



## A new species of *Lysipomia* (Campanulaceae) from Ecuador

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*Lysipomia petrosa* from Azuay province, Ecuador, is described as new and compared with the related species *L. bilineata* and *L. caespitosa*.

Se describe una especie nueva, *Lysipomia petrosa* de la provincia de Azuay, Ecuador, y se compara con las especies similares, *L. bilineata* y *L. caespitosa*.

Keywords: endemism, páramo, taxonomy

### Introduction

The genus *Lysipomia* is comprised of ca 40 species endemic to the Andean páramo and puna. Four of the 23 species documented from Ecuador are widespread, i.e. *L. montioides* Kunth (1819: 320), *L. multiflora* McVaugh (1955: 83), *L. muscoides* Hooker (1847: 286), and *L. sphagnophila* Grisebach ex Weddell (1858: 15). The remaining 19 species are narrow endemics and most are known only from their respective type localities. Fifteen of these species have relatively large, showy corollas with nectar guides and are placed in *L.* subgen. *Rhizocephalum* (Weddell 1858: 11) (Wimmer 1937: 483) (Ayers 1999).

Collections made by Petr Sklenář and colleagues during field work at the eastern edge of Azuay Province were identified as an undescribed species by the first author while determining specimens at QCA in preparation of a monograph of the genus. Subsequent field work relocated the species, which is described and illustrated below. Acronyms of herbaria follow Thiers (2016).

### Taxonomic treatment

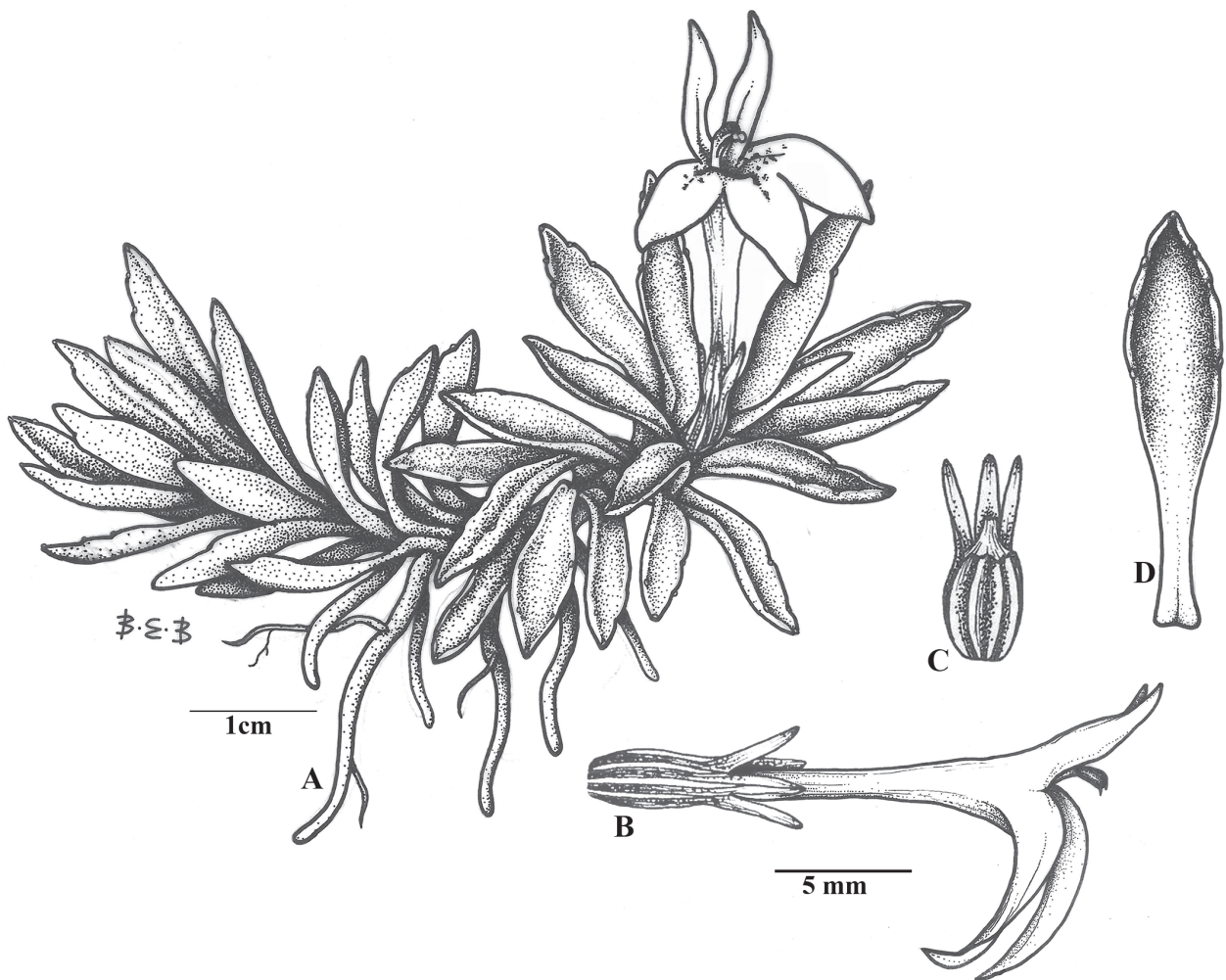
*Lysipomia petrosa* T.J. Ayers, sp. nov. (Figs. 1–2)

