
Novae Gesneriaceae Neotropicarum XIV: Four New Species of *Alloplectus* from South America

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ABSTRACT. A monographic revision of *Alloplectus* (Gesneriaceae) has revealed four species new to science from Colombia, Ecuador, and Peru. These species are described here and include *A. carpishensis* from Peru, *A. inflatus* from Colombia, *A. serpens* from Colombia and Ecuador, and *A. oblongicalyx* from Colombia and Ecuador.

Key words: *Alloplectus*, Colombia, Ecuador, Gesneriaceae, Peru.

The most recent treatment of the genus *Alloplectus* Martius is that of Hanstein (1865). Hanstein's publication focused on the Gesneriaceae at the botanical garden in Berlin to provide an overview of the family, and *Alloplectus* was only a part of a monograph of the known Gesneriaceae. Hanstein recognized 30 *Alloplectus* species in his treatment. Recent estimates of the genus range from 65 (Wiehler, 1973) to 75 species (Burt & Wiehler, 1995). From a thorough review of the 119 names listed in *Index Kewensis*, only 32 are considered by us to be currently accepted names in *Alloplectus*.

Preliminary phylogenetic analyses based on the nuclear ribosomal internal transcribed spacer region (ITS) have shown that *Alloplectus* is polyphyletic (Clark & Zimmer, 2003). A more restricted monophyletic group containing the type species for the genus, *Alloplectus hispidus* (Kunth) Martius, includes the new *Alloplectus* species presented here. This more restricted definition of *Alloplectus* is characterized by the presence of resupinate flowers, a unique synapomorphy for the clade. The species described here were frequently collected and rep-

resented in numerous herbaria, but were annotated as belonging to other species of *Alloplectus*. The four new species below are derived from a monographic study of *Alloplectus* and allied genera, a review of herbarium collections (4000+ collections from 30+ herbaria), and five years of fieldwork by the first author in Ecuador with recent forays of fieldwork in Peru and herbarium work in Colombia.

Alloplectus carpishensis J. L. Clark & I. Salinas, sp. nov. TYPE: Peru. Huánuco: Chinchao, San Pedro de Carpish, above Carpish tunnel, ca. 47 km N of Huánuco on the road to Tingo María, 09°43'14"S, 76°06'53"W, 2770–2900 m, 1 Nov. 2001, I. Salinas 224 (holotype, USM; isotype, US). Figure 1.

Ad *A. serpentem* similis sed in foliis ellipticis dense pubescentibus, lobis calycis apice acuminatis et corollis uniformiter flavis differt.

Subshrubs; terrestrial, stems erect to horizontal (on steep slopes), rarely branched, to 2 m tall, subwoody, subquadrangular to terete, glabrescent below, densely villous above. *Leaves* opposite, equal in a pair; petioles terete, 1–4 cm long, green, densely villous; blades subcoriaceous when dry, elliptic to slightly falcate, 8–19 × 2–5 cm, base acute to oblique, apex acute, margin serrate, adaxially green, uniformly sericeous, abaxially pale green, densely sericeous (especially on veins). *Inflorescence* epedunculate, reduced cyme, appearing fasciculate, with 1 to 7 flowers per node; bracteoles ovate, 2–3 × 1–2 cm; pedicels shorter or longer

