A NEW SPECIES, NEW RECORDS, AND NEW SYNONYMS OF *MANDEVILLA* (APOCYNACEAE) FROM ECUADOR, WITH COMMENTS ON MORPHOLOGICAL CHARACTERS

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ABSTRACT

Mandevilla hansenii is described and illustrated and a distribution map is included; it resembles *M. hirsuta* but differs by its tomentose branchlets and leaf blades, broader sepals, corolla tube tomentose outside, with obtuse floral buds, and longer anthers. It is provisionally assessed as Endangered (EN). *Mandevilla arcuata* A.H. Gentry, *M. horrida* J.F. Morales, *M. pavonii* (A.DC.) Woodson, *M. boliviensis* (J.J. Veitch) Woodson, *M. polyantha* K. Schum. ex Woodson, and *M. pristina* J.F. Morales are reported for the first time in Ecuador. *Mandevilla versicolor* Woodson is reduced to the synonymy of *M. glandulosa* (Ruiz & Pav.) Woodson and *M. dodsonii* A.H. Gentry under *M. sagittarii* Woodson. *Mandevilla bracteata* (Kunth) Kuntze, *M. laxa* (Ruiz & Pav.) Woodson and *M. riparia* (Kunth) Woodson are excluded from the native Flora of Ecuador. A lectotype is selected for *Mandevilla polyantha*. A key to the species of *Mandevilla* of the exothostemon group in Ecuador is given.

RESUMEN

Se describe e ilustra **Mandevilla hansenii,** incluyendo un mapa de distribución; se parece a *M. hirsuta*, pero difiere por lâminas foliares y ramitas tomentosas, sépalos más anchos, tubo de la corola tomentoso externamente, con botones florales con el ápice obtuso, y anteras más largas. Esta se clasifica provisionalmente como Amenazada (EN). *Mandevilla arcuata* A.H. Gentry, *M. horrida* J.F. Morales, *M. pavonii* (A.DC.) Woodson, *M. boliviensis* (J.J. Veitch) Woodson, *M. polyantha* K. Schum. ex Woodson, y *M. pristina* J.F. Morales son reportadas por primera vez para el Ecuador. *Mandevilla versicolor* Woodson se reduce a la sinonimia de *M. glandulosa* (Ruiz & Pav.) Woodson y *M. dodsonii* A.H. Gentry bajo *M. sagittarii* Woodson. *Mandevilla bracteata* (Kunth) Kuntze, *M. laxa* (Ruiz & Pav.) Woodson, y *M. riparia* (Kunth) Woodson son excluidas de la flora nativa de Ecuador. Se designa un lectotipo para *Mandevilla polyantha*. Se provee una clave para las especies de *Mandevilla* de Ecuador del grupo exothostemon.

Key Words: apocynoids, Mesechiteae, South America, taxonomy

INTRODUCTION

Apocynaceae includes 378 genera and around 5350 species, predominantly in tropical areas, with a few genera reaching temperate regions. It is divided into five major groups comprising two informally-ranked grades (rauvolfioids and apocynoids) and three subfamilies (Periplocoideae, Secamonoideae, and Asclepiadoideae) (Simões et al. 2016; Endress et al. 2019). In the catalogue of plants from Ecuador, Potgieter and Zarucchi (1999) reported 25 genera and 95 species of the grades apocynoids and rauvolfioids (Apocynaceae), with nine endemic species. Ulloa-Ulloa and Neill (2005) added 17 species from nine genera, including one endemic species (Morales 2004). The last compilation of new additions for the Flora of Ecuador (Neill & Ulloa-Ulloa 2011) reported 15 new records of apocynoids and rauvolfioids from seven genera and seven endemic species (Morales 2005a, 2007a, b, c, d). Since 2011, only one species of apocynoids (*Prestonia* R. Br.) from Ecuador has been described (Morales & Cornejo 2019). Currently, Ecuador is estimated to have around 128 species and 31 genera of apocynoids and rauvolfioids.

Mandevilla Lindl. is the largest genus of neotropical apocynoids with ca. 200 species, and a center of diversity in Brazil, Perú, Colombia, Venezuela, and Ecuador (Morales & Morais 2019; Morales et al. 2022). The genus has a propensity to endemism on inselbergs or quarzitic outcrops of the Guyana shield (Morales & Kollmann 2019, 2020; Morales et al. 2022; Arantes et al. 2024). *Mandevilla* was recovered as monophyletic and

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based on the results of Simões et al. (2006), two main clades are recognized (Morales et al. 2022): clade I (exothostemon) and clade II (mandevilla). The exothostemon clade is characterized by the leaf blade with many colleters distributed along the midrib on the adaxial surface, sepals with opposite solitary colleters, and corolla tube more or less gibbous or arcuate basally (vs. colleters grouped at the base of the midrib, sepals with colleters alternate or indefinitely distributed at the base, and corolla tube straight in the mandevilla clade). Potgieter and Zarucchi (1999) reported 17 species of *Mandevilla* (three endemic) for Ecuador, with three new records (one endemic) by Ulloa-Ulloa and Neill (2005), and four additions (all endemic) by Neill and Ulloa-Ulloa (2011).

