



# Two new species of *Aphelandra* (Acanthaceae) from Peru

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**Summary.** Two new species of *Aphelandra* are described from Andean Peru. One, *A. calciferi* comes from moist tropical forest in central Peru, whereas *A. floribunda* is from relatively dry forest in the north of the country, near the border with Ecuador. Both species are described, illustrated and mapped and their relationships and conservation are discussed.

**Key Words.** Andes, endemism, taxonomy.

## Introduction

*Aphelandra* R.Br. is an entirely neotropical genus of around 209 species (POWO 2025), its range extending from northern Mexico south to northern Argentina. It is absent as a native species from all offshore islands except Trinidad and appears to be most diverse in the northern Andes in Venezuela, Colombia, Ecuador and Peru. Although there are a few species with a relatively wide distribution, most species are very local, with many known from one or few collections from a single location. A few species are cultivated in tropical countries, including the Zebra Plant, *Aphelandra squarrosa* Nees, but the genus is otherwise of little commercial importance.

In Peru, 39 species of *Aphelandra* are listed in the *Catalogue of the flowering plants and gymnosperms of Peru* (Brako & Zarucchi 1993), together with one each in the genera *Encephalosphaera* Lindau and *Aphelandrella* Mildbr., both now subsumed in *Aphelandra* (Manzitto-Tripp *et al.* 2022). To these 41 must be added some eleven subsequently described species, bringing the total to 52 (Wasshausen 1996, 2006, 2013a; Villanueva *et al.* 2020). The current paper adds a further two and it is very likely that the number will continue rising as a result of new fieldwork and the study of undetermined specimens collected over many years and deposited in different herbaria, both in Peru and elsewhere. Levels of endemism are high with 28 of the 54 species thought to be endemic to Peru. Although some species are found at altitudes above 2500 m or in relatively dry areas, fieldwork needs to be focussed on the foothills and lower slopes of the eastern flank of the Andes where most species occur. One of the species described in this paper, *A. calciferi*, comes from

precisely this priority region, whereas the other species, *A. floribunda*, comes from dry woodland at the relatively high altitude of 2250 – 2300 m.

## Materials and Methods

This paper is based on the analysis of the herbarium specimens cited below interpreted by photographs of living plants when available. All herbarium specimens cited below, or their images, were seen by at least one of the authors. Floral details were examined after using a softening agent and observed under a binocular microscope. Relevant literature, especially Wasshausen (1975, 2013a, 2013b) was carefully reviewed, to confirm the distinctiveness of the new species. The distribution map was prepared in ArcGIS Pro 3.0 (<https://www.esri.com/en-us/home>) using the elevation data from WorldClim version 2.1 (Fick & Hijmans 2017). The assessment of conservation status followed IUCN guidelines (2024). Herbarium acronyms follow Thiers (2025).

## Taxonomic Treatment

***Aphelandra calciferi* R. Villanueva & J.R.I. Wood, sp. nov.** Type: Peru. Pasco, Prov. Oxapampa, Distr. Palcazú, Comunidad Nativa Alto Lagarto – Villa Progreso (Reserva Comunal Yanasha), 10°08'04"S 75°22'06"W, 500 m, 5 May 2009, R. Rojas & G. Ortiz 6620 (holotype MO [MO-4349028]; isotypes FHO [FHO-00141279], HOXA, USM).

<http://www.ipni.org/urn:lsid:ipni.org:names:77368625-1>

*Subshrub* to 3 m high; *stems* erect, terete to weakly angled, glabrous, lacking spiny inter-petiole bracts.

