

FOUR NEW SPECIES OF ERICACEAE (VACCINIEAE) FROM ECUADOR

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ABSTRACT

Four new species of endemic blueberries from montane Ecuador, ***Ceratostema oyacachiensis***, ***Ceratostema pendens***, ***Ceratostema pubescens***, and ***Disterigma bracteatum***, are described, illustrated, and their relationships discussed.

RESUMEN

Se describen y se discuten cuatro especies nuevas endémicas de mortiños de la sierra del Ecuador, ***Ceratostema oyacachiensis***, ***Ceratostema pendens***, ***Ceratostema pubescens***, y ***Disterigma bracteatum***, con sus ilustraciones y relaciones.

INTRODUCTION

In Ecuador, the Ericaceae, with 21 genera and about 222 species, are one of the largest and most conspicuous montane, flowering plant families (Luteyn 1996, 1998, 2002). Despite the recent treatment of the family in the *Flora of Ecuador* series, the number of new species continues to increase due to additional collecting efforts in previously unexplored or underexplored regions. This paper documents some of these new species and emphasizes, once again, that our basic knowledge of the numbers of species in this family, even in a country as well collected and studied as Ecuador, is still uncertain.

CERATOSTEMA Jussieu

Ceratostema is a montane genus of about 35 species of blueberries that is characterized by stamens usually as long as the corolla and of equal lengths, pedicels usually articulate with the calyx, anther thecae that are coarsely papillate, anther tubules that are elongate and about half the diameter of the thecae, and large corollas with lobes that are proportionately elongate. It ranges from Venezuela and Guyana south through the Andes to northern Peru. Luteyn (1984, 1986) considered the genus morphologically related to *Semiramisia* Klotzsch, although recent molecular studies (Powell & Kron 2003) place it in a clade with *Macleania* Hook. and *Psammisia* Klotzsch. The genus is currently being investigated by the author.

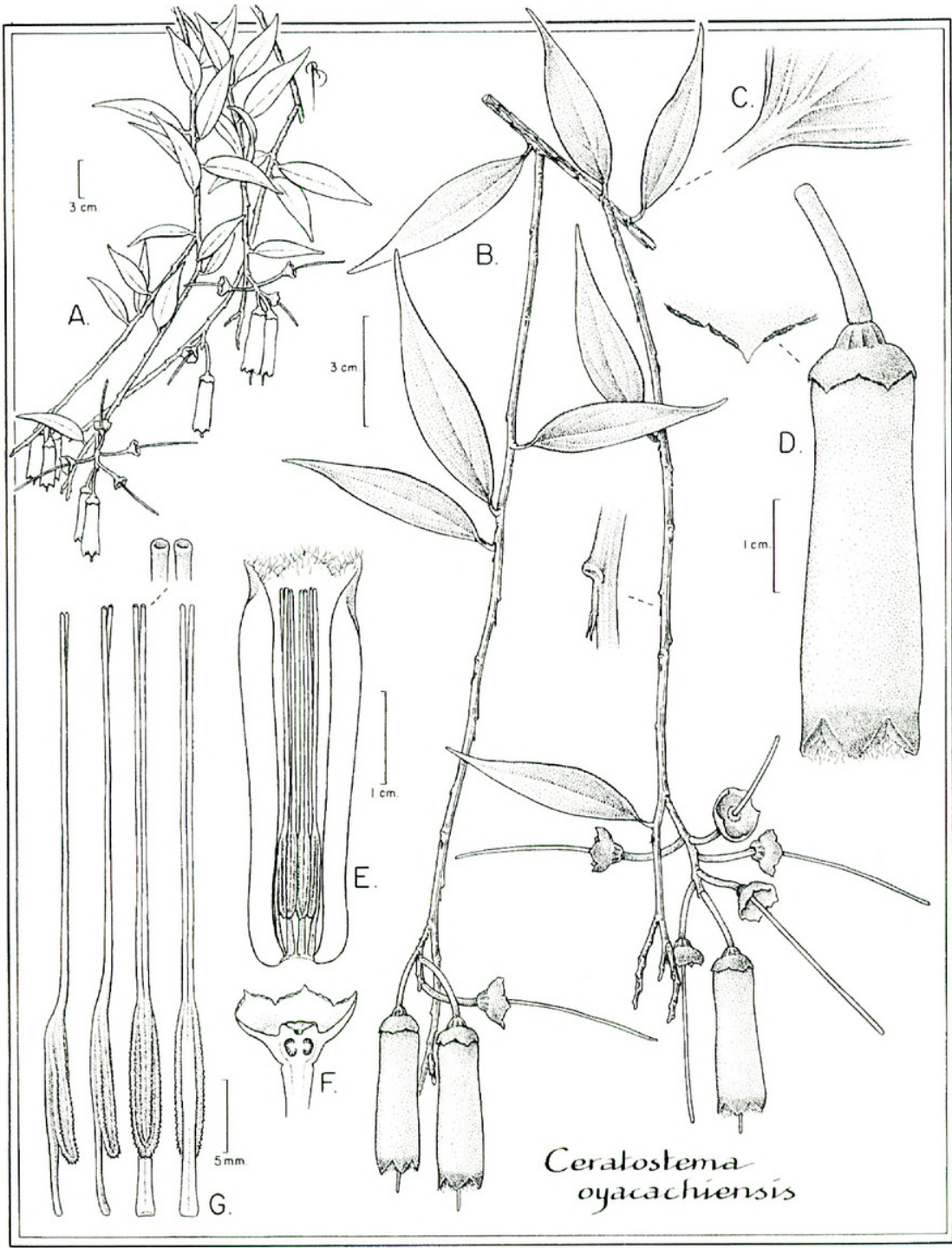


FIG. 1. *Ceratostema oyacachiensis*. A, habit. B, detailed habit showing close-up of axillary bud. C, detail of leaf base (undersurface). D, flower showing pedicel, calyx, corolla, and detail of calyx lobe margins. E, longitudinal section of corolla showing relative position of stamens. F, longitudinal section of calyx. G, stamens showing lateral, ventral and dorsal views with close-up of terminal dehiscence pores (drawn from holotype, Ståhl et al. 2512).

