

*Lepanthes elvira* Pupulin, *sp. nov.* TYPE: COSTA RICA. Cartago: Paraíso, Orosi, Queverí, Finca Durman, Tapantí-Macizo de La Muerte National Park, road to the swinging bridge over the Río Macho, 9°43'46.71"N, 83°51'27.53"W, 2115 m, lower montane rain forest, epiphytic in secondary mature vegetation with remnants of primary vegetation, 21 January 2014, flowered in cultivation under accession number JBL-30025, prepared 2 May 2014, *F. Pupulin, D. Bogarín, M. Díaz & M. Fernández* 8555 (holotype, JBL; isotypes, JBL). Fig. 2–3.

*Flore magnitudine pro genere magna, labelli laminae latis rotundatisque petalis gracilis discrepantibus, Lepanthes elvira primo adpectu Lepanthes estrellensis Ames similem est, sed vaginis ramicaulium glabris (vs. breviter muricatas), lobis petalorum inter eos magnitudine distincte dissimilibus (vs. subaequalibus), lobulis labelli columnae subparallelis portatis (vs. perpendiculares) ab ea plerumque recedit.*

In the large size of the flower and the broad and rounded laminae of the lip, contrasting with the slender sepals, *L. elvira* is reminiscent of *L. estrellensis* Ames, from which it mainly differs by the glabrous sheaths of the ramicaul (vs. shortly muricate), the petals with lobes distinctly different in size (vs. subequal) and the lobes of the lip held subparallel to the column (vs. perpendicular).

Epiphytic, caespitose, spreading to pendent *herb* to 11 cm tall. *Roots* filiform, flexuous, to 1 mm in diameter. *Ramicauls* slender, horizontal-arched, rarely suberect, 2.2–7.2 cm long, covered by 4–8, closely adpressed, ribbed, glabrous (microscopically ciliate along the ribs), pale brown sheets, dilated at apex into an obliquely lanceolate ostia, ciliate along the margins, 2.5 × 1.2 mm. *Leaf* broadly elliptic, thin, flat, pale green, 2.1–3.9 × 1.5–2.0 cm, the base rounded, abruptly contracted into a short, conduplicate

petiole, the apex obtusely shortly cuspidate, excise, with the tip of the central vein protruding abaxially within the sinus. *Inflorescence* produced on top of and exceeding the leaf, successively few-flowered (at least to 5), the pedicel slender, terete, to 2.7 cm long, covered with two tightly adpressed, tubular, sparsely muriculate, acute bracts; the rachis fractiflex, to 9 mm long; floral bracts broadly lanceolate, acute, sparsely muriculate, 1.2–2.0 mm long. *Flowers* comparatively large for the size of the plant, the sepals white to pale greenish yellow, hyaline, the petals pale yellow, flushed with red in the basal part, the upper lobes variously flushed with red to almost solid red, the lip pale yellow, with two red-purple, vivid marks at the base of the lateral lobes, the column and the anther white. *Dorsal sepal* broadly ovate, shortly cuspidate, 3-veined, slightly convex, 6.4–6.7 × 5.2–5.5 mm, connate with the lateral sepals for about 2 mm. *Lateral sepals* asymmetrically ovate, 2-veined, the shortly cuspidate apices divergent, connate at the base for about 3 mm. *Petals* transversely bilobed, 1.5–1.7 × 5.0–5.2 mm, erect to incurved in natural position, the upper lobe larger, 1.5–1.7 × 4.0 mm, oblong, subfalcate to falcate, diverging above, rounded; the lower lobe smaller, 1.2 × 2.5 mm, triangular-oblong, rounded. *Lip* bilobed, broadly rheniform in general outline, 3.0 × 3.7 mm, the lobes elliptic, rounded at the base, incurved at the subacute apices, suberect, the basal margins completely encircling the column; connective trapezoidal, deeply excised in front, the margins of the sinus finely pubescent; appendix external, rectangular, reflexed. *Column* terete, broadened at the subspherical apex, 3 mm long, the anther dorsal, the stigma apical. *Anther cap* cucullate, ovate, 2-celled, about 0.5 mm long. *Pollinia* 2, obpyriform, the basal portion attenuate-filamentous; viscidium rounded, yellowish brown, apical.

