Recent phylogenetic studies of Rubiaceae based on molecular data (Bremer & Thulin, 1998; Rova, 1999; Rova et al., 1999) suggest that this genus is better placed in the subfamily Rubioideae and may be related to *Pauridiantha* Hooker f. Clearly the infrafamilial classification of *Amphidasya* needs reconsideration, but this is beyond the scope of the present work.

Amphidasya is distinguished by its combination of interpetiolar stipules, terminal or pseudoaxillary cymose inflorescences, apparently homostylous flowers, well-developed calyx lobes, valvate corolla aestivation, incompletely to completely bilocular ovaries with numerous ovules on axile placentas, fleshy usually turbinate fruits that are apparently green and perhaps rather dry at maturity, and numerous relatively small, angled, foveolate seeds. All of the species of *Amphidasya* except *A. venezuelensis* (Standley) Steyermark are additionally distinguished by laciniate stipules and a relatively low, usually unbranched suffrutescent habit, and all of these except *A. amethystina* J. L. Clark & C. M. Taylor (described below) and *A. venezuelensis* have anthers with the connective prolonged into an apical appendage. Most of the species have white corollas, and the flowers of at least some species may be nocturnal and functional for only one night (B. Hammel, pers. comm.; Taylor, 1991). The mode of fruit dehiscence (if any) and seed dispersal are unknown.

The first two species of *Amphidasya* described were classified in *Sabicea* Aublet, though they were considered morphologically unusual within that genus (Wernham, 1914; Standley, 1930). Standley subsequently (1936) named the genus *Amphidasya* for these and several additional species with laciniate stipules and a low unbranched habit, and designated *A. ambigua* (Standley) Standley as its type. Steyermark later (1972) reviewed and expanded *Amphidasya*, by describing several new species and also by including species that had been previously described in both *Deppea* Chamisso & Schlechtendal (*D. colombiana* Standley and *D. venezuelensis* Standley) and *Pittierothamnus* Steyermark (*P. elineolatus* Steyermark). The inclusion of *A. venezuelensis* expanded *Amphidasya* to include also plants with a branched shrub habit and entire stipules.

Amphidasya venezuelensis has the reproductive features that distinguish *Amphidasya*, including the relatively well developed calyx lobes, so it seems well placed here. However, this species differs from other *Amphidasya* species in its calyx lobes that do not enlarge markedly in fruit, and from all except *A. amethystina* in its relatively short, tubular, smooth corollas and unappendaged anthers. These three morphological features are found in most other genera of Rubiaceae, including *Pauridiantha* (Verdcourt, 1976), so the unusual features found in many *Amphidasya* species are more likely derived, in particular the low unbranched habit, the laciniate stipules, and the floral features noted below. Since Steyermark's review of the genus, *Amphidasya* has been treated only floristically, by Steyermark (1974), Dwyer (1980), Burger and Taylor (1993), and Andersson (1999).

Several species of *Amphidasya* show morphological features that are unusual in the Rubiaceae. As noted by Steyermark (1972) and well described and illustrated by Andersson (1999: fig. 33), the corollas of several species have multicellular, tuberculate to rather filamentous projections on the margins of their lobes and sometimes also covering their adaxial ("internal") faces; the function of these structures is unknown. The corollas of most species of *Amphidasya* are salverform with relatively long slender tubes about 2–4.5 cm long (Andersson, 1999: fig. 33); only *A. venezuelensis* and *A. amethystina* have corollas with tubes less than 1 cm long. As also noted by Steyermark (1972) and Andersson (1999: fig. 33), the anthers of several species of *Amphidasya* have a linear apical prolongation of the connective, which may be as much as 1 mm long; the function of this structure is also unknown.

Species of *Amphidasya* have five corolla lobes and five elliptic to oblanceolate calyx lobes, except *A. spathulata* Dwyer, where the calyx and corolla each have four lobes and the calyx lobes are composed of a green ovate lamina borne on a stipitate basal portion that lacks blade-like tissue. In most species of *Amphidasya*, the calyx lobes persist and enlarge slightly to markedly as the fruits develop. The fruiting calyx lobes of most *Amphidasya* species in northwestern South America and Central America are approximately equal in size and shape and therefore are not very informative for distinguishing species, but the size of the flowering calyx lobes differs markedly among many of the species. Thus, the measurements used in the key below apply only to the calyx lobes at anthesis.

The taxonomic notes below supplement the treatment that will be presented in the *Flora Mesoamericana*, and several new South American species are described based on recent collections. A key to all the species of *Amphidasya* is included to help distinguish the newly described taxa. The work reported here is based exclusively on study of dried specimens; very little is known about the reproductive biology or morphological variability of these relatively infrequently collected plants, and detailed field studies of *Amphidasya* would be valuable.

