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A new species of *Besleria* (Gesneriaceae) from the western Amazon rainforest

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Abstract. *Besleria iara*, a new species from the western Amazon lowland rainforest in Brazil and Peru, is described and illustrated. Data are provided on the species' ecology, distribution, and conservation status. This species is a shrub, with hirsute indumentum covering almost the whole plant, orange calyx, and yellow tubular-ventricose corolla. It was found growing in the understory of humid terra firme forest, along the margin of small streams.

Keywords: Beslerieae, taxonomy, Amazon basin.

Besleria Plum. ex L. belongs to the Gesneriaceae, a pantropical family with few species occurring in subtropical and temperate regions. The family contains ca. 150 genera and ca. 3500 species (Weber et al., 2013). The genus is placed in the monophyletic tribe Beslerieae that diverged about 30 million years ago within the subfamily Gesnerioideae (Weber et al., 2013; Perret et al., 2013). *Besleria* is monophyletic, and its sister genus is *Cremosperma* Benth. (Roalson & Clark, 2006; Clark et al., 2010).

Besleria comprises 160 to 200 species of terrestrial herbs, shrubs, and small trees that grow in the understory of rainforests (Berger et al., 2015; Ferreira et al., 2016). The genus occurs throughout the Neotropics, from the West Indies and Mexico to Andean and Amazonian Bolivia and the Brazilian Atlantic rainforest (Skog & Feuillet, 2008; Berger et al., 2015). In Brazil, the genus is distributed disjunctly between the Amazonian and Atlantic rainforests (BFG, 2015; Araújo et al. 2016; Ferreira et al., 2016). In total, 21 species have been documented in the country.

While studying herbarium material of the genus in the National Museum of Natural History of the Smithsonian Institution (US), we found an unidentified collection that did not match any described species. After consulting additional

material deposited in other herbaria and based on observations of the plant in its natural habitat, we concluded that it is a new species, here described and illustrated.

Besleria iara G. E. Ferreira & M. J. G. Hopkins, **sp. nov.** Type: Brazil. Amazonas: Benjamin Constant, sítio Prof. Agno Nonato, trilha prox. ao açude, 8 February 2016, G. E. Ferreira 355 (holotype: INPA; isotype: G). (Figs. 1, 2)

Besleria iara is similar to *B. aggregata* s.l. in its axillary inflorescences, and flowers with orange imbricate calyx lobes. It differs by having a long tubular-ventricose yellow corolla (vs. ventricose-urceolate orange to scarlet), and larger leaf blades, 18–30 × 7.3–11.4 cm, with serrate margins (vs. 15–19 × 5.5–6.4 cm, with entire margins).

Terrestrial shrub, 1.5 m tall. *Stems* unbranched, subterete, up to 0.5 cm diam., woody at base, densely hirsute, internodes 3.0–11.0 cm. *Leaves* opposite, pairs subequal; petioles 1–4 cm long, green, densely hirsute; leaf blades oblanceolate, 18–30 × 7.3–11.4 cm, chartaceous, apex attenuate, base long-attenuate, margin sparsely serrate; adaxial surface dark green, hirsute; abaxial surface pale green, puberulous; secondary veins in 7–11 pairs. *Inflorescence* axillary, cymose,