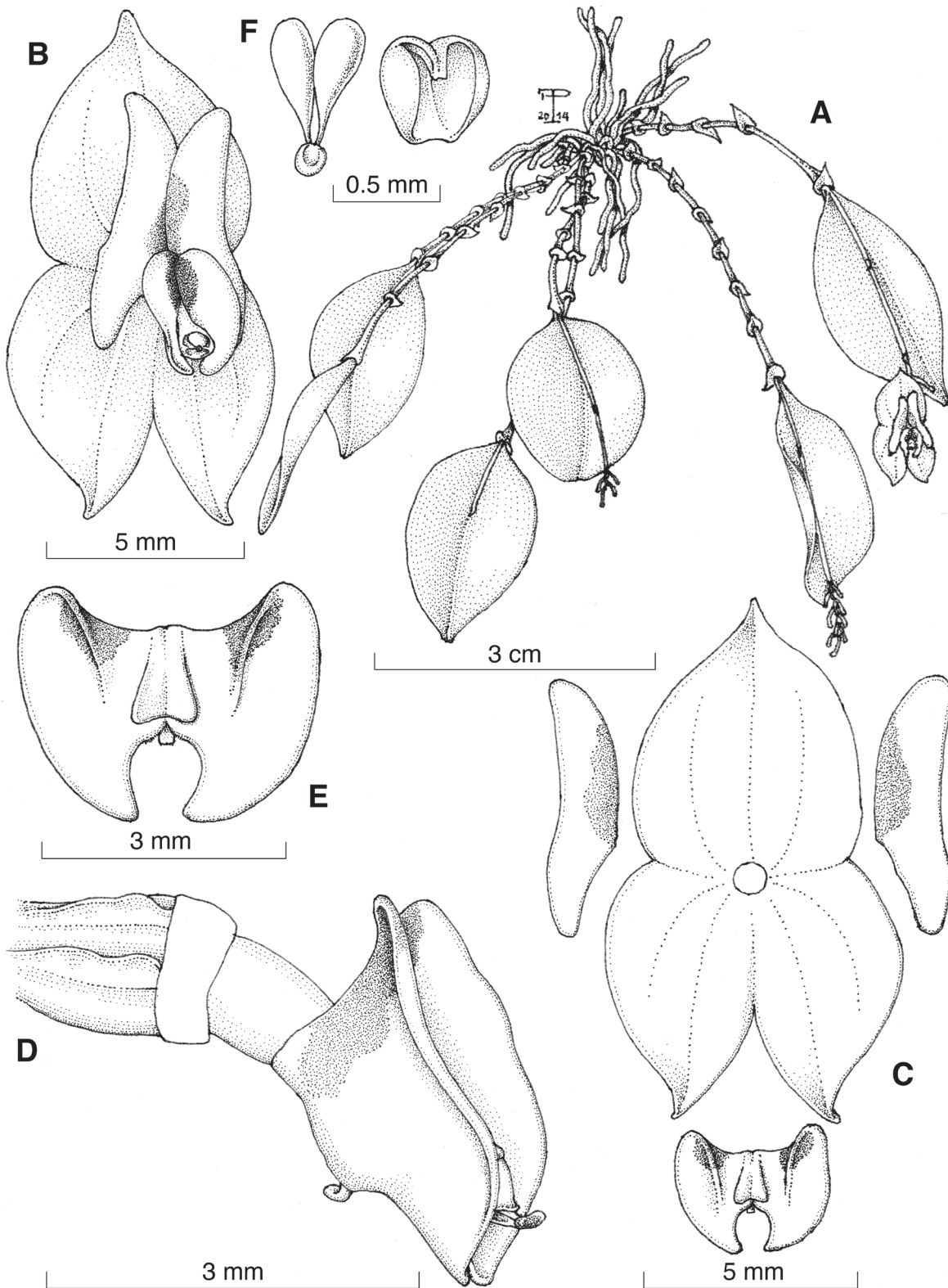


FIGURE 2. *Lepanthes elvirae* Pupulin. A, habit; B, flower; C, dissected perianth; D, ovary, column and lip, lateral view; E, lip, spread; F, pollinarium and anther cap. Drawn by D. Bogarín and F. Pupulin from the holotype.

