

Novelties in *Psittacanthus* (Loranthaceae) from Colombia: a new species and four new records for the Andean and Amazon Regions

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Academic editor: Luiza Teixeira-Costa ♦ Received 13 February 2026 ♦ Accepted 9 April 2026 ♦ Published 2 June 2026

Abstract

Background and aims – *Psittacanthus* is the largest genus of neotropical mistletoes within Loranthaceae, comprising approximately 110 species. With 37 species recorded to date, Colombia stands as the most diverse country for this group of aerial hemiparasites. Despite this richness, a comprehensive national or regional taxonomic revision of these mistletoes is currently lacking. This study aims to update the knowledge of Colombian *Psittacanthus* diversity by describing a new species and reporting new records for the country.

Material and methods – This study is based on an extensive literature review and the examination of herbarium material of *Psittacanthus*. We examined herbarium specimens using both physical collections and high-resolution digital images. Morphological analyses were conducted using dried and rehydrated samples, following the standardized specialized terminology for neotropical mistletoes. Taxonomic descriptions and diagnoses were developed to establish and test taxonomic hypotheses, ensuring a rigorous comparison between focal taxa and previously described species.

Key results – A new species for the Colombian Andes is described, and four new records for the Amazonian and Andean–Amazonian Piedmont of Colombia are reported. *Psittacanthus job-kuijtii* sp. nov. is described and illustrated herein; this species inhabits the moist lowland forests of the Colombian inter-Andean valleys, which are areas containing exceptional biodiversity. Furthermore, *P. amazonicus*, *P. lamprophyllus*, *P. pilanthus*, and *P. zonatus* are recorded for the first time for Colombia. The description of this new species and the additional records increase the known diversity of Colombian *Psittacanthus* to 41 taxa and a total of 111 species for the genus.

Keywords

Andes, flora of Colombia, mistletoe, Psittacanthaceae, Santalales, taxonomy

INTRODUCTION

Psittacanthus Mart. is the largest genus of Loranthaceae in the New World, comprising 110 species distributed from Baja California to northern Argentina, Jamaica, the Lesser Antilles, and Brazil, typically at elevations below 2000 m a.s.l. (Kuijt 2009, 2014; Kuijt and Hansen 2015; Dettke and Caires 2021). Colombia harbours the greatest diversity for

this genus, so far with 37 species reported across all major biogeographic regions of the country, followed by Brazil with 33 species (Dettke and Caires 2021; González and Pabón-Mora 2023).

Psittacanthus is distinguishable from other neotropical mistletoe genera by the combination of inflorescences arranged in dyads or triads with large, tubular flowers (> 1.2 cm long), and stamens with dorsifixed anthers

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Plant Ecology and Evolution is published by Meise Botanic Garden and the Royal Botanical Society of Belgium.

with a blunt apex (Kuijt 2009; Dettke and Caires 2021). Phylogenetic analyses support *Psittacanthus* as the sister group of *Aetanthus* (Eichler) Engl., with both genera placed within the tribe Psittacanthae Engl. (Vidal-Russell and Nickrent 2008; Kuijt 2009, 2014; Nickrent et al. 2010). Both *Psittacanthus* and *Aetanthus* differ from each other in anther morphology: the former has versatile, dorsifixed anthers with a blunt apex, whereas the latter bears basifixed anthers with a needle-shaped apex (Eichler 1868; Kuijt 2009, 2014).

Key taxonomic characters in *Psittacanthus* to delimit and recognize species include branching patterns, branch morphology, phyllotaxis, leaf blade shape, the arrangement of flowers in the inflorescences, the presence of appendages along the petal margins, presence of post-staminal hairs, and projections at the inner base of the petals, known as ligules (Kuijt 2009).

The revision of *Psittacanthus* specimens from Colombia revealed the occurrence of four species not previously recorded in the country: *Psittacanthus amazonicus* (Ule) Kuijt, *P. lamprophyllus* Eichler, *P. pilanthus* Kuijt, and *P. zonatus* (Diels) Kuijt. In addition, some revised specimens exhibited distinct morphological features compared to the remaining species of the genus; therefore, a new species is described and illustrated here. Its affinities with morphologically similar species are discussed, and a conservation status is also proposed following the IUCN criteria.

MATERIAL AND METHODS

Types and representative specimens of *Psittacanthus* species were observed at herbaria COAH, COL, FAUC, HUA, HUAZ, HUCO, JAUM, JBB, MEDEL, MEXU, NY, UDBC, UIS, and US (Thiers 2025) or through online high-resolution photographs from the Global Plants Project (<https://plants.jstor.org>), REFLORE Programme (<https://floradobrasil.jbrj.gov.br>), and F, HBG, K, P, S, UC, and Z herbaria. For the new species description, vegetative structures were observed and measured from herbarium materials, and flower and fruits measurements were taken after rehydration in 70% ethanol.

Description and diagnosis follow the terminology proposed by Kuijt (2009, 2014), Beentje (2016), González et al. (2016), and González and Pabón-Mora (2017).

The conservation status of the new species was evaluated following the IUCN Red List Categories and Criteria (IUCN 2012) and Guidelines (IUCN Standards and Petitions Committee 2024). The extent of occurrence (EOO) and the area of occupancy (AOO) calculations were based on the coordinates of all collections examined, with cells of 2 km² for the AOO. A distribution map containing all examined species was generated with QGIS v.3.40.5 (QGIS 2025).