KEY TO *AMPHIDASYA* SPECIES

1a. Stipules entire; erect branched shrubs . . . . . *A. venezuelensis* (Standley) Steyermark
1b. Stipules laciniate; herbs or low, sparsely branched or usually unbranched shrubs.
  2a. Calyx lobes 4, stipitate, with an ovate to lanceolate limb . . . . . *A. spathulata* Dwyer
  2b. Calyx lobes 5, narrowly triangular to triangular, narrowly elliptic, oblanceolate, ligulate, or obovate, not stipitate.
    3a. Leaves oblanceolate to obovate, widest above the middle, at base acute to usually long-attenuate along the petiole.
      4a. Calyx lobes at anthesis 15–24 mm long, linear to narrowly oblanceolate, acute to acuminate; stipules with the undivided basal portion (i.e., the stipule body below the lobes) 2–15 mm long . . . . . *A. ambigua* (Standley) Standley
      4b. Calyx lobes at anthesis 6–15 mm long, narrowly triangular to narrowly oblanceolate, narrowly ligulate, obovate or spatulate; stipules with the undivided basal portion (i.e., the stipule body below the lobes) 1–4 mm long.
        5a. Inflorescences subsessile; calyx lobes acute to acuminate . . . . . *A. longicalycina* (Dwyer) C. M. Taylor, comb. nov.
        5b. Inflorescences with peduncles 0.5–2 cm long; calyx lobes acute to obtuse, rounded, or truncate.
          6a. Stipule lobes 5–13 mm long, western Colombia to Amazonian Peru . . . . . *A. colombiana* (Standley) Steyermark
          6b. Stipule lobes 4–5.5 mm long; Sierra de la Neblina, Venezuela . . . . . *A. neblinae* Steyermark
    3b. Leaves elliptic to elliptic-oblanceolate, narrowly elliptic, elliptic-oblong, or ovate, widest below, at, or just above the middle, at base truncate to obtuse, rounded, cuneate, or acute but not or only shortly attenuate along the petiole.

7a. Corolla tube ca. 8 mm long; stipules with the undivided basal portion (i.e., the stipule body below the lobes) 0.5–2 mm long and lobes 1 to 3 . . . . . *A. amethystina* J. L. Clark & C. M. Taylor, sp. nov.

7b. Corolla tube 11–42 mm long (but unknown in *A. brevidentata*); stipules with the undivided basal portion 1–15 mm long and lobes 4 to 11.

8a. Stipules with the undivided basal portion about 2 or more times as long as the lobes . . . . . *A. brevidentata* C. M. Taylor, sp. nov.

8b. Stipules with the undivided basal portion about half as long as the lobes or shorter than this.

9a. Corolla tube 11–15 mm long; calyx lobes at anthesis oblanceolate, obovate, or spatulate, 0.8–4 mm wide.

10a. Leaves with secondary veins 10 to 15 pairs; corolla tube 13–15 mm long . . . . . *A. colombiana* (Standley) Steyermark

10b. Leaves with secondary veins 16 to 18 pairs; corolla tube 11–11.5 mm long . . . . . *A. intermedia* Steyermark

9b. Corolla tube 25–42 mm long; calyx lobes at anthesis linear to narrowly elliptic, narrowly ligulate, narrowly triangular, or oblanceolate, 0.5–1.5 mm wide.

11a. Calyx lobes at anthesis 9–10 mm long; corolla smooth on the adaxial surfaces of the lobes and the margins . . . . . *A. umbrosa* (Wernham) Standley

11b. Calyx lobes at anthesis 9–19 mm long; corolla markedly verrucose on the adaxial surfaces of the lobes and the margins, sometimes to the point of appearing laciniate.

12a. Corolla tube 36–40 mm long; eastern to central Panama . . . . . *A. panamensis* C. M. Taylor, sp. nov.

12b. Corolla tube 25–30 mm long; northwestern South America.

13a. Corollas in bud acute to acuminate at apex; leaves with secondary veins 10 to 16 pairs . . . . . *A. bullata* Standley

13b. Corollas in bud truncate at apex; leaves with secondary veins 22 to 30 pairs . . . . . *A. elegans* C. M. Taylor, sp. nov.

Amphidasya amethystina J. L. Clark & C. M. Taylor, sp. nov. TYPE: Ecuador. Esmeraldas: cantón Quinindé, Bilsa Biological Station, Mache Mountains, 35 km W of Quinindé, 5 km W of Santa Isabel, 00°21′N, 79°44′W, 400–600 m, 27 Oct. 1995, *J. L. Clark, L. Kvist, P. Mendosa & L. Skog 1514* (holotype, QCNE; isotypes, MO, US). Figure 1.

Haec species a congeneris stipulis in segmenta duo triave tantum divisis, foliis abaxialiter iridescenter azureis purpureisve atque corollae infundibuliformis tubo ca. 8 mm longo distinguitur.