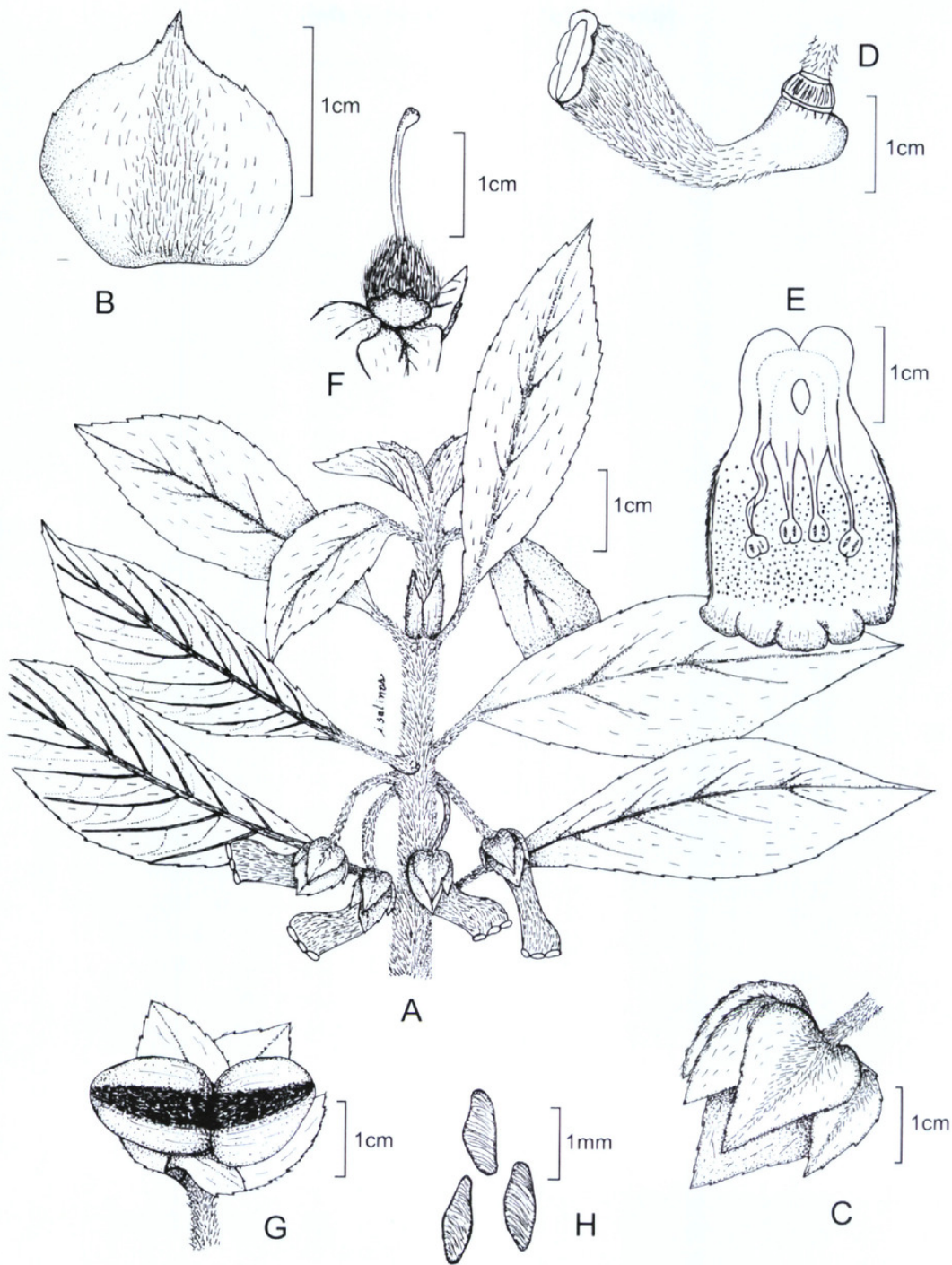


Figure 1. *Alloplectus carpishensis* J. L. Clark & I. Salinas. —A. Habit. —B. Bract. —C. Calyx. —D. Corolla. —E. Corolla opened to show stamens. —F. Calyx opened and corolla removed to show valvate nectary glands. —G. Mature fruit. —H. Seeds. (A–H from holotype, *I. Salinas* 224, USM.)

than the petiole, 1–4 cm long, densely villous. *Flowers* zygomorphic, resupinate; calyx lobes 5, nearly free, each appressed to adjacent lobe, folded lengthwise with the margin curved inward, erect, subequal, ovate, $10\text{--}17 \times 6\text{--}12$ mm, base cordate, apex acute, margin serrate, bright red, outside sparsely to densely pilose, inside sparsely pilose, persistent in fruit; corolla horizontal in calyx, to 4 cm long, tubular, tube 3.5 cm long, gibbous pos-

teriorly on lower surface, spur absent; base 6–8 mm diam., middle ampliate, becoming apically ventricose on upper surface, throat constricted, appearing laterally compressed, to 1 cm wide (at mouth), outside yellow, densely pilose, inside mostly yellow with red spots and small glandular trichomes, limb reflexed, to 1 cm wide, lobes subequal, rotund, to 3 mm long, to 3 mm wide, rounded, entire; nectary deeply bilobed to separate valvate glands, on ven-

tral surface of ovary, glabrous; stamens 4, didynamous, included; filaments coiling after anthesis, 1.9 cm long, connate at base, adnate to base of corolla tube for 6–8 mm, glabrous; anthers broader than long, ca. 2 mm long, ca. 3 mm wide, dehiscing by longitudinal slits; staminode present; ovary ovoid, 3–6 × 3–5 mm, densely pilose, style 1–2.5 cm long, glabrous, stigma stomatomorphic. *Fruit* a fleshy capsule, pendent when ripe, ovoid, bivalved, 1.5 × 1.5 cm, pilose; seeds numerous, fusiform, 1–1.4 × 0.3 mm, longitudinally striate, dark brown.

Phenology. Flowering from December to May and August to November; fruiting from June through November.

Distribution (Fig. 5). *Alloplectus carpishensis* is known from the eastern Andean slopes of Peru from 2200 to 3000 m. Sixteen collections have been made from Carpish in the department of Huánuco. Two other collections are known from the departments of Cuzco and San Martín. No collections of *A. carpishensis* have been made outside of Peru, thus making this species geographically distinct from the similar *A. serpens* of Ecuador and southern Colombia.

Alloplectus carpishensis is distinguished from the similar *A. serpens* and other species of *Alloplectus* by the densely pubescent, elliptic leaves, and uniformly bright yellow corollas. Additional characters that help differentiate *A. carpishensis* are the ovate calyx lobes and acute apices instead of the more oblong calyx lobes with rounded apices found in *A. serpens*. The nectary in this new species is unique because it ranges from a single bilobed gland to two separate valvate glands instead of the more common single bilobed gland in most other *Alloplectus* species. Specimens of *A. carpishensis* were annotated in herbaria as *A. ichthyoderma* Hanstein. The stems of *A. carpishensis* lack the scales that are typical for *A. ichthyoderma* and have uniformly bright yellow flowers, in contrast to the yellow flowers with a dorsal red stripe in *A. ichthyoderma*.

Paratypes. PERU. **Cuzco:** La Convención, T. R. Dudley 10845 (NA, US). **Huánuco:** above Acomayo, P. C. Hutchison, J. K. Wright & R. M. Straw 5958 (US, USM); Distrito Chinchao, Cerro Carpish, near Carpish tunnel, 45–50 km N of Huánuco on the road to Tingo María, R. Ferreyra 1229 (US, USM), R. Ferreyra 6848 (US[2], USM), C. Davidson & J. Jones 9196 (LAM, US), B. A. Stein & C. Todzia 2293 (US, USM), H. A. Allard 21085 (BH, US), J. L. Clark, I. Salinas & H. Beltran 8247 (US, USM), A. H. Gentry 44883 (US), R. Ferreyra 2330 (MO, US[2], USM), L. E. Skog, J. E. Skog, G. Lamas M. & J. Schunke V. 5140 (MO, US, USM), J. L. Clark, I. Salinas & H. Beltran 8249 (US, USM), J. Schunke V. 5225 (F, US), C. Sandeman 5172 (K); El Mirador, 15 km from Chinchao, J. Schunke V. 5246 (F, US); trail from San Pedro de Car-

pish, 3 km E. of tunnel, B. A. Stein, J. Kallunki & C. Diaz 3851 (US, USM). **San Martín:** Mariscal Caceres, P. N. Río Abiseo, near Gran Pajaten ruins, K. Young 1260 (F).

