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Author(s): C. V. Morton

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**THE PERUVIAN SPECIES OF BESLERIA
(GESNERIACEAE)**

By C. V. MORTON



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THE PERUVIAN SPECIES OF BESLERIA (GESNERIACEAE)

C. V. MORTON

Some years ago I published a revision of *Besleria*,¹ a rather common genus of woody Gesneriaceae of the American tropics extending from southern Mexico south to Bolivia and Brazil. Like most Gesneriaceae, these are plants of virgin forests and rarely are collected in secondary growth, and for this reason when forests are cut down the gesneriaceous flora is exterminated, often completely, because many of the species are extremely local in distribution. Many of the species are still known only from the original collections, and many will probably never be found again. In Peru the species are mostly confined to the wetter, eastern part, being especially numerous in the Departments of Amazonas, San Martín, Loreto, Huánuco, Junín, and Cuzco. Some few additional species are found in Cajamarca, Ayacucho, and Puno.

Since my revision was published some 28 years ago many additional collections have come in from Peru; especially noteworthy ones have been received from César Vargas, Ramón Ferreyra, H. A. Allard, J. J. Wurdack, and P. C. Hutchison. As is to be expected, these collections contain many new records for previously undescribed species and also several very interesting novelties, including one species of a section of the genus new to Peru.

I have grouped the species in the sections and subsections that I recognized in the revision, although I admit that these are undoubtedly somewhat artificial. The key to the Peruvian species that I have provided is wholly artificial but hopefully more usable than the original one.

The present paper does not account for all the Peruvian *Beslerias*, for several additional species are represented in the U.S. National Herbarium and doubtless others elsewhere. These specimens are inadequate in various ways, and so I do not wish to describe them at the present time without additional material. I am listing some of these below so that collectors can be on the lookout for them: Río Azul, 30 km. from Tingo María, Huánuco, 750–850 m., *Ferreyra* 12736; Porvenir, Pichis Trail, Junín, 1,500–1,900 m., *Killip & Smith* 25960;

¹ Contr. U.S. Nat. Herb. 26: 395–474. 1939.

Paso Gacsa, Exito to Puerto Durand, Huánuco, 2,800 m., *Vargas* 5357; Divisoria, 59 km. from Tingo María on highway to Pucallpa, San Martín, 1,600 m., *Allard* 21289; near Pajonal, Sandía, Puno, 1,000–1,300 m., *Metcalf* (3rd Univ. Calif. Bot. Gard. Exped. 30621); Pilcopata, Paucartambo, Cuzco, 580 m., *Vargas* 011605; Hacienda Schunke, La Merced, *Macbride* 5607; and Valley of Río Marañon above Cascadas de Mayasí, near Campamento St. Montenegro (km. 280–284 of Marañon road), Bagua, Amazonas, 450–600 m., *Wurdack* 1843. Some of these collections represent species widely different from any previously known, and so additional collections are much to be desired.

Key to the Peruvian Species of *Besleria*

Flowers solitary, fasciculate, or in subsessile umbels, a common peduncle lacking or much less than 1 cm. long. Disk glabrous (unknown in *B. horizontalis*).

Stems at apex, and costae and veins of the leaf blades beneath glabrous, strigose, strigillose, puberulous, or sericeous-tomentose, but not hirsute or spreading-villous.

Corolla tube glabrous externally. Ovary and style glabrous (style slightly pubescent in *B. aggregata*).

Calyx 3–5 mm. long, green. Corolla orange, 13–15 mm. long, lacking a hairy ring within.

Stems strigillose toward apex; leaf blades strigillose on the veins beneath, elliptic; calyx lobes 3–4 mm. long, nearly glabrous, ciliate.

Cajamarca **1. *B. solanoides***

Stems only microscopically strigillose; leaf blades microscopically strigillose, narrowly or broadly lanceolate; calyx lobes 5–6 mm. long, glabrous or sparsely hirsute externally, ciliate. Huánuco, 2,400 m. **2. *B. gracilentia***

Calyx 9–16 mm. long, green or orange.

Calyx green, 9–15 mm. long, the lobes ovate-lanceolate, nearly glabrous; corolla tube yellow, the limb white. Stems sparsely strigose; petioles elongate, up to 11.5 cm. long; leaf blades elliptic or ovate-elliptic, up to 16 cm. long and 7.5 cm. broad, membranaceous, the veins 8 or 9 pairs; corolla 18 mm. long, lacking a hairy ring within.

San Martín, 260 m. **15. *B. membranacea***

Calyx orange, 13–16 mm. long in flower, the lobes ovate-lanceolate or lanceolate; corolla orange.

Stems and leaves completely glabrous; calyx lobes glabrous, ciliate; veins 8 or 9 pairs; corolla ca. 17 mm. long. Huánuco, 650 m.

16. *B. angusta*

Stems and leaves beneath obviously strigillose; calyx lobes densely sericeous-pilose externally; veins 5–8 pairs; corolla 20–27 mm. long, the lobes ciliate, the tube with a hairy ring within (not known in *B. aggregata* var. *mexiae*).

Petioles up to 4 cm. long; leaf blades oblanceolate, up to 22 cm. long and 9 cm. broad, long-decurrent at base. Junín, Loreto, and Cuzco, up to 700 m. alt. **17. *B. aggregata* var. *aggregata***

Petioles 7–10 cm. long; leaf blades elliptic, up to 22 cm. long and 11 cm. broad or more, cuneate at base but not long-decurrent.

Loreto, 110 m. **17a. *B. aggregata* var. *mexiae***

Corolla tube puberulous, strigillose, pilose, or villous externally.

Calyx 4–8 mm. long, yellow (green in *B. densiflora*), the lobes orbicular or ovate, strigillose or sparsely pilose externally.

Corolla more than 30 mm. long, subhorizontal in calyx, spurred at base posteriorly. Leaf blades obviously serrate above middle.

Cuzco, 2,700 m. **31. B. horizontalis**

Corolla less than 20 mm. long, erect in calyx, not spurred at base.

Corolla orange, the tube merely puberulous externally, with a hairy ring within; stems strigillose-tomentose at apex; leaf blades oblanceolate, up to 10 cm. broad; calyx green, ca. 4 mm. long, the lobes orbicular, strigillose without; ovary glabrous; style pubescent. Loreto, 1,200 m. **3. B. densiflora**

Corolla lemon-yellow, the tube villous without, lacking a hairy ring within; stems sparsely strigose at apex; leaf blades oblong-lanceolate, up to 5 cm. broad; calyx lemon-yellow, 6–8 mm. long, the lobes ovate, acutish, sparsely pilose without; ovary and style pubescent. Loreto, 1,000–1,110 m. **18. B. citrina**

Calyx 13–16 mm. long, orange, the lobes ovate-lanceolate, acuminate, densely sericeous-pilose without. Stems densely appressed-pilose at apex; leaf blades strigillose on the veins beneath; corolla orange, 20–27 mm. long, the lobes ciliate, the tube with a hairy ring within (not known in *B. aggregata* var. *mexiae*), without only sparsely strigillose or pilosulous.

Petioles up to 4 cm. long; leaf blades oblanceolate, up to 22 cm. long and 9 cm. broad, long-decurrent at base. Junín, Loreto, and Cuzco, up to 700 m. alt. **17. B. aggregata** var. **aggregata**

Petioles 7–10 cm. long; leaf blades elliptic, up to 22 cm. long and 11 cm. broad or more, cuneate at base but not long-decurrent. Loreto, 110 m. **17a. B. aggregata** var. **mexiae**

Stems hirsute or spreading-villous at apex; costa and veins of the leaf blades hirsute or spreading-villous beneath.

Leaf blades glabrous above; corolla tube glabrous without (or sparingly pilosulous in *B. aggregata* var. *loretensis*). Ovary glabrous.

Calyx 15 mm. long; larger leaf blades up to 30 cm. long and 11 cm. broad, long-decurrent at base. Style pubescent. Loreto and San Martín, 100–625 m. **17b. B. aggregata** var. **loretensis**

Calyx 5–7 mm. long; leaf blades smaller. Corolla orange, ca. 12 mm. long. Leaf blades up to 26 cm. long, 10–13 cm. broad, the petioles up to 4 cm. long; calyx 6.5–7 mm. long, the lobes rounded at apex, long-ciliate. San Martín, 100–200 m. **4. B. barbata**

Leaf blades up to 9 cm. long and 3.5 cm. broad, the petioles up to 2 cm. long; calyx ca. 5 mm. long, the lobes oblong, obtuse. Style pubescent. Cajamarca **5. B. imberbis**

Leaf blades hirsute or pilose on the upper surface; corolla tube hirsute without (except in *B. furva*).

Corolla white, 13 mm. long, the tube glabrous without. Leaf blades obliquely ovate, up to 24 cm. long and 13 cm. broad, abruptly acuminate, unequally rounded at base; calyx 11 mm. long, the lobes ovate-lanceolate, acuminate, scarcely denticulate; ovary, style, and disk glabrous. San Martín **19. B. furva**

Corolla yellow-orange, or red, 13–20 mm. long, the tube hirsute without, at least near apex.

Calyx ca. 6 mm. long, less than half as long as the corolla (14–16 mm. long). Calyx lobes free, elliptic, narrowed to base, equal, entire, obtuse or acutish, mucronulate, hirsute, long-ciliate; corolla lacking a hairy ring within, the lobes not ciliate; ovary pilosulous at apex; style pilosulous; disk glabrous. San Martín, Huánuco, 625–1,100 m. **6. B. placita**

Calyx 10–18 mm. long, at least two-thirds as long as the corolla (13–20 mm. long).