A new species, new records, new synonyms, and excluded species of *Mandevilla* for the Flora of Ecuador are given. In the first part, a new species of *Mandevilla* is proposed. New records and synonyms are provided in the second and third parts. These include species not included by Potgierter and Zarucchi (1999), Ulloa-Ulloa and Neill (2005), and Neill and Ulloa-Ulloa (2011) or species that must be excluded. *Mandevilla subpaniculata* Woodson (accepted by Potgierter and Zarucchi 1999) is nowadays a synonym of *M. bogotensis* (Kunth) Woodson (Morales, 2011). *Mandevilla dissimilis* Woodson (1939) was described from Ecuador ("Andes Quitensis," data lacking, *Spruce s.n.* [holotype W]), but it was not cited by Potgieter and Zarucchi (1999). This species is known from the type (without a precise locality) and an additional gathering from the province of Cañar: Cañar-Llurac Rumi-La Carbonería, 3100 m, 13 Aug 1987 (fl), *C. Josse* et al. *226* (AAU, QCA). *Mandevilla ligustriflora* Woodson (1950) was described based on a specimen from Loja: Zamora-Huaico, ca. 6 km SE de Loja, 2300–2400 m, 3 Jul 1947 (fl), *R. Espinosa 1547* (holotype, MO). It is the species with the smallest flowers in the genus. Four decades later, the same species was described as *Quiotania colombiana* by Zarucchi (1991) (who probably did not know *M. ligustriflora*), but recognition of the genus *Quiotania* was not supported by molecular data (Simões et al. 2006; Simões & Kinoshita 2007). *Mandevilla ligustriflora* is known by at least five gatherings from Zamora-Chinchipe and two additional specimens from Colombia.

MATERIALS AND METHODS

Specimens from the following herbaria were examined: COAH, COL, CR, DUKE, F, G, GH, HUA, K, L, LD, LE, M, MEXU, MO, NY, P, TRIN, U, US, USF, VEN, W, WAG, and Z. Acronyms cited follow Thiers (2024), continuously updated). The description of the new species was based on herbarium specimens. The species concept of Templeton (1989) is followed for the description of the new species, considering the phenotypic variability and habitat restrictions. TROPICOS.ORG (2024) and JSTOR Global Plants (2024) were reviewed to verify original publications or tracking type specimens of morphologically similar species. The preliminary conservation assessment was based on the IUCN Red List Categories and Criteria (IUCN 2012) and Guidelines (IUCN Standards and Petition(s) Committee 2024). The specimen coordinates were used to calculate the area of occupancy (AOO) and Extent of Occurrence (EOO) with the GeoCAT tool (Bachman et al. 2011). The map was made with DIVA-GIS, version 7.5 (Hijmans et al. 2005). The author took all the photographs.

Three diagnostic characters in *Mandevilla* commonly used in keys are explained and illustrated here:

1) Leaf blade colleters: in *Mandevilla*, colleters are arranged in one of two patterns on the adaxial surface of the midrib: either clustered at the base (Fig 1.A) or spread along the entire length, sometimes including the secondary veins (Fig. 1.B).
2) Corolla tube: the tube can be gibbous (exothostemon group) or straight at the base (mandevilla group) (Fig. 1.C–D).
3) Parts of the corolla tube: in infundibuliform corollas, the tube is described in two parts: the lower part comprises from the base of the corolla up to the base of the point of anther attachment, and the upper part from this point up to the corolla mouth (Fig. 2).

Group names follow Morales et al. (2022). All types were physically examined unless otherwise indicated. Only examined specimens from Ecuador are cited. Thus, only the provinces are provided. Measurements given in the key are based on an unpublished monograph of *Mandevilla* (Morales, unpubl. data) and these can differ concerning those given in previous papers or revisions.