Alloplectus inflatus J. L. Clark & L. E. Skog, sp. nov. TYPE: Colombia. Cundinamarca: Mu-chindote Valley, E side of Quebrada Negra, 13 km NE of Gachetá, 2800 m, 4 July 1944, M. L. Grant 9596 (holotype, COL; isotypes, MO, NA[2], NY, US, WIS). Figure 2.

Ad *A. hispidum* similis sed pauce ramosus, in lobis calycis valvatis margine base appressis et in corollis atrosanguineis differt.

Shrubs; terrestrial or epiphytic, stems scandent, sparingly branched; to 2 m tall, woody, terete, densely hirsute. *Leaves* opposite, usually equal in a pair; petioles 0.5–2 cm long, densely hirsute; blades coriaceous when dry, broadly elliptic, 3–10 × 1–5 cm, base somewhat rounded to acute, apex obtuse to acute, margin serrate, adaxially dark green, tomentose, abaxially light green to red, sparsely to densely hispid especially on the veins. *Flowers* solitary; bracteoles absent; pedicels longer than the petiole, 2–7 cm long, pilose. *Flowers* subregular, not resupinate; calyx lobes 5, nearly free, basally appressed to adjacent lobe, erect, subequal, broadly ovate, 15–20 × 5–10 mm, base truncate, apex attenuate, margin lacinate-serrate, red, outside densely pilose, inside sparsely pilose; corolla oblique in calyx, 4.0–5.5 cm long, tubular, tube ca. 4.0 cm long, gibbous posteriorly on lower surface, spur absent; base ca. 1 cm diam., middle ampliate, becoming ventricose on upper surface, throat constricted, not appearing laterally compressed, ca. 1 cm wide at mouth, uniformly red, outside densely pilose, inside glabrous, limb oblique, ca. 1 cm wide, lobes nearly equal, rotund, spreading, 2 × 3.5 mm, rounded, entire; nectary gland bilobed, on ventral surface of ovary, glabrous; stamens 4, didynamous, included; filaments coiling after anthesis, ca. 1.5 cm long, basally connate, adnate to base of corolla tube for ca. 2 mm, glabrous; anthers broader than long, 1 mm long, 2 mm wide, dehiscing by longitudinal slits; staminode absent; ovary ovoid, ca. 7 × 4 mm, densely pilose, style 1.4 cm long, glabrous, stigma shallowly bilobed. *Fruit* a fleshy capsule, pendent when ripe, ovoid, bivalved, 1.5 × 1.5 cm, pilose; seeds numerous, fusiform, ca. 1.3 × 0.4 mm, longitudinally striate, dark brown.

Phenology. Flowering from February through December; fruiting from August through November.

Distribution (Fig. 5). *Alloplectus inflatus* is known from the Andes of Colombia. It has been collected from departments in the Cordillera Cen-