**Diagnosis:**—Glabrous perennial with thick branching rhizomes covered with densely crowded, overlapping persistent leaves or leaf bases. Leaves narrowly elliptic to oblanceolate, apex acute with a terminal gland, the margins entire, slightly thickened and whitish with age, with 2–3 irregular pairs of glands. Flowers pseudo-resupinate, corolla bilabiate, fruit sessile, hidden among persistent leaf bases, globose, thickened, with 10 broad ribs.

**Type:**—ECUADOR. Azuay: Páramo de Matanga, road Sigsig-Gualaquiza, turn-off towards the military antennas before the pass, shrubby páramo with *Puya* and *Neurolepis*; rosulate herb, corolla white, 03°11'05.6" S, 78°47'06.0" W, 3465 m, 19 Nov 2010, P. Sklenář & V. Zeisek 13009 (holotype: PRC; isotypes: QCA).

Decumbent, glabrous perennial with adventitious roots arising from old leaf axils. **Stems** solitary, forming small cushions, horizontal, elongate, cylindrical, 2–5 mm in diameter, dichotomously-branched, covered with densely crowded, overlapping, persistent leaves or leaf bases. **Leaves** spirally arranged but twisting upward from rhizome and often reflexed away from meristem, photosynthetic ones crowded at stem apex, narrowly elliptic to oblanceolate, 12–20 mm long, 2.6–3.2 mm wide, slightly keeled, the midvein depressed on adaxial surface and appearing as a thin wing on abaxial surface, distal blade-like portion thickened, acute with a terminal gland, the margins entire, slightly thickened and whitish with age, with 2–3 irregular pairs of glands, the base attenuate, gradually narrowing into a petiolar region before a slight expansion at node, glabrous. **Flowers** solitary, axillary, pseudo-resupinate, the lower corolla lobes oriented towards the apical meristem, sessile;