RESULTS

New species for the Andean Region of Colombia

Psittacanthus job-kuijtii F.J.Roldán, Carmona & J.S.Murillo, **sp nov.**

urn:lsid:ipni.org:names:77380582-1

Figs 1–3

Type. COLOMBIA – **Antioquia** • Municipio de Anorí, vereda La Providencia, sector Tierra Feliz; 7°18'4.464"N, 75°03'44.712"W; 600 m; 19 Jul. 2018; fl.; *David et al.* 6371; holotype: HUA [HUA0074954].

Diagnosis. *Psittacanthus job-kuijtii* differs from the remaining species in the genus by the combination of the following characters: percurrent shoots; leaf blades ovate to broadly lanceolate, base truncate to rounded, margins revolute and adaxially extending toward the petiole, forming a V-shaped projection, apex attenuate to acuminate; inflorescences usually double triads, rarely triple triads, or a monad with two triads (all variations were observed in the holotype); flowers 4–5 cm long in pre-anthesis; petals red to orange in the proximal and medial portions and yellow distally with a deltoid, fleshy basal ligule bearing minute papillae, 1.8–2 mm long; stamens dimorphic, staminal hairs absent. *Psittacanthus job-kuijtii* is similar to *P. peronopetalus*, but differs from it by having usually double (rarely triple) triads (vs umbels of four triads), and flowers opening at anthesis with petals recurved for about 2 cm (vs flowers opening only at the apex, with petals recurved for no more than 2 mm).

Description. Hemiparasitic shrub. Haustorium not seen. Branches percurrent, slightly flattened when young, terete when mature, striate. Internodes 2.9–10.4 cm long, 2.1–4.8 mm diam., glabrous; nodes not swollen. Leaves opposite; petiole 3.2–12.4 mm long, 1.8–2.9 mm diam., canaliculate adaxially, terete abaxially; leaf blades ovate to broadly lanceolate, 8.2–23 × 2.7–10.7 cm, coriaceous, base truncate to rounded, with revolute margins adaxially extending towards petiole (V-shaped), apex attenuate to acuminate, margin entire, glabrous on both surfaces; venation brochidodromous, obscure, central vein prominently raised and striate, secondaries impressed, obscure. Inflorescences axillary, usually composed by double triads (rarely triple triads, or one monad with two triads), pendulous, axes pale green, glabrous, inflorescence peduncle 7–13.6 mm long, 0.9–1.1 mm diam., bracts absent; triad peduncle 4.2–8.2 mm long, 0.7–0.9 mm diam., 1 bract deltoid per triad, 0.7–1 mm long, 1–1.1 mm wide at base, cupular pedicels pale green, 6.2–8.4 mm long (without including the cupular portion), ca 0.5 mm diam., cupule ca 0.4 mm long, 1.8 mm wide; bracteole fused to the cupule, deltoid, 0.5–0.8 mm long, 0.8–1.3 mm wide at base. Flower tubular, straight, flower buds 4–5 cm long in pre-anthesis, 1.8–2.5 mm diam. in proximal portions, 1.3–1.6 mm diam. towards the distal portion in sicco; 6-merous. Petals glabrous, red to orange

Table 1. Comparative traits between *Psittacanthus job-kuijtii* and morphologically similar species, based on data from Kuijt (2009) and herbarium measurements made in this study.

| | <i>P. hamulifer</i> | <i>P. peronopetalus</i> | <i>P. smithii</i> | <i>P. job-kuijtii</i> |
|---|---|--|---|---|
| Inflorescence morphology | a double triad, several per leaf axil | an umbel of 4 triads | a raceme of 2–6 triads | double triads usually, rarely triple triads, or a monad with two triads |
| Corolla colour | reddish orange to intense red with yellow tip | red and yellow, with black tip | red to orange in basal portion and yellow coloured in middle and distal portion | red to orange in proximal and medial portions, yellow in distal portion |
| Flower length in pre-anthesis (cm) | 5–6 | 3–3.6 | ca 5 | 4–5 |
| Flower bud apex shape | rounded | slightly dilated to 2.5 mm below, with papillate petal apices spreading | slightly beaked beyond the anther area, acuminate | rounded to obtuse |
| Basal ligule | tongue-like, membranous, terminating in small digitate processes, 1–1.5 mm long | erect, apex with short hairs, these hairs are similar on the petal wall behind the ligule, 1.5 mm long | fleshy, with minute, short epidermal papillae, as on the inner petal nearby, ca 1.5 mm long | deltoid, fleshy, with minute papillae, petal wall glabrous behind ligule, 1.8–2 mm long |
| Filament length (mm) | 13–15 | 10–15 | 16–18 | 10–14 |
| Anther length (mm) | 4.5–5 | 2.5–3 | 4–5 | 2.8–3.8 |
| Calyculus shape | somewhat eroded | shallowly dentate | smooth to slightly lacerate | truncate and notched or dentate |
| Distribution and elevation | Chocó biogeographic region from Panama and Colombia, 80–1400 m | Amazon Region: Brazil, Colombia, Ecuador, French Guiana, Guyana and Venezuela, 80–700 m | Sierra Nevada de Santa Marta, Colombia, ca 1500 m | northern central cordillera, Colombia, 400–1100 m |