Herbs, rather succulent; stems glabrous. *Leaves* elliptic to ovate, 6–17 × 2.5–10 cm, at apex acute to shortly acuminate, at base obtuse to rounded and often shortly attenuate along petiole, drying membranaceous, adaxially dark green and glabrous, abaxially shiny blue to purple, puberulous to strigillose or hirtellous on veins and glabrous on lamina, often finely crisped on margins; secondary veins 6 to 11 pairs, loosely looping to interconnect near margins; *petioles* 5–40 mm long, glabrous; *stipules* caducous, abaxially puberulous to glabrescent, adaxially glabrous except usually with glandular trichomes to 1.5 mm long, undivided basal portion 0.5–2 mm long, lobes 1 to 3, linear, 5–16 mm long. *Inflorescences* terminal and usually quickly displaced to pseudoaxillary, subsessile or with peduncles to 4 mm long, hirtellous, subcapitate, often deflexed, 1–3 cm diam.; bracts narrowly triangular, 8–13 mm long, acute; *flowers* subsessile; hypanthium turbinate, ca. 2 mm long, puberulous; *calyx* limb sparsely puberulous to glabrous, divided nearly to base, lobes 5, at anthesis narrowly triangular, 9–12 mm long, acute; *corolla* in bud rounded to acute at apex, at anthesis funnelform, white or sometimes tinged blue on lobes, externally and internally glabrous or perhaps sparsely hirtellous in throat, tube ca. 8 mm long, ca. 1 mm diam. at base and ca. 4 mm diam. at throat, lobes 5, deltoid, ca. 2.5 mm long; *anthers* 5, narrowly oblong, ca. 1.5 mm long, positioned near middle of corolla tube, with connective not prolonged; *stigmas* 2, linear, ca. 1.5 mm long, positioned in corolla throat, apparently included. *Fruits* ellipsoid to ovoid, ca. 4 × 3 mm, glabrous, completely bilocular, with persistent calyx lobes similar to those of flowers; *seeds* numerous, 0.3–0.5 mm diam., angled, foveolate.

Habitat, distribution, and phenology. In wet forests at 250–600 m, in the Mache Mountains of coastal western Ecuador; collected in flower in July, September, and October, in fruit in May. This species is most commonly found in small gaps in mature forests. In some such areas, such as the annually cleared 3–5 m wide property boundary of the Bilsa Biological Station in western Ecuador