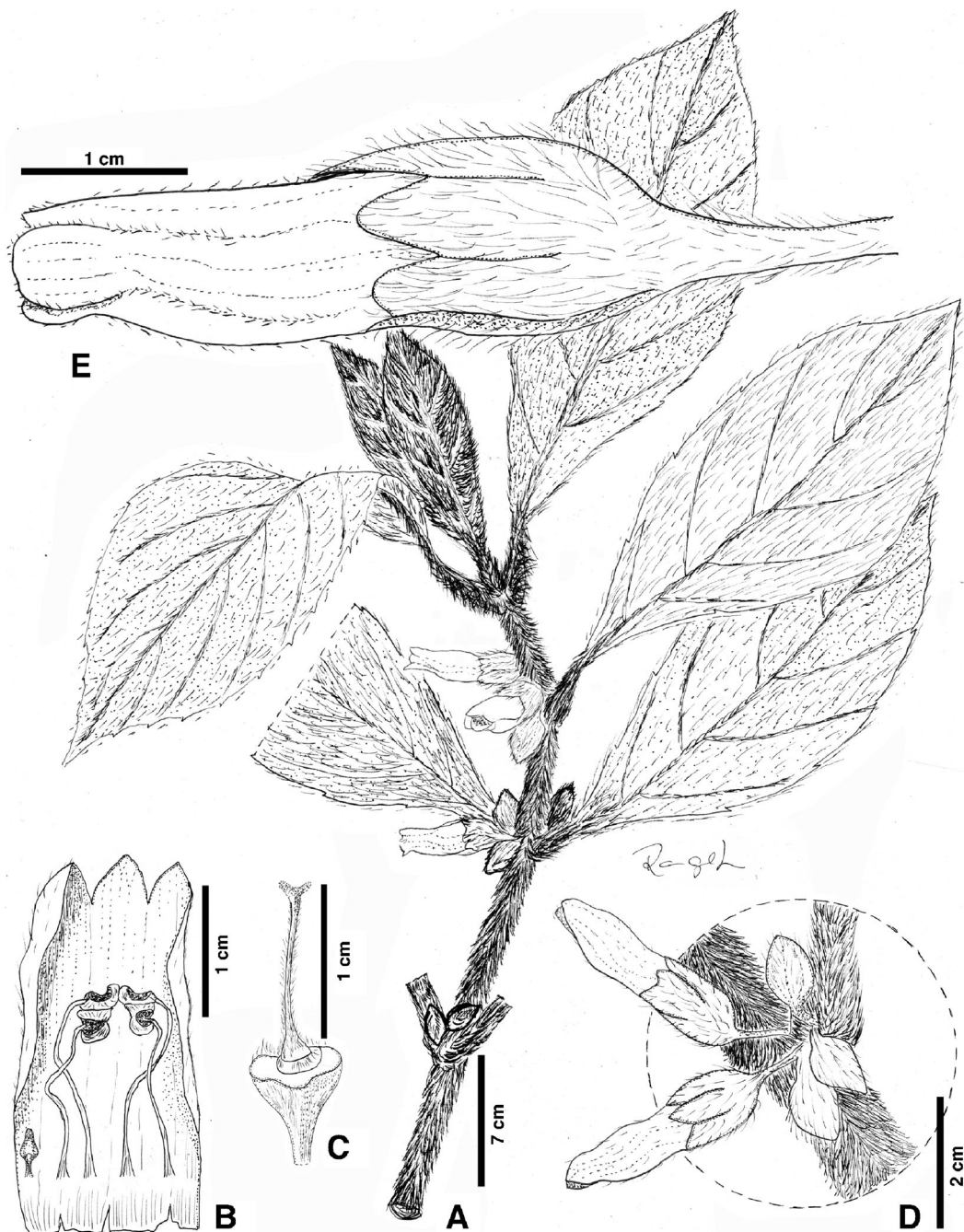


FIG. 1. *Besleria iara*. A. Habit. B. Open Corolla showing stamens and staminode. C. Gynoecium and Nectary. D. Close up of the inflorescence and stem. E. Calyx and Corolla in side view. (A-E from G.E. Ferreira 355).

epedunculate, with 3–7 flowers per node; pedicels terete, 1.2–2.3 cm long, orangish, hirsute. *Calyx* lobes 5, fused at base and imbricate for 3/4 of length, adherent to corolla base, essentially equal,

ovate, 12–14 × 3–5 mm, orange, hirsute, apex obtuse, margin entire-ciliate. *Corolla* erect with respect to calyx, 18–27 mm long, tubular, slightly ventricose, yellow, outside puberulous, inside