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*Leaves* very shortly petiolate; lamina 17–30 × 5–13 cm, coriaceous, oblong-elliptic to obovate, apex shortly acuminate to abruptly narrow to a short acumen, base cuneate to attenuate, then truncate, margin usually coarsely serrate with incurved spine tipped teeth, but sometimes unarmed and merely undulate, both surfaces glabrous; the venation prominent especially on the paler abaxial surface, lateral veins 15–30 pairs, ±parallel, net-veined between main veins; petioles 3–6 mm long, relatively stout, glabrous. *Inflorescence* a solitary, pedunculate, terminal spike; peduncle 6–10 cm long, stout, thinly strigose, bearing 1–2 sterile bract pairs; sterile bracts 1.7–2 × 0.2–0.4 cm, lanceolate or oblong, acuminate, glabrous; spike 13–18 × 4–6 cm, the flowers up to 1 cm apart below but very dense upwards when immature; rachis strigose; floral bracts 11.8–18 × 3–6 mm, oblong-cuneate to oblanceolate-cuneate, subglabrous, apex terminating in a spine, indurate, margin entire, obscurely ciliolate apically; prominently veined, the midrib obscurely puberulous apically; bracteoles 9.6–12 × 2–2.5 mm, lanceolate, acuminate, glabrous or minutely ciliolate apically; calyx unequally 5-lobed with two smaller and 3 larger lobes; lobes 8–10 × 1–1.5 mm, lanceolate, acuminate to a fine point, midrib prominent, glabrous, smaller lobes c. 8 × 1 mm; corolla 4.6–6 cm long, pubescent, red on the exterior, tube c. 3.5–4 cm long, c. 3 mm wide at base, gradually widened to 7 mm at mouth, strongly 2-lipped; upper lip c. 17.2–20 × 8 mm, narrowly ovate, apex obtuse, entire, red on the inner surface; lower lip 3-lobed, yellowish on the interior, the laterals c. 10.9–14 × 2 mm, lanceolate, acute, the central lobe c. 14.7–20 × 4.7–6 mm, very narrowly ovate, acute; stamens 4, filaments c. 4.5 cm long, equal, very pale yellow, glabrous, inserted c. 5–6 mm above base of tube; anthers monothealous, included in upper corolla lip, 6 × 0.5 mm, linear with acute base, glabrous; ovary c. 2–2.5 mm long, glabrous; style white, 5–5.5 cm long, glabrous. *Capsule* and *seeds* not seen. Figs 1 and 2.

**RECOGNITION.** As a subshrub whose stem lacks interpetiolar spinose bracts, whose coarsely serrate, glabrous leaves are 17–30 × 5–13 cm in size and whose inflorescence is a dense spike of imbricate flowers with entire bracts, the new species keys out in Wasshausen's (1975) monograph close to *Aphelandra castaneifolia* Britton ex Rusby, a species from southern Peru and Bolivia. However, *A. calciferi* differs by its leaves with 15–30 pairs of lateral veins (vs 12–21 pairs of varied prominence in *A. castaneifolia*); by the oblong-oblanceolate, near glabrous bracts (vs lanceolate, pubescent); glabrous bracteoles (vs pubescent); solitary, stout, c. 4 cm diam. spike (vs branched, c. 2 cm diam.) and the upper lip of the corolla entire (vs bifid).

**DISTRIBUTION.** Endemic to a restricted area of Oxapampa province in Pasco Department in Peru. Map 1. **SPECIMENS EXAMINED. PERU. Pasco:** Prov. Oxapampa, Distr. Palcazú, Comunidad Nativa Alto Lagarto–Villa Progreso, Reserva Comunal Yanasha, 10°08'04"S 75°22'06"W, 500 m, 10 Feb. 2012, *R. Rojas & G. Ortiz* 8151 (FHO, HOXA, MO [MO-4349026]); *ibid.*, 30 Jan. 2013, *R. Rojas & G. Ortiz* 8901 (HOXA, MO [MO-2951666]); *ibid.*, 28 Feb. 2014, *R. Rojas & G. Ortiz* 8989 (FHO, HOXA, MO [MO-4349027]); *ibid.*, Parque Nacional Yanachaga-Chemillén, Estación Paujil, 10°19'31"S 75°15'51"W, 380 m, 14 March 2009, *R. Vásquez et al.* 35589 (HOXA, MO, USM); *ibid.*, Bosque de Protección San Matías-San Carlos, sector Cuacuaso, 10°09'02"S 75°07'35"W, 780 m, 13 Feb. 2016, *R. Vásquez et al.* 40300 (HOXA, MO [MO-3155186], USM). **HABITAT.** Primary forest on steep-sided hills on clay soil, 380–780 m.