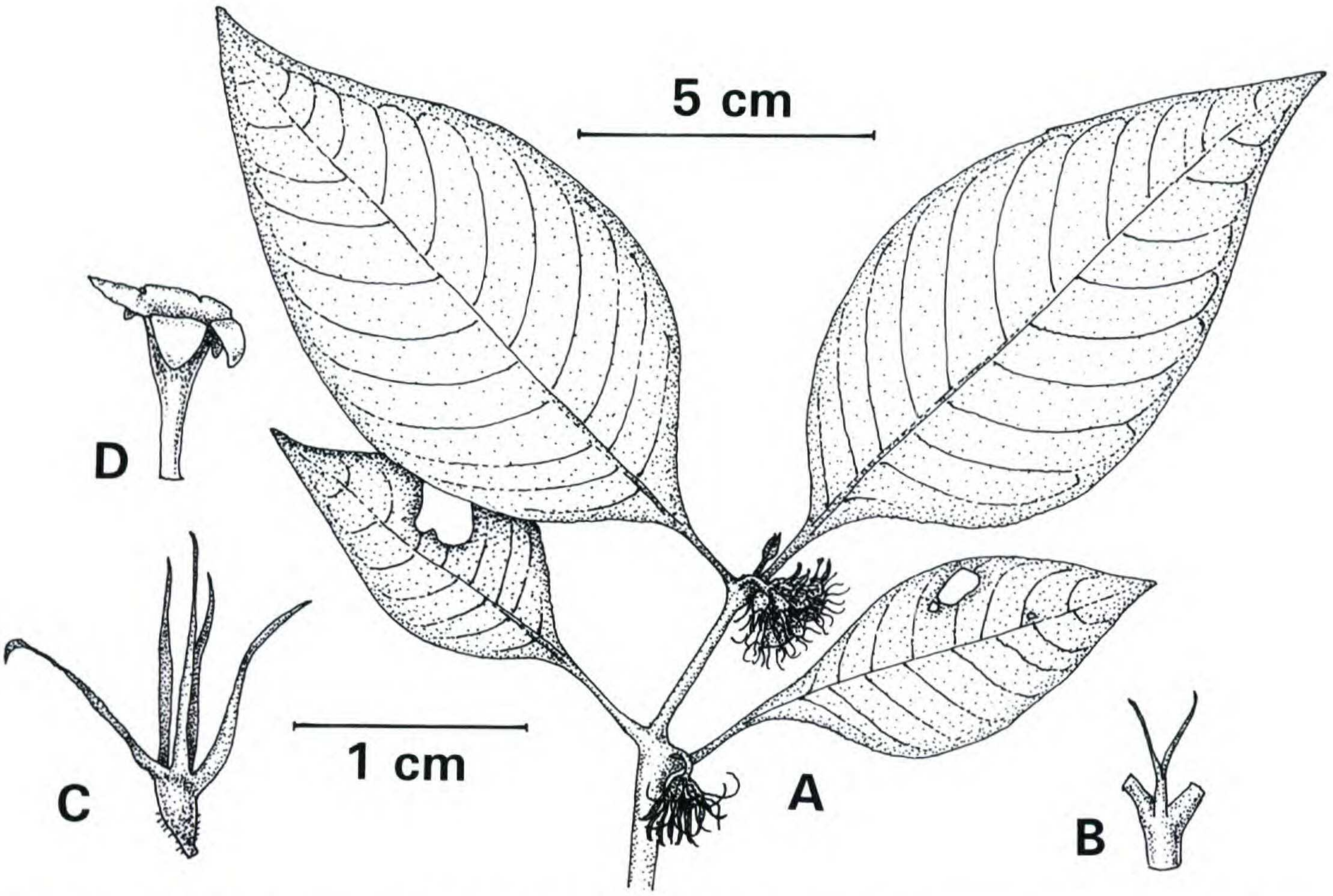

Figure 1. *Amphidasya amethystina* J. L. Clark & C. M. Taylor. —A. Stem with young infructescences. —B. Node with stipule. —C. Calyx (including hypanthium) at anthesis. —D. Corolla at anthesis. A to 5-cm scale; B, C, D to 1-cm scale. A based on *Clark et al. 2864*; B, C, D based on *Clark et al. 1514*.

(Braker, 1998; Clark, 1997), *Amphidasya amethystina* is a common herb forming colonies of three to five individuals. In mature forest *A. amethystina* is usually found in wet or muddy sites, where it forms small populations of dispersed individuals.

Amphidasya amethystina is distinguished by its stipules with only 1 to 3 lobes, its leaves with shiny blue to purple lower (i.e., abaxial) surfaces, and its funnelform corollas with the tubes ca. 8 mm long. This new species is placed in *Amphidasya* based on its laciniate stipules, terminal and pseudoaxillary inflorescences, well-developed calyx lobes, and fruits with numerous, rather small, angled, foveolate seeds. Its corollas resemble those of some species of *Coccocypselum* P. Browne in form and color; that genus also has raphides but differs from *Amphidasya* in its creeping habit, narrowly triangular entire stipules, and relatively reduced calyx lobes. The specific epithet refers to the distinctive color of the undersides of the leaves.

Paratypes. ECUADOR. **Esmeraldas:** cantón Quinindé, Mache-Chindul Ecological Reserve, Bilsa Biological Station, Mache Mountains, 35 km W of Quinindé, 5 km W of Santa Isabel, 00°21′N, 79°44′W, *Clark et al. 124* (MO, QCNE, US), *2568* (GB, MO, NY, QCNE), *2864* (MO, QCNE), *Clark & Pallis 5553* (GB, QCNE), *Pitman et al. 692* (MO, QCNE, US), *Mendosa et al. 576* (AAU, QCA, QCNE, US). **Manabí:** cantón Pedernales, Mache-Chindul Ecological Reserve, comunidad Ambache, via marginal de la costa-Chindul, 00°15′N, 79°48′W, *Clark et al. 4198* (MO, QCNE).

Amphidasya brevidentata C. M. Taylor, sp. nov. TYPE: Colombia. Chocó: municipio San José del Palmar, vereda de Río Negro, Cerro del Torrá, abajo del helipuerto en un antiguo alud, 4°46′N, 76°29′W, 1700 m, 25 Aug. 1988, *J. E. Ramos, P. A. Silverstone[-Sopkin], L. H. Ramos et al. 1493* (holotype, MO-4643634; isotype, CUVC). Figure 2G.

Haec species a congeneris stipulis laciniatis in segmenta longitudinis totae tertiam partem non excedentia divisis distinguitur.

Little-branched soft shrubs to 0.6 m tall; stems sparsely puberulous to glabrous. *Leaves* narrowly elliptic, 23–25 × 5.5–6 cm, at apex acute to somewhat acuminate, at base cuneate to acute, papyraceous, glabrous; secondary veins 20 to 21 pairs, looping to interconnect near margins; *petioles* 7–8 cm long, glabrous; *stipules* abaxially glabrous, adaxially pilose, undivided basal portion 11–15 mm long, triangular to oblong, lobes 4 to 6, narrowly triangular, 3–8 mm long, acute. *Inflorescences* not