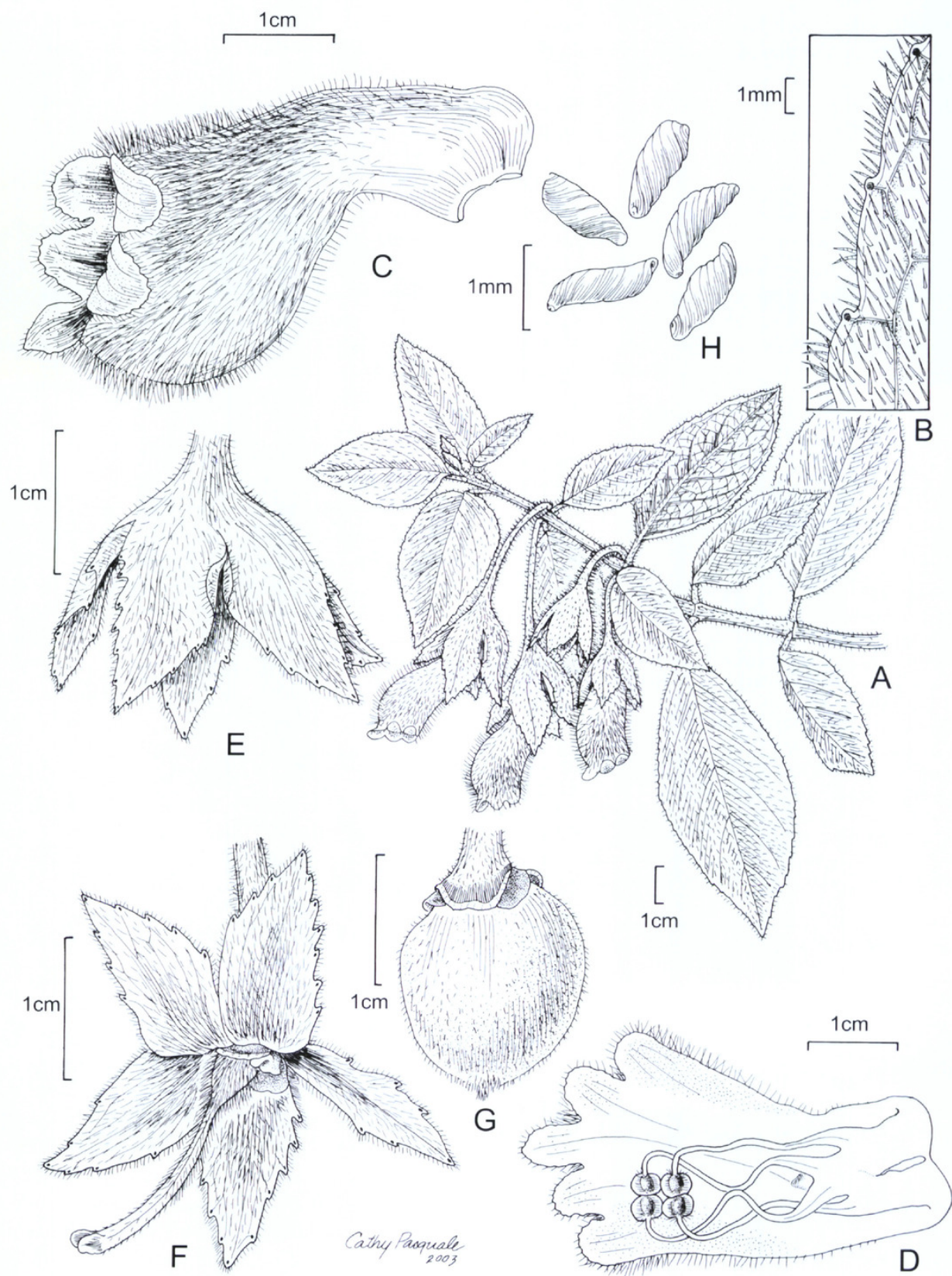


Figure 2. *Alloplectus inflatus* J. L. Clark & L. E. Skog. —A. Habit. —B. Adaxial leaf pubescence. —C. Corolla. —D. Corolla opened to show stamens. —E. Calyx. —F. Calyx opened and corolla removed to show bilobed nectary gland. —G. Immature fruit. —H. Seeds. (A, B from L. Uribe U. 2594, US; C–F from G. Huertas & L. A. Camargo 5007, COL; G, H from F. W. Pennell 9383, PH.)

tral (Caldas, Cauca, Tolima) and the Cordillera Oriental (Boyacá, Cundinamarca, Meta) from 2000 to 3500 m.

Alloplectus inflatus resembles the type species for the genus, *A. hispidus* (Kunth) Martius, but differs by the more inflated and remarkable pouched region near the apex of the corolla. Both *A. hispidus* and *A. inflatus* are scandent herbs, but *A. hispidus* can cover an entire tree trunk for 3–5 m, whereas *A. inflatus* is not so prolifically branched (pers. obs.). Other characters that are useful for distinguishing *A. inflatus* are the dark red flowers and the nearly valvate calyx lobes with basally appressed margins.

Paratypes. COLOMBIA. **Boyacá:** Cordillera Oriental, NE of Arcabuco, border of Boyacá & Santander del Sur, *H. García Barriga & R. Jaramillo M. 20261* (F, GH, US). **Caldas:** Cordillera Central, Alaska, above Salento, *F. W. Pennell 9383* (GH, PH); W slopes of the Cordillera Central, valley of Río Otun, Peña Bonita, *J. Cuatrecasas 23333* (F, US). **Cauca:** E slopes Cordillera Central, region of Moscopan, valley of Río San José, Aguabonita, *J. Cuatrecasas 23484* (F, US); road Popayán–La Plata, km 100, Res. For. Merenberg, *C. Murcia 12* (COL). **Cundinamarca:** betw. Pueblviejo & Hoerfas, near Boca de Monte, *L. Uribe U. 6387* (COL); Cerros de San Miguel, SW of La Sabana de Bogotá, *L. Uribe U. 2594* (COL, US); Cordillera Oriental, Moquentiva valley, 14 km NW of Gachetá, *M. L. Grant 9522* (NA, US); Sibate, El Peñón, *G. Huertas & L. A. Camargo 5007* (COL); Páramo de Guasca, *M. Schneider 1196* (COL); vic. San Miguel, *R. E. Weaver & H. Kennedy 1567* (GH). **Meta:** E slopes of the Cordillera Central, Sunapás, Quebrada El Buque, *S. Díaz P. 2677* (MO); main tributary of Río Grande, S of Cordillera de Las Cruces, S slopes of Páramo de Sumapaz, *F. R. Fosberg 20862* (US); Quetame, Guayabetal police inspection station, road to Calvario, *G. Lozano C. 4063* (COL), *L. Peñuela & J. Clavijo 16* (COL). **Tolima:** near Quindío hwy., along divide, *E. P. Killip & G. Varela 34612* (COL, US).

Alloplectus oblongicalyx J. L. Clark & L. E. Skog, sp. nov. TYPE: Ecuador. Pichincha: Cantón Quito, trail betw. Lloa & Mindo, 30 km W of Lloa, 00°11'S, 78°41'W, 1800 m, 12 Feb. 1997, *J. L. Clark & S. C. Clark 3903* (holotype, QCNE; isotypes, AAU, MO, NY, US). Figure 3.

Ad *A. grandicalycem* similis sed in lobis calycis oblongis et in corollis uniformiter roseis differt.

Herbs to subshrubs; terrestrial, stems erect, unbranched; to 3.0 m tall, usually woody, succulent when young, terete to quadrangular, glabrescent or glabrous, sometimes sparsely pubescent. *Leaves* opposite, usually equal in a pair; petioles 5–12 cm long, sparsely to densely pilose; blades coriaceous when dry, elliptic, 12–22 × 8–15 cm, base acute to rounded, apex acute to obtuse, margin serrate or serrulate, adaxially green, sparsely strigose, abaxi-

ally all green to all red, glabrous to sparsely pilose on veins. *Inflorescence* epedunculate, reduced cyme, appearing fasciculate, with 3 to 5 flowers per node, bracteoles ovate, ca. 20 × 8 mm; pedicels shorter than the petiole, 3–5 cm long, pilose. *Flowers* zygomorphic, resupinate; calyx lobes 5, nearly free, each appressed to adjacent lobe, folded lengthwise with the margin curved inward, erect, 4 equal, oblong, 4–5 × 20–30 mm, base cordate, apex obtuse, margin serrulate or entire, all green, all red, or mostly red with green-white at base, outside pilose at the base, sparsely pilose above, inside sparsely pilose, fifth (dorsal) lobe smaller and narrower, oblong, 3–4 × 0.5–1 cm; corolla oblique in calyx, 5–6.5 cm long, tubular, tube 4.5–6 cm long, gibbous posteriorly on lower surface, spur absent; base 0.5–1 cm diam., middle ampliate, becoming ventricose on upper surface, throat not constricted, appearing laterally compressed, 13 mm wide (at mouth), usually uniformly dark red, sometimes appearing orange to vermilion, outside sparsely sericeous becoming densely sericeous distally, inside mostly glabrous, becoming glandular apically, limb reflexed, to 1.5 cm wide, lobes nearly equal, rotund, spreading, slightly recurved, 4–5 × 4.5 mm, rounded, entire; nectary gland bilobed, on ventral surface of ovary, glabrous; stamens 4, didynamous, included; filaments coiling after anthesis, ca. 2.5 cm long, connate at base for 5 mm, adnate to base of corolla tube for ca. 5 mm, glabrous; anthers broader than long, ca. 1 × 3 mm, dehiscing by longitudinal slits; staminode absent; ovary ovoid, ca. 5 × 4 mm, densely pilose, style 3–4 cm long, glabrous, stigma stomatophytic. *Fruit* a fleshy capsule, pendent when ripe, ovoid, bivalved, ca. 2 × 1.3 cm, pilose; seeds numerous, fusiform, 0.9 × 0.3 mm, longitudinally striate, brownish red.