in proximal-medial portions, yellow in distal portions, recurved distally at anthesis (close to 2 cm), medial and proximal portions remain straight, isomorphic, narrowly oblong, 4.8–5 cm long, 0.8–1 mm wide, apex acute, proximal and medial portions of petals with vermicular appendages along each margin, post-staminal hairs absent, basal ligules, 1.8–2 mm long, deltoid, fleshy, minutely papillate, placed to ca 1.7 mm above the base of the petal. **Stamens** epipetalous, dimorphic; free portion of filaments 10–12 mm long in the shortest series, 13–14 mm long in the longest series, both terete, anthers dorsifixed, oblong, with a pair of lobes at the base, 4-loculate, 2.8–3.8 mm long, 0.8–0.9 mm diam. **Ovary** 1.8–2.3 mm long, 1.2–2 mm diam., cupuliform, pale green; calyculus ca 0.7 mm long, conspicuous, truncate-notched to dentate, pale green; style 4.5–4.7 cm long, 0.2–0.4 mm diam. in proximal portion, straight, white to light pink proximally and green in medial to distal portions; stigma 0.5–0.6 mm diam., capitate, green. **Fruit** elliptic, smooth, ca 12 mm long, ca 8 mm diam., purple, black when mature, calyculus persistent; seed ovoid, ca 9 × 5 mm, endosperm 6-lobed, prismatic compound, embryo not seen.

Distribution. *Psittacanthus job-kuijtii* has been collected in Anorí and Amalfi, two neighbouring municipalities in the eastern portion of the Antioquia Department, Andean Region, Colombia.

Habitat and ecology. It occurs in a tropical moist/wet transition zone in Anorí and in moist premontane forest in Amalfi, between 400 and 1100 m a.s.l. (Fig. 3). The species has been reported parasitizing an unidentified species of Melastomataceae.

Phenology. *Psittacanthus job-kuijtii* was collected with flowers in July, September, and December, and with fruits in December.

Etymology. The epithet honours Job Kuijt (1930–2024), a plant taxonomist and mistletoe specialist who made significant contributions to the study of diverse parasitic plant groups, particularly mistletoes. He was also the author of the monograph on *Psittacanthus* (Kuijt 2009).

Preliminary IUCN conservation assessment.

Psittacanthus job-kuijtii grows in well-preserved forests and it is known from collections made at four neighbouring localities (Fig. 3); these areas are constantly threatened by deforestation, agricultural expansion, and gold mining (Soejarto 1975; Ariza Cortés et al. 2009). According to our data, this species has an Extent of Occurrence (EOO) of 58.3 km² and an Area of Occupancy (AOO) of 16 km². Based on this information, we hypothesize that the EOO, AOO, and the extent and quality of the habitat of *P. job-kuijtii* are in continuous decline; therefore, we suggest its preliminary placement in the “Endangered” category: EN B1ab(i,iii)+2ab(ii,iii).

Notes. This new species belongs to the genus *Psittacanthus* based on its dorsifixed anthers (Kuijt 2009, 2014). The most morphologically similar species to *P. job-kuijtii* are *P. hamulifer* Kuijt, *P. peronopetalus* Eichler, and *P. smithii* Kuijt, with similarities in their vegetative traits such as plant habit and leaf shape and size. However, the inflorescence morphology, the flower length of each

species, and the length of the basal ligule, distinguishes *P. job-kuijtii* from similar taxa (Table 1).

Inflorescence architecture is a primary diagnostic feature for delimiting species and identifying specimens within *Psittacanthus*. This structure comprises two types of peduncles (the inflorescence peduncle and the triad/dyad peduncle), floral pedicels, and the flowers themselves

