Taxonomic novelties in Orthaea (Ericaceae: Vaccinieae)

Novedades taxonómicas en Orthaea (Ericaceae: Vaccinieae)

Nelson R. Salinas

ABSTRACT
Several taxonomical novelties of the genus Orthaea (Ericaceae: Vaccinieae) are presented. Two new species, O. eteocles and O. fissiflora, are described and illustrated, the limits of O. glandulifera are redefined to include O. oedipus as a synonym, and the status of a poorly known species, O. ignea, is also discussed.

Keywords. Andean flora, biodiversity, neotropical plants

RESUMEN
Se presentan varias novedades taxonómicas del género Orthaea (Ericaceae: Vaccinieae). Se describen e ilustran dos especies nuevas, O. eteocles y O. fissiflora, los límites taxonómicos de O. glandulifera son re-circunscritos, incluyendo O. oedipus como sinónimo, y el estatus taxonómico de una especie pobremente conocida, O. ignea, es también discutido.

Palabras clave. Biodiversidad, flora de los Andes, plantas neotropicales
INTRODUCTION

The plant family Ericaceae, with more than 4100 species, is an important floristic element of tropical montane ecosystems (Stevens et al. 2004). In the northern Andes, this family is represented by more than 600 species, most of them restricted to mid-elevation rain forests (Luteyn 2002). Orthaea Klotzsch, which includes 37 currently accepted species (Salinas 2015), is one of the least studied genera of neotropical Ericaceae. Traditionally, this genus has been delimited by the presence of conspicuously dimorphic stamens with filaments of alternating lengths and equal-sized anthers (Luteyn 1987). Although most species of Orthaea are found in Andean forests from Colombia to Bolivia, some are found in the Guiana Shield (Venezuela and Guyana) and Central America (S Mexico–Panama).

Phylogenetic affinities of Orthaea have remained largely elusive. Phylogenetic analyses have established that the genus—as traditionally circumscribed—is paraphyletic (Kron et al. 2002, Pedraza-Peñalosa et al. 2015, Salinas 2015). Species from the Guiana Shield—along with O. stipitata (Luteyn) Luteyn (Mexico)—belong to a clade of extra-neotropical origin that includes some Vacciniae from Southeast Asia, such as Paphia Seem. and Dimorphanthera J.J. Sm. Although all Andean species belong to the Neotropical clade (sensu Kron et al. 2002), there are multiples lineages within. With the exception of Orthaea madidiensis Pedraza & Luteyn, that has been recovered within a clade of Bolivian species of Thibaudi-dia J. St.-Hil. and Satyria Klotzsch, the remaining species of the genus belong to a clade of heterandrous (highly anisomorphic stamens) taxa that contains most of the diversity of Cavendishia Lindl., Satyria, and Andean Orthaea. Although most of the species of Orthaea belong to the latter clade, relations within such lineage are poorly supported (Pedraza-Peñalosa et al. 2015, Salinas 2015). Therefore, such studies do not recommend a re-circumscription of Orthaea until more robust and copiously sampled phylogenies were procured.

As a result of a recent detailed taxonomic and phylogenetic study on Orthaea (Salinas 2015), several taxonomic novelties were discovered, including two new species, the re-circumscription of a poorly known species, and a new synonym, all of which are here presented.

RESULTS AND DISCUSSION

Orthaea eteoecles N. R. Salinas, sp. nov. TYPE.

ECUADOR. Esmeraldas: Near Lita, 0°55' N, 78°34' W, 600 m, 19 May 1987 (fl), H. H. van der Werff 9497 (holotype QCNE; isotypes AAU!, MO!, NY!). (Fig. 1).

Orthaea eteoecles differs from O. glandulifera Luteyn by having longer inflorescence axis (77–116 mm vs. 1.7–5 mm in O. glandulifera), fewer flowers per inflorescence (6–13 vs. 15–24), longer stamens (14–15.5 vs. 8–10.2), longer anthers (4.3–6.6 mm vs. 2.9–3.4 mm), glabrous young branchlets (vs. pubescent), and v-shaped calyx sinuses (vs. u-shaped).