Ceratostema oyacachiensis Luteyn, sp. nov. (**Fig. 1**). TYPE: ECUADOR. NAPO: Río Chalpi at confluence with Río Oyacachi, 00°15'S, 77°58'W, 2500–2550 m, 21 May 1996 (fl), B. Stahl, P. Asimbaya & H. Navarrete 2512 (HOLOTYPE: NY; ISOTYPES: AAU, K n.v., MO n.v., QCA n.v., QCNE n.v.).

Species nova ab congeneribus differt foliis quoad venationem plinerviis, base late cuneatis vel obtusis, calycibus ad pedicellos articulatis, tubo calycino 10-costato, limbo calycino inconspicuo, rotato, lobis calycinis brevibus ad basem glandulis circularibus carentibus sed ad margines lacerato-glandulosus, atque corollis magnis crasso-carnosis lobis earum brevibus latisque.

Epiphytic **shrubs**; mature stems terete or subterete and bluntly angled, glabrous, the bark grayish, cracking longitudinally and exfoliating in thin strips; twigs terete to subterete, striate, glabrous, reddish-brown; axillary buds arising up to 3.5 mm above leaf-nodes, the outer pair of scales 2, valvate, relatively obscure, narrowly triangular, acuminate, up to 2.5 mm long. **Leaves** alternate, flat, the blades thick-coriaceous, lanceolate, 5.2–11 × 1.2–2.4 cm, basally broadly cuneate to obtuse, apparently decurrent onto petiole, apically long-acuminate, glabrous, the venation weakly 3–5-plinerved from near base, the midrib thickened and raised in proximal ca. 5 mm then plane to weakly impressed distally adaxially, raised and conspicuous abaxially, the lateral nerves plane to very weakly impressed adaxially and raised abaxially, the reticulate veinlets obscure adaxially and weakly raised abaxially; petioles subterete, slightly flattened adaxially, slightly winged to blade, ca. 4–11 mm long, glabrous. **Inflorescences** axillary, sometimes located along tips of branches where leaves have fallen, racemose, 2–8-flowered, somewhat short-pedunculate with flowers congested distally; rachis subterete, striate, 1.5–2.5 cm long, glabrous; floral bract caducous, not seen; pedicel terete, striate, 15–18 mm long, glabrous, articulate with calyx; bracteoles 2, located near base, caducous, ovate, ca. 2.2 mm long, apically long-acuminate, marginally glandular-fimbriate. **Flowers** 5-merous, pendent; calyx 6–9 mm long, glabrous, the tube obconic, truncate, terete to bluntly 10-ribbed, 2.5–3 mm long, the limb open, spreading to rotate, 5–6 mm long, the lobes broadly ovate, short-acuminate, 3–4 × 5 mm, with margins thin and seemingly lacerate-glandular, the sinuses acute; corolla thick-carnose, bistratose, cylindrical but slightly broadening distally, terete in cross-section, ca. 37–46 mm long, 7–9 mm basal diam. and 9–14 mm diam. at throat, orange, glabrous externally, the lobes broadly deltate, bluntly acute, 4–7 × 6–7 mm, green, densely floccose internally with flat, translucent trichomes to 2 mm long; **stamens** 10, ± equaling corolla in overall length, equal with each other, ca. 36–43 mm long, the filaments distinct, glabrous, ca. 4–6 mm long, the anthers ca. 33–39 mm long, the thecae ca. 9.5–11 mm long, basally conspicuously granular-papillate, the tubules ca. 24–28 mm long, seemingly connate in proximal 2/3, dehiscing by terminal pores ca. 0.2 mm diam.; style exerted, to 56 mm long, glabrous. **Fruit** not seen.

Distribution.—Endemic to northeastern Ecuador, where it occurs in both primary and disturbed forest, at ca. 1500–2550 m.

Ceratostema oyacachiensis is characterized by having leaf blades that are basally broadly cuneate to obtuse with plinerved venation, calyces that are articulate with the pedicels, calyx tubes that are terete to 10-ribbed, calyx limbs that are inconspicuous and rotate, calyx lobes that are short and lack basal, circular glands but do possess instead lacerate-glandular margins, corollas that are large and thick-carnose, broadening slightly distally and having short and broad lobes. In Luteyn's (1996) key to the Ecuadorean species of *Ceratostema*, this new species would be found in the vicinity of *C. pedunculatum* Luteyn, *C. prietoi* A.C. Sm., *C. nubigenum* (A.C. Sm.) A.C. Sm., and *C. ventricosum* Luteyn. It is distinct from all those species, however, based on its combination of characters mentioned above. If it were not for the articulate calyx/pedicel, this new species might be placed in the genus *Semiramisia* due to its rotate calyx limb and corolla that broadens slightly distally with relatively short, broad lobes. Additional collections of this species are needed to determine its morphological range of variation and relationships.

Additional collections examined: **ECUADOR**. **Sucumbios**: Sinangoe Station, Shishicho Ridge, Alto Aguarico drainage, above (south of) Río Cofanes, W of Puerto Libre, NW of Lumbaqui, 00°12'N, 77°32'W, 1500–1570 m, 13 Aug 2001 (fl), *Aguinda, Pitman & Foster 1673* (F, QCA n.v., QCNE n.v.).

Ceratostema pendens Luteyn, sp. nov. (**Fig. 2**). TYPE: ECUADOR. MORONA-SANTIAGO: Limón-La Unión road, trail beyond end of road (beginning at 13.6 km from Limón) towards La Unión, ca. 2°59'S, 78°25'W, 1340–1370 m, 18 Nov 1998 (fl, fr), *J.L. Luteyn & H. Mogollón 15376* (HOLOTYPE: NY; ISOTYPES: AAU, CAS, MO, QCA, QCNE, US).