Phenology. Flowering and fruiting throughout the year.

Distribution (Fig. 5). *Alloplectus oblongicalyx* is known from the northwestern Andean slopes of Ecuador and southern Colombia from 1400 to 3200 m. Despite its distribution from the eastern Andean slopes in Colombia (Cordillera Oriental), it has not been found on the adjacent eastern slopes in Ecuador. This could be the result of displacement by the congener *Alloplectus grandicalyx* J. L. Clark & L. E. Skog where the ranges of these two species would be expected to overlap.

Alloplectus oblongicalyx is distinguished from other members of the genus by the combination of uniformly colored corollas, an erect unbranched habit, and calyx lobes that are conspicuously ob-

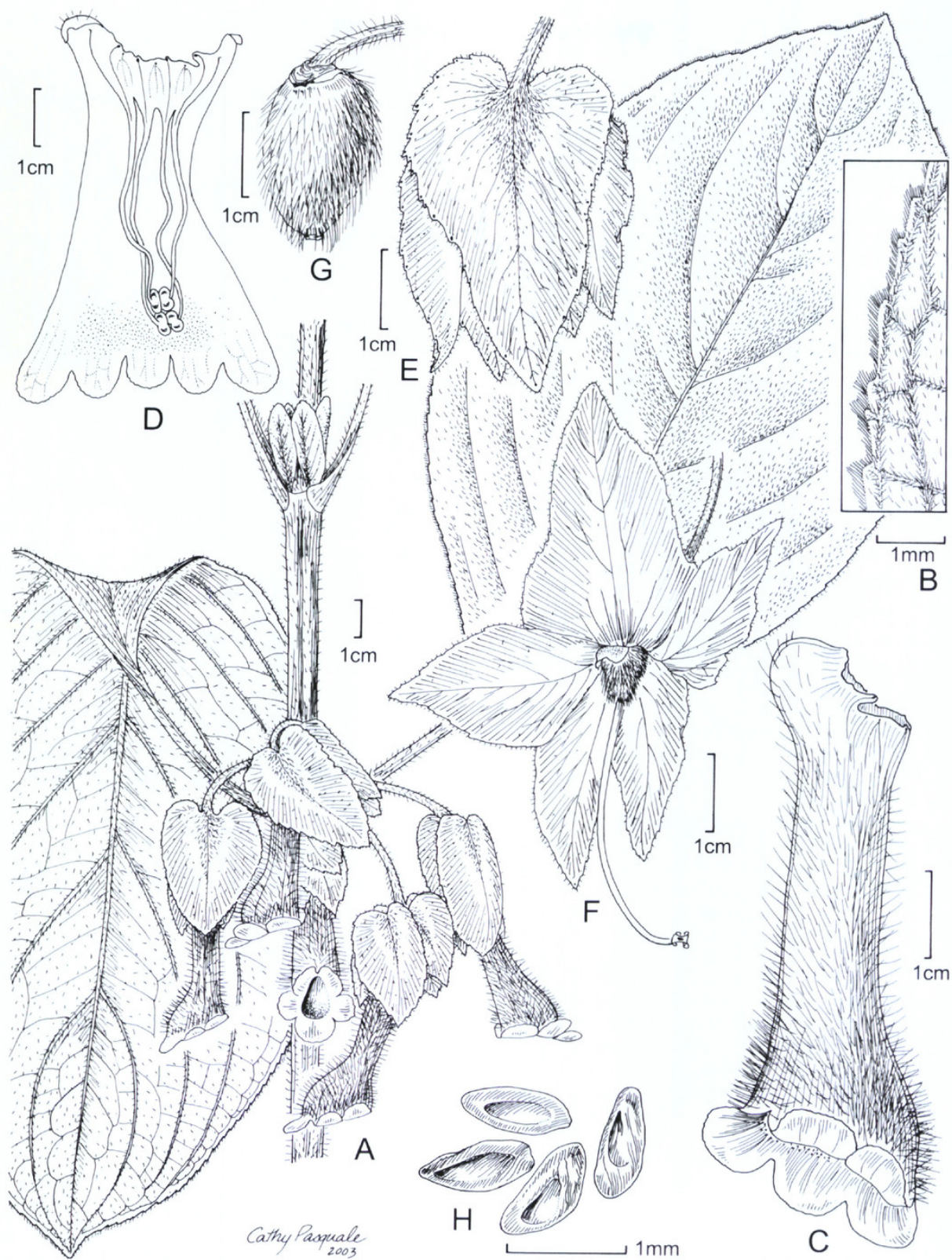


Figure 3. *Alloplectus oblongicalyx* J. L. Clark & L. E. Skog. —A. Habit. —B. Abaxial leaf pubescence. —C. Corolla. —D. Corolla opened to show stamens. —E. Calyx. —F. Calyx opened and corolla removed to show bilobed nectary gland. —G. Immature fruit. —H. Seeds. (A from V. Zak & J. Jaramillo 2311, US; B from G. L. Webster & B. Castro 30250, US; C, D, G, H from J. L. Luteyn, J. J. Pipoly, M. Lebron-Luteyn & J. A. Kallunki 8819, US; E, F from J. L. Clark & S. G. Nazzaro 4588, US.)

long. *Alloplectus oblongicalyx* resembles *A. grandicalyx*, and some of the paratypes for the latter (Clark & Skog 2002) are considered here as belonging to *A. oblongicalyx*. The oblong calyx lobes in *A. oblongicalyx* is the most consistent character for differentiating it from the congener, *A. grandicalyx*. The color of the calyx lobes in *A. oblongicalyx* is variable and ranges from greenish-white to red. The color of the leaves also varies from green to red. Many of the herbarium collections of *A. oblongicalyx* were annotated as *A. tetragonoides* Mansfeld or *A. tetragonus* (Hanstein) Hanstein. The calyx lobe margin of *A. oblongicalyx* is serrulate or entire in contrast to the deeply serrate margins of *A. tetragonus*. The calyx lobes of *A. tetragonoides* are smaller and more ovate than *A. oblongicalyx*.