Epiphytic shrubs, scandent. Young branchlets terete or complanate, 1.5–2.0 mm diam., smooth, glabrous; mature branchlets glabrous, bark not exfoliating. Axillary buds globose, stipitate, stalk 0.5–1.0 mm long; prophylls 2, valvate, ovate or deltoid, 0.5–1.1 mm long, carinate or ecarinate, margin entire, eciliate, apex obtuse, abaxial side glabrous. Leaves alternate, internodes 1.0–2.9 cm long; petiole canaliculate, 3.0–5.0 mm long, rugose in dried material, glabrous; lamina chartaceous, elliptic, 6.1–11.5 × 2.0–4.8 cm, base rounded or obtuse, margin entire, revolute in dried material, eciliate, apex rostrate or caudate, glabrous on both sides; laminar glands absent; venation acrodromous, basal, perfect or imperfect, midvein raised on abaxial side, impressed on adaxial side, secondary venation camptodromous, prominent lateral veins 1–2, raised on abaxial side, impressed or raised on adaxial side. Inflorescence axillary or terminal, a 15–24-flowered raceme or panicle; axis 77–116 mm long, hirsute, hairs glandular and multicellular, peduncle 15–60 mm long, rachis 17–100 mm long; floral bracts early caducous, not seen; pedicel fleshy, 21–48 mm long, markedly swollen at apex, 0.5–1.0 mm diam. at base, 5–6 mm diam. at apex, glabrous, articulate with calyx; bracteoles early caducous, not seen. Flower 5-merous, diplostemonous. Calyx aestivation valvate, pink, tubular, 7–8 mm long, sessile or stipitate, terete, apophysate at base, apophysis perpendicular,
entire, glabrous or apically hirsute, the hairs glandular and multicellular; tube cylindric, 3–6 mm long, 4.0–6.5 mm diam.; limb straight, chartaceous or membranose, 3–5 mm long, lobes deltoid or ovate, 0.8–2.0 × 2.4–3.5 mm, margin eciliate, marginal gland present, apex round and apiculate, sinuses v-shaped. Corolla asteivation valvate, white at base, white at apex, membranose, bistratose, tubular, terete, 34–37 mm long, 4–6 mm diam., 3–4 mm diam. at throat, abaxial side hirsute, the hairs glandular and multicellular, adaxial side glabrous; lobes deltoid, 0.5–0.7 × 0.7–0.9 mm. Stamens 10, distinct, not adherent to corolla, included, filaments alternately unequal.

Long stamens 15.0–15.5 mm long; filaments straight, 10.5–11.0 × 1.1–1.2 mm, apically puberulous, the hairs eglandular and unicellular; anthers 4.3–4.7 mm long; thecae non-prognathous, 2.4–2.9 mm long, 0.6–0.8 mm wide, glabrous, not appendiculate; tubules parallel, 2.8–3.0 mm long, 0.7 mm diam., dehiscing by latrorse pores, pores 0.5–1.2 mm long, margin entire. Short stamens like those of the longer cycle except for 14–15 mm long, filaments 7.0–7.5 × 1.0–1.4 mm, anthers 5.8–6.6 mm long, thecae 2.9–3.0 mm long, 0.8 mm wide, tubules 3.0–3.4 mm long, 0.6–0.7 mm diam., dehiscing by intrors pore. Ovary 5-locular, placentation axile. Nectary disk flat,
Orthaea fissiflora N. R. Salinas & Pedraza, sp. nov. TYPE. BOLIVIA. La Paz: Murillo, Yungas, valle del río Zongo, 24.2 km al N de la cumbre, 16º7' S, 68º7' W, 2900 m, 11 Apr 1987 (fl, fr), J. C. Solomon 16538 (holotype LPB!; isotypes G!, MO!, NY!). (Fig. 2).

Orthaea fissiflora differs from O. pinnatinervia Mansf. because of its basally green corolla that usually splits longitudinally after anthesis (vs. red and without tears in O. pinnatinervia), connate staminal filaments (vs. distinct), and longer stamens (long cycle 7.4–8.4 mm vs. 6.5–7.0 mm; short cycle 6.3–7.0 mm vs. 4.8–5.5 mm).