Ab *C. auriculato* Luteyn foliis breve pilosis (non glabris), calice brevior 8–9 mm longo (non 12–14 mm), tubo calycis tereti vel quinquangulo (non 5-alato), limbo calycis pro ratione inconspicuo lobis calycinis brevioribus 4.8–5 mm longis (non 9–10 mm) fimbriis eorum glanduliferis carentibus differt.

Epiphytic **shrubs**, arising from lignotubers; mature stems long-pendent, terete, striate, glabrous, the bark thin, reddish, cracking longitudinally; twigs subterete to terete, striate, brownish, densely spreading short-pilose with simple (uniseriate, unicellular) trichomes ca. 1–1.3 mm long, glabrate; axillary buds not seen. **Leaves** alternate, petiolate, flat, amplexicaul, involute at base so as to conceal flowers and fruits, the blades broadly ovate, 7–10 × 4–7 cm, basally deeply cordate and slightly auriculate with the lobes imbricate when fresh, apically acuminate to short-acuminate, densely soft, white, short-pilose on both surfaces with simple trichomes ca. 1 mm long, the venation pinnate with 2–4 lateral veins or weakly 5(–7)-plinerved with inner pair of lateral nerves arising in the proximal 1 cm, the midrib thickened and raised in proximal 1 cm then plane to weakly impressed distally adaxially, weakly raised abaxially, the lateral nerves anastomosing distally and along with reticulate veinlets weakly raised but obscure on both surfaces; petioles terete, rugose, 2–3 mm long, densely short-white-pilose with simple trichomes. **Inflorescences** axillary, racemose,

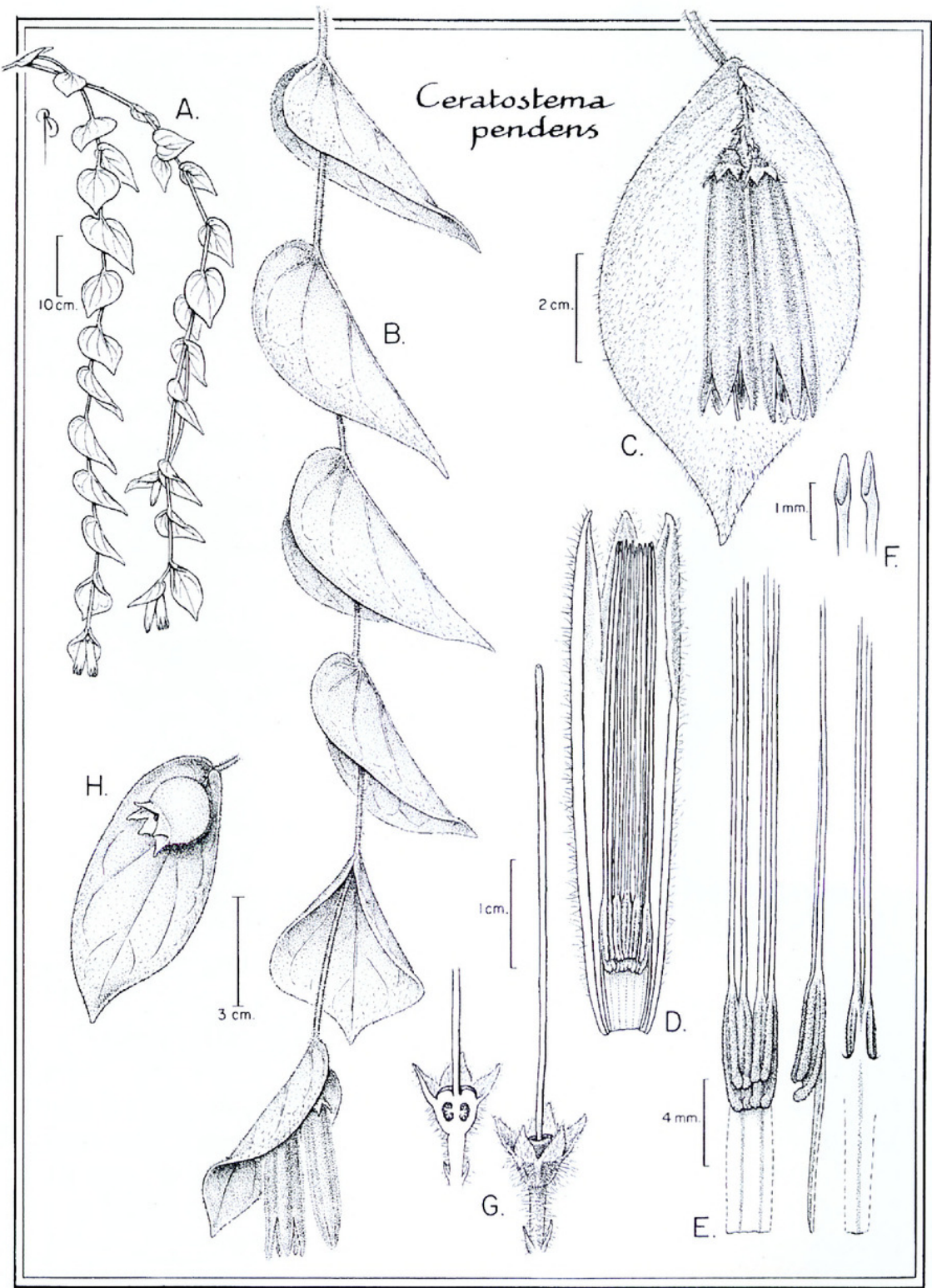


FIG. 2. *Ceratostema pendens*. A, habit. B, portion of stem showing involute leaves and two flowers. C, leaf spread open to show flowers. D, longitudinal section of corolla showing relative position of stamens. E, stamens in ventral, lateral, and dorsal views. F, close up of staminal dehiscence pores. G, calyx whole and in longitudinal section showing bracteoles and style. H, leaf spread open to show mature fruit (drawn from holotype, Luteyn & Mogollón 15376).