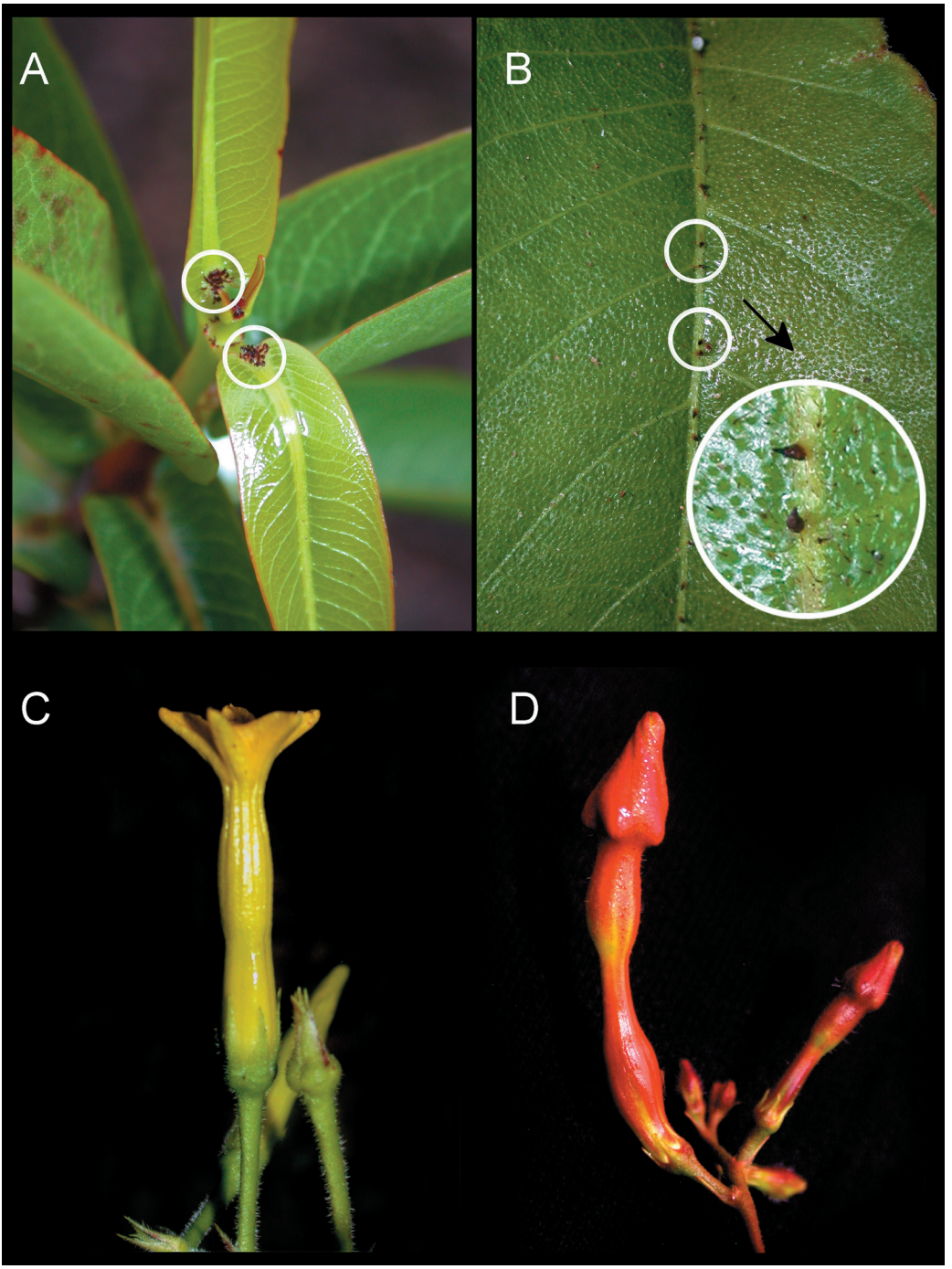

Fig. 1. Colleter arrangement (A–B) and shape of the corolla tube (C–D) in *Mandevilla.* **A.** Grouped at the base of the midvein (*M. grazielae* M.F. Sales, Kin.-Gouv. & A.O. Simões), **B.** Spread along the midvein (*M. hirsuta* (Rich.) K. Schum.), **C.** Tube straight (*M. acutiloba* (A. DC.) Woodson), **D.** Tube gibbous (*M. subsagittata* (Ruiz & Pav.) Woodson).

Fig. 2. Parts of the corolla tube (*M. dardanoi* M.F. Sales, Kin.-Gouv., & A.O. Simões). a. Upper part, b. Lower part, c. Position of anther attachment.

TAXONOMY

NEW SPECIES

Mandevilla hansenii J.F. Morales, **sp. nov.** (**Figs. 3–4**). **Type:** ECUADOR. Morona-Santiago: Mendez-Bella Union, shady ravine, 700 m, 1 Apr 1974 (fl), *G. Harling & L. Andersson 13046* (holotype: USF).

Diagnosis.*—Mandevilla hansenii* resembles *M. hirsuta* (Rich) K. Schum., but it is distinguished by its leaf blade tomentose abaxially (vs. hispid to hirsute or rarely glabrescent), sepals 3.5–4.2 mm wide (vs. 1–3 mm), corolla tomentose with the apex of the floral bud obtuse to rounded (vs. hirsute and floral buds shortly acuminate or shortly apiculate) and larger anthers (5.5–6 mm long vs. 4.5–5.2 mm).

***Description.*—Vine;** branchlets cylindrical to subcylindrical, without wings, tomentose; interpetiolar colleters inconspicuous, less than 1 mm long. **Leaves** opposite; petioles 35–36 mm long; leaf blades 14–15 × 5.5–6 cm, elliptic, the apex abruptly long acuminate, the base truncate, with colleters irregularly distributed along the midrib adaxially, membranaceous, sparsely villose adaxially, tomentose abaxially, not bullate, without domatia, not revolute, secondary veins slightly impressed on both sides, tertiary veins more or less impressed abaxially, usually not visible adaxially. **Inflorescences** axillary, tomentose, many-flowered, peduncle 30–40 mm long, pedicels -3–4.5 mm long, bracts 25–35 × 2–3 mm, narrowly elliptic, foliaceous; sepals 8–9 × 3.5–4.2 mm, equal, narrowly ovate, the apex short-acuminate, not reflexed, subfoliaceous, tomentose, colleter 1, irregularly lobed or erose; **corolla** infundibuliform, yellow to pale yellow, internal part of the tube with red striae or totally red, rarely brown, tomentose, the tube gibbous basally, the lower part