Calyx 13–18 mm. long, the lobes united to middle, the free parts triangular-subulate, entire; ovary, style, and disk glabrous. Corolla tube lacking a hairy ring within, the lobes not ciliate. Loreto, 400–900 m. **20. B. emendata**

Calyx 10–11 mm. long, the lobes free or nearly so; ovary pilose at least at apex; style pilosulous.

Calyx lobes narrow, not more than 3 mm. broad, entire; leaf blades serrate.

Corolla erect in calyx, not spurred at base, brick-red, the tube with a hairy ring within; leaf blades lanceolate or elliptic-lanceolate; filaments pilose at base. Loreto, 180–325 m.

21. B. immitis

Corolla oblique or horizontal in calyx, slightly spurred at posterior base, yellow except for the 2 dark purplish posterior lobes of the limb, the tube lacking a hairy ring within; leaf blades elliptic-lanceolate; filaments glabrous. Ovary pilose; style pilosulous at base. Amazonas, 425–500 m.

32. B. wurdackii

Calyx lobes ovate-lanceolate to lanceolate, 3–5 mm. broad near base, denticulate or serrate, hirsute without.

Calyx lobes thick, lanceolate, ca. 16 mm. long, almost equaling the corolla. Loreto, 1,500–1,600 m. **22. B. ferreyrae**

Calyx lobes thin, ovate-lanceolate, ca. 11 mm. long, much shorter than the corolla. Corolla pale lemon-yellow, 19 mm. long, lacking a hairy ring within; filaments glabrous. Loreto and San Martín, 220–1,500 m. **23. B. compta**

Flowers in peduncled inflorescences, the common peduncle (except sometimes in *B. sprucei*) 2 cm. long or more, the flowers umbellate, racemose, or subcorymbose.

Stems and costae and veins of the leaf blades beneath glabrate, strigose, strigillose, puberulous, or tomentose (in *B. corallina* and *B. rupestris*) but not hirsute or spreading villous, the leaf blades nearly glabrous above at maturity (except in *B. hutchisonii* and *B. rupestris*).

Calyx 2.5–7 mm. long. Ovary glabrous.

Corolla tube glabrous externally; style glabrous.

Common peduncle 2.5–5 cm. long. Leaf blades elliptic, nearly entire; calyx lobes suborbicular, ciliate.

Corolla orange-red, ca. 15 mm. long; calyx 4–5 mm. long; pedicels only 2 or 3 to an umbel, elongate, up to 2.5 cm. long; stems densely strigose toward apex; leaf blades up to 12.5 cm. long and 5 cm. broad, strigillose on the veins beneath. Huánuco, 2,300–2,700 m. **7. B. lucida**

Corolla whitish, 5–6 mm. long; calyx 2.5 mm. long; pedicels numerous, corymbose, short, ca. 5 mm. long; stems glabrate; leaf blades up to 28 cm. long and 12 cm. broad, minutely puberulous on the veins beneath. Loreto **8. B. minutiflora**

Common peduncle 5.5–10 cm. long. Stems glabrous; petioles glabrous; leaf blades membranous; calyx lobes glabrous (ciliate in *B. variabilis*), entire, mucronate; corolla 20–26 mm. long, lacking a hairy ring within.

Corolla horizontal in calyx, spurred at posterior base, the tube strongly inflated upwardly, the orifice of the limb dorsal and not terminal. Petioles ca. 10 mm. long; leaf blades obliquely cuneate at base, obviously serrate, glabrous on the veins beneath, the primary veins 12–15 pairs; calyx 7–7.5 mm. long, the lobes not ciliate; corolla lobes glabrous, not ciliate. Loreto, 250–350 m.

35. B. caligula

Corolla erect in calyx, not spurred, the tube scarcely ventricose, the limb terminal. Petioles 4–11 cm. long; leaf blades obtuse at base, minutely denticulate, minutely strigillose on the veins beneath, the primary veins 8–10 pairs; calyx 3–4 mm. long, the lobes ciliate; corolla lobes sometimes ciliate. Junín, Ayacucho, San Martín, Loreto, Huánuco, 220–700 m.

Corolla greenish white; plants herbaceous.

9b. B. variabilis f. pallida

Corolla orange or brick-red.

Exterior corolla lobes not ciliate; plants fruticose.

9. B. variabilis f. variabilis

Exterior corolla lobes barbate; plants arborescent.

9a. B. variabilis f. barbatula

Corolla tube puberulous or pilosulous externally; style pubescent (except in *B. vargasii*).

Corolla tube with a hairy ring within at insertion of stamens; common peduncle 3–5 cm. long. Stems sparsely pubescent; petioles 1–4 cm. long; leaf blades elliptic-lanceolate, up to 20×8 cm., subentire, puberulous on veins beneath, subtomentose on margins; pedicels up to 5 mm. long; calyx lobes oblong-lanceolate, submucronate, subglabrous; corolla orange; Puno, 900 m. . . **10. B. concolor**

Corolla tube glabrous within, stipitate-glandular within throat; common peduncle 5–16 cm. long.

Calyx lobes ovate, obtuse, not venose; corolla ochroleucous; leaf blades elliptic-lanceolate, 2–5 cm. broad. Filaments stipitate-glandular upwardly; anthers stipitate-glandular; Junín, 2,100 m.

11. B. pallidiflora

Calyx lobes suborbicular, rounded at apex; corolla yellow or red. Stems nearly glabrous; calyx 4–7 mm. long, the lobes not venose; leaf blades up to 14 cm. long and 7 cm. broad, cuneate at base, puberulous beneath on veins. Filaments and anthers stipitate-glandular. Junín, Arequipa **12. B. tetragularis**

Stems densely coarse-strigose; calyx 3–4 mm. long, prominently venose; leaf blades 15–19 cm. long, 8–11 cm. broad, rounded at base, strigose beneath on veins. Style glabrous. Cuzco, 1,200 m.

13. B. vargasii

Calyx 6.5–15 mm. long. Flowers umbellate or subcorymbose.

Stems densely ferruginous-strigillose at apex when young. Petioles slender, up to 10 cm. long; leaf blades elliptic, ca. 15×10 cm., rounded at base, sparsely strigillose on the veins beneath; common peduncle ca. 10 cm. long; calyx ca. 15 mm. long, the lobes lanceolate, united to middle, acuminate; corolla tube glabrous without. Amazonas, Loreto, Cuzco, Puno, and Huánuco, 250–1,950 m. **24. B. divaricata**

Stems lanate-tomentose or tomentose at apex.

Corolla erect in calyx, not spurred at base; disk completely annular or semiannular, glabrous; leaf blades subentire or remotely and inconspicuously denticulate.

Inflorescences 8- to 15-flowered, on common peduncles 18–20 cm. long; leaf blades nearly glabrous on the upper surface at maturity; calyx lobes glabrous within or essentially so. Cuzco, 390 m.

25. B. moorei

Inflorescences 2- or 3-flowered, on common peduncles 1.5–1.8 cm. long; leaf blades obviously and persistently sericeous on the upper surfaces; calyx lobes puberulous within toward apex. Huánuco, 2,800 m. **26. B. hutchisonii**

Corolla horizontal in calyx, spurred at posterior base; disk reduced to a posterior gland or semiannular, pubescent; leaves crenate-serrate.

Calyx lobes broad, incised-serrate, pilose on both sides, ca. 7 mm. long; corolla scarlet, 15–17 mm. long, the tube densely pubescent without; ovary glabrous; style glabrous; disk semiannular; common peduncle 8–17 cm. long, the flowers subcorymbose, the pedicels numerous, up to 15 mm. long, pilosulous; leaf blades tomentulose on the veins beneath, glabrous above, the primary veins 9–11 pairs. Loreto, 100–1,200 m. **33. B. corallina**

Calyx lobes unequal, lanceolate to ovate-lanceolate, sharply serrate, sparsely pilose without, glabrous within, 6.5–8 mm. long; corolla yellow with maroon spots on tube and lobes within, 22–32 mm. long, sparsely pilose without; ovary villous; style pubescent; disk reduced to a thick posterior gland; common peduncle 6–7.5 cm. long, the flowers subumbellate, the pedicels fewer, ca. 6 mm. long, glabrous; leaf blades puberulous on the veins beneath, puberulous on upper surface, the primary veins 9–15 pairs. Junín, Huánuco, and Cuzco, 1,500–1,900 m. . **34. B. rupestris**

Stems at apex and costae and veins of the leaf blades beneath hirsute or tomentose-hirsute.

Calyx lobes united to about the middle, ca. 15 mm. long, lanceolate, acuminate, not mucronate. Leaf blades up to 15 cm. long and 6.5 cm. broad, nearly entire, cuneate at base, sparsely or densely hirsute above; common peduncle 4–6 cm. long; corolla orange-red, 20–22 mm. long, not much ventricose, the tube glabrous without, the throat sparingly stipitate-glandular within; ovary glabrous.

Corolla lobes pilose without. Junín and Huánuco, 700–2,500 m.

27. B. peruviana var. **peruviana**

Corolla lobes entirely glabrous. Junín, 700 m.

27a. B. peruviana var. **occulta**

Calyx lobes free or nearly so, not more than 11 mm. long, hirsute without, glabrous within; style pilosulous; ovary pilosulous at least at apex (except in *B. trichiata*).