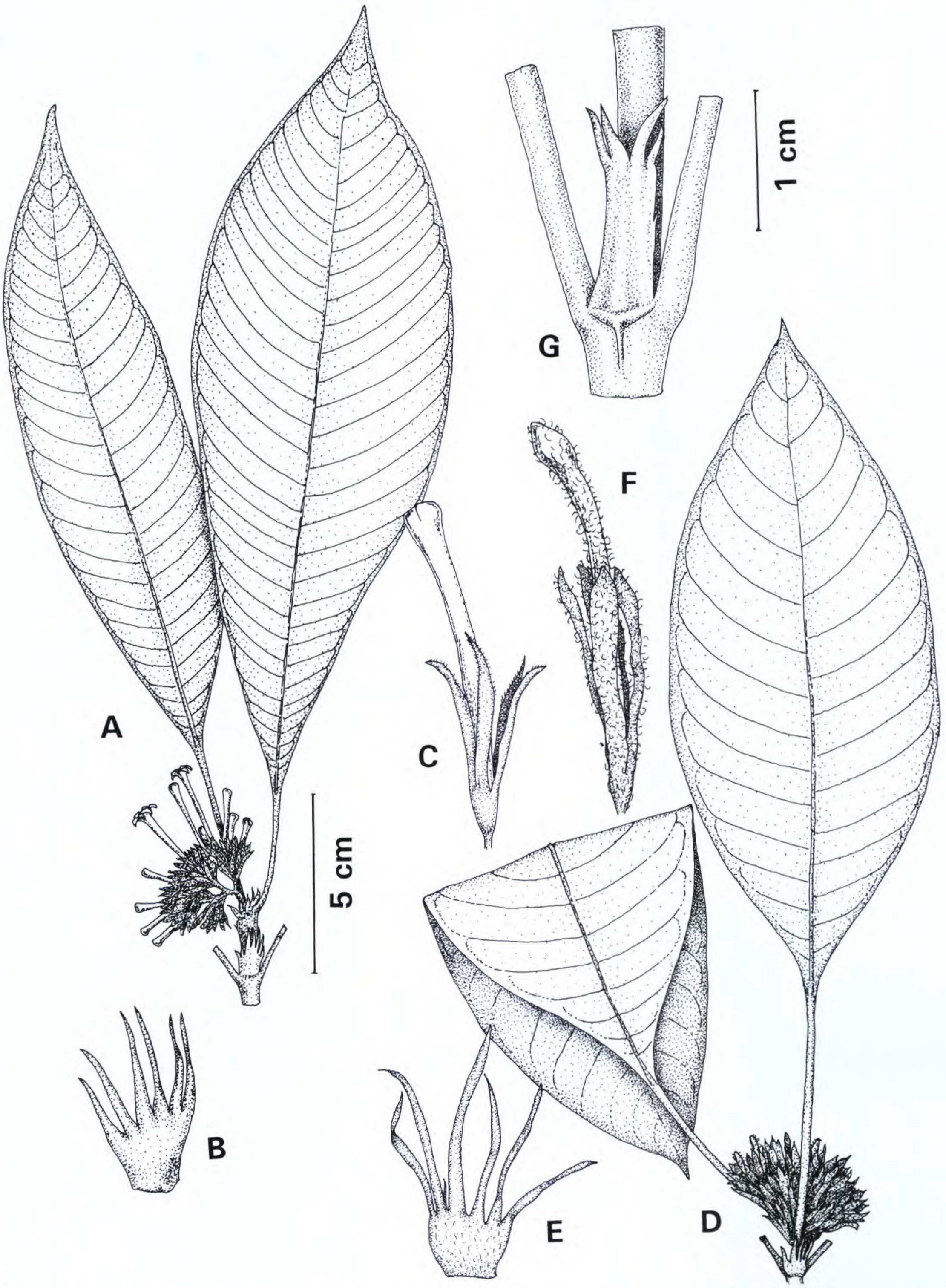

Figure 2. A–C, *Amphidasya elegans* C. M. Taylor. —A. Flowering stem. —B. Stipule. —C. Mature flower bud. D–F, *Amphidasya panamensis* C. M. Taylor. —D. Flowering stem. —E. Stipule. —F. Mature flower bud. —G. Stipule of *Amphidasya brevidentata* C. M. Taylor. A–C based on *Gentry et al. 63606*; D based on *Knapp 1205*; E, F based on *Sytsma et al. 2719*; G based on *Ramos et al. 1493*. A, D to 5-cm scale; B, C, E, F, G to 1-cm scale.

seen. *Infructescences* pseudoaxillary, cymose, pyramidal, glabrous, peduncle ca. 2.5 cm long, branched portion ca. 2 × 2 cm excluding fruits; bracts 4–8 mm long, narrowly lanceolate, entire to laciniate; pedicels 0.5–2 mm long; *fruits* narrowly turbinate to cylindrical, 8–9 × 4.5–5 mm, glabrous, green, with persistent calyx lobes 5, narrowly oblanceolate to usually narrowly ligulate, 6–13 × 0.5–1 mm, acute; seeds numerous, ca. 0.5 mm long, angled, foveolate.

Distribution, habitat, and phenology. In wet forest at ca. 1700 m in the Cerro del Torrá, part of the Cordillera de San Miguel, which is located west of the central Western Cordillera of the Andes in Colombia; collected in fruit in August.

This new species is distinguished from other *Amphidasya* species by its laciniate stipules with the lobes shorter than the undivided basal portion. It is known only from the type specimen, which was collected in a poorly known region of Colombia (Silverstone-Sopkin & Ramos-Pérez, 1995), and its flowers have not been seen. The specific epithet refers to the relatively short stipule lobes.