hypanthium (and ovary) narrowly campanulate, ca 5 mm long, calyx lobes subequal, narrowly triangular, ca 3.5–4.0 mm long measured from the deepest sinus, 0.5 mm wide at base, apex acute, margins entire with a single gland at the apex and a gland on each side of sinus at base; corolla white, tube cylindrical at base becoming funnel-form, ca 10 mm long to the lateral sinus, limb bilabiate, the upper lip 2-lobed, lobes ca 5 mm, lower lip 3-lobed, lobes ca 4 mm, lobe tips recurved at anthesis, the throat with purple-blue spots on lower 3 lobes; stamens about equal to the corolla tube, adnate to the lower cylindrical portion of tube, anthers blue, ca 2.5 mm long, exerted from tube and nearly straight, the 2 shorter anthers with 2 triangular bristles ca 0.5 mm and a few short trichomes at apex; ovary cylindrical, 3.5 mm long, slightly compressed, unilocular; placentation parietal, ovules attached in a mass on ventral surface. **Fruit** obscure, at or below ground level, sessile and hidden in long-persistent dead leaf bases, globose, thick-walled, 2.5–3 mm long, 2–2.5 mm wide at middle, the operculum 1.5 mm in diameter topped with the persistent, thickened style base, the veins forming 10 broad ribs. **Seeds** ca 0.8 mm, ellipsoid-ovoid, light brown with a thin shiny outer layer, narrowing slightly to the prominent circular hilum. Chromosome number: unknown. Endemic.



**FIGURE 1.** *Lysipomia petrosa* T.J. Ayers. **A.** Habit. **B.** Flower. **C.** Immature fruit with two calyx lobes removed. **D.** Leaf. Drawn by Brittany Burgard.

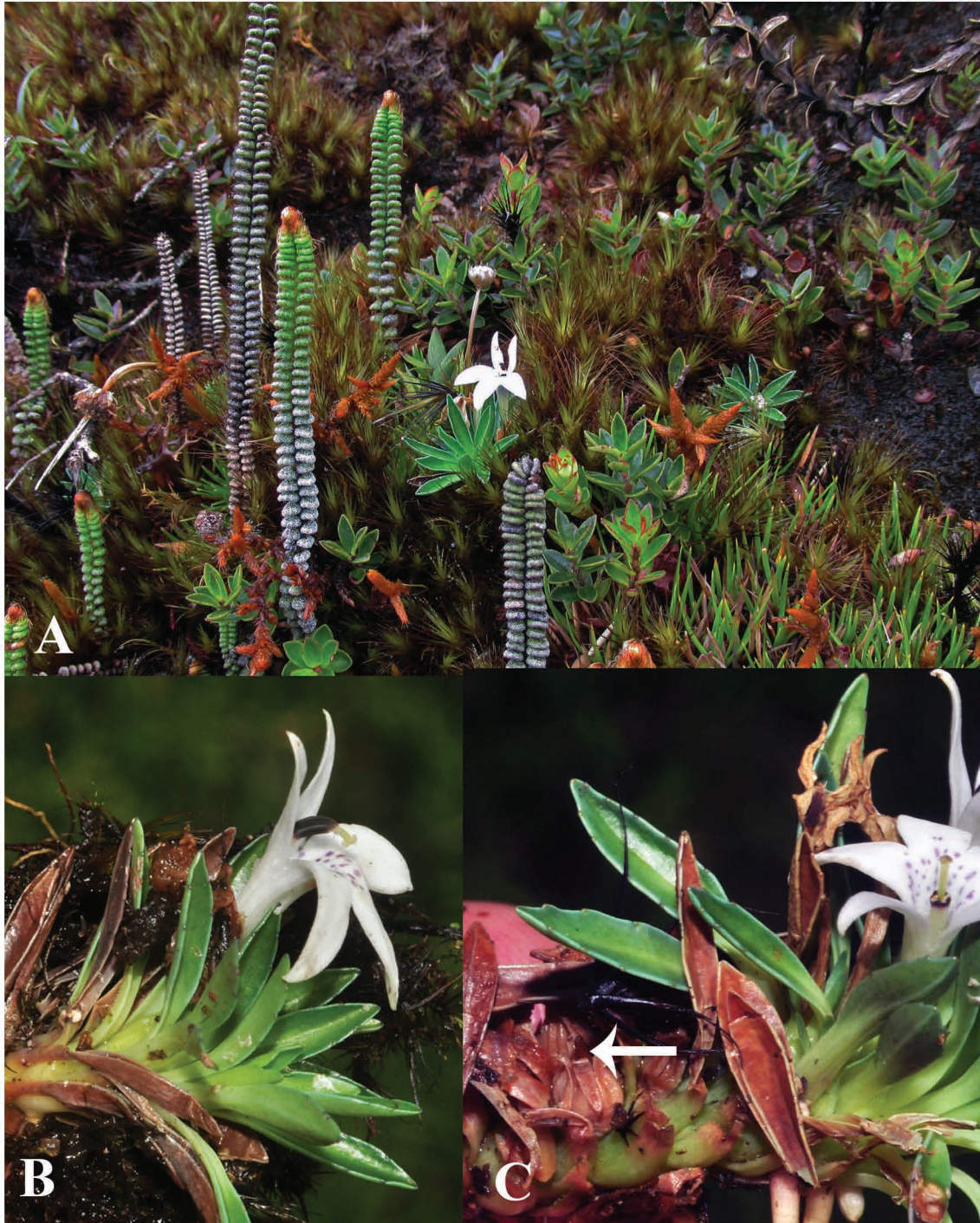
**Etymology:**—The species is named for its specific habitat perched well above ground level where it grows in mossy crevices of large boulders that rise above the shrubby páramo.