**CONSERVATION STATUS.** This species is known from six collections, all from within protected areas in the Province of Oxapampa, Peru. The type and three other collections were made in the Yanasha Community Reserve, one collection in the Bosque de Protección San Matías-San Carlos Protected Forest and the last collection near the Paujil field station in the Yanachaga-Chemillén National Park. These protected areas belong to the Oxapampa-Asháninka-Yánesha Biosphere Reserve, which hosts primary forest of central Peru. However, we consider this species, provisionally, to be Data Deficient [DD] following IUCN guidelines (2024) until the population size has been assessed.

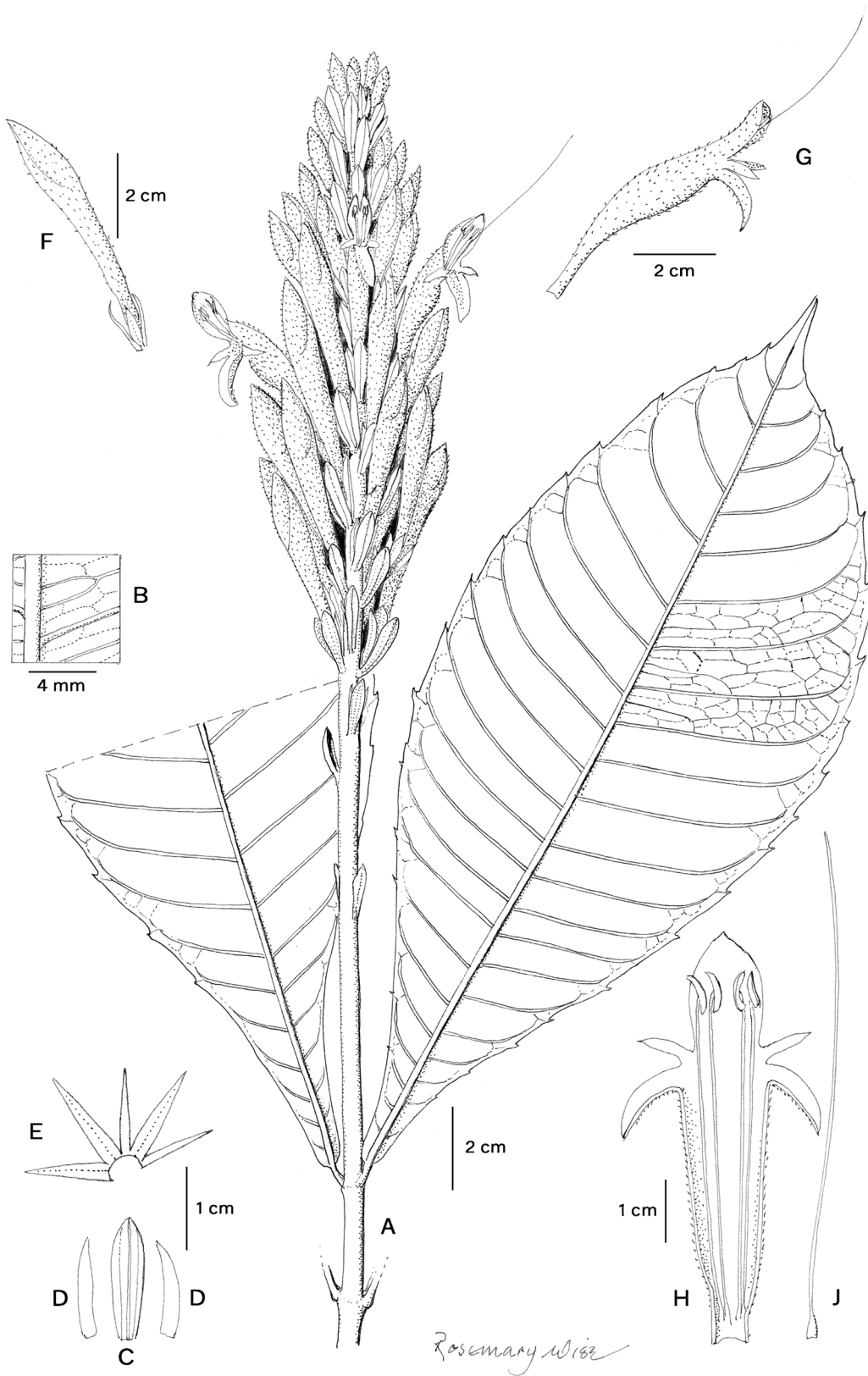
**PHENOLOGY.** Found in flower from January to March and in May.