Amphidasya elegans C. M. Taylor, sp. nov. TYPE: Colombia. Nariño: trail from La Planada to Pielapi, 1600–1800 m, 1°04′N, 78°02′W, 22 July 1988, *A. Gentry, O. de Benavides, C. Samper, P. Velásquez & B. Ramírez 63606* (holotype, MO-4976644; isotype, MO-4641169). Figure 2A–C.

Haec species a congeneris foliorum venis secundariis 22- ad 30-jugatis, lobulis calycinis sub anthesi 0.5–1.5 mm latis atque corolla in alabastro apice truncata sub anthesi tubo 25–30 mm longo ac lobulis ca. 4 mm longis distinguitur.

Suffrutescent plants to 0.6 m tall; stems moderately hirtellous to glabrescent. *Leaves* elliptic to elliptic-oblong, 17–24 × 4.5–10 cm, at apex acute to acuminate, at base obtuse to cuneate, papyraceous, adaxially glabrous, abaxially hirtellous to usually strigillose on veins and glabrous on lamina; secondary veins 22 to 30 pairs, looping to interconnect near margins; *petioles* 3.5–7 cm long, hirtellous to glabrescent; *stipules* abaxially sparsely hirtellous to glabrescent, adaxially glabrous or pilose near base, the undivided basal portion 4–6 mm long, lobes 6 to 8, narrowly triangular, 4–14 mm long, acute. *Inflorescences* terminal and pseudoaxillary, subsessile or with peduncles to 8 mm long, hirtellous to strigillose, branched portion corymbiform, 2–2.5 × 2–3 cm excluding corollas, bracts 2–4 mm long, linear to narrowly triangular; pedicels 0.5–3 mm long; *flowers* subsessile to pedicellate in cymules of 3; hypanthium hirtellous, 3–4 mm long, turbinate; *calyx limb* hirtellous to glabrescent, lobed nearly to base, lobes 5, at anthesis narrowly triangular to narrowly oblanceolate, 9–12 × 0.5–1.5 mm, acute, often rather falcate; corolla in bud truncate at apex, at anthesis slenderly salverform, externally moderately to sparsely hirtellous, internally glabrous, tube 25–30 mm long, 1–1.5 mm diam., lobes 5, deltoid, ca. 4 mm long, adaxially densely verrucose on surfaces and margins (sometimes appearing laciniate); *anthers* 5, included in the corolla throat, ca. 1.8 mm long, with apical prolongation of connective ca. 1 mm long, linear, glabrous; *stigmas* 2, narrowly ellipsoid to linear, ca. 2 mm long, apparently included in the corolla throat. *Fruits* not seen.

Distribution, habitat, and phenology. In wet premontane and lower montane forests at 1500–1800 m, southwestern Colombia to central Ecuador; collected in flower in March and July.

This new species is distinguished by its combination of leaves with the secondary veins 22 to 30 pairs, calyx lobes at anthesis 0.5–1.5 mm wide, and corollas truncate at the apex in bud and with tubes 25–30 mm long and lobes ca. 4 mm long at anthesis. The shape of the corollas in bud clearly distinguishes this from other species of *Amphidasya*. The elevational zone inhabited by this species appears to be one of the most floristically diverse yet least explored parts of the northern Andean region. The specific epithet refers to the attractive general aspect of this plant.

Paratypes. ECUADOR. **Napo:** cantón Archidona, Parque Nacional Napo-Galeras, Cordillera de Galeras, sendero hacia Huamaní, 00°39′S, 77°31′W, *A. Alvarez et al. 1585* (MO, QCNE).

Amphidaysa longicalycina (Dwyer) C. M. Taylor, comb. nov. Basionym: *Hoffmannia longicalycina* Dwyer, Ann. Missouri Bot. Gard. 56: 280. 1980. TYPE: Panama. Darién: Cuasi-Cana Trail between Cerro Campamiento and La Escalera to "Paramo," E of Tres Bocas, 30 Apr. 1968, *J. H. Kirkbride, Jr. & J. Duke 1278* (holotype, MO-2165098).

Herbs, sometimes suffrutescent, to 0.5 m tall; stems puberulous to glabrescent. *Leaves* oblanceolate to elliptic-oblanceolate, 12–31 × 4–12 cm, at apex acute to acuminate, at base acute to attenuate, membranaceous, adaxially glabrous, abaxially pilosulous to usually puberulous on principal veins and glabrescent on lamina; secondary veins 12 to 25 pairs, weakly looping to interconnect near margins; *petioles* 1.5–7 cm long, densely puberulous to