Calyx 5–10 mm. long, the lobes linear-lanceolate, acuminate, entire, not mucronate. Leaf blades elliptic to oblanceolate, up to 25 cm. long and 10 cm. broad, membranous, serrate, cuneate at base; common peduncles up to 2.6 cm. long, the pedicels up to 1.5 cm. long; corolla 18–20 mm. long, the tube densely pilosulous without, conspicuously ventricose, the throat glandular within.

Calyx lobes ca. 5 mm. long; corollas red; flowers numerous.

Cuzco, 700–800 m. **14. B. sprucei var. sprucei**

Calyx lobes ca. 10 mm. long; corollas yellow; flowers 2 or 3 on a peduncle.

Amazonas, 320 m. **14a. B. sprucei var. flavescens**

Calyx 10–11 mm. long, the lobes slightly or prominently mucronate. Corolla with a hairy ring within at insertion of stamens.

Calyx lobes oblong-lanceolate, with an elongate mucro arising below the apex; corolla yellow, ca. 13 mm. long, scarcely ventricose, the lobes scarcely pilose without, not ciliate, the tube glandular within throat; common peduncle up to 4 cm. long; filaments pubescent upwardly; anthers more or less pubescent; primary leaf veins ca. 10 pairs. Huánuco **28. B. capitata**

Calyx lobes oblong, short-mucronate. Corolla 15–16 mm. long, the lobes hirtous or ciliate; pedicels thick.

Corolla brick-red, the tube densely hirtous-pubescent without; common peduncle 9–15 cm. long, thick, the flowers racemose; primary leaf veins 13–15 pairs; leaf blades 17–26 cm. long, 8–15 cm. broad, rounded at apex, oblique and rounded at base. San Martín, Junín, 230–1,900 m. **29. B. racemosa**

Corolla yellow, the tube glabrous without; common peduncle up to 3.5 cm. long; filaments pilose at base; primary leaf veins 8–11 pairs; leaf blades up to 12 cm. long and 6.5 cm. broad, acute at apex, cuneate at base. Junín, Cuzco, 700–1,900 m.

30. B. trichiata

Section *Besleria*

Leaf blades mostly subentire; common peduncle elongate or obsolete, the pedicels mostly numerous, rarely solitary; calyx lobes free or variously connate, mostly entire, sometimes mucronate; corolla erect in the calyx, not spurred at the posterior base, the tube mostly ventricose above the middle, the throat contracted, the limb terminal, small, subregular; disk mostly completely annular, glabrous.

TYPE: *Besleria lutea* L.

Subsection *Sessiles* Morton, Contr. U.S. Nat. Herb. 26: 405. 1939.

Common peduncle obsolete or not more than 4 mm. long; calyx lobes free or rarely united at base but not higher than middle, mostly obtuse or rounded, 3–7 mm. long, less than half as long as the corolla tube, entire, glabrous within.

TYPE: *Besleria solanoides* H. B. K.

1. *Besleria solanoides* H. B. K. Nov. Gen. & Sp. 2: 398. 1818.

This species, common in Colombia north to Honduras and Jamaica, is still known in Peru only from Tambillo, Department of Cajamarca, *Jelski* 24 (B); this Berlin specimen was doubtless destroyed, and so there may not be any specimens of this number existing.

2. *Besleria gracilentia* Morton, Contr. U.S. Nat. Herb. 26: 421. 1939.

The type came from Mirador, Huánuco, 2,400 m. alt., *Mexía* 04136 (GH). A more recent collection that may represent this species is: Tingo María side of Carpish, Dept. Huánuco, 2,550 m., October 1945, *Sandeman* 5245; it differs in having the calyx lobes sparsely hirsute without, rather than entirely glabrous; it is described by Sandeman as a subshrub with waxy, apricot-colored flowers growing in semishade beside a stream.

3. *Besleria densiflora* Fritsch, Notizbl. Bot. Gart. Berlin 11: 965. 1934.

Known only from Cerro de Ponasa, Loreto, *Ule* 6667 (holotype B, photograph US); since the holotype is presumably destroyed, the isotype at Geneva (Field photograph 28346) is here designated as lectotype.

4. *Besleria barbata* (Poepp. & Endl.) Hanst. Linnaea 34: 327. 1865.

Hypocyrtia barbata Poepp. & Endl. Nov. Gen. & Sp. 3: 3. 1845. Type: Pampayaco, San Martín, *Poeppig* (isotype B, photograph US).

Poeppig 1508 (W, Field photograph 32788) from Cuchero, Huánuco, is presumably the same species.

5. *Besleria imberbis* Morton, Contr. U.S. Nat. Herb. 26: 430. 1939.

Still known only from the type: Tambillo, Dept. Cajamarca, *Raimondi* 5334 (B); the type is presumably destroyed at Berlin; there is a photograph of it in US.

6. *Besleria placita* Morton, sp. nov.

Caules dense hirsuti; folia opposita subaequalia, longe petiolata; laminae foliorum acuto-ellipticae, magnae, apice breviter acuminatae, basi cuneatae, remote denticulatae, utrinque hirsutae; pedicelli in axillis conferti, brevissimi; calyx parvus, lobis liberis, aequalibus, ovali-ellipticis obtusis vel acutiusculis, integris, vix mucronulatis, externe hirsutis, intus glabris, marginibus longe albo-ciliatis; corolla erecta, non calcarata, paullo ventricosa, tubo externe dense hirsutitomentoso, intus glabro, limbo terminali, parvo, lobis subaequalibus, erectis, eciliatis, intus glabris; filamenta glabra; ovarium apice paullo pilosulum; stylus vix pilosulus; discus brevis, annularis, glaber.

Shrub 1–1.7 m. high; stems rather thick, 3–5.5 mm. in diameter at 30 cm. below apex, unbranched upwardly, densely and persistently

white-hirsute; leaves opposite, subequal, the petioles 2–6 cm. long, hirsute; leaf blades pointed-elliptic, the larger 12×6 cm. up to 20×9 cm., sharply short-acuminate at apex, cuneate equally at base, remotely and minutely denticulate above the middle, herbaceous, sparsely but persistently hirsute above, paler green beneath, hirsute on the midrib, veins, and surface, the primary veins 7–9 pairs; flowers numerous in the leaf axils, crowded, the pedicels very short, less than 5 mm. long, hirsute; calyx ca. 6 mm. long, less than half as long as the corolla, the lobes free, equal, erect, oval-elliptic, 2.5–3 mm. wide at middle, slightly narrowed toward the base, obtuse or acutish but not acuminate, slightly mucronulate at apex, membranaceous, not venose, slightly hirsute externally, glabrous within, conspicuously long-white-ciliate; corolla orange, erect in calyx, not spurred at base but slightly gibbous above the base, 14–16 mm. long, 4–5 mm. wide at base, slightly ventricose, becoming 6.5–7 mm. wide at the middle, slightly contracted to the throat, this 5 mm. wide, externally densely hirsute-tomentose, glabrous within and lacking a hairy ring at the insertion of the stamens, the limb terminal, small, ca. 6 mm. wide, the lobes erect, subequal, ca. 1.5 mm. long, 1.5–2 mm. wide at base, glabrous and eglandular within, not ciliate; filaments glabrous, contorted; anthers connate, broader than long, 1–1.5 mm. long, 1.7–2 mm. wide, the cells confluent; ovary pilosulous at apex; style thick, ca. 6 mm. long, slightly pilosulous; disk completely annular, low, hardly 0.5 mm. high, glabrous.

Type in the U.S. National Herbarium, no. 1,999,822, collected in deep ravine in jungle on the slope east of Tingo María, Department of San Martín, Peru, at 625–1,100 m. elevation, Oct. 30, 1949–Feb. 19, 1950, by H. A. Allard (no. 20851).

PARATYPES (all in the U.S. National Herbarium):

SAN MARTÍN: Allard 21441,² 21593a,³ 21601, 22243, 22422.

HUÁNUCO: Río Supte, Mar. 9, 1947, Ferreyra 1901.

This species belongs in the subsection *Sessiles*; it is closely related to *B. boliviana* Morton, which differs in having the calyx lobes acuminate, the corolla tube only slightly pilose, and the flowers solitary or few in the leaf axils instead of being crowded.

² The corolla is indicated by Allard as "pinkish," but this is probably an erroneous observation; a truly pinkish color is not found among plants of this alliance.

³ "On tree; flower pure white" on the label, but this is probably due to a faulty memory. Plants of this alliance are not usually epiphytes, and the other specimens of this species are clearly terrestrial. White flowers are characteristic of some few species of *Besleria*, but in this case the flower color does not appear to be different from that of the other specimens of this species. In most species of *Besleria* the corolla color is lost in drying.

Subsection *Pedunculatae* Morton, Contr. U.S. Nat. Herb. 26: 409. 1939.

Leaf blades entire or denticulate; common peduncle mostly elongate, the pedicels umbellate or subcorymbose; calyx lobes entire, mostly free, often obtuse or rounded, 2.5–7.5 mm. long, less than half as long as the corolla tube, glabrous within.

TYPE: *Besleria variabilis* Morton.

7. *Besleria lucida* Poepp. & Endl. Nov. Gen. & Sp. 3: 2. 1845.

The type came from Cochero [Cuchero], Huánuco, Peru, collected by Poeppig (not seen). Two additional specimens were cited in my revision, both from Huánuco, at elevations from 2,300 to 2,700 meters.