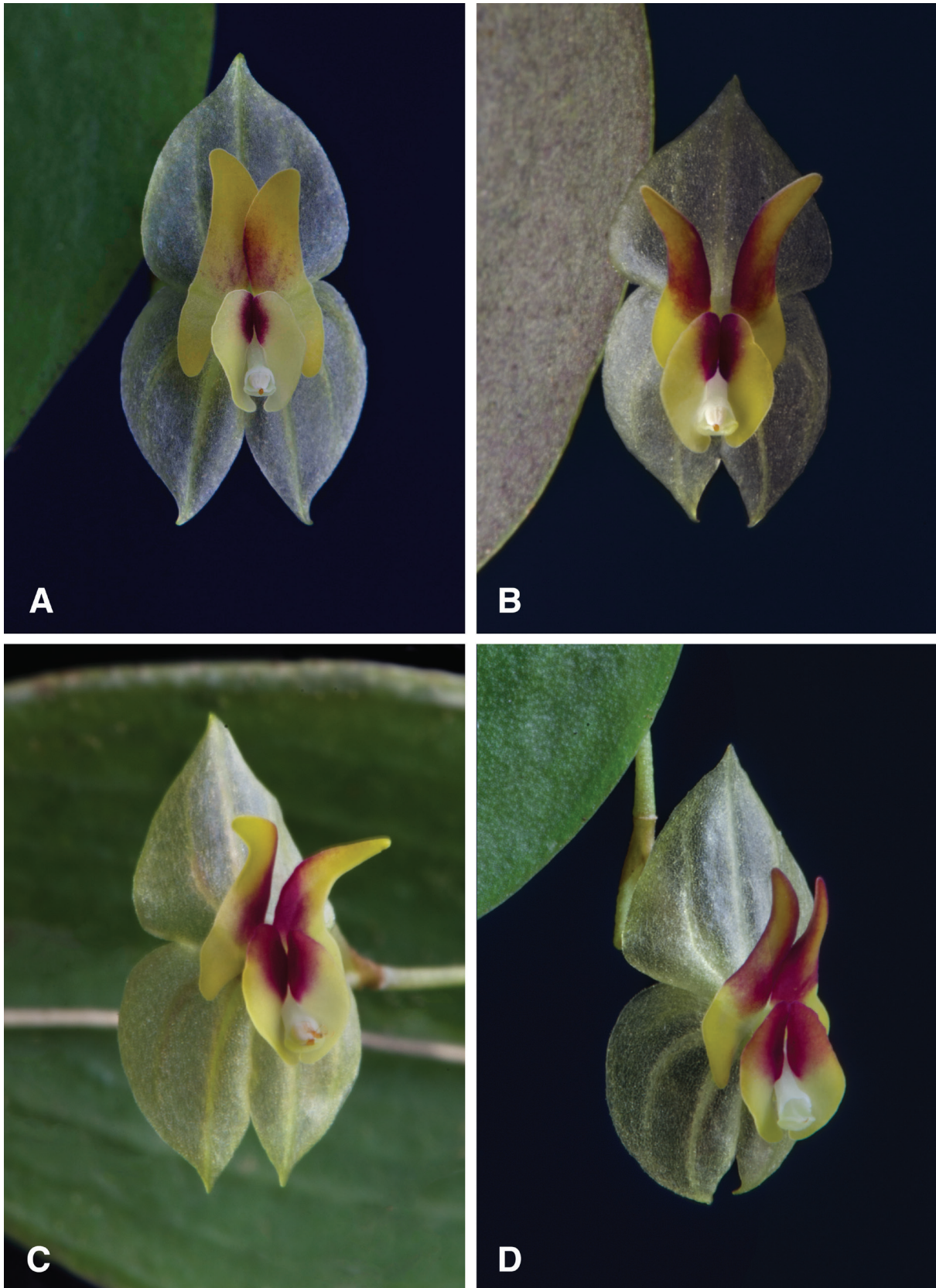


FIGURE 3. Flower variation in *L. elvirae*. A, *Pupulin 8555* (JBL); B, *Pupulin 8553* (JBL); C, *Pupulin 8572* (JBL); D, *Pupulin 8581* (JBL). Photographs by F. Pupulin.

**Paratypes:** Costa Rica. Cartago: Paraíso, Orosi, Queverí, Finca Durman, Tapantí-Macizo de La Muerte National Park, road to the swinging bridge over the Río Macho, 9°43'46.71"N, 83°51'27.53"W, 2115 m, lower montane rain forest, epiphytic in secondary mature vegetation with remnants of primary vegetation, 21 January 2014, flowered in cultivation under accession number JBL-30001, prepared 26 May 2014, *F. Pupulin, D. Bogarín, M. Díaz & M. Fernández* 8553 (JBL); same collecting data, flowered in cultivation under accession number JBL-30019, prepared 3 July 2014, *F. Pupulin, D. Bogarín, M. Díaz & M. Fernández* 8572 (JBL); same collecting data, flowered in cultivation under accession number JBL-30135, prepared 3 July 2014, *F. Pupulin, D. Bogarín, M. Díaz & M. Fernández* 8581 (JBL).

**Distribution:** Known only from Costa Rica, where it has been found along the Caribbean slopes of the Cordillera de Talamanca's northernmost range.

**Habitat and ecology:** *Lepanthes elvirae* inhabits the wet premontane forests of the Cordillera de Talamanca in Costa Rica, where the only known population was found in the Caribbean watershed of the chain, at about 2100 meters of elevation. *Lepanthes elvirae* is one of the species apparently suited to occupy the shaded and constantly wet canopy understory in dense vegetation, where the reduced air movement reduces the loss of water by transpiration. *Lepanthes* species