strigillose; *stipules* puberulous to strigose, undivided basal portion 1–4 mm long, lobes 5 to 10, linear, 10–22 mm long. *Inflorescences* terminal but rapidly displaced to pseudoaxillary, congested cymose, subsessile; bracts narrowly triangular, ca. 5 mm long; *flowers* subsessile in glomerules or cymules of 3; hypanthium ellipsoid to cylindrical, ca. 3 mm long, puberulous; *calyx* limb puberulous, lobed nearly to base, lobes 5, at anthesis narrowly triangular to narrowly ligulate, 6–13 × 1–2.5 mm, acute to acuminate; *corolla* in bud rounded to acute at apex, at anthesis slenderly salverform, externally hirtellous, internally glabrous except sparsely to moderately pilose in throat and on bases of lobes, tube 30–40 mm long, ca. 2 mm diam., lobes 5, narrowly elliptic, 8–15 mm long, acute to acuminate, adaxially verrucose; *anthers* 5, included in corolla throat, ca. 2 mm long, with apical prolongation of connective ca. 1.2 mm long; *stigmas* 2, included in corolla throat and apparently positioned below anthers, linear, ca. 2 mm long. *Fruits* ellipsoid to cylindrical or turbinate, 8–10 × 4–5 mm, puberulous to glabrescent, with calyx limb deciduous before fruit matures; seeds numerous, ca. 0.5 mm long, angled, foveolate.

Habitat, distribution, and phenology. Wet forests at 60–1400 m, southeastern Nicaragua to northwestern Colombia; collected in flower in January through April and July through November, in fruit throughout the year.

This species has previously been included within a widespread, morphologically variable circumscription of *Amphidasya ambigua* (Standley) Standley (Taylor, 1991; Burger & Taylor, 1993; Taylor, 2001). However, as circumscribed here *A. longicalycina* is found from Nicaragua to northwestern Colombia, while *A. ambigua* is less variable morphologically and restricted to eastern Panama and northwestern South America. *Amphidasya ambigua* is distinguished by its calyx lobes 15–24 mm long at anthesis and its corolla tubes ca. 30 mm long. A detailed description of *A. longicalycina* is presented above because Dwyer's original description of this species was brief and based on rather poor material. The figure of "*A. ambigua*" presented by Dwyer (1980: fig. 5) cannot be conclusively identified as to whether it represents *A. ambigua* or *A. longicalycina*, because its detail is inadequate and the specimen from which it was drawn (*Dressler & Mahler 1244*) has not been relocated.

Dwyer based the name *Hoffmannia longicalycina* on a specimen bearing only mature fruits. Typically for both *Hoffmannia* and *Amphidasya* in this stage of development, its stipules have fallen off so their form is not evident, and the calyx lobes have also fallen off the mounted specimen although Dwyer included a description of these ("to 13 mm long"). Atypically for *Hoffmannia* (Dwyer, 1969: 270) but typically for *Amphidasya*, these calyx lobes are more than 5 mm long and the inflorescences are clearly terminal. Dwyer noted in his original description of *H. longicalycina* that this species seemed to him very similar to *Amphidasya*, but he concluded that the species could not belong to *Amphidasya* because its fruits have a complete septum, and he considered *Amphidasya* to have only incomplete septa. However, Andersson (1999) reported that the septum of *Amphidasya* may be complete or incomplete, so this feature is actually not informative. Dwyer's specimen matches in all its details the most commonly collected but otherwise unnamed Central American species of *Amphidasya*; therefore, this new combination is needed.

There appears to be some clinal variation in the length of the calyx lobes in this species, from shortest in Nicaragua and Costa Rica to longest in eastern Panama, and there may also be some clinal variation in corolla length, but the flowering specimens presently available are not adequately preserved to evaluate this. There also appears to be some variation in calyx lobe length within local populations, though whether this is actual morphological variation or an artifact of specimen preparation is difficult to determine.

Representative collections examined. COLOMBIA. **Chocó:** hills behind Bahía Solano (Puerto Mutis), *Gentry & Forero 7228* (MO). COSTA RICA. **Heredia:** Finca La Selva, the OTS Field Station on the Río Puerto Viejo, just E of its junction with the Río Sarapiquí, along Quebrada El Saltito, *Hammel & Trainer 10843* (DUKE, MO). **Limón:** Cerro Coronel, E of Laguna Danto, 10°41′N, 83°38′W, *Stevens 23818* (MO). **Puntarenas:** along road from Panamerican Highway at Piedras Blancas to Rincón (on Osa Peninsula), 3.7 mi. W of Panamerican Highway, 8°46′N, 83°18′W, *Croat 67642* (MO). NICARAGUA. **Río San Juan:** near Caño Chonataleño 20 km NE of El Castillo, *Neill & Vincelli 3616* (MO). PANAMA. **Bocas del Toro:** above Chiriquí Grande, 10 road-miles from continental divide, ca. 2 road-miles along road E of highway, 8°55′04″N, 82°10′04″W, *McPherson 10469* (MO). **Coclé:** near sawmill 16.7 km N of turnoff to Coclesito from Llano Grande, *Hammel 1852* (MO). **Colón:** trail from end of Santa Rita Ridge Road to Río Piedras, *Antonio 3773* (MO). **Darién:** along ridge N of Ensenada El Guayabao that separates the Río Jaqué Valley from the Pacific Ocean, 7°26′N, 78°05′W, *Knapp & Mallet 3179* (MO). **Panamá:** road from El Llano to Cartí, the deep ditch, 12.4 km N of Panamerican Highway, *Folsom et al. 6183* (MO). **San Blas:** El Llano–Cartí Road, Km 18.3, 9°19′N, 78°55′W, *de Nevers 5988* (MO).