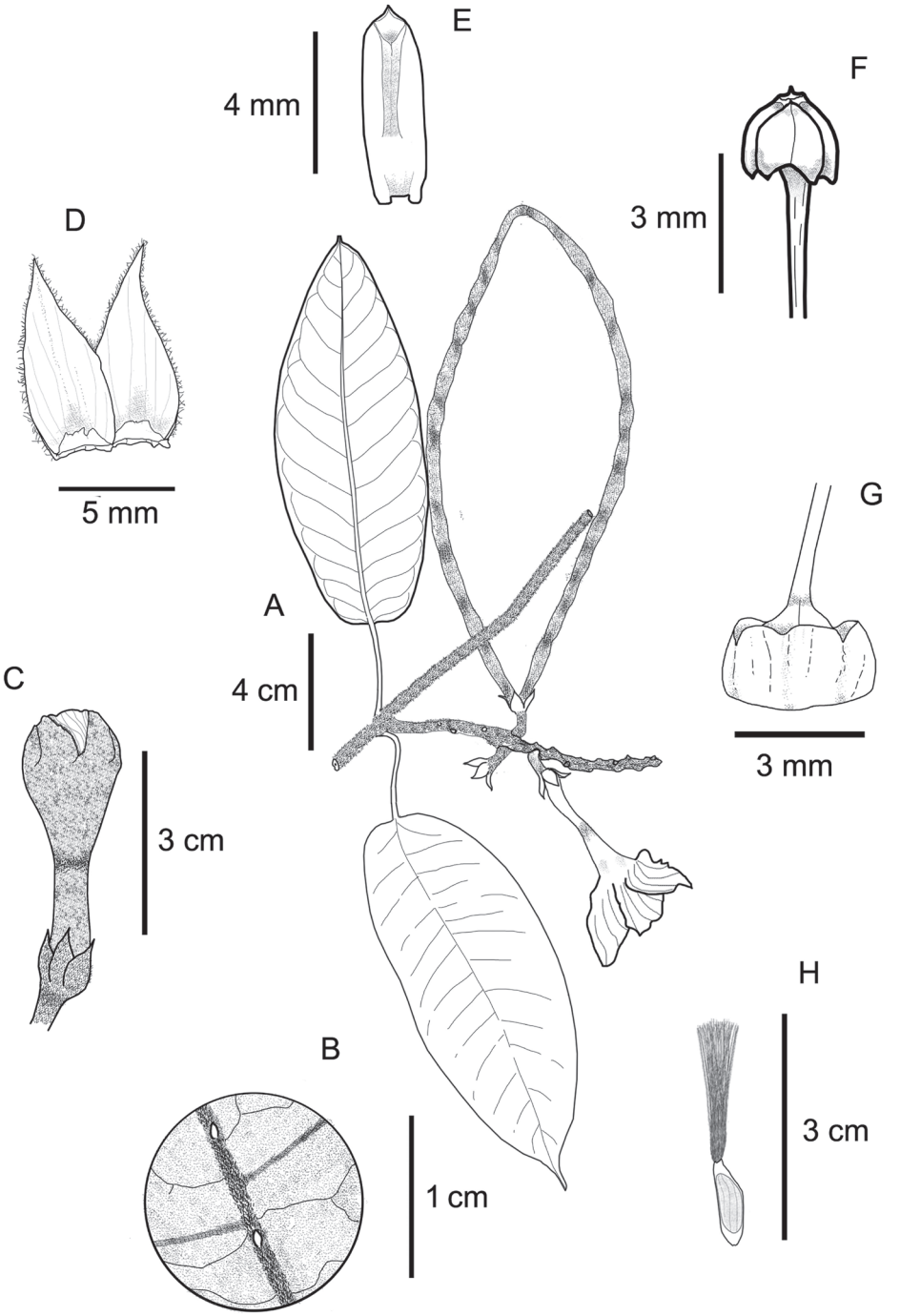

Fig. 3. *Mandevilla hansenii* (*Lugo 3740*, USF). **A.** Fertile branch, **B.** Detail of the colleters along the midrib adaxially, **C.** Calyx and corolla in bud, **D.** Adaxial view of two sepals, showing opposite colleters at the base, **E.** Anther, dorsal view, **F.** Style-head, **G.** nectary and ovary, **H.** Seed.

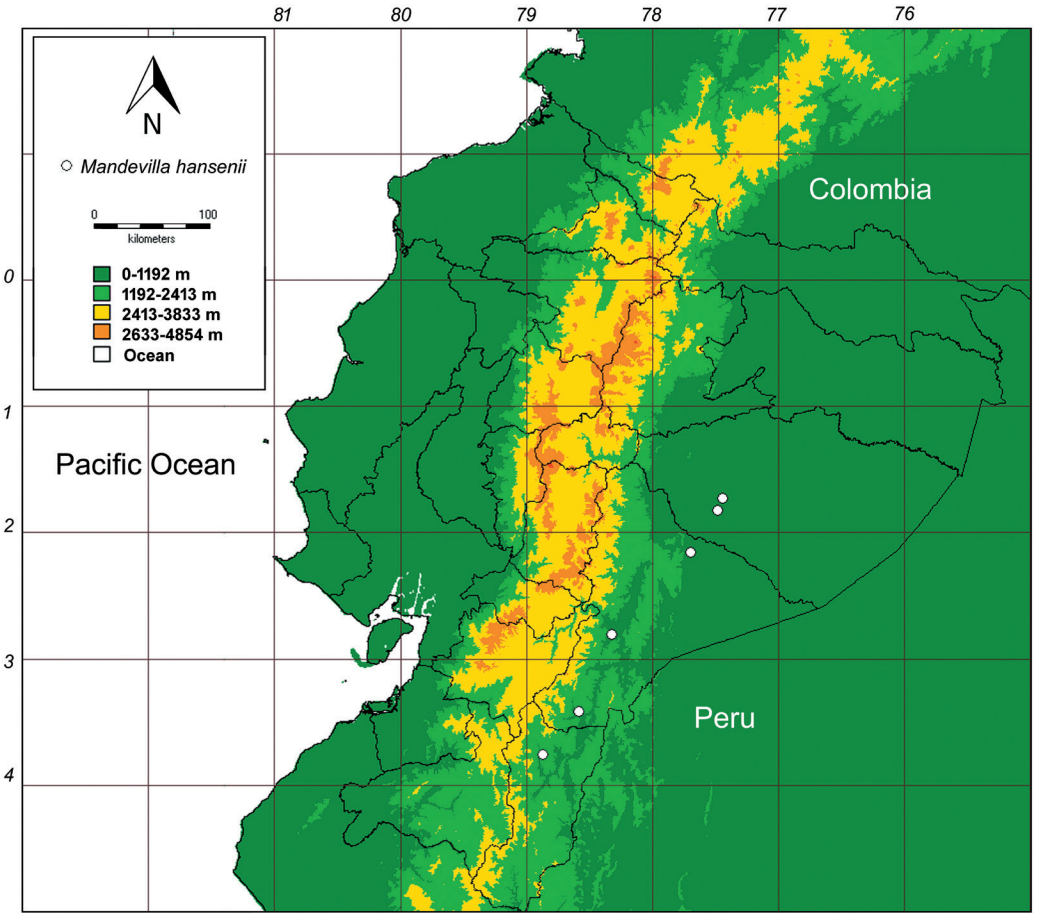

Fig. 4. Distribution map of *Mandevilla hansenii*.

2.4–2.5 × 5–7 mm, the upper part 1.4–1.5 mm long, conical, 14–15 mm in diameter at the orifice, the apex of the floral bud broadly obtuse to rounded; lobes 14–15 × 11–12 mm, obovate; stamens inserted at the base of the upper part of the corolla tube, anthers 5.5–6 mm long, glabrous dorsally, the base auriculate, the auricles obtuse to truncate, style-head 2.5–3 mm long; ovary 2.1–2.3 mm long, glabrous; nectary disc equalling or slightly shorter than the ovary, 5-lobed. **Follicles** 13–14 cm × (2.5)4–7 mm, free, only united at the apex, sometimes the apices free when mature, tomentose, slightly articulated; seeds 11–12 mm long, comma 1.7–2 cm long, tannish-yellow.