**ETYMOLOGY.** The epithet refers to “Calcifer”, the fire demon in the film “Howl’s Moving Castle” (Miyazaki, H., 2004. Howl's Moving Castle [Film]. Studio Ghibli, Japan), whose vibrant coloration bears a striking resemblance to the corolla colours of this species.

**Aphelandra floribunda** *J.R.I. Wood & R. Villanueva, sp. nov.* Type: Peru. Cajamarca, Prov. San Ignacio, Distr. San José de Lourdes, loc. Picorana, 4°58'00"S 78°53'01"W, 2250–2300 m, 2 Dec. 1998, *J. Campos, L. Zurita & M. Camizan* 5891 (holotype FHO [FHO-00141280]; isotype MO).

<http://www.ipni.org/urn:lsid:ipni.org:names:77368626-1>

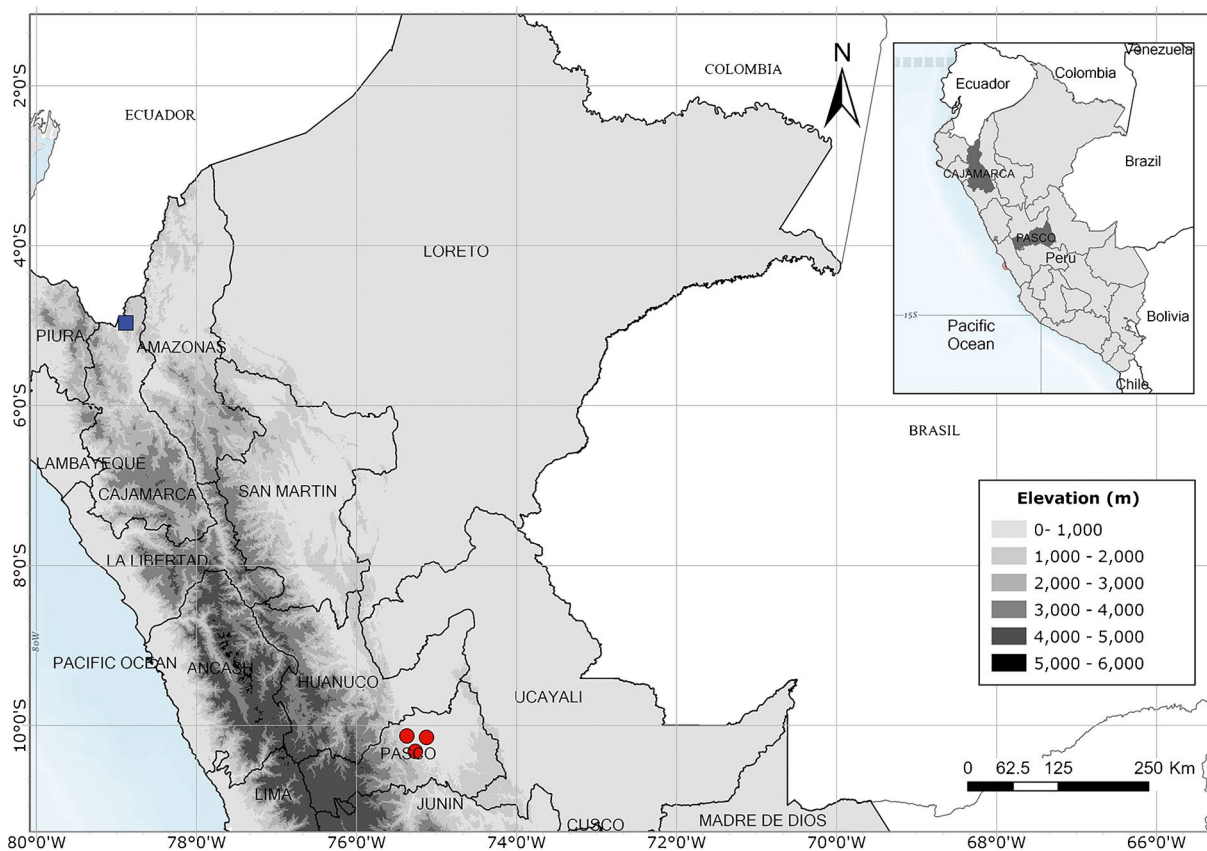
*Shrub* to 4 m high; *stems* terete, woody, much branched. *Leaves* long-petiolate, completely glabrous, lamina 4–8.5 × 1–2.3 cm, narrowly oblong-elliptic, apex finely acuminate, falcate, base finely attenuate, ±decurrent, margin obscurely crenate when young, entire when mature, abaxially minutely punctate; lateral veins 7–9 pairs, venation not especially prominent; petioles 7–22 mm; leaf axils with a small conical tuft of