Paratypes. COLOMBIA. **Caquetá:** Cordillera Oriental, road Guadalupe–Flores, km 14, X. Londoño & L. P. Kvist 99 (COL, QCA, US); E slopes of the Cordillera Oriental, Quebrada Río Hacha, J. Cuatrecasas 8553 (COL, US). **Cauca:** Santa Rosa, Finca Teresa (El Cajón), 2 km above Quebrada San Antonio, near Cerro La Vieja, L. J. Rubiano & C. Moreno O. 507 (COL). **Huila:** confluence of Río Villalobos & Río Cauchos, R. E. Schultes & M. Villarreal 5204 (COL, GH, US); road La Plata–Popayan, km 101, B. A. Stein 3730 (COL, K, MO, US); route tow. Agua Bonita, S. Díaz P., C. Lozano & J. Torres R. 729 (COL); San José de Isnos, route tow. El Hornito, G. Lozano C. 3361 (COL); W slope of Cordillera Oriental, bel. Gabinete, ravine above San Andrés, J. Cuatrecasas 8620 (COL, US). **Putumayo:** E slopes of Cordillera Oriental, betw. Sachamates & San Francisco de Sibundoy, J. Cuatrecasas 11460 (COL, US); Sibundoy, betw. San Francisco & Río Blanco, vía a Mocoa, E. Hernández, A. Guerrero & A. Estrada 401 (US); road San Francisco–Mocoa, km 92 from Pasto, sitio Los Monos, T. Plowman & W. Davis 4332 (COL); Valle de Sibundoy, 1.5 km E Sibundoy, M. L. Bristol 366 (COL, GH, US). ECUADOR. **Carchi:** above Maldonado, H. van der Werff & E. Gudiño 10808 (MO, QCNE, US); road Tulcán–Maldonado, ca. 13 km SE of Maldonado, G. Harling & L. Andersson 12336 (GB, SEL, US). **Cotopaxi:** Cantón Sigchos, Parroquia San Francisco de las Pampas, Bosque Integral Otonga, J. L. Clark & A. Muñoz 6141 (QCNE, US). **Pichincha:** 32.2 km W from Cotacollao, E near bridge across Río Alambi, B. MacBryde 100 (QCA, US); Cantón Quito, Bellavista Lodge, next to Mindo Nambillo Reserve, ca. 6 km S of Tandayapa, J. L. Clark, H. Greeney, M. Lysinger & T. Walla 3531 (QCNE, US); Cordillera de los Yumbos, trail La Victoria–Chiriboga, J. L. Clark & S. G. Nazzaro 4588 (AAU, COL, E, MO, QCA, QCNE, SRP, US); Parroquia Calacalí, Reserva Geobotánica Pululahua, Sta. Rita, C. E. Cerón M., M. Cerón & S. Chipantasi 4762 (MO, QCNE, US); Parroquia Nanegal, Bosque Protector Maquipucuna, above Río Pichán, G. L. Webster & B. Castro 30250 (DAV, QCNE, US); Parroquia Nono, El Pahuma Orchid Reserve, J. L. Clark, W. Elcome, M. Elcome, N. Harris & M. Mailloux 7654 (QCNE, US); road Quito–Nono, 12–14 km WNW of Nono, J. L. Luteyn, J. J. Pipoly, M. Lebron-Luteyn & J. A. Kallunki 8819 (CAS, NY, QCA, QCNE, US); hwy. Quito–Chiriboga–Empalme, betw. km 75 and 85, V. Zak & J. Jaramillo 2311 (MO, NY, US).

Alloplectus serpens J. L. Clark & L. E. Skog, sp. nov. TYPE: Ecuador. Morona-Santiago: Cantón Limón-Indanza, main road betw. Gualaceo & Plan de Milagro, “Tinajillas,” cow pasture & patches of montane forest, 03°00′19″N, 78°36′36″W, 2800 m, 10 Jan. 2001, J. L. Clark, F. Sanchez & L. Jost 5904 (holotype, QCNE; isotypes, AAU, HA, K, MO, NY, QCA, US). Figure 4.

Ad *A. carpishense* similis sed in lobis calycis oblongioribus apice rotundatis differt.

Lianas to subshrubs; epiphytic, stems scandent or erect, rarely branched; to 2.0 m long, subwoody, subquadrangular, glabrescent below, densely hirsute above. *Leaves* opposite, equal in a pair; petioles 1–5 cm long, densely yellow pilose; blades membranous when dry, ovate, 4–15 × 3–10 cm, base acute to rounded, apex acuminate, margin serrate to crenate, adaxially green, sparsely pilose, abaxially uniformly pale green to uniformly red, sparsely to densely pilose, especially on veins. *Inflorescence* epedunculate, reduced cyme, appearing fasciculate, with 1 to 3 flowers per node; bracteoles ovate, 1–2 × 0.5–1.0 cm; pedicels shorter to longer than the petiole, 1–3.5 cm long, densely pilose. *Flowers* zygomorphic, resupinate; calyx lobes 5, nearly free, each appressed to adjacent lobe, folded lengthwise with the margin curved inward, erect, subequal, ovate, 20–25 × 20–25 mm, base sagittate, apex rounded, margin serrate, red, outside sparingly pilose with the midvein densely pilose, inside pilose; corolla horizontal in calyx, 2–4 cm long, tubular, tube 2–4 cm long, gibbous posteriorly on lower surface, spur absent; base 9–11 mm diam., middle ampliate, becoming ventricose on upper surface, throat slightly constricted, appearing laterally compressed, to 1.5 cm (at mouth), outside glabrous at base, otherwise densely pilose, inside glabrous, limb reflexed, ca. 0.5 cm wide, lobes nearly equal, rotund, ca. 5 × 3 mm, rounded, entire; nectary gland bilobed, on ventral surface of ovary, glabrous; stamens 4, didynamous, included; filaments coiling after anthesis, to 1.9 cm long, connate at base for 8 mm, adnate to base of corolla tube for ca. 8 mm, glabrous; anthers broader than long, 1.3 mm long, 2.6 mm wide, dehiscent by longitudinal slits; staminode absent; ovary ovoid, ca. 5 mm long, ca. 4 mm wide, densely pilose, style to 2.4 cm long, glabrous, stigma stomatophytic. Fruits and seeds not observed.