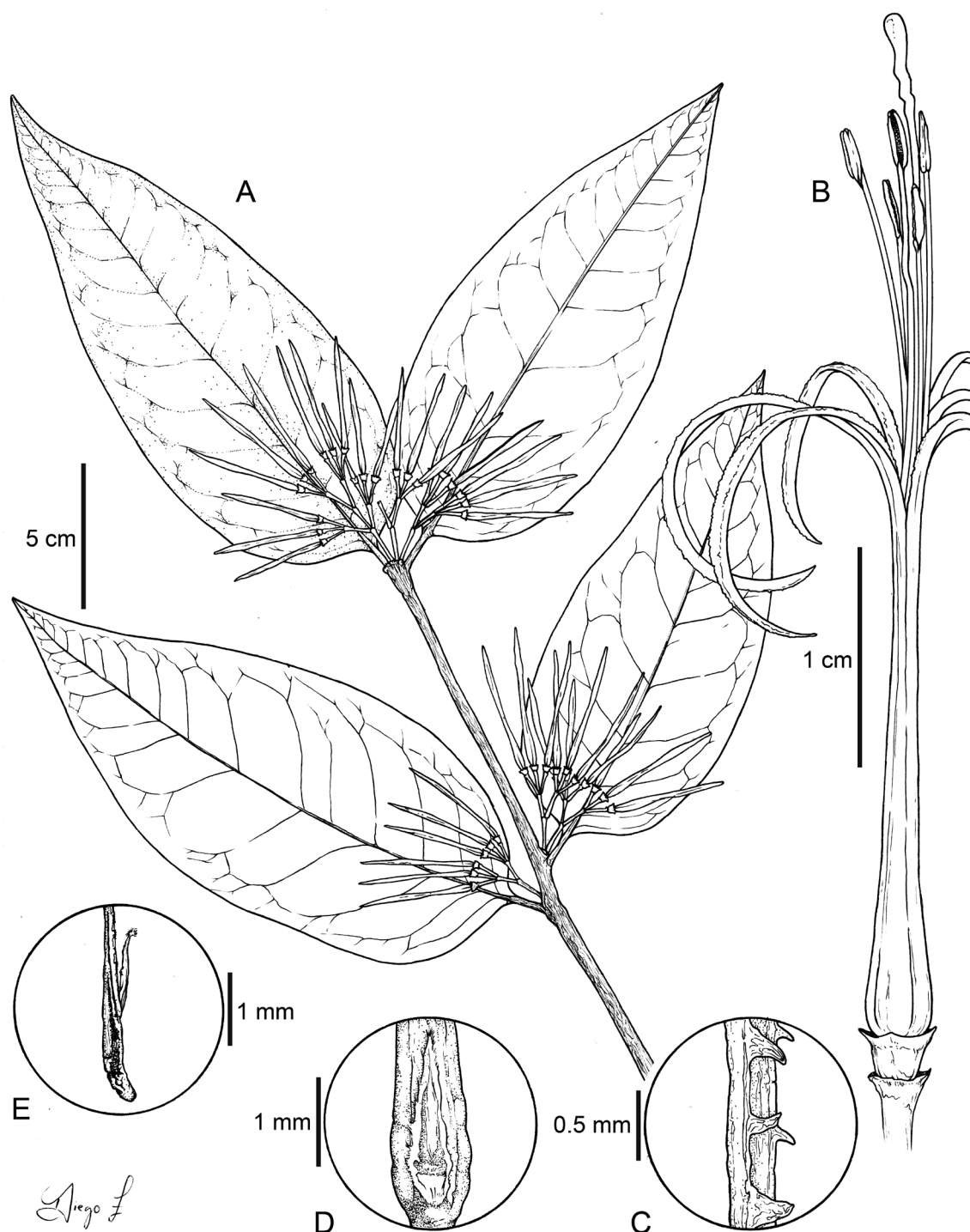


Figure 1. *Psittacanthus job-kuijtii*. A. Habit. B. Flower, showing from bottom to top: the upper portion of the flower pedicel, cupule with bract followed by the ovary and calyculus, petals with their tips recurved at anthesis, and protruding stamens and pistil. C. Detail of vermicular projections on the margin of petal. D. Basal ligule in front view. E. Basal ligule in lateral view. Based on the holotype (David et al. 6371, HUA). Illustration by Diego Zapata (HUA).

(Kuijt 1981, 2009). However, most of these inflorescences possess a three-dimensional arrangement that rarely survives the drying and pressing process intact. Because components are easily detached, the reconstruction of herbarium material often relies on analysing the scars left by adjacent parts to interpret the original structure (Kuijt 2009). Based on our examination of the holotype (*David et al.* 6371, HUA), we observed that the inflorescence of *Psittacanthus job-kuijtii* typically consists of a peduncle supporting two triads. A detailed analysis revealed structural variations or atrophies, such as the presence of three triads or two triads accompanied by a monad (as mentioned in the species description). These deviations likely reflect developmental plasticity or environmental influences during ontogeny; however, such morphological instabilities remain largely underreported for the genus. Nevertheless, the predominant inflorescence ground plan remains a stable and reliable trait for the taxonomic diagnosis of *Psittacanthus* species.

Psittacanthus job-kuijtii is known from four collections, with poor information about its host range and haustorium morphology. Field expeditions in adjacent regions of Anorí and Amalfi would reveal further data about the host range and verification of the conservation status proposed here.

Moist forest ecosystems of Amalfi and Anorí stand out as areas of exceptional floristic diversity and abundance (Ariza Cortés et al. 2009; Idárraga-Piedrahita

and Callejas-Posada 2011). A study conducted in a wet premontane forest, transitioning to premontane rain forest in Amalfi documented high family-level plant richness, recording more than 150 species with a notable representation of Lauraceae, Melastomataceae, Rubiaceae taxa, and epiphytic plants (Ariza Cortés et al. 2009). Similarly, the moist forest ecosystem of Anorí (referred to as “humid forest” in Kor and Diazgranados 2023), has been identified as one of the ten priority areas for the conservation of useful plants in Colombia, due to the high species richness of this region (Kor and Diazgranados 2023). Furthermore, recent taxonomic discoveries in Costaceae, Magnoliaceae, Melastomataceae, and Selaginellaceae from both Amalfi and Anorí highlight that the plant diversity of these localities remains poorly known (Murillo-Serna et al. 2022; Maas et al. 2023; Serna-González et al. 2024; Valdespino et al. 2024). These findings underscore the need for further sampling efforts and the implementation of conservation strategies in both municipalities, which are increasingly threatened by landscape fragmentation and logging pressures (Soejarto 1975; Ariza Cortés et al. 2009).

Additional specimens examined (paratypes).

COLOMBIA – **Antioquia** • Amalfi, Vereda La Gloria, 35–37 km NE de Amalfi, en la vía Amalfi-Vetilla, sobre Melastomataceae; 7°05'N, 74°56'W; 950–1100 m; 9 Dec. 1989; fr.; *Callejas et al.* 9218; HUA [HUA69823], NY • Anorí, Valle del río Anorí, between Dos Bocas & Anorí,



Figure 2. *Psittacanthus job-kuijtii*. **A.** Triad of an inflorescence showing basal floral parts (flower pedicels and cupule with bract, ovary, calyculus, and proximal portion of petals). **B.** Flower buds. **C.** Flower at anthesis with recurved petals. Photographs from the holotype (*David et al.* 6371, HUA) by Esteban Domínguez. Figure composition by Diego Zapata (HUA).