Distribution.—Endemic to Ecuador (Morona-Santiago, Pastaza, Zamora-Chinchipe provinces), growing in open areas, forest edges, and riverside woods at 700–1100 m.

Phenology.—Flowering March, April, June, and August. Fruiting in April and August.

Conservation status.—*Mandevilla hansenii* has a minimum AOO of 24 km^2 and an EOO of 2,569.230 km^2. It is known from six localities, none of which are located within protected areas, four of them threatened by forest clearing for agriculture and cattle, confirmed by author's field observations, resulting in a continuing decline of EOO, AOO, quality of habitat, number of locations, and subpopulations. This species is provisionally assessed as Endangered [EN B2ab(i,ii,iii,iv)] based on the IUCN Red List Categories and Criteria (IUCN 2012, 2024).

Paratypes.—**ECUADOR. Morona-Santiago:** Tunantza, Jibaro settlement in the vicinity of Macuma, ca. 50 km NE of Macas, 25 Mar 1973 (fl, fr), *Lugo 3740* (USF); Bomboiza, Mision Salesiana-Shuar, 8–10 Jun 1986 (fl), *Zaruma & Arguello 496* (MO, USF). **Pastaza:** trail to Cotopaza, 10 km S of Sarayacu, 19 Aug 1979 (fl), *Lugo 5550* (USF), 4 km E of Sarayacu, 21 Aug 1979 (fl), *Lugo 5570* (USF). **Zamora-Chinchipe:** Guadalupe-San Jose de Yacuambi (28 de Mayo), along rio Yacuambi, 24 Apr 1974 (fl), *Harling & Andersson 13925* (USF).

Discussion.—*Mandevilla hansenii* is vegetatively similar to *M. hirsuta*, but it differs by its tomentose branchlets (vs. hispid to hirsute, rarely glabrescent), leaf blades tomentose abaxially (vs. sparsely to densely hirsutulous), sepals 3.5–4.2 mm wide (vs. 1–3 mm), corolla tomentose (vs. hirsute), the apex of the floral buds broadly obtuse to rounded (vs. shortly acuminate or shortly apiculate), and anthers 5.5–6 mm long (vs. 4.5–5.2 mm). The floral bracts are larger in *M. hansenii* than *M. hirsuta* (25–35 × 2–3 mm vs. 15–20 × 6–12 mm).

Mandevilla hirsuta has the largest distributional range in the genus (Mexico to Brazil, Bolivia, and northern Paraguay), followed by *M. subsagittata* (Ruiz & Pav.) Woodson (Mexico to Perú, Trinidad and Tobago, and the Lesser Antilles), *M. scabra* (Hoffmanns. ex Roem. & Schult.) K. Schum., and *M. rugellosa* (Rich.) L. Allorge (both Colombia to Brazil and Bolivia) (Morales 2011; Alvarado-Cárdenas & Morales 2014). The *Mandevilla hirsuta* complex ncludes several species with hirsute (rarely glabrate) leaf blades, foliaceous or subfoliaceous inflorescence bracts, yellow or cream infundibuliform corollas corollas, usually with the mouth red inside, and moniliform follicles (Morales 2007b). In preparation for a revision of the genus, several species of this complex have been described in the last 20 years (e.g., Morales 2005b, 2006, 2007b; Coelho et al. 2020). In Ecuador, *M. hansenii* also resembles *M. sagittarii* Woodson, but the former could be separated by its sepals 8–9 mm long (vs. 11–18 mm) and corolla tube with the upper part 1.4–1.5 mm long (vs. 27–31 mm). A key to the species of the exothostemon group is provided here, including records reported for the first time in Ecuador.

Etymology.—This species epithet honors Dr. Bruce F. Hansen (USF), a Neotropical Apocynaceae specialist who made the revision of *Forsteronia* (unpublished) in 1985. Several new taxa were published recently (Hansen & Morales 2019). For many years Bruce was the curator of the USF herbarium in Tampa (the second largest in Florida) and the leading authority of the Atlas of Florida Plants. He did fieldwork in the United States, Mexico, the Caribbean, and Ecuador and is the senior collector on more than 8500 collected specimens. I appreciate his support for several years.

Key to the species of *Mandevilla* (exothostemon group) in Ecuador

1. Corolla hypocrateriform.
   2. Petioles 16–28 mm long — **M. pavonii**
   2. Petioles 3–10 mm long.
      3. Leaf blade cordate or auriculate basally; inflorescence with the flowers laxly arranged; style-head 1.8–2.2 mm long — **M. subsagittata**
      3. Leaf blade obtuse basally; inflorescences with the flowers agglomerate; style-head less than 1.3 mm long — **M. rugellosa**
1. Corolla infundibuliform.
   4. Floral bracts foliaceous to subfoliaceous, 11–35 mm long.
      5. Sepals 1.8–5.5 mm long; cloud forest at 1500–2000 m — **M. horrida**
      5. Sepals 7–18 mm long; tropical forest below 1200.
         6. Lower part of the corolla tube 12–14 mm long, the upper part 12.5–13.5 mm long — **M. inexperata**
         6. Lower part of the corolla tube 20–35 mm long, the upper part 14–31 mm long.
            7. Upper part of the corolla tube 27–31 mm long, 7–9 mm in diameter at the mouth — **M. sagittarii**
            7. Upper part of the corolla tube 15–21 mm long, 16–21 mm in diameter at the mouth.
               8. Branchlets hispid to hirsute; leaf blade sparsely to densely hirsute abaxially; floral bracts 25–35 × 2–3 mm; apex of the floral bud shortly acuminate or shortly apiculate — **M. hirsuta**
               8. Branchlets tomentose; leaf blade tomentose abaxially; floral bracts 15–20 × 6–12 mm; apex of the floral bud obtuse to rounded — **M. hansenii**
   4. Floral bracts scarious, 1–5 mm long.
      9. Leaf blade acute, obtuse or rounded basally — **M. arcuata**
      9. Leaf blade cordate to subcordate basally.
         10. Corolla mouth 15–27 mm in diameter.
            11. Sepals usually 4–7 mm long; follicles 25–35 cm long; seeds 13–16 mm long — **M. symphitocarpa**
            11. Sepals usually 1.5–3 mm long; follicles 6–20 cm long; seeds 6–10 mm long — **M. scabra**
         10. Corolla mouth 4–11 mm in diameter.
            12. Pedicels 11–22 mm long; apex of the floral bud obtuse — **M. polyantha**
            12. Pedicels 2–9 mm long; apex of the floral bud acute-apiculate — **M. trianae**