Terrestrial or epiphytic shrubs 1–2 m tall, scandent. Young branchlets ridged or terete, 1–4 mm diam., smooth or striate, glabrous; mature branchlets glabrous, bark not exfoliating. Axillary buds complanate, stipitate, stalk 0.2–0.8 mm long; prophylls 2, imbricate, ovate or lanceolate, 1.0–2.6 mm long, ecarinate, margin entire, ciliate, the hairs glandular and multicellular, apex acuminate, abaxial side glabrous. Leaves alternate, subopposite or opposite, internodes 0.1–1.4 cm long; petiole semiterete, 1–3 mm long, rugose in dried material, glabrous; lamina chartaceous or coriaceous, elliptic, ovate or lanceolate, 2.6–6.6 × 0.5–2.0 cm, base rounded, obtuse or cuneate, margin entire, revolute, flat or revolute in dried material, eciliate, apex acuminate, adaxial side glabrous, abaxial side glabrous or strigose, the hairs glandular and multicellular, laminar glands absent; venation acrodomous, suprabasal, imperfect, midvein raised on abaxial side, impressed on adaxial side, secondary venation camptodromous or brochidodromous, prominent lateral veins 1–2, raised or flat on abaxial side, impressed on adaxial side. Inflorescence axillary or terminal, a 6–15-flowered raceme; axis

Table 1. Morphological differences among Orthaea eteocles and other similar species.

| Character          | O. eteocles | O. glandulifera | O. medusula | O. peregrina |
|--------------------|-------------|-----------------|-------------|--------------|
| Inflorescence      | raceme      | raceme          | panicle     | raceme       |
| Calyx lobe margin  | eciliate    | ciliate or eciliate | eciliate | eciliate |
| Calyx lobe marginal gland | present | absent | present | present |
| Corolla shape      | tubular     | tubular         | urceolate   | tubular      |
| Corolla color      | white       | white           | red         | white or pink |
| Corolla size (mm)  | 34–37       | 25–33           | 7.5–8.3     | 16–20        |
| Staminal filaments | distinct    | distinct        | connate     | distinct     |
| Long stamens (mm)  | 15–15.5     | 7.5–10.3        | 5–6.5       | 7.5–9.8      |
| Short stamens (mm) | 14–15       | 6.5–8.2         | 3.9–4.2     | 5.5–8.4      |
10–20 mm long, glabrous, peduncle 0.5–3.0 mm long, rachis 7.0–19.5 mm long; bracts of the inflorescence early caducous, chartaceous, ovate or deltoid, 1.0–1.5 × 1.0–1.4 mm, smooth, margin entire, ciliate or eciliate, the hairs glandular and multicellular, apex acute, obtuse or obtuse-mucronate, glabrous on both sides; floral bracts early caducous, chartaceous, shape and size homogeneous along the rachis, ovate, 2.5–4.5 × 1.4–2.0 mm, smooth, margin erose or entire, eciliate or ciliate, the hairs glandular and multicellular, apex acute or obtuse-mucronate, glabrous on both sides; pedicel stout, 7–13 mm long, not markedly swollen at apex, 0.5–1.0 mm diam. at base, 1.0–1.5 mm diam. at apex, glabrous, articulate with calyx; bracteoles early caducous, basal or medial, subopposite, ovate or lanceolate, 1.0–2.0 × 0.6–1.0 mm, margin entire, eciliate, apex acuminate or acute, glabrous on both sides. Flower 5-merous, diplostemonous. Calyx aestivation valvate, green, campanulate (tubular in vivo), 3–5 mm long (5.2–6.5 mm in vivo), sessile, terete, apophyseate or truncate at base, apophysis perpendicular, entire, glabrous; tube cylindric, 1.5–2.8 mm long (3.0–4.0 mm in vivo), 2.0–3.0 mm diam. (4.0–5.5 mm in vivo); limb flaring (straight in vivo), chartaceous, 2–3 mm long, lobes deltoid, 0.3–0.5 × 0.3–1.0 mm, margin eciliate, marginal gland absent, apex acute, sinuses u-shaped. Corolla aestivation valvate, green at base, green or white at apex, membranose, tubular, terete, 14–18 mm long (17–21 mm in vivo), 3.0–7.0 mm diam. (6.3–6.5 mm in vivo), 2.5–4.5 mm diam. at throat.
Orthaea fissiflora