Vic. Planta Providencia, 26 kms S & 23 kms W (Air) of Zaragoza; 7°13'N, 75°03'W; 400–700 m; 1 Dec. 1974; fl.; *Denslow 2517*; HUA [HUA9069] • Anorí, Vereda “La Esperanza”; 7°11'04"N, 75°01'53"W; 800–900 m; 17 Sep. 1999; fl.; *Tuberquia et al. 1167*; JAUM, MEDEL [MEDEL70084].

New records of *Psittacanthus* for the Andean-Amazon Piedmont and Amazon Region of Colombia

The Amazon Region of Colombia harbours a substantial number of *Psittacanthus* species. The new records published here, along with those previously reported in the literature, bring the total to 23 species in the Colombian Amazon and Andean-Amazonian Piedmont regions (Kuijt 2009; Dettke and Caires 2021; González and Pabón-Mora 2023). These species include: *P.*

acinarius (Mart.) Mart., *P. amazonicus*, *P. bolbocephalus* Kuijt (to be confirmed for Colombia; Kuijt 2009), *P. cinctus* (Mart.) Mart., *P. clusiifolius* Eichler, *P. corderoi* F.González, F.J.Roldán & Pabón-Mora, *P. crassifolius* (Mart.) Mart., *P. crassinervis* Kuijt, *P. cucullaris* (Lam.) G.Don, *P. eucalyptifolius* (Kunth) G.Don, *P. geniculatus* Kuijt, *P. irwinii* Rizzini, *P. lamprophyllus*, *P. ophiocephalus* Kuijt, *P. peronopetalus*, *P. pilanthus*, *P. robustus* (Mart.) Mart., *P. schultesii* Kuijt, *P. stergiosii* Kuijt, *P. sulcatus* Kuijt, *P. truncatus* Kuijt, *P. tubatus* Kuijt, and *P. zonatus*. The monograph of *Psittacanthus* recognizes 119 species within the genus (Kuijt 2009); however, recent taxonomic revisions included the synonymization of several names, which reduced the total to 110 species (Dettke and Caires 2021). Following this updated classification and including the species described in this work, the total number of *Psittacanthus* taxa now stands at 111, with 41 of these recorded for Colombia.

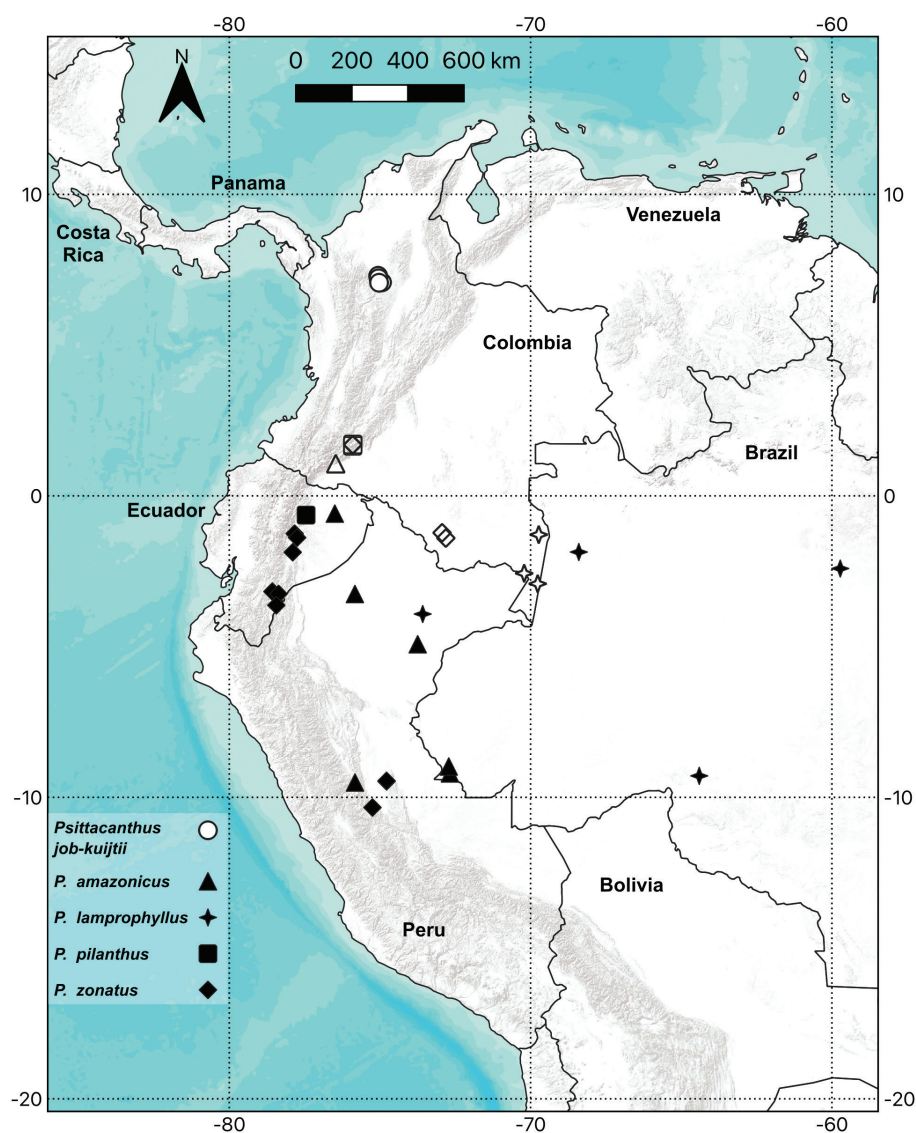


Figure 3. Distribution map of *Psittacanthus amazonicus*, *P. job-kuijtii*, *P. lamprophyllus*, *P. pilanthus*, and *P. zonatus*. New and previous records of each species are displayed with empty and filled symbols, respectively. Basemap: ESRI Terrain.