**Fig. 1.** *Aphelandra calciferi*. **A** habit; **B** detail of abaxial leaf surface; **C** bract; **D** bracteoles; **E** calyx; **F** bud; **G** corolla, side view; **H** corolla, opened out to show androecium; **J** ovary and style. From *R. Rojas & G. Ortiz 6620*. DRAWN BY ROSEMARY WISE.



**Fig. 2.** *Aphelandra calciferi*. **A** habit; **B** single terminal spike; **C** lateral view of corolla showing bracts; **D** front view of corolla, showing corolla lobes, androecium and yellow interior of lower lip. **A** from Vásquez *et al.* 40300, **B – D** from Vásquez *et al.* 35589. PHOTOS: R. VÁSQUEZ.



**Map 1.** Distribution of *Aphelandra floribunda* (blue square) and *A. calciferi* (red circles).

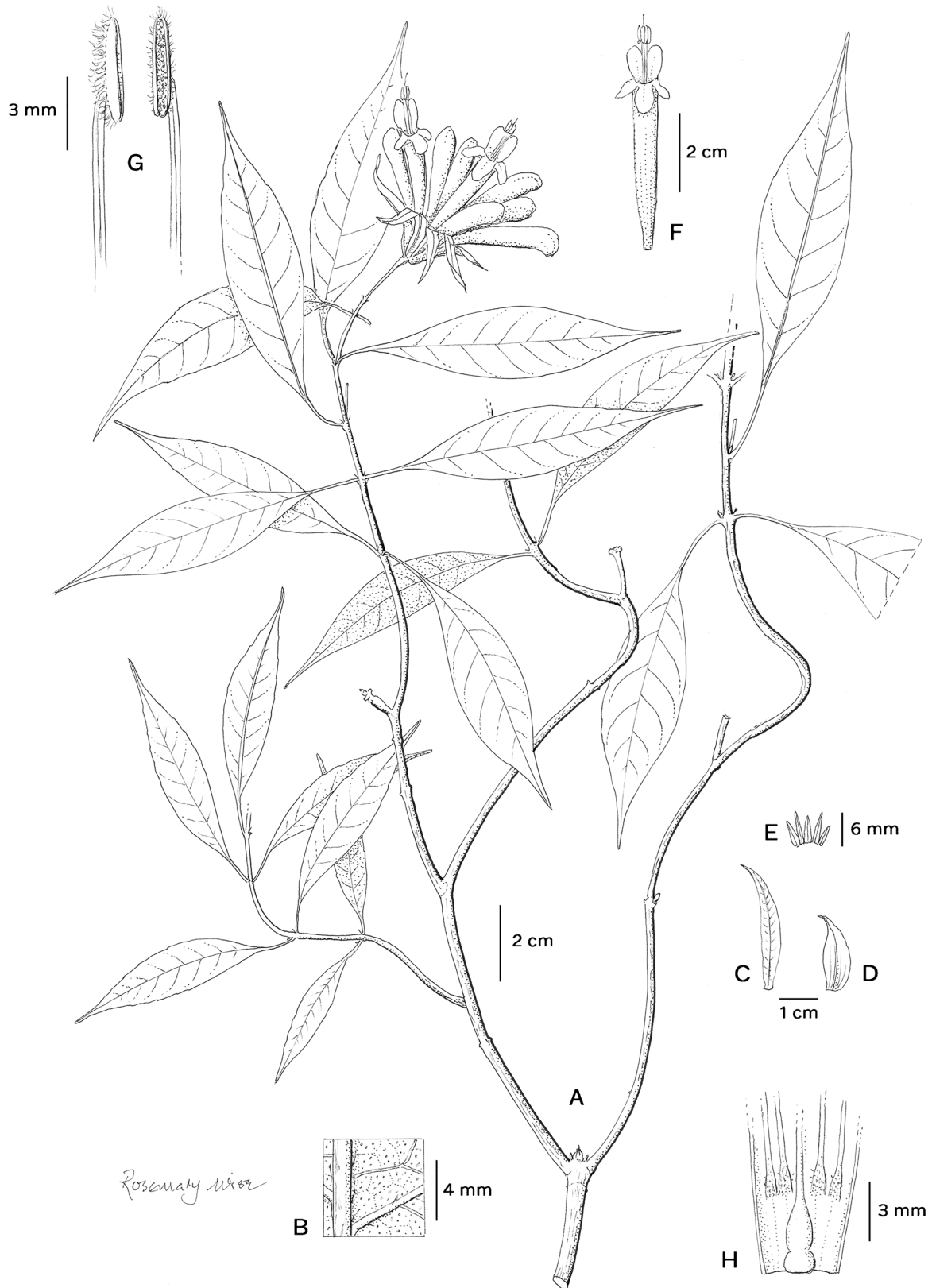
hairs. *Inflorescence* terminal, the flowers arising in 2–3 dense shortly pedunculate clusters from the uppermost leaf axils; peduncles 5–8 mm, glabrous; outer bracts (1.2–) 2–3.2 × 0.4–0.7 cm, oblong to oblong-lanceolate, with long falcate, caudate apex, glabrous, not well differentiated from the inner ovate, apically caudate bracts 1.5–1.7 × 0.7 cm; bracteoles 3.5 × 1 mm; calyx 5-lobed to base, lobes linear-lanceolate, acute, glabrous, two longer lobes 5 × 1 mm, three shorter 4 × 1 mm; corolla orange, glabrous, 3.6–4 cm long, 2-lipped, tube 3.3 cm long; upper lip c. 8–9 mm long, bilobed 3–4 mm long, ovate, rounded; lower lip 3-lobed, the two lateral lobes c. 5 × 2 mm, oblong-oblancheolate, rounded, the central lobe c. 7 × 3.5 cm, ovate-elliptic, rounded; filaments 3–3.2 cm long, inserted c. 5 mm above base of corolla, sparsely pubescent, more densely so at base, anthers monothealous, exerted c. 5 mm, linear, 4.5 × 0.5 mm, villous; style glabrous, the stigma exerted slightly beyond the anthers; ovary c. 2 mm high, conical, glabrous. *Capsule* and *seeds* not seen. Fig. 3.