NEW RECORDS

Mandevilla arcuata A.H. Gentry, Ann. Missouri Bot. Gard. 71:1079. 1984. **Type:** PERÚ. Amazonas: Valle del río Santiago, cerca de Caterpiza, 200 m, 29 Jan 1980 (fl,fr), *S. Tunqui 674* (HOLOTYPE: MO barcode #285244; ISOTYPES: USM, WAG barcode #0027207).

Distribution.—Colombia, Ecuador, and Perú, at 150–800 m.

Discussion.—*Mandevilla arcuata* resembles *M. schlimii* (Müll. Arg.) Woodson, but differs by its glabrous leaf blades (vs. abaxially tomentulose), pedicels 8–12 mm long (vs. 1–5 mm), and corolla with the lower part 14–16 mm long (vs. 4–14 mm).

Specimen examined: **ECUADOR. Zamora-Chinchipe:** valle del río Waiwaime, cerca de la boca del río Quime, 22 Sep 2007 (fl,fr), *Croat & Ferry 99044* (CR, MO).

Mandevilla boliviensis (J.J. Veitch) Woodson, Ann. Missouri Bot. Gard. 20:716. 1933. *Dipladenia boliviensis* J.J. Veitch, Cat. New Beaut. Pl. 1869: 6 (t.), 13. 1869. **Type:** BOLIVIA. s.d. (fl), *M. Pearce 708* (HOLOTYPE: K barcode #000582867).

Distribution.—Costa Rica, Colombia, Ecuador, Venezuela, and Bolivia, at 200–2000 m.

Discussion.—*Mandevilla boliviensis* belongs to the mandevilla group and is recognized by its glabrous leaf blades, cuneate or obtuse basally, and corolla infundibuliform, white, with the throat yellow inside and the tube 28–45 mm long. This species has a large distributional range but has been collected only a few times. For additional synonymy, see Morales (1995) and Ulloa-Ulloa et al. (2018).

Specimen examined: **ECUADOR. Napo:** Mera, 20 Dec 1955 (fl), *Asplund 18922* (R, S).

Mandevilla horrida J.F. Morales, J. Bot. Res. Inst. Texas 1:863, f. 2. 2007. **Type:** PERÚ. Cajamarca: San Ignacio, San José de Lourdes, 23 Nov 1999 (fl), *R. Vásquez & Flores 26349* (HOLOTYPE: CR; ISOTYPE: MO).

Distribution.—Ecuador and Perú, at 1500–2100 m.

Discussion.—*Mandevilla horrida* resembles *M. hirsuta* (Rich.) K. Schum., but it is separated by its larger floral bracts (32–46 × 10–19 mm vs. 11–20 × 1.5–8 mm), shorter sepals (4–6 mm vs. 7–12 mm), and lower part of the corolla tube 21–23 mm long (vs. 25–32 mm) (Morales 2007b).

Specimen examined: **ECUADOR. Zamora-Chinchipe:** Zamora, Cordillera del Cóndor. Parroquia San Carlos de Las Minas, Nambija, cerro Colorado, 28 Jan 2005 (fl), *Quizhpe* et al. *808* (MO).

Mandevilla pavonii (A.DC.) Woodson, Ann. Missouri Bot. Gard. 19:73. 1932.

Echites hirsutus Ruiz & Pav., Fl. Peruv. 2:19, t. 136. 1799, nom. illeg., non Rich. (1792). *Prestonia hirsuta* Spreng., Syst. Veg. 1:637. 1825. *Echites pavonii* A. DC., Prodr. 8:463. 1844. *Amblyanthera pavonii* (A.DC.) Müll. Arg., Linnaea 30:450. 1860. **Type:** PERÚ. Loreto: S. Antonii de playa Grande y Chicoplaya, ago–sep 1778–1788 (fl), *H. Ruiz & J. Pavón 11/57* (HOLOTYPE: MA; ISOTYPES: B [destroyed, photo F neg. 4529], G-DC).

Distribution.—Colombia, Ecuador, Perú, northeastern Bolivia, and northeastern Brazil, at 100–1300 m.

Discussion.—*Mandevilla pavonii* has been collected several times between 1976 and 2007, but it was not reported in previous checklists or additions to the Flora of Ecuador. It is similar to *M. hirsuta* but easily separated by its hypocrateriform corolla (vs. infundibuliform).