1. *Psittacanthus amazonicus* (Ule) Kuijt (Kuijt 1983: 670)

Psathyranthus amazonicus Ule (Ule 1907: 156)

Type. BRAZIL • Acre, Mpio. Marechal Taumaturgo, Boca de Tejo, Juruá sup.; Apr. 1901; fl.; Ule 5461; holotype: B†; isotypes: HBG [HBG522892], F [F0062382F].

Iconography. Ule (1907: tafel 1); Kuijt (1983: figs 6–7); Kuijt (2009: fig. 23).

Notes. *Psittacanthus amazonicus* is distinguishable by its non-swollen nodes, alternate leaves, and umbellate inflorescences grouped in triads with delicate, slender ramifications, having pendant flowers with dimorphic stamens (Kuijt 2009). Morphological affinities and a shared amazonian distribution group *P. amazonicus*, *P. barlowii* Kuijt, *P. elegans* Kuijt, *P. krausei* J.F.Macbr., *P. pangui* Kuijt, and *P. wiensii* Kuijt, these being distinguishable by floral traits (Kuijt 2009). *Psittacanthus amazonicus* occurs in Amazonian Brazil and Peru; here, we extend its known distribution to include Colombia (Fig. 3).

Additional specimens examined. BRAZIL – Acre • Cruzeiro do Sol, Reserva Extrativista do Alto Rio Juruá, Seringal São João, Colocação Tapauna; 9°12'S, 72°41'W; 17 Mar. 1992; fl.; *Daly et al.* 7462; NY [NY00674392], UC [UC1956938].

COLOMBIA – Cauca • Piamonte, Corregimiento Mirafior, Veredas la Florida-Nápoles, Reserva La Cristalina, trocha hacia el pico Relámpago, cuenca de la quebrada Achayaco, Serranía Los Churumbelos (Bota Caucana); 1°4'17.184"N–1°4'47.028"N, 76°28'9.3"W–76°28'15.384"W; 650–980 m; 2 Mar. 2022; fl.; *Betancur et al.* 23512; COAH [COAH119489], COL.

PERU – Huánuco • Vicinity of Tingo Maria, Villa Ysabel, Rio Cuchara; 7 Sep. 1962; fl.; *Schunke* 6152; F [F1705655], K [K005345628], US [US03655791].

2. *Psittacanthus lamprophyllus* Eichler (Eichler 1868: 24, 28)

Solenocalyx lamprophyllus (Eichler) Tiegh. (Van Tieghem 1895: 360)

Type. BRAZIL • Amazonas: “ad oram meridionalem flum. Amazonum, ad ostium flum. Solimões”; Jun. 1851; fl.; *Spruce* 1632; lectotype (inadvertently designated by Kuijt 1994): M, F [F Neg 19060]; isolectotypes: K [K000567945, K000567946], M n.v., NY [NY00285232], P [P00756366, P00756367], TCD [TCD0007496].

Iconography. Eichler (1868: fig. 9-I); Kuijt (2009: fig. 89).

Notes. *Psittacanthus lamprophyllus* is recognized by its elliptical-ovate, lustrous leaves, with pinnate (rarely palmate) venation, axillary inflorescences with short ramifications, slender flowers with an acute apex and flower buds red, dark pink, or red at the base and yellow at the tip (Kuijt 2009; Dettke and Caires 2021). Three synonyms were recently proposed for this species: *P. brachypodus* Kuijt, *P. leptanthus* A.C.Sm., and *P. redactus* Rizzini (Dettke and Caires 2021). *Psittacanthus*

lamprophyllus is distributed in French Guiana, Peru, and Brazil (Kuijt 2009; Dettke and Caires 2021), now including records from lowland forests in the Colombian Amazon Region (Fig. 3).

Additional specimens examined. BRAZIL – Amazonas

• Villa Betancourt, río Puré, bosque maduro a orillas del río Puré; 1°51'37.9"S, 68°24'12.5"W; 150 m; 20 Jul. 1997; fl.; *Marín et al.* 52; COAH [COAH027818] • Río Urubú, between Serra da Lua and Iracema waterfall; 7 Aug. 1979; fl.; *Calderón et al.* 2967; UC [UC1957529], US [US01335616]

• Manaus, ca 80 km N de Manaus, Distrito Agropecuario da SUFRAMA; 2°25'S, 59°54'W; 50–125 m; 10 Jun. 1992; fl.; *Dick* 143; K [K005345507], NY [NY02220281], UC [UC1957946], US [US01335614] • Distrito Agropecuario da SUFRAMA, Rodovia BR 174, km 64, depois 34 km leste na ZF3, Fazenda Esteio; 2°26'S, 59°48'W; 50–125 m; 25 Jun. 1992; fl.; *Nee* 42881; K [K005345508], MBM [MBM160341], NY [NY02219550], UC [UC1957953], US [US01335613] • Distrito Agropecuario-Reserva 1501 (Km 41) da Smithsonian/INPA; 2°24'26"–2°25'31"S, 59°43'40"–59°45'50"W; 50–125 m; 3 Jul. 1992; fl.; *Roque de Lima et al.* 2; NY [NY02220282], UC [UC1957950].