1–4-flowered but evidently only 1–2 flowers develop per rachis; rachis subterete, ca. 8–10 mm long, short-pilose with white, simple trichomes; floral bract 1, triangular, acuminate, ca. 2 mm long, densely short-pilose with simple trichomes; pedicel subterete, 5–6 mm long, articulate with calyx, short-pilose with simple trichomes; bracteloles 2, located near base, ovate, acute, ca. 1.3 mm long, short-pilose with simple trichomes. **Flowers** 5-merous; calyx ca. 8–9 mm long, short-pilose with white, simple trichomes, the tube terete to slightly pentagonal in cross-section, obconic, ca. 2.7–3.5 mm long, densely matted short-pilose, the limb spreading, ca. 5.3–5.5 mm long, moderately short-pilose, the lobes triangular-ovate, short-acuminate, ca. 4.8–5 mm long, striate, eglandular, moderately short-pilose externally and weakly so internally, the sinuses acute; corolla carnose, bistratose, cylindric to broadly and bluntly pentagonal in cross-section, slightly widening distally, ca. 45–48 mm long and 11 mm diam. at throat, dark maroon-red to pinkish-red, densely short-pilose with white, simple trichomes ca. 1 mm long, the lobes narrowly triangular, long-acuminate, ca. 12–13 × 3 mm; **stamens** 10, ± equaling corolla in overall length, alternately slightly unequal with each other, ca. 45 mm and 46.5 mm, the filaments equal, connate into a tube ca. 8–8.5 mm long, glabrous, the anthers 39.5 mm and 41 mm long, the thecae equal, ca. 7 mm long, conspicuously papillate, the tubules 2, alternately slightly unequal, distinct to base, ca. 34 mm and 35.5 mm long, dehiscing by introrse, oblique, oval pores ca. 0.6–0.8 mm long. **Fruit** a spherical, translucent cream-colored to waxy white, juicy berry, 15–22 mm diam., weakly short-pilose; seeds numerous, surrounded by translucent, mucilaginous sheath.

Distribution.—Endemic to Ecuador, where it occurs in primary forest on sandstone substrates, at 1000–1600 m.

Ceratostema pendens is characterized by its long-pendent, epiphytic habit with generally short-pilose vegetative and floral organs, amplexicaul leaves with cordate blades that are basally involute thus concealing the flowers and fruits when living, short floral bracts, terete to slightly pentagonal calyx tube, relatively inconspicuous calyx limb and lobes, and translucent whitish berry. In Luteyn's (1996) key to the Ecuadorean species of *Ceratostema*, this new species would be found in the final couplet containing *C. silvicola* and *C. amplexicaule*. It may be easily distinguished from those species by its involute leaves, fewer-flowered inflorescences, connate staminal filaments, and white berry (although berry color is unknown for *C. silvicola*). It is morphologically most similar to *C. auriculatum* Luteyn, having in common a long-pendent, epiphytic habit, amplexicaul leaves with blades that are cordate and pinnately-nerved, and few-flowered inflorescences that are hidden by the leaves. *Ceratostema pendens* differs from *C. auriculatum*, however, by having leaves that are short-pilose (vs. glabrous), shorter calyces (8–9 mm vs. 12–14 mm long), terete to pentagonal calyx tubes (vs. conspicuously 5-winged), and calyx limbs that are relatively inconspicuous possessing shorter lobes (4.8–5 mm vs. very

conspicuous and 9–10 mm long) that lack glandular fimbriae. There are very few collections of these species, however, and so interspecific relationships are uncertain at this time.

In *Flora of Ecuador* (Luteyn 1996), the sterile collection *van der Werff & Palacios 10428* (MO, NY) was determined as *Ceratostema machrydiorum* Luteyn, but the pubescence of its young leaves now characterizes it as an example of this new species. This points out further that sterile material of *C. pendens*, *C. auriculatum*, and maybe *C. cutucuense* Luteyn may be confused, due primarily to their having in common amplexicaul leaves with blades that are rounded to broadly ovate and deeply cordate basally, and short-acuminate apically. Table 1 compares and contrasts these species.

Additional collections examined: **ECUADOR. Morona-Santiago:** Limón Indanza, Cordillera de Huaracayo, E of Cordillera del Cóndor and Rio Coangos, E of Shuar village of Tinkimints, 3°15'S, 78°11'W, 1600 m, 24 Mar 2001 (fl, fr), *Neill & Manzanares 13192* (MO, NY); along unfinished road E of Limón, 1000 m, 5 Feb 1989 (ster), *van der Werff & Palacios 10428* (MO, NY).

Ceratostema pubescens Luteyn, sp. nov. (**Fig. 3**). TYPE: ECUADOR. EL ORO: Manu-Chilla road, Km 36, 10 km W of Guanasan, 3°28'S, 79°33'W, 2600 m, 4 Oct 1996 (fl), *G.P. Lewis, P. Lozano, N. Aguirre & I. Aldaz 2640* (HOLOTYPE: NY; ISOTYPES: AAU n.v., E n.v., K n.v., LOJA n.v., QCNE n.v.).

Ab *C. fasciculato* Luteyn foliis ad basem cuneatis breve attenuatisque (non rotundatis vel subcordatis), inflorescentia e fasciculis 4–6-floris (non e racemis usque 30-floris) composita, bracteis floralibus longioribus 20–26 mm longis (non 17–20 mm), corolla breviori 38–43 mm longa (non 45–57 mm), staminibus brevioribus 36–40 mm longis (non 45–51 mm) differt.