Specimens examined: **ECUADOR. Napo:** Puerto Francisco de Orellana, Coca, 4 Nov 1976 (fl,fr), *Balslev & Madsen 10594* (AAU, COL, MBM, MO, NY, Q, QCA, US); carretera Baeza–Lago Agrio, Jul 1982 (fl,fr), *Besse et al. 1531* (F, MO, SEL); Parque Nacional Yasuní, S de río Napo, 27 Jan 1998 (fl,fr), *Burnham 1602* (MICH, MO, QCA, QCNE); Parque Nacional Yasuní, carretera petrolera, km 86.5, 30 Nov 1998 (fl), *Burnham & Kohn 1850* (MICH, QCNE); río Aguarico, carretera vieja a Coca, 29 Jun 1980 (fl), *Jaramillo & Coehlo 2623* (QCA, QCNE); Parque Nacional Yasuní, Daimi, 15 Sep 1989 (fl,fr), *Jaramillo & Grijalva 11031* (QCA). **Pastaza:** río Curaray, cerca de Laguna Garzayacu, 20 Aug 1985 (fl,fr), *Palacios & Neill 668* (LPB, MO, QCA, WAG); Puyo, Los Vencedores, 31 Jul 1995 (fl,fr), *Soejarto et al. 9243* (CR, F). **Sucumbios:** Nueva Loja, Lago Agrio, Pozo Charapa 1, 9 Jul 2007 (fl), *Cerón & Yánez 59840* (MO, QAP). **Zamora-Chinchipe:** Nangaritza, Cordillera del Cóndor, Área de Conservación Los Tepuyes, 15 Sep 2007 (fl), *Neill et al. 15721* (MO).

Mandevilla polyantha K. Schum. ex Woodson, Ann. Missouri Bot. Gard. 19:73. 1932. **Type:** PERÚ. Loreto: Yurimaguas, Aug 1902 (fl,fr), *E. Ule 6271* (HOLOTYPE: B [destroyed, photo F neg. 4530], LECTOTYPE, designated here: G barcode #00164714; ISOLECTOTYPES: HBG, MG barcode #006142).

Distribution.—Ecuador and Perú, at 150–1400 m.

Discussion.—*Mandevilla polyantha* belongs to the exothostemon group by its leaves with colleters along the midrib adaxially and gibbous corolla tube. It resembles *M. trianae* Woodson but can be separated by its long pedicels (11–133 mm long vs. less than 6 mm long). The gathering at G is designated as the lectotype of *Mandevilla polyantha* because it is the best-preserved isotype.

Specimens examined: **ECUADOR. Morona-Santiago:** cerca de Santa Susana de Chiviaza, 1 Mar 1993 (fl), *Harling & Stahl 26813* (CR, S); entre Santa Susana de Chiviazá y El Panecillo y Las Orquídeas, 3 Mar 1993 (fl), *Harling & Stahl 26913* (CR, S); Cordillera de Cutucú, carretera Patuca–Morona, 5 Mar 1993 (fl), *Harling & Stahl 26941* (CR, S); Cordillera de Cutucú, carretera Patuca–Morona, Piantza, 6 Mar 1993 (fl), *Harling & Stahl 26972* (CR, QCA, S). **Zamora-Chinchipe:** valle del río Waiwaime, cerca de la boca con el río Quime, cercanías de compañía minera Ecuacorrientes, 20 Sep 2007 (fl), *Croat & Ferry 98894* (CR, MO); Pachicutzha, 17 Oct 1991 (fl), *Jaramillo 13948* (NY, QCA).

Mandevilla pristina J.F. Morales, Darwiniana 45:77, f. 1. 2007. **Type:** PERÚ. Amazonas: Leimebamba, 9 Dec 1962 (fl), *F. Woytkowski 7734* (holotype: MO; isotype: MEXU barcode #01036819).

Distribution.—Ecuador and Perú, at 2100–2800 m.

Discussion.—*Mandevilla pristina* is morphologically similar to *M. assimilis* (K Schum.) J.F. Morales, but differs by its leaf blades with domatia along the midrib abaxially (vs. domatia lacking) and floral bracts 10–120 mm long (vs. less than 6 mm). It was previously considered to be endemic to Perú (Morales 2007c).

Specimens examined: **ECUADOR. Loja:** Macará-Loja, S de Catamayo, 13 Feb 1987 (fl), *Bohlin* et al. *1328* (QCA); El Cisne-Zaruma, 18 Feb 1988 (fl), *Jørgensen* et al. *65025* (AAU, QCA, QCNE).

Mandevilla rugellosa (Rich.) L. Allorge, Phytologia 84:305. 1999 (as "1998").

Echites rugellosus Rich., Actes Soc. Hist. Nat. Paris 1:107. 1792. **Type:** FRENCH GUIANA. Cayenne, 1792 (fl,fr), *J. Leblond 366* (lectotype: designated by Allorge (1998: 305), P-LA [P00646659]; isolectotypes: G [photo F neg. 26866], F [F0361425F (fragment)], G-DC).

Echites subspicatus Vahl, Eclog. Am. 2:18. 1798. *Laseguea subspicata* (Vahl) Miers, Apocyn. S. Amer. 252. 1878. *Mandevilla subspicata* (Vahl) Markgr., Recueil Trav. Bot. Neerl. 22:380. 1926. **Type:** SURINAME. s.d., (fl), *J. von Rohr s.n.* (holotype: C [photo F neg. 22267, F]; isotype: B [destroyed]).

Distribution.—Colombia to Brazil and Bolivia (including Guianas), at 0–1500 m.

Discussion.—*Mandevilla rugellosa* is widespread in South America and can be recognized by its foliaceous or subfoliaceous floral bracts and hypocrateriform corolla. It is known from three gatherings in the Napo province.

Specimens examined: **ECUADOR. Napo:** parque nacional Yasuní, km 59 de carretera Maxus, al S del río Napo, 26 Mar 1997 (fl), *Burnham 1529* (MICH, QCNE); parque nacional Yasuní, camino petrolero Maxus, 2 Nov 1998 (fl), *Burnham 1780* (QCA, QCNE); 18 km S de Coca, on road to Auca base camp, 6 Nov 1974 (fl, fr), *Gentry 14548* (Z).