– Mato Grosso • Alta Floresta, Instituto Ecológico Cristalino; 9°35'S, 55°55'W; 21 May 1998; fl., fr.; *Dubs & Egewarth* 2404; UC [UC1957530], Z [Z000224844]. – Rondônia • Basin of Río Madeira, 4 km above Jaciparaná on Río Jaciparaná; 28 Jun. 1968; fl.; *Prance et al.* 5308; NY [NY02282504], UC [UC1957948].

COLOMBIA – Amazonas • Corregimiento de Tarapacá, río Putumayo; 2°34'S, 70°13'W; 200–250 m; 18 Mar. 1999; fl.; *Marín et al.* 1758; COAH [COAH044158] • Corregimiento de Tarapacá, cerca de la segunda pista de aterrizaje en bosque de altura media; 2°54'41.6"S, 69°46'3.9"W; 200 m; 17 Mar. 1999; fl.; *Cárdenas et al.* 11493; COAH [COAH47359] • Corregimiento La Pedrera, Resguardo indígena Curare – Los Ingleses; 1°17'S, 69°44'W; 100 m; 21 May 2004; fl.; *Cordero & Tanimuka* 825; COAH [COAH73719], COL.

PERU – Loreto • Maynas, Mishana (Río Nanay); 3°55'S, 73°35'W; 150 m; 20 Jan. 1985; *Vásquez & Jaramillo* 6133; UC [UC1957517] • Maynas, Mishana (Río Nanay); 26 Jul. 1987; fl.; *Ayala et al.* 5744; F [V0200334F], UC [UC1957514] • Maynas, Mishana: 1 km W beyond Callicebus Camp; 12 Jan. 1980; fl.; *Aronson* 1041; F [V0200339F], UC [UC1957518]).

3. *Psittacanthus pilanthus* Kuijt (Kuijt 2009: 249)

Type. ECUADOR • Napo: slopes of Volcán Sumaco, 1.4 Km SE of source of Río Huataraco, Bloque 19, seismic line 14, DZ 8, Compañía Tritón; 0°41'S, 77°29'W; 690 m; 1 Mar. 1996; fl.; *Vargas & Greff* 753; holotype: UC [UC1957695]; isotypes: HUA [HUA0000488], MO n.v.

Iconography. Kuijt (2009: fig. 121).

Notes. *Psittacanthus pilanthus* is distinguished by its dichotomous branching with glabrous stems and leaves, inflorescences crowded at the older, leafless nodes, inflorescence ramifications densely covered with uniseriate hairs, flowers arranged in double dyads, petals

with dense, uniseriate hairs, basal ligules absent and stamens isomorphic, above with long, red hairs (Kuijt 2009). It is considered the only species in western South America with a distinctive indumentum of uniseriate (not unicellular) hairs (Kuijt 2009). This species was described from the Amazonian Ecuador (Kuijt 2009), and the new records expand its distribution to the Andean-Amazon Piedmont in eastern Colombia (Fig. 3).

Additional specimens examined. ECUADOR – **Napo** • Loreto, Faldas del Volcán Sumaco, Al oeste de Avila Viejo, Bloque 19, línea sísmica 8; 0°38'12"S, 77°27'12"W; 690 m; 13 Feb. 1996; fl.; *Freire & Cerda* 52; UC [UC1957654].

COLOMBIA – **Caquetá** • Belén de los Andaquíes, camino Andaquí vía que comunica el municipio de Acevedo con Belén, Vegetación a orilla de camino, sobre bosque en buen estado de conservación; 1°39'22.5"N, 75°54'24.9"W; 1000–1500 m; 13 Mar. 2016; fl.; *Cárdenas et al.* 46050; NY [NY04123197] • Belén de los Andaquíes, Camino Andaquí, Vegetación a borde de camino; 1°42'38.8"N, 75°54'5.0"W; 1500–1800 m; 8 Mar. 2016; fl.; *Castaño et al.* 7431; COAH [COAH93980], NY [NY01392623].

4. *Psittacanthus zonatus* (Diels) Kuijt (Kuijt 1983: 667)

Aetanthus zonatus Diels (Diels 1941: 368)

Type. ECUADOR • Pastaza: Mera, tall trees in primary forest on river banks; 3 Dec. 1938; *H. Schulze-Rhonhof* 3070; B†.

Neotype. ECUADOR • Pastaza: Mera, on Melastomataceae; *Harling* 3799; neotype (designated by Kuijt 2009): S.n.v.; isoneotypes: GB n.v., R [R000172185].

Iconography. Kuijt (1983: fig. 3); Kuijt (2009: fig. 163).

Notes. *Psittacanthus zonatus* is a plant with terete internodes, paired leaves with a leaf margin heavily callused, inflorescences arranged in umbels of 4–6 triads, with inflorescence ramifications and cupules prominently furfuraceous, the flower bud is straight and it narrows to a 1 cm long, black neck, with petals more or less isomorphic, basal ligules absent, stamens slightly dimorphic, with anthers backed by long, red hairs on the adjacent petal (Kuijt 2009). It was described from southern Andean Ecuador and adjacent Peru (Kuijt 2009), expanding its distribution to Amazonas and Caquetá departments in Colombia (Fig. 3).