8. *Besleria minutiflora* Fritsch, Repert. Sp. Nov. Fedde 18: 9. 1922.

TYPE: Leticia, Loreto, Peru, *Ule* 6211 (B). The holotype was doubtless destroyed in Berlin. A photograph of it is in US; it is still known only from the type collection.

9. *Besleria variabilis* Morton, Contr. U.S. Nat. Herb. 26: 435. 1939.

Forma *variabilis*. The type came from Balsapuerto, Loreto, *Klug* 2912. Several variants, from San Martín, Ayacucho, and Junín were mentioned in the original description. One recent collection has been seen: Tingo María, Tulumayo, Huánuco, *Ferreyra* 1624. The species is known also from Colombia (Putumayo) and from between Palmar and Chapa, Bolivia, *Cárdenas* 5993. The taxonomic significance of the two formae described is uncertain.

9a. *Besleria variabilis* f. *barbatula* Morton, op. cit. 436. Type: Between San Nicolás and Azupizú, Junín, 650–900 m., *Killip & Smith* 22666 (US).

9b. *Besleria variabilis* f. *pallida* Morton, loc. cit. Type: Río Paucartambo Valley, Junín, 700 m., *Killip & Smith* 25293 (US).

10. *Besleria concolor* Fritsch, Notizbl. Bot. Gart. Berlin 11: 970. 1934.

Known only from the type: Chunchusmayo, Sandia, Puno, *Weberbauer* 1194 (B); the holotype was presumably destroyed at Berlin; there is a photograph of it in US.

11. *Besleria pallidiflora* Fritsch, Notizbl. Bot. Gart. Berlin 11: 968. 1934.

Still known from the type only: Yanangu, Junín, *Weberbauer* 2117 (B). The holotype is probably destroyed; there is a photograph of it in US.

12. *Besleria tetragularis* Ruiz ex Hanst. Linnaea 34: 331. 1865.

Cited in my revision from Arequipa, Puno, and Junín, at elevations from 650 to 900 m. No additional collections have come in, but I have seen two additional photographs of isotypes (*Vitoc*, *Ruiz & Pavon*) from Madrid (Killip photograph 477, Field photograph 29614). The

sheet in Madrid represented by the last cited photograph is designated as lectotype, since the original holotype in Berlin has presumably been destroyed.

13. *Besleria vargasii* Morton, Journ. Washington Acad. Sci. 35: 126. 1945.

Still known only from the type collection: Mandor, Marcapata, Prov. Quispicanchis, Dept. Cuzco, 1200 m., *Vargas* 3732 (US).

14. *Besleria sprucei* Britt. Bull. Torrey Club 27: 31. 1900.

At the time of my revision, this species was known only from Bolivia (type: Mapiri, Bolivia, *Rusby* 2149, NY; isotype US) and Brazil (State of Amazonas, *Ule* 5927, type of *B. uleana* Fritsch). Several collections from Peru are now known: Near Atalaya on road to Pilcopata, Prov. Paucartambo, Cuzco, 750 m., *Vargas* 13969 (US); Consuelo to Asunción, Prov. Paucartambo, Cuzco, 850 m., *Vargas* 7356 (US); road to Fortaleza, Prov. Quispicanchis, Cuzco, 800 m., *Vargas* 9717 (US). According to notes by Vargas the plants are 1 to 1.5 m. high and the corollas red-orange. The following variety appears recognizable:

14a. *Besleria sprucei* Britt. var. *flavescens* Morton, var. nov.

Pedunculus communis brevis, 12–15 mm. longus, pauciflorus, floribus 2 vel 3; calycis lobi lineares, ca. 10 mm. longi; corolla flava (sec. Sagástegui).

Type in the U.S. National Herbarium, no. 2,469,215, collected at Montenegro, Provincia Bagua, Department of Amazonas, Peru, at 320 m. elevation, Oct. 15, 1965, by A. Sagástegui A. (no. 5867).

Subsection *Confertae* Morton, Contr. U.S. Nat. Herb. 26:411. 1939.

Common peduncle obsolete, the pedicels aggregate in the leaf axils; calyx lobes mostly nearly free, mostly acute or acuminate, 6–17 mm. long, more than half as long as the corolla tube.

TYPE: *Besleria immitis* Morton.

15. *Besleria membranacea* Morton, Contr. U.S. Nat. Herb. 26:445. 1939.

Known only from the Department of San Martín: Chazuta, Río Huallaga, 260 m., *Klug* 3994 (holotype US; isotypes F, GH); Río Mayo, near Tarapoto, *Spruce* s.n. (K); Trocha Agua Blanca-Desquite, on road to Tarapoto, Prov. Lamas, 600–800 m., *Ferreyra* 7975 (US).

16. *Besleria angusta* Morton, sp. nov.

Caules glaberrimi; folia opposita aequalia, breviter petiolata; laminae foliorum anguste lanceolatae 3.5-plo vel 4.5-plo longiores quam latiores, attenuatae, basi late cuneatae, subcoriaceae, integrae, fere concolores, utrinque glaberrimae; flores bini axillares in umbellis sessilibus, pedicellis brevibus crassis glabris; calycis lobi liberi imbricati

coriacei ovato-lanceolati, supra medium ligulati, obtusi, submucronati, utrinque glabri, margine ciliati; corolla in calyce erecta non calcarata, quam calyx vix longior, tubo non ventricoso externe glabro in fauce non contracto, limbo terminali subregulari intus piloso.

Shrub 2–4 m. high, the stems terete, unbranched above the base, ca. 5 mm. in diameter at 20 cm. below the tip, entirely glabrous; leaves of a pair subequal, short-petiolate, the petioles 2.5–4.5 cm. long, thick, glabrous; leaf blades narrowly lanceolate, 3.5–4.5 times as long as broad, the larger 24 cm. long and 6 cm. broad, long-acuminate at apex, broadly and subequally cuneate at base, entire, subcoriaceous, nearly concolorous, completely glabrous on both sides, the primary veins 8 or 9 pairs, obscure above, more or less immersed beneath or at least not elevated; flowers in 2-flowered sessile umbels in the leaf axils, the pedicels 10–15 mm. long, thick, ca. 1 mm. in diameter, glabrous, slightly enlarged at apex; calyx in flower ca. 13 mm. long (19 mm. long in fruit), the lobes coriaceous, free, imbricate, entire, ovate-lanceolate, ca. 7 mm. wide near base, narrowed and subligulate above the middle, costate above the middle, obtuse at apex and slightly mucronate, completely glabrous on both sides, conspicuously ciliate throughout; corolla orange, not much longer than the calyx, ca. 17 mm. long, erect in calyx, not spurred at base, fleshy in texture, the tube apparently not ventricose, ca. 4 mm. broad at middle, hardly contracted in throat, completely glabrous externally, the limb terminal, ca. 5.5 mm. wide, slightly pilose within the throat, the lobes subequal; ovary and style glabrous.

Type in the U.S. National Herbarium, no. 2,322,768, collected between Santa Isabel and Cucharas, Department of Huánuco, Peru, at 650 meters elevation, June 2, 1958, by Felix Woytkowski (no. 5023). Two isotypes in U.S. National Herbarium.

Belongs in section *Besleria*, subsection *Confertae*, but it is not nearly allied to the other species.

17. *Besleria aggregata* (Mart.) Hanst. in Mart. Fl. Bras. 8 (1): 400. 1864.

Hypocyrtia aggregata Mart. Nov. Gen. & Sp. 3: 51. 1829. Type: Manacuru, on Rio Japura, Vaupés, Colombia, *Martius*. A specimen in München "in sylvis Japurensibus, R. N., *Martius*" (Morton photograph 8813) is doubtless an isotype.

Besleria ignea Fritsch, Notizbl. Bot. Gart. Berlin 11: 966. 1934. Type: Leticia, Loreto, *Ule* 6182 * * * (holotype B, photograph US; isotype G, Field photograph 28347). Inasmuch as the holotype is presumably destroyed, the isotype at Geneva is here designated lectotype.

In my revision of 1939, I adopted the name *B. ignea* and placed *B. aggregata* among the dubious species, remarking that the two might be identical. An examination of the isotype at München shows that the two are indeed the same, and so the earlier name *B. aggregata*

must be taken up. The typical variety occurs in Loreto and Junín, as reported previously, as well as in Amazonas, Brazil, and may now be reported also from Cuzco: Near San Lorenzo, Prov. Quispicanchis, 700 m., *Vargas* 11759 (US). The following varieties may eventually be found to represent distinct species.

17a. *Besleria aggregata* var. *mexiae* (Morton) Morton, comb. nov.

Besleria ignea var. *mexiae* Morton, Contr. U.S. Nat. Herb. 26: 444. 1939.

Type: Rancho Indiana to Río Napo, Loreto, 110 m., *Mexia* 6447a (holotype US; isotype F).

17b. *Besleria aggregata* var. *loretensis* (Morton) Morton, comb. nov.

Besleria ignea var. *loretensis* Morton, Contr. U.S. Nat. Herb. 26: 444. 1939.

Type: Between Yurimaguas and Balsapuerto, lower Río Huallaga Basin, Loreto, 135–150 m., *Killip & Smith* 28337 (holotype US).

In addition to the specimens, all from Loreto, previously reported, the following new collections are at hand: Guallabamba, near Iquitos, Loreto, 106–110 m., *Ferreyra* 3379, 3383. Ridge east of Tingo María, Department San Martín, 625–1100 m., *Allard* 21576, 22299.