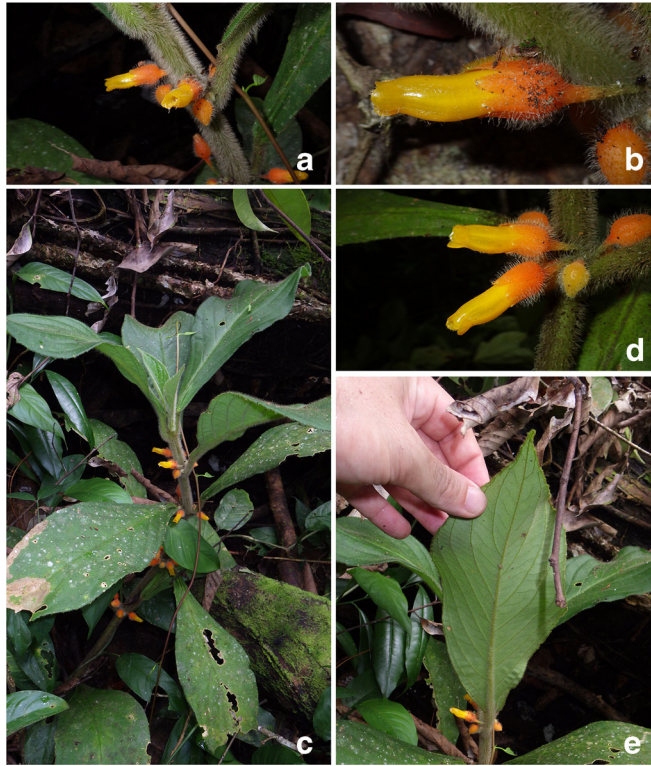


FIG. 2. Morphology and habitat of *Besleria iara*. A. Flowers in frontal and side view and a portion of the stem. B. Flower in side view. C. Habit. D. Inflorescence. E. Detail of the leaf abaxial surface (A–E from G.E. Ferreira 355).

glabrous, tube contracted at base, 5 mm wide at base, 7 mm wide at middle, 5 mm wide at apex; limb regular, lobes 5, patent, yellow, unequal, the 2 larger ones 4×4 mm, the 3 smaller ones 2×3 mm, obtuse, margin entire, ciliate, pilose. *Nectary* annular, 1 mm wide, glabrous. *Stamens* 4, included; filaments 8–10 mm long, epipetal, adnate to base of corolla for 4 mm, glabrous but pilose at insertion; anthers 2×2 mm, longitudinally dehiscent; staminode 2 mm long. *Ovary* ovoid, $2\text{--}4 \times 2\text{--}4$ mm, pilose; style included within corolla throat, 9 mm long, pilose; stigma bifid, puberulent. *Fruit* not seen.

Habitat and distribution.—*Besleria iara* is currently known only from the Javari River, in the municipalities of Atalaia do Norte and Benjamin Constant, Amazonas, Brazil, and from Loreto department, Peru (Fig. 3). It occurs in the understory of lowland Amazonian rainforests on terra firme, along the margins of small streams, at about 50 m elevation. We observed few individuals at the type locality. The larger area of distribution is poorly known

from a floristic context. It is expected that additional fieldwork in the region will result in the discovery of additional populations.

Phenology.—Flowers recorded from October to February.

Etymology.—The specific epithet “*iara*” is a reference to the Brazilian indigenous legend of the water spirit *yíara*, meaning “Lady of the waters” in the Tupí-Guaraní language. *Yíara* is generally envisaged as a beautiful young lady, similar to a mermaid (Chiaradia, 2008).

Conservation status.—Endangered (EN) B1ab, according to the IUCN criteria, based on the extent of occurrence estimated to be less than 5,000 km² from only 4–5 locations and due to continued habitat loss (IUCN, 2012; IUCN Standards and Petitions Subcommittee, 2016).

Additional specimens examined. BRAZIL. Amazonas: Município Atalaia do Norte, localidade de São Joaquim, Rio Javari, fronteira entre Brasil e Peru, 18 Jan 1989, C. A.C. Ferreira et al. 9933 (CEN, INPA, NY, US); Município Atalaia do Norte, Estirão do Equador, Rio Javari, 20 Oct 1976, P. I. S.