Amphidasya panamensis C. M. Taylor, sp. nov. TYPE: Panama. Panamá: Cerro Jefe, desviación 300 m antes de llegar a la torre, 500 m, 6 May 1987, *I. A. Valdespino, P. Solis & J. Sporle 694* (holotype, PMA; isotype, MO-4297807). Figure 2D–F.

Haec species ab *Amphidasya bullata* corolla extus dense hirtella in alabastro parte ex lobulorum constante ellipsoidea apice acute rotundata obtusave atque lobulis corollinis sub anthesi 6–7 mm longis adaxialiter omnino dense verruculosis distinguitur.

Unbranched herbs, sometimes suffrutescent, to 1.5 m tall; stems hirtellous to glabrescent. *Leaves* elliptic to elliptic-oblong, 15–24 × 5.5–11 cm, at apex acute to usually acuminate or cuspidate, at base cuneate to acute, papyraceous, adaxially glabrous, abaxially hirtellous on principal veins and glabrescent on lamina; secondary veins 13 to 16 pairs, weakly to strongly looping to interconnect; *petioles* 3.5–13.5 cm long, densely hirtellous; *stipules* hirtellous to densely so, undivided basal portion 3–10 mm long, lobes 7, linear, 10–38 mm long. *Inflorescences* terminal and pseudoaxillary, subcapitate, subsessile, hirtellous; bracts triangular, 4–5 mm long; *flowers* subsessile in glomerules or cymules of 3; hypanthium turbinate, ca. 2 mm long, densely hirtellous to strigillose; *calyx* limb densely hirtellous to pilosulous, lobed nearly to base, lobes 5, at anthesis narrowly triangular to narrowly ligulate, 12–19 × 1–1.5 mm, acute to a little acuminate; *corolla* in bud acute to obtuse or rounded at apex, at anthesis slenderly salverform, externally densely hirtellous, internally glabrous except sparsely pilose at stamen insertion, tube 36–40 mm long, ca. 1 mm diam., lobes 5, triangular, 6–7 mm long, acute, adaxially densely verrucose on surfaces and margins (sometimes appearing laciniate); *anthers* 5, included in corolla throat, ca. 1.5 mm long, with apical prolongation of connective ca. 1 mm long; immature *stigmas* 2, narrowly elliptic to linear, included in corolla throat, apparently positioned just below anthers, ca. 1 mm long. *Fruits* ellipsoid to cylindrical or turbinate, 8–10 × 4–5 mm, hirtellous, with persistent calyx lobes to 18 mm long; seeds numerous, ca. 0.5 mm long, angled, foveolate.

Distribution, habitat, and phenology. In wet forests at 350–1000 m, eastern to central Panama; collected in flower in May, August, November, and December, in fruit in January, February, May, July, and September.

This new species is distinguished by its elliptic to elliptic-oblong leaves, its corollas that are acute to rounded or obtuse at the apex in bud, its corolla tubes that are densely hirtellous externally, and its corolla lobes 6–7 mm long at anthesis and densely verruculose on their entire adaxial ("internal") surfaces. It is similar to *Amphidasya bullata* Standley of western Colombia; *A. bullata* differs in its corollas that are acute to acuminate at the apex in bud, its corolla tubes that are sparsely hirtellous externally, and its corolla lobes that are longer, 10–16 mm long at anthesis, and verrucose only along their margins. The species epithet refers to its geographic distribution.

Paratypes. PANAMA. **Colón:** trail from Alto Pacora to Cerro Brewster, 9°18′N, 79°16′W, *G. de Nevers et al. 6259* (MO). **Darién:** Cerro Pirre, *Duke & Elias 13660* (MO); Cerro Sapo, *Hammel 1242* (MO). **Panamá:** Campo Tres, 5 km NE of Altos de Pacora, *Busey 828* (MO); Cerro Jefe to La Eneida, *Dressler 3571* (MO); headwaters of the Rio Utiva, Cerro Jefe, 2 km from last branch in road to summit, 9°15′N, 79°30′W, *Knapp 1205* (MO); E slope of Cerro Jefe, dirt track near radio tower, 9°15′N, 79°30′W, *Knapp & Mallet 5188* (MO); La Eneida, Cerro Jefe region, *Maas & Dressler 682* (MO); Cerro Jefe region, along old road about 0.5 mi. below summit tower, 9°15′N, 79°30′W, *McPherson 12736* (MO). **San Blas:** Cerro Obu, *de Nevers et al. 8065* (MO); Cerro Habú, vicinity of peak, 9°23′N, 78°49′W, *Sytsma et al. 2719* (MO), *2742* (MO); El Llano–Cartí road, 12 mi. from PanAmerican Highway, *Sytsma & Andersson 4507* (MO).

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