**Distribution and ecology.** Orthaea fissiflora is restricted to La Paz department, Bolivia, in humid montane forests at 2100–3400 m. Flowering in March–May. Growing in January, March, April, May, July, September, and November.

**Specimens examined.** BOLIVIA. La Paz: Murillo, Valle del Río Zongo, 18–24 km N La Cumbre, 16°7′–16°10′ S, 68°4′–68°10′ W, 2150–2950 m, 10 May 1990 (fl, fr), J. L. Luteyn 13618 (LP, MO, NY); 2 Mar 2000 (fl), J. L. Luteyn 15439 (NY); 14 Apr 2005 (fl), J. L. Luteyn 15610 (NY); 15 Apr 2005 (fl), J. L. Luteyn 15611 (NY); La Paz–Coroico road, 0.5 km NW of Chuspipata, 16°16′ S, 67°46′ W, 3050 m, 16 Mar 2000 (fl), J. L. Luteyn 15468 (NY); Nor Yungas, 3.5 Km W de Chuspipata, 1.5 km E de Cotapata, camino a Unduavi, 16°18′ S, 67°50′ W, 3300 m, 5 Apr 1984 (fl), J. C. Solomon 12268 (LPB, MO, NY); entree Cotapata y Chuspipata, 16°16′ S, 67°49′ W, 3200 m, 11 Apr 1989 (fl), S. G. Beck 14927 (NY); La Paz–Coroico road, camino prehispánico Sillutinkara, ca. 5 km below Unduavi, Parque Nacional Cotopata, 16°18′ S, 67°54′ W, 3100–3300 m, 26 Apr 2007 (fl, fr), J. L. Luteyn 15734 (NY); La Paz– Coroico road, 16°17′ S, 67°52′ W, 3300 m, 27 Apr 1999 (fl), E. Hennipman 8003 (LPB); near Unduavi, 16°19′ S, 67°53′ W, 3000 m, 15 Apr 1939 (fl), T. H. Goodspeed 25400 (K); Chuspipata 5 km via Unduavi, 16°16′ S, 67°49′ W, 3150 m, 2 Apr 1982 (fl), S. G. Beck 7603 (L, NY); Yungas, Cotapata, 8.8 km E Unduavi por el camino a Coroico, 16°16′ S, 67°49′–67°50′ W, 3200–3290 m, 30 Mar 1977 (fl), J. D. Boeke 1395 (NY, US); 11 Apr 1988 (fl, fr), J. C. Solomon 18223 (NY); Unduavi, 16°19′ S, 67°54′ W, 3300 m, Nov 1900 (fr), O. Buchtien 2902 (NY); Sud Yungas, Unduavi–Chaco road, towards Florida, 16°18′ S, 67°52′ W, 3250 m, 14 May 2001 (fl), J. Schönemberger 494 (LPB).

**Etymology.** The specific epithet makes reference to the senescence of the corolla after anthesis, tearing along a longitudinal slit.

Orthaea fissiflora is characterized by its small leaves (up to 6.6 × 2 cm), short inflorescence axis (up to 20 mm long), and small green corollas (14–18 mm long) that very often tear apart longitudinally after anthesis, exposing the style and stamens. Morphologically, the closest species is O. pinnatinervia, from which it differs by the characters mentioned in the diagnosis.