17c. *Besleria aggregata* var. *semiannularis* (Morton) Morton, comb. nov.

Besleria ignea var. *semiannularis* Morton, Contr. U.S. Nat. Herb. 26: 444.

1939. Type: Florencio, Caquetá, Colombia, *Pérez Arbelaez* 751B (holotype US).

This variety is known also from Putumayo, Colombia (*Cuatrecasas* 10582) and is to be expected in Loreto, Peru. It differs in having the leaf blades softly pilose beneath and hirsute on the veins and the disk semiannular rather than completely annular.

18. *Besleria citrina* Fritsch, Notizbl. Bot. Gart. Berlin 11: 963. 1934.

Known only from the type: Moyobamba, Loreto, Peru, *Weberbauer* 4618 (B); the holotype was presumably destroyed at Berlin; there is a photograph in US.

19. *Besleria furva* Morton, Contr. U.S. Nat. Herb. 26: 447. 1939.

Still known only from the type collection: Tarapoto, Dept. San Martín, *Spruce* 4955 (K).

20. *Besleria emendata* Morton, sp. nov.

Caules ad apicem versus dense hirsuti; folia opposita inaequalia, longe petiolata, ovata, breviter acriter acuminata, membranacea, denticulata, supra et infra hirsuta; flores axillares solitarii, pedicellis gracilibus elongatis; calyx magnus tubum corollae fere aequans, membranaceus viridis, lobis ca. ad medium connatis, lobis liberis triangulari-subulatis externe hirsutis, intus glabris; corolla aurantiaca demum rubra, in calyce erecta, tubulosa, tubo apice piloso, intus glabro, limbo brevi subbilabiato, lobis externe pilosis, intus glabris

eciliatis; filamenta glabra; ovarium glabrum; stylus glaber; discus annularis glaber.

Subshrub up to 1.2 m. high; stems sparingly branched, slender, 2.5–4 mm. in diameter at 30 cm. below tip, densely hirsute apically with white, septate hairs; leaves opposite, the opposed slightly unequal, the larger with petioles 2–6 cm. long, the smaller on petioles 1–2 cm. long, all petioles obviously white-hirsute; larger leaf blades ovate, 9–14 cm. long, 4–8 cm. wide,⁴ sharply short-acuminate, broadly cuneate at the unequal base, membranaceous, minutely and remotely glandular-denticulate, white-hirsute above on the surfaces, paler green beneath and white-hirsute on veins and surfaces, the primary veins 6–8 pairs; smaller leaf blades similar but only about two-thirds as long; flowers solitary in the leaf axils, the pedicels 1.2–2.5 cm. long, slender, white-hirsute; calyx green, membranaceous, venose, 13–18 mm. long, the lobes united to about the middle, the calyx tube 6–9 mm. long, the lobes entire, triangular-subulate, narrow and sharp at apex, 2.5–4 mm. wide at base, 6.5–9 mm. long, not mucronate, white-hirsute externally, glabrous within; corolla orange at first, becoming red later (fide Ferreyra), 17–20 mm. long, erect in calyx, not spurred at base but slightly gibbous above base, the tube 4–6 mm. wide at base, cylindric and hardly ventricose, 5–8 mm. wide above middle, slightly contracted in throat and 4–6 mm. wide, externally glabrous below, sparsely pilose at apex, glabrous within and without a hairy ring at the insertion of the stamens, the limb terminal, small, 6–10 mm. wide, slightly bilabiate, the lobes erect, suborbicular, the larger 3.5–4 (5) mm. long, the smaller 2–3.5 (4) mm. long, pilose externally, glabrous and eglandular within, not ciliate; filaments glabrous, contorted; anthers quadrately united, broader than long, ca. 1.5 mm. long, 2.5 mm. wide, the connective thickened, the cells confluent; staminodium ca. 3 mm. long, glabrous; ovary conic, glabrous; style thick, 9–10 mm. long, glabrous; stigma bilobed; disk completely and regularly annular, ca. 0.5 mm. high, glabrous; berry globose, enclosed in the persistent calyx.

Type in the U.S. National Herbarium, no. 2,025,103, collected at Boquerón, ca. 92 km. from Tingo María on the highway to Pucallpa, Department of Loreto,⁵ Peru, at 410 meters elevation, Dec. 16, 1949–Jan. 5, 1950, by H. A. Allard (no. 21713).

PARATYPES (all in U.S. National Herbarium except as indicated):

⁴ Only 5×2.5 cm. in depauperate (sun?) plants, e.g., *Hutchison & Wright* 6043A.

⁵ The label gives the department as San Martín, but Boquerón is actually in the Department of Loreto, in the Province of Coronel Portillo, not far from the border with San Martín.

LORETO: Boquerón [type locality], *Allard* 21716, 22131, *Swingle* 101, *Ferreyra*, 1189, 8104, *Hutchison & Wright* 6043A (UC), 6053 (US). Between Divisoria and Boquerón, *Ferreyra* 1101.⁶

RANGE: Known only from the vicinity of Boquerón, Department of Loreto, at elevations variously given as between 400 and 900 meters.

This species may be the same as *B. peruviana* var. *dissimilis* Morton,⁷ but I regard it now as specifically different from *B. peruviana* Fritsch, which has the flowers borne in long-pedunculate umbels rather than solitary in the axils of the leaves. There are instances in *Besleria* where the common peduncle has been so reduced that the flowers appear to be borne in sessile umbels in the leaf axils, but in such cases at least a trace of the peduncle remains and the flowers are several. In *B. emendata* there is no trace of a peduncle and the flowers are solitary. I consider these characters as of more than varietal importance now, and in fact they are the basis for a part of my sectional division of the genus. I continue to place *B. peruviana* in subsection *Elongatae*, but *B. emendata* should be in subsection *Confertae*. However, it does not seem to be wise to base this species on *B. peruviana* var. *dissimilis* because it is not absolutely certain that the two are identical. This variety was based on *Tessmann* 3170 from the lower Ucayali River, Department of Loreto, Peru, but unfortunately the type was in Berlin and was lost during the war. There is a photograph of it in the National Herbarium but it is not sufficiently good to make an identification certain. Unless a duplicate of *Tessmann* 3170 can be located in some other herbarium, it is best to list *B. peruviana* var. *dissimilis* among the dubious plants of this genus. The only other species of section *Confertae* with calyx lobes connate to the middle is *B. tuberculata* Morton, of Colombia, which differs strongly in the tuberculate upper leaf surface, the villous ovary, the stipitate-glandular throat of the corolla, long-ciliate corolla lobes, and other characters.

21. *Besleria immitis* Morton, Contr. U.S. Nat. Herb. 26: 449. 1939.

The type came from Umbría, Putumayo, Colombia (*Klug* 1912, holotype US; isotype S). Known also from the Department of Loreto, Peru, at low elevations, as mentioned in the original description.

22. *Besleria ferreyrae* Morton, sp. nov.

Frutex, vix ramosus, caulibus crassis, dense lutescenti-villosis; folia longe petiolata, laminis ellipticis, acuminatis, basi late cuneatis, remote denticulatis, utrinque hirsutis; inflorescentiae fasciculatae,

⁶ At least one specimen of this number has been labeled incorrectly as "Between Sinchono and Boquerón, Dept. San Martín."

⁷ Contr. U.S. Nat. Herb. 26: 452. 1939.

pedunculo communi nullo, pedicellis brevibus crassis hirsutis; calyx corollam fere aequalis, lobis lanceolatis acuminatis denticulatis, externe dense hirsutis, intus basi glabris apicem versus pilosis; corolla non calcarata, mediocris, supra medium valde ventricosa, externe dense tomentosa, intus glabra, limbo parvo terminali; filamenta glabra; ovarium pubescens; stylus basi pubescens; discus annularis integer glaber.

Shrub 0.8–1.2 m. high, hardly branched above the base, the stems very thick, ca. 6 mm. in diameter ca. 20 cm. below the apex, densely shaggy-yellowish-hirsute; leaves of a pair equal, long-petiolate, the petiole 4–4.5 cm. long, densely hirsute; leaf blades elliptic, 10×4.5 to 16×6 cm., sharply acuminate, broadly cuneate and subequal at base, remotely denticulate, obviously hirsute on both sides, the primary veins 8 or 9 pairs, upwardly curved; flowers fasciculate in the leaf axils, a common peduncle absent, the pedicels 2 or 3, short and stout, 5–10 mm. long, densely hirsute; calyx green, almost as long as the corolla, the lobes nearly free, lanceolate, ca. 16 mm. long, slightly unequal, one ca. 3 mm. broad at middle, the others ca. 2 mm. broad, acuminate, remotely denticulate, outside densely yellow-tomentose, within glabrous below middle, slightly pilose toward apex; corolla yellow, erect in calyx, not saccate at base, 4 mm. broad at base, ventricose above middle and ca. 6 mm. broad, slightly contracted in throat and 5 mm. broad, densely white-tomentose, glabrous within and lacking a hairy ring, the limb terminal, small, the lobes erect, ca. 2 mm. long and broad; filaments glabrous; anthers included, connate, 1 mm. long, 2 mm. broad; ovary pubescent; style pubescent; disk annular, low, entire, glabrous.

Type in the U.S. National Herbarium, no. 2,057,476, collected at Plantación Margarita, near Divisoria, Province of Coronel Portillo, Department of Loreto, Peru, in tropical woods at 1,500–1,600 meters elevation, Aug. 14, 1946, by Ramón Ferreyra (no. 989).