of this "forest group" are commonly characterized by soft-herbaceous instead of coriaceous leaves, very prone to tissue dehydration under suboptimal levels of environmental humidity. Flowering of *L. elvirae* has been recorded in cultivation from February to August, but new flowers are probably produced in succession year-round.

**Eponymy:** Named after the senior author's wife, Elvira Salas-Pupulin, to acknowledge her continuous support in research and in life.

New species of *Lepanthes* are frequently described on the sole basis of morphological features' unique combinations, in both vegetative habit and flower shape. In general, these combinations easily distinguish *Lepanthes* species from each other and, in a few cases, enable recognition of species-groups whose members are probably close relatives (see, for example, Pupulin and Bogarín, 2010; Pupulin et al., 2010; Bogarín et al., 2012; Pupulin and Bogarín, in press). Nevertheless, the lack of both a larger genetic sampling in this hyper-diverse genus of probably more than thousand species, and of a finer resolution of the internal relationships, obscures in many cases the phylogenetic affinities of the new proposed taxa. *Lepanthes elvirae* is no exception. The glabrous ramicauls and the soft-herbaceous leaves are commonly observed in several *Lepanthes* groups adapted to the wet conditions of the lower canopy in pristine, dense forests, while the flower shape is reminiscent of *L. estrellensis* resembling both its rounded flower and the broad laminae of its labellum. Its affinities, as in most species of *Lepanthes*, are therefore purely speculative.