Coarse, terrestrial **shrubs**, sometimes semi-scandent, 2–3 m tall with stems to 10–12 cm diam., arising from lignotubers; mature stems somewhat contorted, erect or pendulous, subterete, coarsely and bluntly angled, densely short-pilose with whitish, simple trichomes, the bark grayish; twigs subterete, bluntly angled, striate, reddish-brown, densely pilose with whitish, simple trichomes to ca. 2 mm long; axillary buds with outer scales 2, valvate, pseudostipular, narrowly lanceolate, long-acuminate, 6–11.5 × 1.5–2 mm, carinate, short-pilose with whitish, simple trichomes. **Leaves** alternate, congested, petiolate, the blades coriaceous, flat to slightly revolute, sometimes slightly bullate, ovate, 4–10.5 × 2.5–6.5 cm, basally rounded and often subcordate, apically short-acuminate, glabrous to weakly short-pilose with whitish, simple trichomes adaxially and there also bearing multicellular-multiseriate, reddish, glandular-fimbriate trichomes, densely white pilose abaxially and there also reddish, glandular-fimbriate, discolorous (when fresh dark to yellowish-green adaxially and whitish-green abaxially, when dry olive-green adaxially and reddish-brown abaxially), the venation 3–5(–7)-plinerved with inner lateral nerves arising 1–2 cm above the base, the midrib thickened and raised in proximal 1 cm then plane to slightly impressed distally adaxially, raised and conspicuous abaxially, the lateral nerves plane to impressed adaxially and raised abaxially, the reticulate

TABLE 1. Salient features that characterize and distinguish four closely related species of *Ceratostema* – *C. auriculatum*, *C. cutucuense*, *C. macbrydiorum*, and *C. pendens*.

	<i>Ceratostema auriculatum</i>	<i>Ceratostema cutucuense</i>	<i>Ceratostema macbrydiorum</i>	<i>Ceratostema pendens</i>
Twig pubescence	Glabrous	Glabrous	Densely hirsute	Short-pilose
Leaf				
Posture	Amplexicaul, flat to somewhat incurved thus hiding flowers	Amplexicaul, flat	Amplexicaul, flat	Amplexicaul, involute
Apex	Acuminate	Cuspidate to acute	Short-acuminate	Acuminate
Pubescence	Glabrous	Glabrous	Pilose (glabrate adaxially)	Pilose both surfaces
Venation	Pinnate	5-plinerved	5–7(–9)-plinerved	Pinnate to weakly plinerved
Calyx				
Overall length (mm)	12–14	8.5–10	ca. 28	8–9
Tube cross-section	5-winged	5-winged	5-winged	Terete to 5-angled
Tube length (mm)	3–4.5	6.5–7	6	2.7–3.5
Lobe length (mm)	9–10	<0.5	ca. 21 mm	4.8–5
Lobe glands	Glandular-fimbriate	Eglandular	Eglandular	Eglandular
Pedicle				
Length (mm)	5–8	12–13	9	5–6
Pubescence	Pilose	Glabrous	Pilose	Pilose
Corolla				
Length (mm)	45–47	ca. 50	n.v.	45–48
Cross-section	Terete to bluntly 5-angled	5-winged over entire length	n.v.	Terete to bluntly 5-angled
Pubescence	Glabrous to sparsely pilose along angles	Short-pilose	n.v.	Glabrous
Stamens				
Length (mm)	ca. 43	ca. 50	n.v.	45–46.5
Filaments	Connate	Connate	n.v.	Connate

veinlets inconspicuous to obscure, weakly impressed adaxially and weakly raised abaxially; petioles subterete, rugose 4–10 × 2–4 mm, densely long-pilose with simple trichomes. **Inflorescences** axillary, racemose, pendent, to (10–)ca. 30-flowered; rachis persistent, subterete, bluntly angled, ca. 4–8 cm long, the