This species, named in honor of Sr. Ramón Ferreyra, of the University of San Marcos, in recognition of his invaluable services to Peruvian botany, belongs in the section *Besleria*, subsection *Confertae*. It may be allied to *B. compta* Morton, which differs in its slenderer, less strongly hirsute stems, less obviously hirsute leaves, more slender pedicels, and shorter, thinner, broader, and less densely hirsute calyx lobes, which are much shorter than the corolla.

23. *Besleria compta* Morton, Contr. U.S. Nat. Herb. 26: 449. 1939.

The type came from Balsapuerto, Loreto, 220 m., *Klug* 2926 (holotype US; isotypes B, GH, K, S); also known from the Department of San Martín, as noted in the original description, at elevations up to 1,500 meters.

Subsection Elongatae Morton, Contr. U.S. Nat. Herb. 26: 412. 1939.

Common peduncle elongate, the pedicels umbellate, racemose, or subcorymbose; calyx lobes free or connate to the middle, mostly entire, 10–17 mm. long, more than half as long as the corolla tube, mostly acuminate.

TYPE: *Besleria elongata* Urban.

24. *Besleria divaricata* Poepp. Nov. Gen. & Sp. 3: 2. 1845.

In my revision this species was reported in Peru from the Departments of Huánuco and Loreto and from some places in Ecuador. It appears now that this is one of the more common and widespread species in Peru, the following additional collections being at hand: Northern slopes of Cerros Campanquiz, Pongo de Manseriche, Loreto, 550–750 m., *Wurdack* 2376. Rain forest along Río Santiago, Dept. Amazonas, 230–300 m., *Wurdack* 2198. Trail from La Oroya to Santo Domingo, Prov. Sandía, Dept. Puno, 900–1,200 m., *Hodge* 6026. Three km. above Santo Domingo, Prov. Sandía, Dept. Puno, 1,950 m., *Metcalf* (U. Calif. Bot. Gard. Exped. 30649). Between San Pedro and Santa Isabel, Prov. Paucartambo, Dept. Cuzco, 1,400 m., *Vargas* 6769. Between Atalaya and Carbón, Prov. Paucartambo, Dept. Cuzco, 700 m., *Vargas* 13434. The plant is described by the collectors as a herb or bush 1 to 2.5 meters high, with waxy, orange-red corollas.

25. *Besleria moorei* Morton, sp. nov.

Herba alta, caulibus apice dense tomentosis; folia longe petiolata, laminis elliptico-oblongis, magnis, abrupte acuminatis, basi late cuneatis, remote denticulatis, supra fere glabris maturitate, subtus praecipue in venis tomentosis; inflorescentiae subcorymbosae, longe pedunculatae, multiflorae, pedicellis brevibus; calycis lobi liberi, subaequales, late ovati, mucronati, integri, externe hirsuti, intus fere glabri; corolla aurantiaca, in calyce erecta, ecalcarata, tubo medio ventricoso, in fauce contracto, externe hirsuto, limbo parvo subregulari, tubo intus basi annulum pilosum gerente; filamenta basi pilosa; ovarium glabrum; stylus pilosus; discus annularis, glaber.

Stout, branched herb up to 1 m. high, the upper stems ca. 5 mm. in diameter, densely brownish tomentose near apex; leaves of a pair apparently slightly unequal, the larger on petioles 9 cm. long and 2 mm. thick, these strigose or subtomentose when young; larger leaf blades elliptic-oblong, 27 cm. long and 11 cm. broad, the smaller 14 cm. long and 6 cm. broad, abruptly acuminate, the base broadly cuneate and subequal-sided, remotely denticulate, herbaceous, nearly glabrous above at maturity, pilosulous when young, subtomentulose beneath, especially on the veins, the primary veins ca. 15 pairs; inflorescences solitary, axillary, subcorymbose, 8- to 15-flowered, the common

peduncle very elongate, 18–20 cm. long, sparsely pilose, the pedicels thickish, 8–10 mm. long, glabrate; calyx lobes orange (fide Moore) free, subequal, imbricate, broadly ovate, 9.5 mm. long, 4–5 mm. broad, entire, hirsute externally, essentially glabrous within with only occasional scattered hairs, not veiny externally, venose within, mucronate; corolla orange, erect in calyx, not spurred at base, ca. 28 mm. long, the basal orifice ca. 3 mm. broad, the tube ca. 5.5 mm. broad just above base, rather abruptly ventricose at the middle and here 8–8.5 mm. broad, contracted in the throat, here ca. 6 mm. broad, externally pilose, more densely so near the throat, the limb terminal, 7–8 mm. broad, the lobes erect, semicircular, subequal, ca. 3 mm. long and broad, cucullate with recurved margins, pilosulous externally, glabrous within, not ciliate, within glabrous except for a pilose ring at the insertion of the filaments; filaments inserted near base of corolla tube, connate with each other, flattened, slightly pilose near base, glabrous upwardly, coiled; anthers included, persistently connate, broader than long, ca. 1.5 mm. long, 2.5 mm. broad, the cells confluent; ovary ovoid, glabrous; style thick, pilose; disk completely annular, ca. 0.6 mm. high, unlobed, glabrous.

Type in the U.S. National Herbarium, no. 2,370,542, collected on roadside bank 16.6 km. from Quincemil, on the road to San Lorenzo, Province of Quispicanchis, Department of Cuzco, Peru, at ca. 390 m. elevation, June 11, 1960, by H. E. Moore, Jr., Adolfo Salazar C., and Earl E. Smith (no. 8583). Isotype presumably in Bailey Hortorium (not seen).

Besleria moorei belongs in section *Besleria*, subsection *Elongatae*, and in my key (1939) it will key out to *B. ovalifolia* Rusby (Mem. Torrey Bot. Club 4: 240. 1895), which is still known only from the original collection from Songo, Bolivia (*Bang* 862), but it cannot be very closely allied to that, which differs in having the calyx lobes essentially glabrous, long-acuminate, and united to above the middle. In its general characters and appearance it is much closer to *B. racemosa* Morton, of the Departments of San Martín and Junín, Peru, which differs in several ways, as follows:

Pubescence densely hirsute-villous; petioles 1–3 cm. long; common peduncles 9–15 cm. long; calyx lobes serrulate; corollas ca. 15 mm. long; ovary slightly pilosulous at apex	B. racemosa
Pubescence densely sericeous-tomentose; petioles 6–9 cm. long; common peduncles 18–20 cm. long; calyx lobes entire; corollas ca. 18 mm. long; ovary entirely glabrous	B. moorei

26. *Besleria hutchisonii* Morton, sp. nov.

Herba vel frutex parvus, vix ramosus, ramis crassis, sursum dense albido-tomentosis; folia breviter petiolata, petiolo crasso tomentoso, laminis mediocribus ellipticis, acuminatis, basi cuneatis, integris, supra

ubique dense sericeis, subtus praecipue in venis dense sericeis; inflorescentiae umbellatae, 2- vel 3-florae, pedunculo communi brevi, pedicellis antrorse hirsutulis; calyx magnus, lobis imbricatis liberis ovalibus rotundatis, non mucronatis, integris, extus dense sericeis, intus apice excepta glabris; corolla aurantiaca, parva, utrinque glabra, medio ventricosa, limbo terminali magno, lobis ciliolatis; filamenta glabra; antherae inclusae connatae latiores quam longiores; ovarium glabrum; stylus hirsutulus; discus annularis integer glaber.

Herb or small shrub up to 75 cm. high, the stems not branched above the middle, thick, ca. 5 mm. in diameter ca. 30 cm. below the tips, upwardly persistently densely whitish-tomentose; leaves of a pair equal, short-petiolate, the petioles 10–15 mm. long, thick, ca. 2 mm. in diameter, densely tomentose; leaf blades elliptic, 9–14 cm. long, 4–5.2 cm. broad, acuminate, cuneate at the base, entire, persistently and densely sericeous above, paler beneath and sericeous, especially on the veins, the primary veins 9–11 pairs, curved, ascending, strongly elevated beneath; inflorescences axillary, few, 2- or 3-flowered, the common peduncle short, 15–18 mm. long, sericeous, the hairs ascending, the pedicels ca. 10 mm. long, antrorsely hirsutulous; calyx 7–9 mm. long, more than half longer than the corolla, the lobes imbricate, free, oval, ca. 4 mm. broad, the sides curved, the apex rounded, not mucronate, entire, densely sericeous without, glabrous within except near the sparsely sericeous apex, 7-nerved, the nerves visible within, obscure without; corolla orange (fide Hutchison), erect in the calyx, ca. 15 mm. long, not spurred or gibbous at base, the tube ca. 4 mm. broad at base, upwardly a little ventricose and becoming ca. 6 mm. broad, the throat slightly contracted and 5.5 mm. broad, without glabrous, the limb terminal, ca. 8 mm. in diameter, the lobes erect, imbricate, broad, ca. 4 mm. long and 3.5 mm. broad, rounded, entire, glabrous without, slightly ciliate when young, the tube glabrous within; filaments inserted ca. 2 mm. above the base of the corolla tube, flattened, glabrous; anthers included, connate, broader than long, ca. 1.3 mm. long, ca. 2.2 mm. broad, glabrous, the locules confluent; ovary glabrous; style short, thick, hirsutulous; disk completely annular, slightly higher posteriorly, glabrous, entire.