**Additional specimens examined (paratypes):**—ECUADOR. **Azuay:** Road Sigsig-Gualaquiza, ca 2.0 km E of highway at pass (KM 66–67) on road to weather station and radio antennas, ca 22 km SE of bridge just S of Sigsig; 03°11'02.9" S, 78°47'09.9" W; 3500 m; 6 Dec 2014; vertical rock faces ca 30 m above road between weather station and radio antennas; corollas white, lower 3 lobes with burgundy spots at throat; *Ayers 1907* (ASC, HA, QCNE).

**Habitat and conservation:**—*Lysipomia petrosa* is endemic to the Azuay-Morona Santiago-Zamora Chinchipe border and known only from the type locality at the top of a ridgeline in a grass and shrub páramo habitat dominated by *Neurolepis* and *Calamagrostis* (Poaceae). It inhabits mossy crevices of boulders shared with *Jamesonia* (Pteridaceae), *Elaphoglossum*



(Dryopteridaceae), *Disterigma* (Ericaceae), *Huperzia* (Lycopodiaceae), and *Oreobolus* (Cyperaceae) where it receives ample fog and precipitation in an ecosystem type called “superior upper montane wet grassland páramo” (Salgado *et al.* 2013). Because the species is currently known only from one site it should be considered an extremely narrow endemic and given an IUCN (2014) provisional conservation status of Endangered with a potential area of occupancy (AOO) of less than 50 square kilometers. Current threats to the only known population are continued human disturbance by expansion of the existing weather station, placement of additional radio towers along the ridgeline, or cultivation of pines for timber harvest.



**FIGURE 2.** *Lysipomia petrosa* T.J. Ayers. **A.** Habitat. **B.** Flower from side. **C.** Arrow pointing to persistent style base above operculum on mature fruit; soil and some leaves removed. Photos by T. Ayers.

**Discussion:**—*Lysipomia petrosa* resembles *L. bilineata* McVaugh (1955: 88) (*L.* subgen. *Rhizocephalum*), a species endemic to the southern portion of Podocarpus National Park ca 150 km to the south. The habit (decumbent stems with crowded long persistent leaves) is similar to the habit of *L. bilineata* but the leaves of *L. petrosa* lack the characteristic pair of lines that give the southern species its name (McVaugh 1955). *Lysipomia petrosa* is unique within the genus in having 10

broad ribs on a thickened capsule that persists with the operculum intact and seeds retained. Dispersal of seeds may happen only after many years as the capsule degrades. The seeds are similar to those of *L. caespitosa* Ayers (1997: 434), which also has ribbed capsules that are buried in leaf axils and may be subterranean but the capsules of *L. caespitosa* are short-cylindrical, less than 2 mm wide, and thin-walled (Ayers 1997).

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