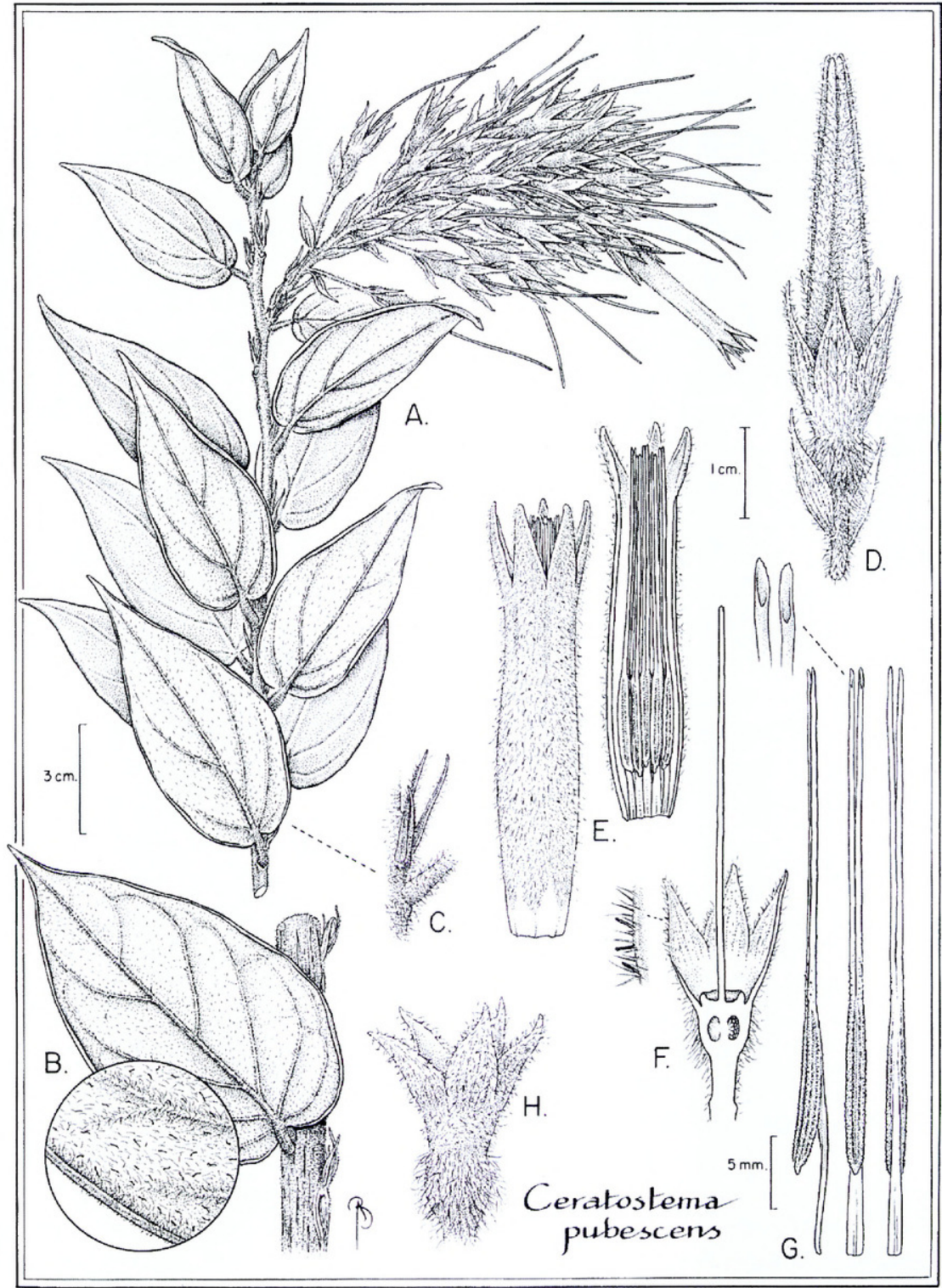


FIG. 3. *Ceratostema pubescens*. A, habit. B, portion of stem showing leaf undersurface and inset of pubescence. C, portion of stem showing leaf petiole and pseudostipular bud scales. D, flower bud with calyx and bracteoles. E, corolla with longitudinal section showing relative position of stamens. F, longitudinal section of calyx and inset of lobe margin showing simple hairs and glandular fimbriae. G, stamens showing lateral, dorsal, ventral views with inset of dehiscence pores (drawn from holotype, Lewis et al. 2640).

proximal several (to 4) nodes bearing sterile bracts; floral bract 1, lanceolate, long-acuminate, $11\text{--}16 \times 3\text{--}5$ mm, the venation conspicuous, moderately short-pilose with simple trichomes, marginally glandular-fimbriate with multicellular, multiseriate trichomes; pedicel subterete, striate, $10\text{--}14$ mm long, densely short-pilose with simple trichomes and also short-glandular-fimbriate with multicellular, multiseriate trichomes, articulate with calyx; bracteoles 2, alternate, located basally to distally along pedicel, similar to floral bract but $6\text{--}16 \times 2.5\text{--}3$ mm. **Flowers** 5-merous, pendulous; calyx $17\text{--}20$ mm long, short-pilose with simple trichomes and also sometimes short-glandular-fimbriate with multicellular, multiseriate trichomes, the tube cylindric to obconic, terete in cross-section, $4\text{--}6$ mm long, densely short-pilose with white to yellowish trichomes, the limb slightly spreading, $13\text{--}17$ mm long, moderately short-pilose, the lobes membranous, concave, ovate, acuminate, $11\text{--}13 \times 4\text{--}5$ mm with venation conspicuous, the sinuses acute; corolla membranous (fleshy when fresh), weakly bistratose, broadly and bluntly pentagonal in cross-section, cylindric and only slightly expanded basally, $45\text{--}57 \times 6\text{--}9$ mm, red to scarlet when fresh, short-pilose with whitish to reddish simple trichomes, also short-glandular-fimbriate with multicellular, multiseriate trichomes, the lobes wide-spreading and slightly reflexed exposing the stamens, lanceolate, bluntly acute, $7.5\text{--}13.5 \times 2\text{--}5$ mm, green when fresh; **stamens** 10, nearly equaling corolla in overall length, alternately slightly unequal with each other, $45\text{--}51$ mm and $46.5\text{--}53.5$ mm long, the filaments distinct, alternately $9\text{--}11$ mm and $9.5\text{--}13$ mm long, glabrous, the anthers alternately $38\text{--}42$ mm and $40\text{--}44$ mm long, the thecae alternately $12\text{--}13$ mm and $13\text{--}14$ mm long, the tubules 2, alternately $25\text{--}29$ mm and $28\text{--}31$ mm long, distinct in distal $1/2\text{--}1/3$, dehiscing by introrse, oblique, short clefts ca. $1.5\text{--}2$ mm long; style shortly exserted, $48\text{--}59$ mm long, glabrous, red to pink with green apex when fresh. **Fruit** a spherical, short-pilose berry at least 13 mm diam., apparently translucent pale greenish when mature.

Distribution.—Endemic to Ecuador, where it occurs in rocky outcrops of “Southern Ecuadorean Scrub” vegetation along a very narrow and local cloud belt zone, at ca. $2600\text{--}3100$ m. Common associates include *Puya* and *Pitcairnia* (Bromeliaceae), *Macleania* (Ericaceae), and lichen-covered boulders. Some corollas have holes at their bases made by nectar robbing birds. The fruit is said to be edible and a local common name is “salapa blanca grande.”

Ceratostema pubescens is characterized by having a coarsely shrubby habit, densely pubescent leaf blades, long and narrow bud scales that appear pseudostipular, multi-flowered and racemose inflorescences, elongate bracteoles, large calyces and corollas, terete calyx tubes, conspicuously veined calyx lobes, and bluntly 5-angled corollas with proportionately short lobes. In Luteyn's (1996) key to the Ecuadorean species of *Ceratostema*, this new species would be found nearest *C. fasciculatum* Luteyn, which differs morphologically by its basally cuneate and short-attenuate leaf blades (vs. rounded to subcordate), fasciculate and

4–6-flowered inflorescences (vs. racemose and to 30-flowered), longer floral bracts (20–26 mm vs. 11–16 mm), longer bracteoles (15–24 mm vs. 6–16 mm), overall longer calyx (20–27 mm vs. 17–20 mm), shorter corolla (38–43 mm vs. 45–57 mm), shorter stamens (36–40 mm vs. 45–51 mm), and eastern slope geographical distribution (i.e., Zamora-Chinchipe vs. western slope El Oro). The exact phylogenetic relationship of the new species awaits further study.