**RECOGNITION.** Resembling *Aphelandra jacobinioides* Lindau and similar species with short dense terminal

inflorescences as set out in Table 1. *Aphelandra floribunda* is distinguished from all these species by the relatively small, narrow, finely acuminate leaves 1–2.3 cm wide (vs > 3.5 cm wide in *A. jacobinioides* and similar species) and narrow, caudate floral bracts 4–7 mm wide (vs 7 mm or more wide and differently shaped).

**DISTRIBUTION.** Only known from the type locality. Map 1. **HABITAT.** In primary woodland at 2250–2300 m. This is a relatively dry area with a rainfall of around 250 mm a year and also at an altitude unusually high for most species of *Aphelandra*. The area consists of elevated, stepped hills over a thin soil layer covered by a cushion of tree roots at elevations above 2100 m. The mountains in this area are covered by elfin forest at higher altitudes (Vicuña-Miñano 2005). Cerro Picorana is the highest point in San Ignacio reaching 2850 m.

**CONSERVATION STATUS.** *Aphelandra floribunda* is only known from a single collection on the Cerro Picorana (Cajamarca). This place is well-known for high levels of endemism and is home to species which also grow in Ecuador, such as *Pleurothallis bicallosa* Luer & Hirtz (Calatayud 2005). We classify this species provisionally as Data Deficient [DD] following IUCN (2024)



**Fig. 3.** *Aphelandra floribunda*. **A** habit; **B** abaxial surface of leaf showing dots; **C** outer bract; **D** inner bract; **E** calyx; **F** corolla showing lobes and exerted anthers and stigma; **G** anthers; **H** corolla, opened out to show ovary and base of anther filaments. From *J. Campos, L. Zurita & M. Camizán 5891*. DRAWN BY ROSEMARY WISE.