Type in the U.S. National Herbarium, no. 2,466,984, collected at Carpish, above Acomoyo, Province of Huánuco, Department of Huánuco, Peru, at 2,800 meters altitude, July 17, 1964, by Paul C. Hutchison, J. Kenneth Wright, and R. M. Straw (no. 5937). Isotypes in F, UC, USM (not seen).

This species belongs in section *Besleria* subsection *Elongatae* of my revision. It will key out near *B. laxiflora* Benth., but that species is obviously not nearly allied, being distinguished by lesser pubescence, larger, serrulate leaf blades glabrate (rather than densely sericeous)

above, by elongate common peduncles, more numerous flowers in an umbel, generally larger calyx lobes, these attenuate into a mucro (rather than rounded and not mucronate), and by larger corollas, with a hairy ring within at base and glandular within the throat.

27. *Besleria peruviana* Fritsch, Repert. Sp. Nov. Fedde 18: 7. 1922.

Besleria peruviana var. *peruviana*. Known definitely only from the type collection, from La Merced, in Chanchamayo Valley, Prov. Tarma, Dept. Junín, at 700 to 800 m. alt., *Weberbauer* 1958 (B). Presumably the Berlin specimen was destroyed, but a photograph of it is in US. A second specimen possibly referable here is *Sandeman* 5170, from Chinchao Valley, Carpish Divide, Huánuco, 2,250 m., October 1945, which is more densely hirsute, and with somewhat smaller calyces and corollas; it is a subshrub or herb, said to be frequent in the forest in deep shade.

27a. *Besleria peruviana* var. *occulta* Morton, Contr. U.S. Nat. Herb. 26: 452. 1939.

Still known only from the type: La Merced, Junín, at 700 m., *Killip & Smith* 24086 (US). It was described by the collectors as a herb 3 to 5 feet high, with elongate branches and bright orange-red flowers.

27b. *Besleria peruviana* var. *dissimilis* Morton. For a comment on this plant, see the account of *B. emendata* above.

28. *Besleria capitata* Poepp. & Endl. Nov. Gen. & Sp. 3: 2. 1845.

Known only from the type, Cuchero, Huánuco, *Poeppig* 1622 (W, Field photograph 32789) and Cuchero, *Poeppig* 1623 (B, photograph US).

29. *Besleria racemosa* Morton, Contr. U.S. Nat. Herb. 26: 450. 1939.

This species is still known only from the material originally cited, from San Martín and Junín, the specimens from Junín being dubiously exactly the same as the type from San Martín (Pongo de Cainarachi, Río Cainarachi, San Martín, 230 m., *Klug* 2660; holotype US, isotypes B, NY, S).

30. *Besleria trichiata* Morton, Contr. U.S. Nat. Herb. 26: 451. 1939.

Previously known only from the type collection, from Porvenir, Department of Junín, 1,500–1,900 m., *Killip & Smith* 25955 (US), but now represented by an additional collection: Between Fortaleza and San Lorenzo, Prov. Quispicanchis, Dept. Cuzco, 700 m., Oct. 22, 23, 1950, *Vargas* 9724 (US). According to *Vargas'* note, the corolla is red-salmon colored.

Section *Neobesleria* Morton, Contr. U.S. Nat. Herb. 26: 414. 1939.

Herbs or shrubs, the stems glabrate, strigillose or tomentose (hirsute in *B. wurdackii*); leaf blades mostly serrate, membranaceous, acuminate; common peduncle elongate or obsolete; calyx lobes free, often

toothed; corolla horizontal in the calyx, spurred at the posterior base; disk often reduced to a thick posterior gland, this often pubescent.

TYPE: *Besleria corallina* Fritsch.

Subsection *Axillares* Morton, Contr. U.S. Nat. Herb. 26: 416. 1939.

Herbs or soft woody shrubs; leaf blades serrate above the middle; common peduncle obsolete, the pedicels aggregate in the leaf axils; calyx lobes free, entire; corolla contracted in the throat, the limb terminal, small, regular.

TYPE: *Besleria gibbosa* (Poepp.) Hanst.

31. *Besleria horizontalis* Morton, sp. nov.

Suffrutex, caulibus apice strigillosis, mox glabris; folia per paria aequalia, breviter petiolata, laminis ellipticis acriter acuminatis, basi aequaliter cuneatis, supra medium serratis, subcoriaceis, supra glabris, subtus pallidioribus glabris costa strigillosa excepta; flores solitarii axillares, pedicellis elongatis; calycis lobi aequales imbricati sub-orbiculares rotundati integri externe strigillosi; corolla flava, tubo purpureo-maculato, in calyce horizontali, basi postice calcarato, externe dense piloso, supra medium ampliata in fauce non contracto, limbo terminali, lobis subaequalibus, externe vix pilosis eciliatis.

Woody subshrub, the stems unbranched upwardly, ca. 5 mm. in diameter ca. 30 cm. below tip, pale stramineous, with a few short, appressed hairs at the tip, below entirely glabrous; leaves of a pair equal, short-petiolate, the petioles up to 3 cm. long, thick, glabrous; leaf blades elliptic, 9–16 cm. long, 4–6 cm. wide, shortly and sharply acuminate at apex, subequally cuneate at base, subcoriaceous, obviously serrate above the middle, dark green and glabrous above, paler beneath, some few appressed hairs on midrib, otherwise glabrous, the primary veins 5 or 6 pairs, elevated beneath; flowers solitary, axillary, the pedicels ca. 2.5 cm. long, slightly enlarged at apex; calyx ca. 7 mm. long, the lobes nearly free, imbricate, suborbicular, ca. 6 mm. long and 5.5 mm. wide, rounded at apex, not mucronate, entire, apparently yellowish, thinly silky-strigillose externally; corolla yellow, the tube with dark purple spots, horizontal in calyx, ca. 30 mm. long, slightly spurred at the posterior base (ca. 3 mm.), the tube ca. 5 mm. wide at middle, enlarged to 9 mm. wide in throat, densely pilose externally, the limb terminal, ca. 11 mm. wide, the lobes subequal, ca. 3 mm. long and broad, sparsely pilose externally, entire.

Type in the U.S. National Herbarium, no. 1,877,283, collected in dense high forest, Alturas de Pintobamba, Province of Convención, Department of Cuzco, Peru, at 2,700 meters elevation, March 4, 1943, by C. Vargas C. (no. 3252).

This, the second species of section *Neobesleria*, subsection *Axillares*, known from Peru, differs from *B. wurdackii* in many characters, notably in the glabrous (or only sparsely strigillose apically) stems, glabrate leaves, solitary flowers, suborbicular, imbricate calyx lobes, and especially in the large corolla, with the tube enlarged to the throat rather than contracted. *Besleria gibbosa* (Poepp.) Hanst., of Amazonian Brazil, differs in the crowded, short (only 8 mm. long) pedicels, and the short (only 4.5 mm. long), ovate-oblong, acute, nonimbricate calyx lobes, among other characters.

32. *Besleria wurdackii* Morton, sp. nov.

Caules hirsuti; folia opposita aequalia, longe petiolata, lamina membranacea, late elliptica, acriter acuminata, basi obliqua, utrinque laxe hirsuta, conspicue serrata fere usque ad basim; flores axillares fasciculati, pedicellis gracilibus elongatis hirsutis; calycis lobi liberi subaequales ovato-lanceolati integri, apice attenuati et subulati, externe hirsuti eciliati; corolla flava 2 lobis posticis purpureis exceptis, in calyce subhorizontalis, basi postice leviter calcarata, ventricosa, externe hirsuta, intus glabra, in fauce contracta, limbo terminali subirregulari; filamenta glabra; ovarium pilosum; stylus basi pilosus; stigma bilobum; discus annularis leviter 5-lobatus altus glaber.

Soft-woody shrub ca. 1 m. high, the stems unbranched above, ca. 4 mm. in diameter at 30 cm. below tip, densely yellowish hirsute toward apex; leaves opposite, subequal, the lower long-petiolate (4–5 cm.), the upper short-petiolate (1.5 cm.), the petioles densely hirsute; leaf blades obliquely broadly elliptic, about twice as long as broad, 10–14 cm. long, 5–7 cm. wide, abruptly and sharply short-acuminate at apex, oblique at base, the lower base extending at nearly a right angle, the upper at an acute angle, conspicuously serrate nearly to the base, thin-membranaceous, persistently but finely hirsute on both sides, the primary veins 8–10 pairs; flowers several, fasciculate in the leaf axils, a common peduncle obsolete, the pedicels 2–2.5 cm. long, very slender, hirsute; calyx ca. 10 mm. long, the lobes free, ovate-lanceolate, ca. 3 mm. wide at the middle, subequal but the posterior reflexed, entire attenuate and subulate at apex, hirsute externally, glabrous within, not ciliate; corolla yellow except for the dark purplish two posterior lobes of the limb, oblique in the calyx or subhorizontal, slightly spurred at the posterior base (1 mm.), 14–16 mm. long, strongly ventricose, becoming ca. 8.5 mm. wide at the middle, contracted to the throat, this ca. 5.5 mm. wide, the tube strongly pilose externally, glabrous within, the limb terminal, slightly bilabiate, the two posterior lobes smaller, dark purplish, the other yellow; filaments glabrous; anthers broader than long, ca. 1.5 mm. long and 2 mm. wide, connate, the cells confluent; staminodium conspicuous,

ca. 5 mm. long; ovary strongly pilose; style pilose at base, ca. 7 mm. long; stigma bilobed; disk annular but irregularly 5-lobed, high, ca. 1.5 mm. long, glabrous.