Most of the specimens of Orthaea fissiflora were previously annotated as O. ignea Sleumer. However, Sleumer (1934) described O. ignea exclusively on a single specimen (Herrera 3656, holotype), which was destroyed during World War II (Hiepko 1987). Despite that no collections are remaining, it is clear from the information provided in the protologue that O. ignea cannot be conspecific with O. fissiflora because of its bigger leaves (8.5–11.5 × 2–2.8 vs. 2.6–6.6 × 0.5–2 cm), connate stamens (vs. distinct), and shorter staminal filaments (long cycle 2.2 mm long vs. 3.9–4.4 mm, short cycle 1.5 mm long vs. 2.5–3 mm).
Therefore, all known specimens at G, LPB, MO, NY, U and US previously annotated as *O. ignea* were incorrectly identified. Unfortunately, in the absence of a type specimen or any paratypes, the taxonomic status of *O. ignea* remains unresolved.

**Orthaea glandulifera** Luteyn, Nordic J. Bot. 7(1): 34-36, fig. 1 D-E. 1987. TYPE. COLOMBIA. Antioquia: Yarumal, 9–18 km N of Yarumal, 7º1’ N, 75º30’ W, 1975–2015 m, 25 May 1984 (fl), *J. L. Luteyn 10727* (holotype JAUM!; isotypes AAU!, CAS!, COL!, E!, F!, L!, MO!, MEXU, NY!, STE, U!, US!, W!).

**Orthaea oedipus** Luteyn, Nordic J. Bot. 7(1): 36, fig. 1 F-G. 1987, syn. nov. TYPE. COLOMBIA. Chocó: Bolívar–Quibdó road, 37–40 km W of El Cármen, 5º50’ N, 76º14’ W, 671–1360 m, 21 May 1984 (fl), *J. L. Luteyn 10652* (holotype JAUM!; isotypes AAU!, CAS!, COL!, NY!, US!).

Terrestrial or epiphytic shrubs 3–8 m tall, scandent. Young branchlets terete, 1–3 mm diam., smooth, pubescent or glabrous, the hairs glandular and multicellular; mature branchlets glabrescent, the hairs glandular and multicellular, bark not exfoliating. Axillary buds complanate or globose, stipitate, stalk 0.4–1.0 mm long; prophylls 2, valvate, ovate, 0.8–1.5 mm long, ecarinate, margin entire, ciliate, the hairs glandular and multicellular, apex rounded or obtuse, abaxial side glabrous. Leaves alternate, internodes 0.6–3.8 cm long; petiole canaliculate or semi-terete, 2–4 mm long, rugose or smooth in dried material, glabrous; lamina chartaceous, ovate or elliptic, 4.0–10.8 × 1.2–4.5 cm, base rounded, obtuse or cuneate, margin entire, slightly revolute in dried material, ecarinate, apex acuminate, adaxial side glabrous; laminar glands absent; venation acrodromous, basal, perfect, midvein raised on abaxial side, impressed on adaxial side, secondary venation brochidodromous, prominent lateral veins 1–2, raised on abaxial side, impressed on adaxial side. Inflorescence terminal or axillary, a 6–15-flowered raceme or solitary flower; axis 17–50 mm long, red or pink, puberulous or glabrous, hairs glandular and multicellular, peduncle 1–6 mm long, rachis 11–49 