Additional specimens examined. ECUADOR – **Morona Santiago** • Plan del Milagro at cross-road between Limon and Indanza, on *Vismia* [Hypericaceae]; 1600–1700 m; 24 Apr. 1985; fl.; *Harling & Andersson* 24572; MBM [MBM163866], NY, UC [UC1958089] • Along Rio Palora, 1–4 km upstream from Arapicos; 800–900 m; 14 Apr. 1981; fl.; *Lugo* 6088; UC [UC1958091], US [US03655955] • 2–5 km downstream from Arapicos; 800–900 m; 9 Apr. 1981; fl.; *Lugo* 6040; F [V0200424F], NY, UC [UC1892892] • Colonia Azuay, 2 km from Arapicos; 800–900 m; 18 Apr. 1981; fl.; *Lugo* 6120; MBM [MBM115371], NY, UC [UC1958084] • About 1/2 hour by car along unfinished road E of El Limon; 1000 m; 5 Feb. 1989; fl.; *Van der Werff & Palacios* 10422; HUA [HUA0008529], K [K005345745], NY. – **Napo-Pastaza**

• 18 km of NE of Puyo on road to Puerto Napo; 1620 m; 9 Jan. 1965; fl.; *Wiens* 3728; UC [UC1958087], US [US03655954] • 12 km W of Shell Mera; 1300 m; 9 Jan. 1965; fl.; *Wiens* 3734; UC [UC1958088]. – **Pastaza** • Forest on bank of Rio Mangayacu; 1100 m; 9 Dec. 1955; fl.; *Asplund* 18763; K [K005345746], NY • 31 km N of Puyo on road to Tena, side road E to Cajabamba; 1°15'S, 77°50'W; 1000 m; 24 Dec. 1987; fl.; *Boom et al.* 7784; NY, UC [UC1958090] • Cantón Pastaza; site of ARCO Central Processing Facility, 33 km E of Puyo, Colonia Bolívar; 1°23'S, 77°45'W; 1000 m; 15 Dec. 1997; fl.; *Neill* 11042; HUA [HUA0015170], UC [UC1958093] • Mera; 1000 m; 17 Jan. 1982; fl.; *Harling et al.* 19648; UC [UC1958092] • Road Mera-Pastaza (Shell Mera); 1000–1050 m; 16 Jul. 1967; fl.; *Sparre* 17541; NY, P [P05096835]. – **Zamora Chinchipe** • In the vicinity of the mining camp at the Rio Tundaime, along road to military base El Condor; 3°37'31"S, 78°26'26"W; 1000 m; 5 Nov. 2004; *Van der Werff et al.* 19321; HUA [HUA0015150], NY, US [US03655953], UC [UC1958082].

COLOMBIA – **Amazonas** • La Chorrera, comunidad de Vegsam, margen derecha del río Igará-Paraná; 1°23'53.0"S, 72°48'59.0"W; 190 m; 7 Sep. 2019; fl.; *Cárdenas et al.* 51700; COAH [COAH110330] • La Chorrera; 12 Feb. 2023; fl.; *Vélez & Funoratofo* 8225; COAH [COAH123851] • La Chorrera; 1°13'21.75"S, 72°56'25.03"W; 28 Jul. 2023; fl.; *Castaño et al.* 14354; COAH [COAH125134]. – **Caquetá** • Belén de los Andaquíes, camino Andaquí, vía que comunica el municipio de Acevedo con Belén; 1°41'34.5"N, 75°54'25.1"W; 1300–1500 m; 9 Mar. 2016; fl.; *Cárdenas et al.* 45784; COAH, NY [NY04123191] • Belén de los Andaquíes, Parque Natural Municipal Andaquí, Cabeceras del río Pescado; 1°41'52.6"N, 75°54'15.9"W; 1608 m; 25 Jan. 2017; fl.; *Castaño et al.* 8757; COAH [COAH95397].

PERU – **Huánuco** • Prov. Pachitea, region of Pucallpa, W part of “Sira Mountains” and adjacent lowland, ca 24 km SE of Puerto Inca, from “Campamento Sira” SE down to valley of Rio Negro; 9°28'S, 74°47'W; 500–800 m; 12 Feb. 1988; fr.; *Morawetz & Wallnöfer* 14-12288; UC [UC1958086] • W part of “Sira Mountains” and adjacent lowland, crest of the mountain range going W to E from the “Campamento Oro” to the “Campamento Sira”, on Melastomataceae; 800 m; 27 Nov. 1987; fl.; *Wallnöfer & Fernandez* 12-271187; UC [UC1958085]. – **Pasco** • Oxapampa, Distrito Palcazu, Parque Nacional Yanachaga Chemillén, a una hora de la Estación Biológica Paujil; 10°20'S, 75°15'W; 780 m; 25 Oct. 2002; fl.; *Monteagudo et al.* 4263; UC [UC1958083].

ACKNOWLEDGEMENTS

We thank the coordinators of the Colombia BIO: ANORÍ Project, Colciencias (now Minciencias), and the researchers and students from the Universidad de Antioquia, Universidad EAFIT, and Universidad CES who participated in the expedition. We are also indebted to the community of the “Espacio Territorial de Capacitación y

Reincorporación (ETCR)” in Vereda La Plancha, and the local representatives of the Anorí Municipality, whose participation and support were fundamental to the success of the expedition and the discovery of the new species. We thank Esteban Domínguez for the field photographs, and Diego Zapata (HUA) for the botanical illustration and image editing. We are grateful to the curators of COAH, COL, FAUC, HUA, HUAZ, HUCO, JAUM, JBB, MEDEL, MEXU, NY, UDBC, UIS, and US for granting access to their collections and providing specimen loans. JSMS and ICG also thank the NYBG Visiting Scientist Travel Award for funding the review of *Psittacanthus* specimens at NY. JSMS was partially supported by the National Science Foundation (DEB-2001357 and DEB-2002270) during the revision of type specimens of *Psittacanthus* at US.

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