**Table 1.** Comparison of *Aphelandra floribunda* and related species, based on Wasshausen (1975, 2013a, 2013b), images and available specimens.

Character	<i>A. floribunda</i>	<i>A. monitis-scalaris</i> Lindau	<i>A. jacobinioides</i> Lindau	<i>A. knappiae</i> Wassh.	<i>A. atcryacuensis</i> Wassh.	<i>A. davidsonii</i> Wassh.	<i>A. schunkei</i> Wassh.
Lamina size (cm)	4–8.5 × 1–2.3	10–18 × 4.55–7	14–20 × 6–8	15–20 × 6–10	11–20 × 5–9	10.5–15 × 3.5–5	15–22 (–26) × 4–7 (–9)
Lamina shape	oblong-elliptic, finely acuminate	oblong-obovate, cuspidate	oblong-elliptic, shortly acuminate	broadly elliptic to ovate, ± cuspidate	broadly elliptic to obovate, shortly acuminate	elliptic to oblong, acuminate	elliptic to oblong, acuminate
Peduncle length (cm)	3	3	1–2	3–4	1–3	1.5–2	2–2.5
Floral bracts size (mm)	(12–)20–32 × 4–7	10 × 8	10–14 × 9	12–15 × 8–10	12–15 × 12–13	10–12 × 7–8	13–17 (–24) × 8–10 (–14)
Floral bracts shape	oblong, caudate	obovate, obcordate	broadly ovate, truncate	obovate, obtuse to rounded	broadly ovate, acute	narrowly obovate, outer shortly bilobed	narrowly obovate to ovate, acuminate
Bracteoles size (mm)	3.5 × 1	5 × 2	6 × 1.5	4 × 1	4 × 1.5	3–3.5 × 1–1.5	2.75–3 × 1
Bracteoles shape	oblong, glabrous	ovate, minutely pilose	lanceolate, pilose	oblong to lanceolate, glabrous with ciliolate tips	lanceolate, glabrous with ciliolate tips	lanceolate to narrowly ovate, glabrous	lanceolate, glabrous
Sepal shape	linear-lanceolate	ovate	lanceolate, truncate	oblong-lanceolate	lanceolate	lanceolate	lanceolate
Sepal size (mm)	4–5	5.5–6	5	4–4.5	4–5	5	4–5
Corolla size (mm)	36–40	38–41	40–45	40	30	28	35–40
Corolla colour	orange	red	bright orange	yellow with green tinged lobes	yellow	yellow-green	yellow to greenish yellow
Upper lip size (mm)	8–9	4	6	5–6	5	3–4	5–7
Anther thecae	dorsally villous	dorsally tomentellous	dorsally pilose	dorsally tomentose	glabrous in illustration	glabrous in illustration	dorsally tomentose
Altitude range (m)	2250–2300	1200	150–1750	200–800 (–1600)	325–650	1500–1800	350–900

guidelines, as we have no information about the size of the population or any specific threats it may face.

**PHENOLOGY.** Found in flower in December.

**ETYMOLOGY.** The name “*floribunda*” refers to the abundant flowers in each cluster.

**NOTES.** *Aphelandra floribunda* belongs to a possibly natural group of seven, mainly Peruvian species, in which the flowers are arranged in short spikes in subterminal fascicles. The differences between these species are set out in Table 1. The species are somewhat similar in corolla and calyx characters but differ in their leaf and bract shapes as well as in other details. It should be noted that the outermost bracts differ from the inner bracts in size and shape as noted above and also as shown in the illustration of *Aphelandra aucayacuensis* Wassh. (Wasshausen 2013a: 15). Where it can be confirmed, species in the group have dorsally tomentose anther thecae. The fruit of most species is unknown. The new species occurs at higher altitudes in a drier area, somewhat distant from the known locations of the other species in this group.

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### Declarations

**Conflict of Interest** The authors declare that they have no conflict of interest.

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