mm long; bracts of the inflorescence persistent or early caducous, membranous, oblanceolate or ovate, 1–15 × 2–7 mm, striate, margin entire, eciliate, apex obtuse, glabrous on both sides; floral bracts early caducous, membranous, shape and size heterogeneous along the rachis, elliptic, 2.5–5.0 × 1.5–2.0 mm, smooth, margin entire, ciliate, the hairs glandular and multicellular, apex acute, glabrous on both sides; pedicel pink or red, stout or slender, 10–42 mm long, markedly swollen at apex, 0.5–1.0 mm diam. at base, 2.5–6.0 mm diam. at apex, scarcely puberulent or glabrous, the hairs glandular and multicellular, articulate with calyx; bracteoles early caducous, basal, subopposite, lanceolate or elliptic, 2–3 × 1 mm, margin entire, ciliate, the hairs glandular and multicellular, apex acute, adaxial side puberulent, the hairs glandular and multicellular, abaxial side glabrous. Flower 5-merous, diplostemonous. Calyx aestivation valvate, pink or red, tubular, 4–6 mm long (6–7 mm *in vivo*), sessile, terete, apophyseal at base, apophysis perpendicular, entire, scarcely puberulent or glabrous, the hairs glandular and multicellular; tube cylindric, 2–4 mm long (3.5–4.8 mm *in vivo*), 2.5–4.0 mm diam. (4.5–5.3 mm *in vivo*); limb straight or flaring (*straight in vivo*), membranous, 2.2–4.0 mm long, lobes deltoid, 0.4–1.0 × 1.2–2.5 mm, margin eciliate or ciliate, the hairs glandular and multicellular, marginal gland absent, apex acute or obtuse, sinuses u-shaped or v-shaped. Corolla aestivation valvate, white at base, white at apex, membranous, tubular, terete, 25–33 mm long (26–35 mm *in vivo*), 5.5–9.0 mm diam. at base, 3.0–4.8 mm diam. at throat, abaxial side pubescent or glabrous, the hairs glandular and multicellular, adaxial side glabrous; lobes deltoid, 0.8–1.0 × 1.0–1.5 mm. Stamens 10, distinct, adherent to corolla in the basal 2.0–4.5 mm or not adherent, included, filaments alternately unequal. Long stamens 7.5–10.3 mm long; filaments straight, 5.8–8.0 × 1.2 mm, apically puberulous or glabrous, the hairs eglandular and unicellular; anthers 2.3–3.2 mm long; thecae non-prognathous, 1.5–1.8 mm long, 0.8 mm wide, glabrous, not appendiculate; tubules parallel, 0.7–1.3 mm long, 0.6 mm diam., dehiscing by acrosopic pores, pores 0.1–0.3 mm long, margin entire. Short stamens like those of the longer cycle except for 6.5–8.2 mm long, filaments 4.1–6.0 × 1.9 mm, anthers 2.4–3.4 mm long, thecae 1.5–2.0 mm long, tubules 1.0–1.5 mm long. Ovary 5-locular, placentation axile. Nectary disk flat, glabrous; style 27–33 mm long, exerted, stigma truncate. Berry spherical, 6–9 mm long, 6–10 mm diam., lobes ascending, glabrous, the hairs purple; seeds ellipsoidal, 1.0–1.5 × 0.7–0.9 mm.