Phenology. Flowering throughout the year with collections of mature flowers made in January, February, March, May, and December.

Distribution (Fig. 5). *Alloplectus serpens* is

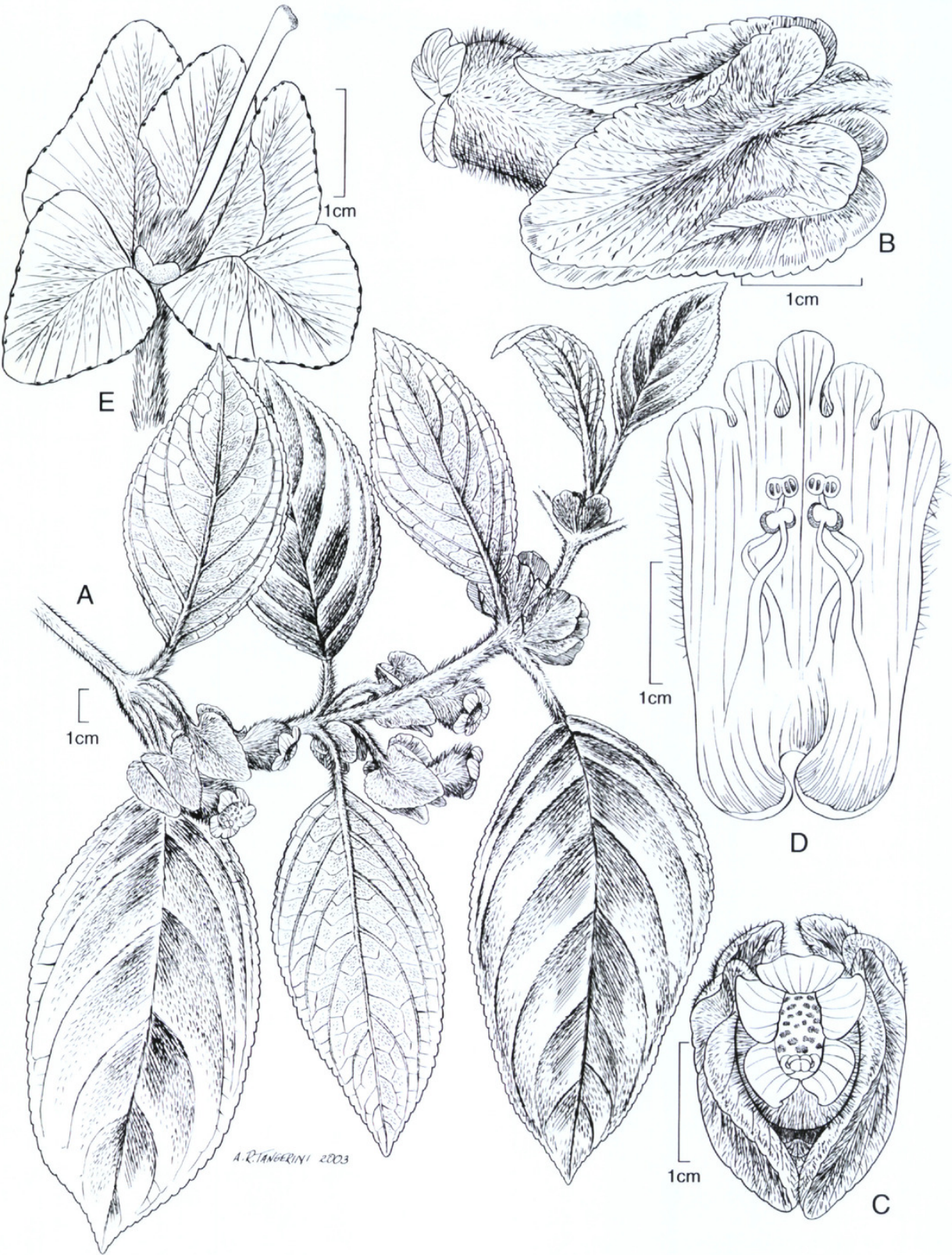


Figure 4. *Alloplectus serpens* J. L. Clark & L. E. Skog. —A. Habit. —B. Side view of flower. —C. Face view of flower. —D. Corolla opened to show stamens. —E. Calyx opened and corolla removed to show bilobed nectary gland. (A–D from J. L. Clark, M. Thurber & D. Ranosa 5627, US; E from J. L. Clark, F. Sanchez & L. Jost 5900, US.)