Type in the U.S. National Herbarium, no. 2,404,369, collected on the left bank of Río Marañon, above Cascadas de Mayasi, opposite km. 278 of the Marañon road, Province of Bagua, Department of Amazonas, Peru, at 425–500 m. elevation, Sept. 12, 1962 by J. J. Wurdack (no. 1955). This species belongs in section *Neobesleria*, subsection *Axillares*. The only previously known species of this section with a hirsute type of pubescence is *B. obliqua* Morton, of Panama, which differs in the glabrous corolla tube, smaller and differently shaped calyx lobes, smaller, not serrate leaves, and in many other ways.

Subsection Corallinae Morton, Contr. U.S. Nat. Herb. 26: 414. 1939.

Leaf blades serrate or crenate; common peduncle elongate, longer than the pedicels; calyx lobes free, imbricate, serrate or denticulate, pubescent on both sides; corolla contracted in the throat, the limb terminal, small, regular; disk semiannular, pubescent.

TYPE: *Besleria corallina* Fritsch.

33. *Besleria corallina* Fritsch, Repert. Sp. Nov. Fedde 18: 13. 1922.

Known from the Department of Loreto and adjacent Putumayo, Colombia. The type came from Cerro de Ponasa, *Ule* 6671 (holotype B; photograph US). A collection that has not been previously reported is: Gamitanacocha, Río Mazán, Loreto, 100–125 m., *J. M. Schunke* 198 (US).

Subsection Maculatae Morton, Contr. U.S. Nat. Herb. 26: 415. 1939.

Shrubs, the stems densely lanate-tomentose; leaf blades serrate; common peduncle elongate, 6–7.5 cm. long, the pedicels much shorter; calyx lobes free, ovate to ovate-lanceolate, acuminate, sharply serrate, glabrous within; corolla yellow with conspicuous small maroon spots on tube and within lobes, the throat not contracted, the limb terminal, slightly bilabiate; ovary villous; disk reduced to a thick, puberulous, posterior gland.

TYPE: *Besleria rupestris* Morton.

34. *Besleria rupestris* Morton, Proc. Biol. Soc. Washington 48: 57. 1935.

The type came from Ecuador (between Baños and Cashurco, Prov. Tungurahua, 1,300–1,800 m., *Hitchcock* 21820, US). This is one of the more widely distributed species, for it is known from Colombia (Dept. of El Cauca and El Valle) as well as from Peru, in the Departments of Junín (*Killip & Smith* 25759) and Huánuco (*Mexía* 8237), as previously reported (Contr. U.S. Nat. Herb. 26: 462. 1939), and

from Cuzco: Between Tanamayo and Santa Isabel, Prov. Paucartambo, 1,600 m., Dec. 6, 1947, *Vargas* 6794. There may be some variation in habit, for some collections indicate this species to be an erect herb ca. 80 cm. high, but one says that it is scandent and up to 1.5 m. high. The corollas are probably unique in the genus in having the lobes and tube within conspicuously but minutely spotted.

Section *Gasteranthus* (Benth.) Fritsch, in Engl. & Prantl, Nat. Pflanzenfam. 4(3b): 159. 1895

Gasteranthus Benth. Pl. Hartweg. 233. 1846.

Herbs or shrubs; leaf blades mostly toothed; common peduncle elongate; calyx lobes ovate to lanceolate or obovate, less than half as long as the corolla tube; corolla horizontal in calyx, spurred at posterior base, strongly ventricose, the tube inflated at apex and surpassing the limb, the limb small, regular, dorsal, facing upwardly; disk thickened posteriorly or reduced to a posterior gland.

TYPE: *Besleria quitensis* (Benth.) Hanst.

In my revision I erroneously attributed the sectional name *Gasteranthus* to Bentham and Hooker, but Bentham and Hooker did not formally recognize any sections in *Besleria*, as they did in some other genera of Gesneriaceae.

35. *Besleria caligula* Morton, sp. nov.

Suffrutex, caulibus non ramosis, glaberrimis; folia inaequalia, breviter petiolata, lamina anguste elliptica, longe acuminata, basi oblique cuneata, serrata, utrinque glaberrima; inflorescentiae subumbellatae vel subcorymbosae, longe pedunculatae, pedicellis crassis, glabris; calycis lobi inaequales, membranacei, integri, obtusi vel rotundati, glabri, apiculati, posticus deflexus latus; corolla horizontalis, aurantiaca, calcarata, valde inflata, utrinque glabra, limbo dorsali non terminali parvo regulari; androecium et gynoecium glabra; discus postice valde incrassatus glaber.

Subshrub ca. 50 cm. high; stems unbranched, ca. 4 mm. in diameter ca. 30 cm. below apex; leaves of a pair usually strongly unequal, one less than one-fifth as long as the other, all short-petiolate, the petioles ca. 10 mm. long, glabrous; larger leaf blades narrowly elliptic, 11×5 cm. up to 19×6 cm., long-acuminate at apex, obliquely cuneate at base, conspicuously serrulate, the teeth 18–24 on each side, thin-herbaceous, green above, paler beneath, entirely glabrous on both sides, the primary veins 12–15 pairs, ascending, anastomosing within the margin; inflorescences axillary, subumbellate or subcorymbose, the common peduncle 5–7 cm. long, thick, glabrous, the pedicels 4–6, short and thick, 8–10 mm. long, glabrous; calyx in flower ca. 7 mm. high and 15 mm. broad, irregular, the lobes free, thin-membranous,

entire, glabrous on both sides, 5-nerved, the midrib thickened upwardly and excurrent in a short apiculus, the 2 anterior obovate, ca. 7 mm. long and 5.5 mm. broad, narrowed to base, broadest above middle, rounded at apex, the 2 lateral broadly elliptic, ca. 7 mm. long and 5 mm. broad, broadest at middle, slightly narrowed downwardly and upwardly, obtuse, the posterior deflexed in anthesis, ca. 7.5 mm. long, broader than long and ca. 8 mm. broad, carinate and somewhat folded around the corolla spur, prominently apiculate, the midrib thickened; corolla orange, ca. 25 mm. long, horizontal in calyx, spurred at posterior base, the spur ca. 2.5 mm. long, acutish, the basal orifice ca. 2.5 mm. broad, the tube ca. 4 mm. broad at little above the base, strongly enlarged upwardly and becoming ventricose-saccate at apex, here 15 mm. broad, glabrous without and within, the limb regular, dorsal and not terminal, facing upwardly, ca. 6 mm. broad, the lobes minute, semicircular, ca. 1.5 mm. long, 3 mm. broad, glabrous, not ciliate; filaments thick, ca. 12–15 mm. long, not coiled, glabrous; anthers included within the saccate portion of the tube, free at anthesis, glabrous, broader than long, ca. 1.5 mm. long, 2 mm. broad, the cells completely confluent in anthesis; ovary conic, 3–4 mm. long, entirely glabrous; style included, thick, glabrous, ca. 8 mm. long; stigma bilobed; disk essentially reduced to a large, thick, fleshy, bilobed, glabrous, posterior gland ca. 1.2 mm. high and 1.3 mm. thick, the anterior portion reduced to a mere remnant; calyx lobes somewhat accrescent after anthesis; fruit unknown.

Type in the U.S. National Herbarium, no. 2,404,445, collected in rain forest on the lower northwestern slopes of Cerros Campanquiz, near the Río Marañon just above Pongo de Manseriche, Province of Alto Amazonas, Department of Loreto, Peru, at 250–350 meters elevation, Oct. 17, 1962, by J. J. Wurdack (no. 2277). Isotypes in Lima (not seen) and Kew.

This is the first species of the section *Gasteranthus* to be known from Peru. The plants of this section have slipper-like flowers, with the inflated corolla tube terminal and the orifice of the corolla minute and facing upwardly on the upper side some distance back from the tip of the corolla. The peculiar form may be correlated with the mode of pollination, but this is unknown; the brightly colored flowers of yellow, orange, or red probably indicate an insect pollinator. The other species of this section are confined to Ecuador and Colombia, with one outlier in Guatemala. The most closely related species is *Besleria calceolus* Fritsch (Repert. Sp. Nov. Fedde 18: 12. 1922), which is still known only from the type collection from the Montaña de Canelos, Ecuador (*Spruce* 5069); since the holotype at Berlin is probably destroyed, I here designate the specimen of this collection in the Royal Botanic Gardens, Kew, as lectotype. The epithet "*cal-*

ceolus" chosen by Fritsch means "little slipper" in Latin, and I have chosen another equivalent "*caligula*." These two species may be distinguished by the following key:

- Calyx lobes unequal, the 2 anterior obovate, the 2 lateral broadly elliptic, the posterior broader than long, all 7-7.5 mm. long, entirely glabrous; petioles ca. 1 cm. long; stems and leaves entirely glabrous; primary veins 12-15 pairs; corolla glabrous externally; ovary glabrous **B. caligula**
- Calyx lobes ovate-lanceolate, acuminate, subequal, the posterior somewhat broader, all 6 mm. long or less, slightly pilosulous externally; petioles 2-4 cm. long; stems at apex and leaf veins beneath minutely strigillose; primary veins 9 or 10 pairs; corolla tube sparsely pilosulous without; ovary with a few hairs at apex **B. calceolus**

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