Additional collections examined: **ECUADOR. El Oro:** same as type, 6 Nov 1997 (fl), *Lewis et al.* 3687 (AAU, E n.v., GB n.v., K n.v., LOJA n.v., MO n.v., NY, P n.v., QCA n.v., QCNE n.v., US n.v.), 1 May 1997 (ster), *Luteyn et al.* 15066 (NY, QCA); Chilla, Km 7, track to the antennas and páramo, 3°27'S, 79°36'W, 3100 m, 7 Nov 1997 (fl), *Lewis et al.* 3700 (AAU, E n.v., GB n.v., K n.v., LOJA n.v., MO n.v., NY, QCA n.v., QCNE n.v., US n.v.); Chilla-Pueblo Viejo road, trail above Pueblo Viejo, 3°28'S, 79°36'W, ca. 2800 m, 2 May 1997 (im fr), *Luteyn et al.* 15071 (NY, QCA); Chilla-Pueblo Viejo, 3°28'S, 79°43'W, 2780 m, 28 Feb 1996 (fr), *Van den Eynden & Cueva* 630 (LOJA n.v., NY).

DISTERIGMA (Klotzsch) Niedenzu

Disterigma is a montane genus of about 35 species that is characterized by its usually small leaves, sessile to subsessile flowers, and pedicellary bracteoles that are apical and surround (sometimes tightly clasp) the calyx and sometimes the proximal parts of the corolla. It ranges from Guatemala south to Bolivia and east to Guyana. The genus has been considered related to *Vaccinium* on the basis of morphology, although recent molecular studies (Powell & Kron 2003) place it in a clade with *Sphyrnospermum*. The genus is currently being monographed by graduate student Paola Pedraza at The New York Botanical Garden.

Disterigma bracteatum Luteyn, sp. nov. (**Fig. 4**). TYPE: ECUADOR. AZUAY: Jesus María-Molleturo-Cuenca road, 22.3–25.2 km E of Coastal Highway at Jesus María, ca. 2°37'S, 79°14'W, 975–1160 m, 23 Nov 1998 (fl), J. L. Luteyn & H. Mogollón 15401 (HOLOTYPE: NY; ISOTYPES: AAU, CAS, G, K, MO, QCA, QCNE, S, US).

Species nova congeneris omnibus distinguenda in combinatione notarum sequente: foliis succulentis, bracteis inflorescentiae numerosis, circa 23, lanceolatis brunneolis persistentibus usque 11 mm longis, lobis calycinis anguste lanceolatis usque 5–6 mm longis atque staminibus 5 geniculatis.

Terrestrial to epilithic, spreading **shrubs** with branches somewhat pendent to 3 m long; mature stems terete, striate, glabrous, brownish, the bark cracking longitudinally into parallel strips; twigs subterete, bluntly and broadly angled, glabrous to weakly puberulent, grayish-brown; axillary buds with outer pair of scales 2, valvate, ovate, acuminate, glabrous, ca. 2.5 mm long, the inner series of scales numerous, lanceolate to ovate-lanceolate, acuminate, striate, glabrous, brown, to 20 × 7 mm, persistent at base of stems for at least three seasons. **Leaves** alternate, congested, the blades succulent and thick-coriaceous when fresh, wrinkled when dry, slightly revolute, elliptic to ovate-elliptic, 1.8–3.5 × 1.2–2.5 cm, basally rounded to broadly obtuse, apically rounded to broadly acute, glabrous on both surfaces, the venation obscurely 3–5-plinerved from the base with only the midrib scarcely visible adaxially; petioles terete, rugose, 2.5–5 mm long, weakly