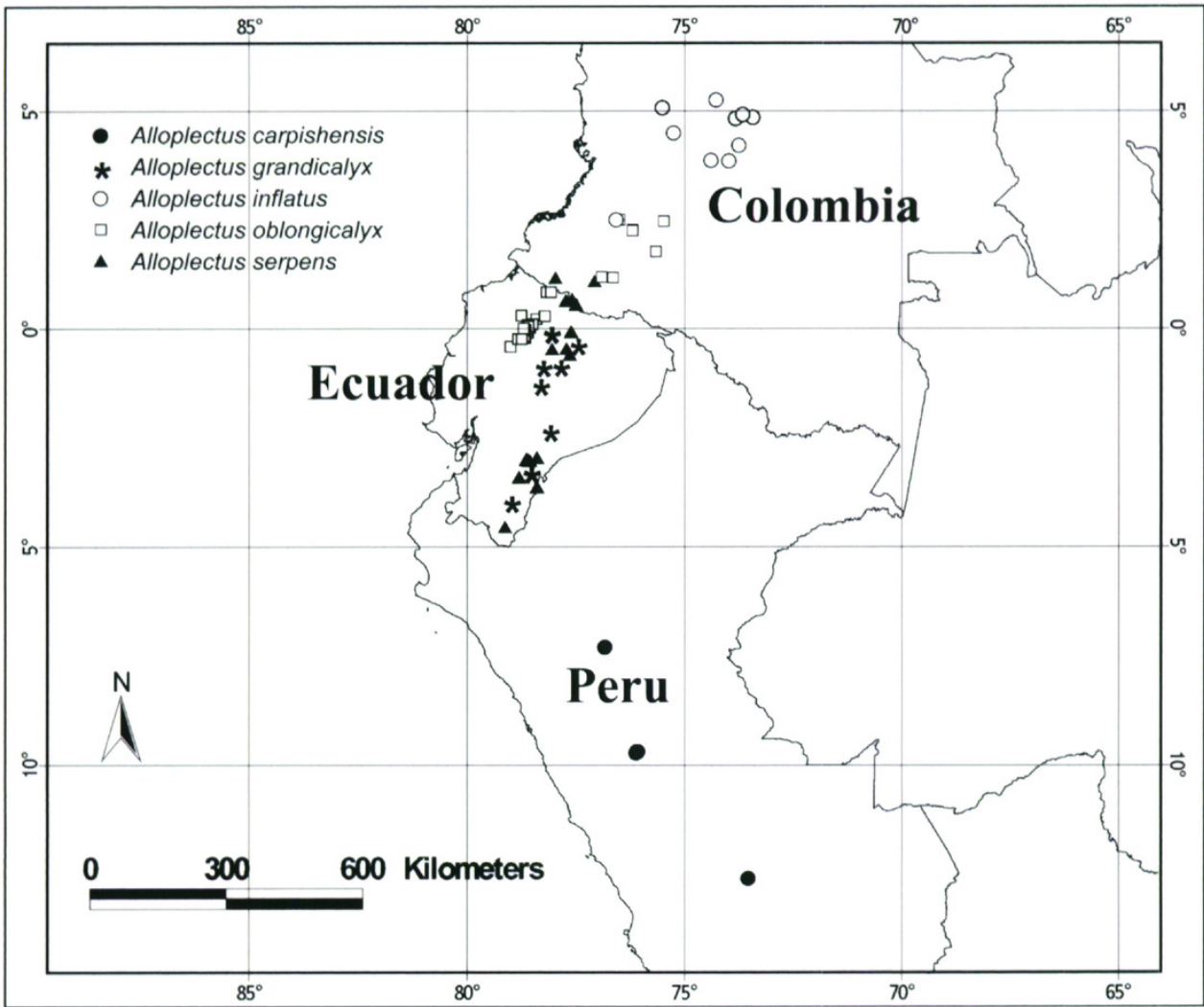


Figure 5. Distribution of *Allopectus carpishensis*, *A. grandicalyx*, *A. inflatus*, *A. oblongicalyx*, and *A. serpens*. Each symbol represents collections from specific localities cited on herbarium collections. Maps were generated using ArcView GIS 3.2a (ESRI, 2000).

known from the eastern Andean slopes of Ecuador and the southern Andes of Colombia from 1500 to 3200 m.

For the distinguishing characters of *A. serpens*, see the discussion of *A. carpishensis* above.

Paratypes. COLOMBIA. **Nariño:** R. N. La Planada, 7 km from Chucunés, *O. Benavides* 8989 (MO, US). **Putumayo:** edge of La Cocha Lagoon, Quebrada de Santa, *J. Cuatrecasas* 11827 (COL, F, US). ECUADOR. **Carchi:** 17.5 km E of Santa Barbara, road Tulcan–Alegria via Caramelos & Santa Barbara, *C. H. Dodson* & *A. H. Gentry* 12124 (MO, QCNE, SEL). **Morona-Santiago:** Cantón Limón Indanza, hwy. Gualaceo–Plan de Milagro, *J. L. Clark*, *F. Sanchez* & *L. Jost* 5900 (HA, QCA, QCNE, US); E slopes of Matanga Paramo, ca. 30–40 km S of Sigsig, road tow. Gualaquiza, *J. L. Luteyn* & *E. Cotton* 11191 (QCNE, US); road Gualaceo–Limón, km 35.5, *P. M. Jørgensen*, *C. Ulloa* & *B. Øllgaard* 92879 (AAU, QCNE). **Napo:** betw. Santa Barbara and La Bonita, *G. Harling* & *L. Andersson* 12510 (GB, SEL, US); Cantón Archidona, P. N. Sumaco Napo-Galeras, near Volcán Sumaco crater, *J. L. Clark* 2264 (QCNE, US); Cantón Quijos, Parroquia Cuyuja, N border of Res. Ecol. Antisana, betw. the town of Cuyuja

and the confluence of Río Tablon and Río Quijos, *J. L. Clark*, *M. Thurber* & *D. Ranosa* 5627 (QCA, QCNE, US); Cantón Sucumbios, Playón de San Francisco, road Sta. Bárbara–La Bonita, *J. Jaramillo* 9328 (GB); Guagra Urcu, small hill SE of summit, *L. Holm-Nielsen*, *J. Jaramillo*, *F. Coello* & *E. Azanza* 27633 (AAU, MO). **Sucumbios:** E slopes of Volcán Reventador, Res. Ecol. Cayambe Coca, *J. L. Clark* 4428 (QCNE, US). **Zamora-Chinchipe:** above Valladolid, on road to Yangana, *G. Harling* & *L. Andersson* 21391 (GB, US); El Pangui, Cordillera del Cóndor, near military base Cóndor Mirador, *T. Montenegro* 154 (QCNE, US).

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