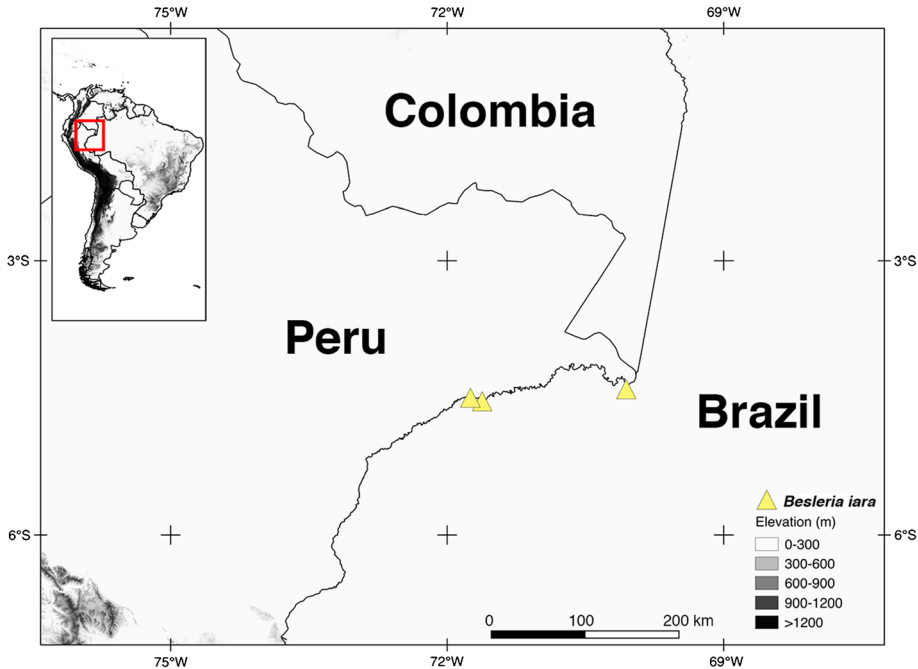


FIG. 3. Distribution of *Besleria iara*.

Braga & J. R. Nascimento 3273 (INPA). **PERU. Loreto:** Rio Javari, 2 hours above Rio Javarizinho, 24 Oct 1976, *G. T. Prance et al. 24081* (INPA, MG).

Besleria iara and *B. aggregata* (Mart.) Hanst. are sympatric and share the same habitat and vegetative characters. Both species occur in the

understory of humid forest, close to streams, and are shrubs completely covered by indumentum. However, *B. iara* has a yellow, tubular-ventricose corolla, ovate calyx lobes with the obtuse apices adherent to the corolla base, wider leaf blades (7.3–11.4 cm wide) with sparsely serrate margins,

TABLE 1 Morphological comparisons of *Besleria iara* and related species.

Traits/Species	<i>B. aggregata</i>	<i>B. iara</i>	<i>B. obtusa</i>
Petiole length [cm]	1.6–3.9	1.0–4.0	<1.0
Leaf blade size [cm]	15–19 × 5.5–6.4	18–30 × 7.3–11.4	18–23 × 5.7–9.5
Leaf blade indumentum abaxial surface	sericeous	puberulous	tomentose-hirsute at midrib
Leaf blade margin	entire	sparsely serrate	entire-ciliate
Number of flowers per axil	1–5	3–7	3–10
Pedicele indumentum	pilose	hirsute	pilose
Pedicele length [cm]	0.5–0.8	1.2–2.3	0.5
Calyx color	orange	orange	-
Calyx lobe length [mm]	14–17	12–14	8–15
Calyx lobe width [mm]	3–4	3–5	1–2.5
Calyx lobe shape	lanceolate	ovate	linear-lanceolate
Calyx lobe apex shape	attenuate	obtuse	long-acuminate
Calyx lobes orientation	spreading	adherent	spreading
Calyx indumentum	pilose	hirsute	pilose
Corolla color	orange to scarlet	yellow	yellow
Corolla length [mm]	16–20	18–27	18–25
Corolla lobe length [mm]	2–3	2–4	5–6

and densely hirsute indumentum on the stems, whereas *B. aggregata* has an orange to scarlet, ventricose-urceolate corolla, lanceolate calyx lobes with the attenuate apices spreading from the corolla, narrower leaf blades (5.5–6.4 cm wide) with entire margins, and sericeous indumentum on the stems (Table 1).

Besleria iara is also morphologically similar to *B. obtusa* C. V. Morton, known only from the type collection (*J. Cuatrecasas 4636*, Colombia, Meta, 1939). Both species have oblanceolate leaves and a yellow corolla, but *B. iara* can be distinguished from *B. obtusa* by having a longer petiole (1.0–4.0 cm long vs. < 1 cm long), hirsute leaf blades (vs. glabrous with tomentose-hirsute midrib), sparsely serrate margins (vs. entire-ciliate), longer pedicels (1.2–2.3 cm long vs. 0.5 cm long), ovate calyx lobes with the obtuse apices adherent to the corolla (vs. calyx lobes linear-lanceolate with the long-acuminate apices spreading).

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