NEW SYNONYMS

Mandevilla glandulosa (Ruiz & Pav.) Woodson, Ann. Missouri Bot. Gard. 19:66. 1932. *Echites glandulosus* Ruiz & Pav., Fl. Peruv. 2:19, t. 135. 1799. *Prestonia peruviana* Spreng., Syst. Veg. 1:637. 1825, nom. Illeg. *Haemadictyon glandulosum* (Ruiz & Pav.) A.DC., Prodr. 8:427. 1844. *Odontadenia glandulosa* (Ruiz & Pav.) K. Schum., Nat. Pflanzenfam. 4:169. 1895. **Type:** PERÚ. Loreto: Muñas, 1778–1788 (fl), *J. Pavón s.n.* (holotype:MA barcode #814491; isotypes: B [destroyed, photo F neg. 4515], BC [BC873080]. F [photo F neg. 73088], G-DC barcode #00169609).

Mandevilla versicolor Woodson, Phytologia 9:347. 1964. Type: ECUADOR. El Oro: entre Paccha y Puente Grande, pasando la Montaña de Pueblo Viejo, Cordillera Suchiquilla, Cordillera de Dumán y Sambotambo, 26 Aug 1943 (fl), *J. Steyermark 54154* (holotype: F [photo F neg. 50812]; isotypes: NY barcode #01185989, US barcode #00112076). **Syn. nov.**

Distribution.—Ecuador, Perú, and Bolivia, at 1400–2700 m.

Discussion.—The type of *Mandevilla versicolor* matches the type of *M. glandulosa*, having similar leaves, inflorescence, and corolla characters; thus, it is relegated to its synonymy. The former species was not cited by Potgierter and Zarucchi (1999), Ulloa-Ulloa & Neill (2005) or Neill & Ulloa-Ulloa (2011).

Mandevilla sagittarii Woodson, Ann. Missouri Bot. Gard. 19:72. 1932. **Type:** COLOMBIA. Chocó: entre La Oveja y Quidbó, 1–2 Apr 1931 (fl,fr), *W. Archer 1714* (holotype: US barcode #00112070; isotype: COL).

Mandevilla dodsonii A.H. Gentry, Ann. Missouri Bot. Gard. 68:117–118. 1981. **Type:** ECUADOR. Los Ríos-Pichincha: fila en El Centinela, Montañas de Ila, camino de Patricia Pilar a 24 de Mayo, 600 m, 6 Feb 1979 (fl), *C. Dodson, A. Gentry & J.A. Duke 7523* (holotype: MO; isotype: SEL barcode #001171). **Syn. nov.**

Distribution.—Panamá, Colombia, and Ecuador, 0–1250 m.

Discussion.—Type collections of *Mandevilla sagittarii* and *M. dodsonii* exhibit no noteworthy differences (Morales, 2011). Gentry (1981) cited *M. dodsonii* being related to *M. hirsuta*, differing by its corolla tube shape, but no relationship or inference with *M. sagittarii* was made. Some gatherings identified as *M. dodsonii* reported white or cream flowers instead of the yellow corolla typically found in *M. sagittarii*. However, the same variation is found in some other species of the exothostemon group (e.g , *M. hirsuta*).

EXCLUDED OR NON-NATIVE SPECIES

Mandevilla bracteata (Kunth) Kuntze, Revis. Gen. Pl. 2:414. 1891. *Echites bracteatus* Kunth, Nov. Gen. Sp. (quarto ed.) 3:217. 1819 ["1818"]. *Exothostemon bracteatum* (Kunth) G. Don, Gent. Hist. 4:82. 1837. **Type:** COLOMBIA. Cundinamarca: near Mariquita, Jun 1801 (fl,fr), *A. Humboldt & A. Bonpland 1739* (holotype: P-HB barcode #00670896, photo F neg. 38735; isotypes: P barcodes #00646619, #P00646620, #P00646621]).

Distribution.—Endemic to Colombia, at (900)1200–2200 m.

Discussion.—Based on *Holm-Nielsen* et al. *26516* (AAU), Potgieter and Zarucchi (1999) reported this species for Ecuador. However, this specimen must be identified as *Mandevilla inexperata* J.F. Morales, an endemic Ecuadorian species (Morales 2007b).

Mandevilla laxa (Ruiz & Pav.) Woodson, Ann. Missouri Bot. Gard. 19:68. 1932. *Echites laxus* Ruiz & Pav., Fl. Peruv. 2:19, pl. 134. 1799. **Type:** PERÚ. Huancavélica: Chancahuasi, 1787 (fl), *H. Ruiz & J. Pavón 11/55* (holotype: MA barcode #814490, photo F neg. 29219).

Distribution.—Southwestern Perú, Bolivia, and northern Argentina [but cultivated in many countries], at 1700–3100 m.

Discussion.—Potgieter and Zarucchi (1999) cited this species as native based on *Steyermark 53292*. However, this specimen was obtained from a market, as stated on the label ['cultivada y vendida en un mercado'/cultivated and sold in a market]. I have not seen any other specimens to confirm that *M. laxa* is native to Ecuador. In Perú, gatherings from this species have been collected in the southwestern area of the country. Based on the available evidence, *M. laxa* should be excluded from the native flora of Ecuador.

Specimen examined: **ECUADOR. Azuay:** Cuenca, cultivada y vendida en un mercado, 1 Jul 1943 (fl), *Steyermark 53292* (NY, US).

Mandevilla riparia (Kunth) Woodson, Ann. Missouri Bot. Gard. 19:58. 1932.

Echites riparius Kunth, Nov. Gen. Sp. 3 214. 1819. **Type:** COLOMBIA. Magdalena: Tenerife, río Magdalena, May year unknown (fl), *A. Humboldt & A. Bonpland 1711* (holotype: P-HB barcode #00670891; isotypes: B-W, P barcode #00646658).

Distribution.—Colombia (?) and Perú, at 2000–2900 m.

Discussion.—The type of *Echites riparius* was supposedly collected in Colombia in a low elevation area (less than 50 m), but all the known specimens have been collected in high elevations in Perú. *Mandevilla riparia* was cited by Potgieter & Zarucchi (1999), but the voucher specimen and other gatherings with the same name in Ecuadorian herbaria correspond to *M. assimilis* (Morales 2005c).

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