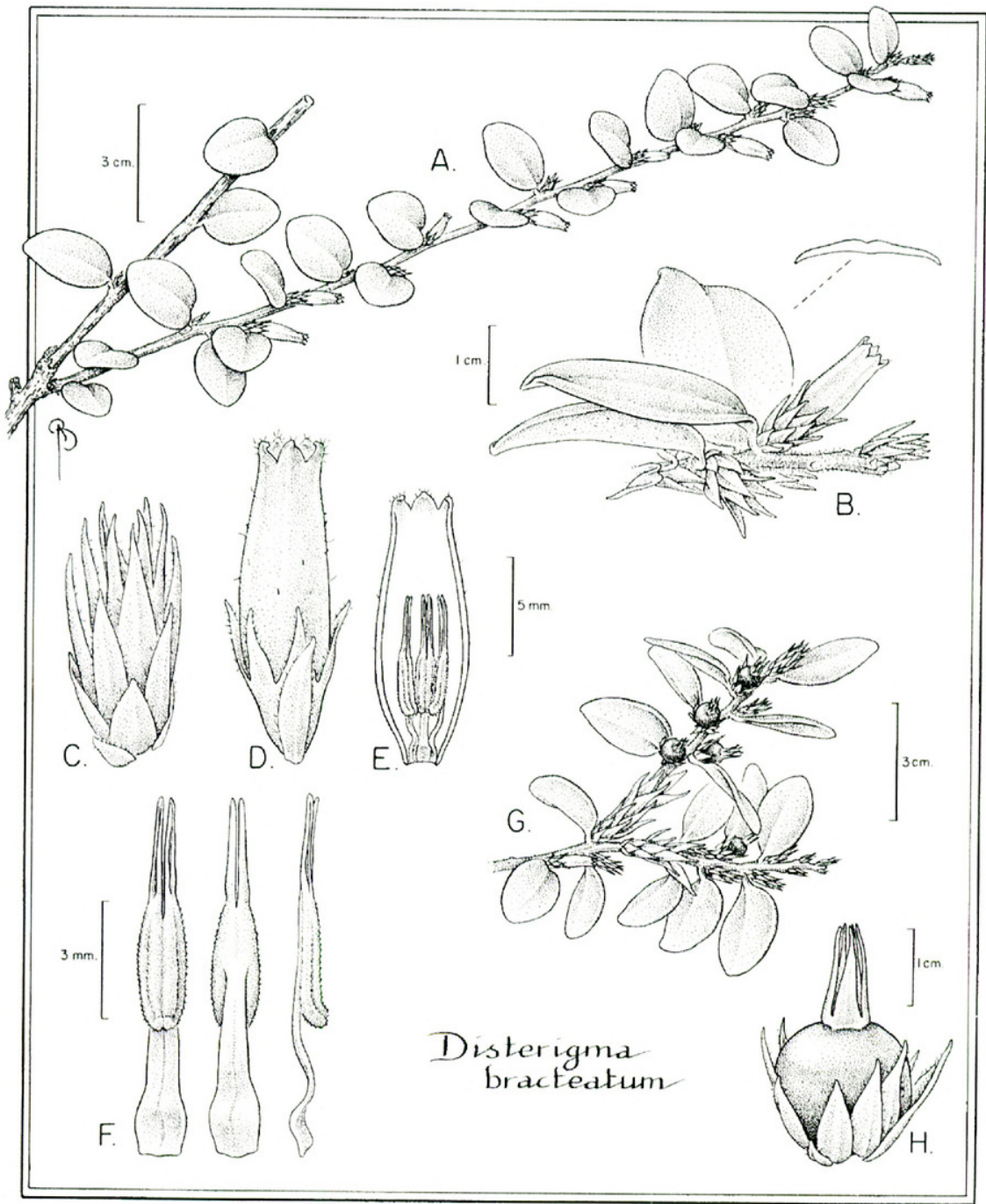


FIG. 4. *Disterigma bracteatum*. A, habit. B, portion of stem showing leaves and inflorescences, with detail of leaf cross-section. C, inflorescence bud. D, flower showing one bracteole, calyx and corolla. E, longitudinal section of corolla showing geniculate stamens. F, stamens showing ventral, dorsal, and lateral views. G, portion of stem showing fruits and immature inflorescences. H, details of mature berry showing persistent bracts and calyx lobes (drawn from *Luteyn & Mogollón 15401 & 15404*).

puberulent. **Inflorescences** fusiform in shape, of solitary flowers, seemingly arising from the axils of each leaf of a current season's growth, circumscribed by a series of numerous (ca. 23), ovate to lanceolate, acuminate to long-acuminate, weakly striate, scarious or brownish, glabrous but deciduously fimbriate-margined bracts up to ca. 11×4 mm that cover the calyx and lower ca. half of the corolla and persist at least until the fruits mature, the third innermost bract (i.e., the floral bract) morphologically indistinguishable from the other inflorescence bracts ca. 11×4 mm, the two innermost bracts (i.e., the bracteoles) also morphologically indistinguishable from the other inflorescence bracts ca. $7-9 \times 3-4$ mm; pedicel none, replaced by a series of overlapping nodes covering <0.5 mm length. **Flowers** 5-merous; calyx ca. 8–11.5 mm long, glabrous or sometimes weakly short-pilose (especially the lobe tips), the tube barrel-shaped, ca. 2–4.5 mm long, the limb cylindric, ca. 6–7 mm long, the lobes narrowly lanceolate, long-acuminate, ca. 5–6 mm long, marginally fimbriate, the sinuses acute; corolla cylindric, narrowing at base and to throat, somewhat pentagonal to 5-angled in cross-section, ca. $7.7-15 \times 6.5$ mm, bright red, glabrous, the lobes deltate, ca. 1.2–2 mm long, bluntly acute; **stamens** 5, shorter than corolla in overall length, equal with each other, ca. 10–11 mm long, the filaments geniculate, distinct, ca. 4–4.5 mm long, glabrous, the anthers ca. 7–7.4 mm long, the thecae ca. 3.6–3.9 mm long, the tubules 2, distinct to base, ca. 3.4–3.5 mm long, dehiscent by introrse, elongate clefts ca. 2.5–3 mm long; style included, \pm equaling corolla. **Fruit** a spherical, dark purple berry, 7–8 mm diam., crowned by persistent calyx lobes.

Distribution.—Endemic to Ecuador, where it occurs on rocks and rock outcrops as a low, spreading shrub within montane cloud forest habitats, at ca. 975–2600 m.

Disterigma bracteatum is characterized by having succulent leaves, numerous (ca. 23), lanceolate, brownish, persistent bracts to 11 mm long that surround the vegetative branches, inflorescences and fruits, calyx lobes that are narrowly lanceolate to 5–6 mm long, and five geniculate stamens. In Luteyn's (1996) key to the Ecuadorean species of *Disterigma*, this new species would be found near *D. pentandrum* S.F. Blake and *D. rimbachii* (A.C. Sm.) Luteyn, all three species characterized by possessing succulent leaves, solitary flowers surrounded by a series of brownish bracts, and five stamens. *Disterigma bracteatum* differs from *D. rimbachii*, which has few, caducous bracts to 2 mm long, calyx lobes deltate ca. 1 mm long, and bracteoles 1–2 mm long, and from *D. pentandrum*, which has about six persistent bracts to 7 mm long, calyx lobes ca. 3.5 mm long, and bracteoles ca. 7 mm long.

Additional collections examined: **ECUADOR. Azuay:** Jesus María-Molleturo-Cuenca road, 0.9 km towards Molleturo from turn-off from highway that is 56 km E of Jesus María, ca. $2^{\circ}42'S$, $79^{\circ}13'W$, ca. 2438 m, 23 Nov 1998 (fr), Luteyn & Mogollón 15404 (AAU, COL, GB, NY, QCA, QCNE, W), 2600 m, 27

Dec 2003 (fl), *Pedraza & Pedraza 1016* (COL, NY, QCA, QCNE), 10 kms before Molleturo, ca. 2°46'N, 79°24'W, 2600 m, 27 Dec 2003 (fl), *Pedraza & Pedraza 1017* (NY, QCA, QCNE).

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