**Distribution and ecology.** Northwestern Colombia, along the western slope of the western Cordillera and the northern limit of the Central Cordillera, at 800–3200 m. Usually found in rain forests, but occasionally collected in vegetation remnants of perturbed areas. Flowering and fruiting throughout the year.
Specimens examined. COLOMBIA. Antioquia: Yarumal–Valdivia road km 124, ca. 12 km N of Yarumal, 7°4’N, 75°27’W, 2050 m, 23 Mar 1979 (fl, fr), J. L. Luteyn 7073 (COL, GH, NY); Parque Nacional Natural Las Orquídeas, sector Calles, río Calles, 4°34’–6°32’ N, 76°13’–76°19’ W, 1200–1500 m, 3 Apr 1992 (fr), D. Cárdenas López 3289 (MO); 30 May 1988 (fl), A. Cogollo 3100 (COL, JAUM, MO); 2 May 1995 (fl), R. Fonnegra G. 5435 (COL, NY); 3 May 1995 (fr), 5517 (COL, MO); 25 Jan 2011 (fl, fr), P. Pedraza-Peñalosa 1932 (NY); 28 Jan 2011 (fl, fr), 2071 (NY); 6 Dec 1992 (fr), J. J. Pipoly 16633 (MO); 26 Mar 1991 (fr), J. G. Ramírez 4026 (JAUM, MO); Frontino, corregimiento Nutibara, Sitio Murri, via Nutibara–La Blanquita, Alto de Cuevas, 6°40’–6°45’ N, 76°19’–76°27’ W, 1330–2080 m, 19 Oct 1987 (fl), A. E. Brant 1406 (CAS×2, COL×2, MO, NY, US); 13 Feb 1991 (fl), R. Callejas Posada 9864 (NY, QCA); 4 Mar 1992 (fl), A. H. Gentry 76172 (MO, NY); 19 Apr 1988 (fl), J. L. Luteyn 12072 (NY, QCA, US); 19 Apr 1988 (fl), J. L. Luteyn 12083 (NY); 21 Apr 1988 (fl), J. L. Luteyn 12179 (MO, NY); 20 Oct 1987 (fl), D. Sánchez 1720 (COL); ca. 0.5 km W of road to La Magdalena, 9 km SW of Urrao–Betulia road, 6°9’ N, 76°3’ W, 2060 m, 1 Nov 1987 (fl, fr), A. E. Brant 1606 (COL, MO, NY); vereda La Magdalena; camino La Magdalena–río Ocaídó, pasando por el Alto del Caballo, cuencas de los ríos Oroguio, Oro y Ocaídó, 6°15’ N, 76°14’ W, 1730–2150 m, 13 Dec 2007 (fr), P. Pedraza-Peñalosa 1753 (CUVC, NY); Yarumal, Yarumal–Ventanas road, ca. 12 km N of Yarumal, 7°1’ N, 75°30’ W, 2050 m, 31 Oct 1996 (fl, fr), J. L. Luteyn 14997 (NY). Chocó: Medellín–Quibdó road, km 125–138, río Atrato Valley, 5°40’–5°50’ N, 76°14’–76°19’ W, 950–1463 m, 11 Mar 1984 (fr), A. Juncosa 2431 (MO, NY); 3 Apr 1979 (fr), J. L. Luteyn 7210 (COL×2, NY); 28 Jan 1986 (fl), B. A. Stein 3310 (COL, JAUM, MO, NY); Carmen del Atrato–Quibdó road, 7–11 km W of El Siete, 5°45’ N, 76°25’ W, 950–1500 m, 26 May 1988 (fl), J. L. Luteyn 12438 (NY, US); Ansermanuevo–San José del Palmar road, from Chocó–Valle border W 10 km towards San José del Palmar, 4°57’ N, 76°8’ W, 1524–2050 m, 15 May 1984 (fl), J. L. Luteyn 10540 (NY, US). Risaralda: Apía, vereda Tatamá, reserva Karagabí, Grupo GER, camino a la Quebrada Tatamá, 5°9’ N, 76°1’ W, 1900–3200 m, 13 Jul 2004 (fl), P. Pedraza-Peñalosa 1084 (NY, COL); 14 Jul 2004 (fr), P. Pedraza-Peñalosa 1092 (COL, NY); Mistrató, corregimiento Juguadas, entre Puerto de Oro y Juguadas, 5°25’ N, 75°54’ W, 900–1400 m, 19 Sep 1991 (fr), J. C. Betancur 2815 (COL, NY).

Luteyn (1987) distinguished Orthaea glandulifera from O. oedipus because of the pedicel apex (slightly swollen vs. greatly swollen in O. oedipus), the leaf base (rounded and cordate vs. obtuse to rounded), the glandular indumentum in the inflorescence axis (absent vs. present), and the calyx lobes (elongated and ciliate vs. reduced and eciliate). Four collections were then cited by Luteyn (1987), two from eastern Chocó, along Quibdó–Medellín road (O. oedipus), and two from Yarumal, northern Antioquia (O. glandulifera). Certainly, those collections agree with the diagnostic characters noted by Luteyn (1987). However, many new collections are now available from other regions in north-western Colombia, such as western Antioquia (Frontino and Urrao), southern Chocó (San José del Palmar), and Risaralda. From their study it is now evident that the diagnostic characters fail to set the two taxa apart; therefore, they are here synonymized. Furthermore, the Ecuadorian specimens previously considered O. oedipus by Luteyn (1996) represent an undescribed species and morphologically the closest taxon to O. glandulifera (see discussion under O. etecoles). The description is updated on the basis of the taxonomical changes here proposed, and the increased morphological variation recorded in poorly sampled populations.

CONFLICT OF INTEREST
The author declares that he has no conflict of interest.

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