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REGULAR PAPER

Conspectus of *Palicourea* section *Potaroenses* (Rubiaceae), with a new species from French Guiana and a new combination

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Context – The species of *Psychotria* subgen. *Heteropsychotria* have recently been transferred to *Palicourea*, following the results of molecular studies showing that they form a monophyletic group with the latter. This paper presents a conspectus of *Palicourea* sect. *Potaroenses* (formerly *Psychotria* subgen. *Heteropsychotria* sect. *Potaroenses*), discusses the characters of the section, and provides a key to the species. A new species recently collected in French Guiana is described and illustrated, and one new combination is included.
Methods – This paper is based on direct study of herbarium material from BR, CAY, F, K, L, NY, U and US, and additional type specimens from F, K, MO, P, RB, and VEN were consulted online. Two of the species, including the new one, have also been studied in the field. Common practices of herbarium taxonomy have been applied.
Results – *Palicourea* sect. *Potaroenses* is characterized by the capitate inflorescences surrounded by an involucre of 4–20 elliptic, yellow to red bracts, the leaves with lateral veins strongly ascending and almost reaching the margin, the long tubular calyx, the unusually long corolla tube for the genus, and the peculiar stipules, consisting of an internal sheath and two interpetiolar pieces connate to the sheath by their central part. The section includes eight species: *Palicourea aetantha* (Sandwith) Delprete & J.H.Kirkbr., *P. fanshawei* (Standl.) Delprete & J.H.Kirkbr., *P. formosissima* (Steyerm.) Delprete & O.Lachenaud, *P. phaneroneura* (Standl.) Borhidi, *P. potaroensis* (Sandwith) Delprete & J.H.Kirkbr., *P. psittacina* (Steyerm.) Delprete & J.H.Kirkbr., *P. spectabilis* (Steyerm.) Borhidi, and the new species *P. aurantiosplendens* O.Lachenaud & Delprete. The latter is most similar to *P. psittacina*, from which it can be separated by the dense patent indumentum of the stems, calyx lobes, and inner side of the bracts, and the smaller size of the latter; it also resembles *P. spectabilis* and *P. formosissima*, but differs in having the stipules with four lobes on each side (vs. two), the bracts nearly glabrous outside (vs. densely hirsute on both sides) and the calyx lobes much more pubescent than the tube (vs. the calyx uniformly hairy). It is only known from a small area on the upper Sinnamary River, north-central French Guiana, and is evaluated as Endangered (EN D1) according to IUCN criteria.

Key words – French Guiana, Guiana Shield, *Palicourea*, *Psychotria* subgenus *Heteropsychotria*, Psychotrieae, Palicoureeae, Sinnamary.

INTRODUCTION

The genus *Psychotria* L. (Rubiaceae-Psychotrieae; abbreviated below as *Psy.*), as circumscribed by Steyermark (1972), included two subgenera in the New World: the pantropical *Psy.* subgen. *Psychotria*, and the exclusively neotropical *Psy.* subgen. *Heteropsychotria* Steyerm., divided in 12 sections (some of them without formal names). However, molecular phylogenetic studies have shown that the latter subgenus and *Palicourea* Aubl. form a monophyletic group (Nepokroeff et al. 1999, Andersson & Rova 1999, Andersson 2002b, Robbrecht & Manen 2006). As a result, most of the species of *Psy.* subgen. *Heteropsychotria* have been transferred to *Palicourea* (Borhidi 2012, Taylor 2015a, 2015b, Taylor & Hollowell 2016, Delprete & Kirkbride 2016, Borhidi 2017).

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The remainder have been assigned to the genera *Notopleura* (Benth.) Bremek. (Taylor 2001), *Carapichea* Aubl. (Andersson 2002a, Taylor & Gereau 2013), *Eumachia* DC. (Delprete & Kirkbride 2015, Taylor et al. 2017), *Coccochondra* Rauschert (Taylor 2011) and *Rudgea* Salisb. (Taylor et al. 2015). All these genera and several others have been separated from Psychotrieae s.str. as a tribe Palicoureeae Robbr. & Manen (Robbrecht & Manen 2006, Razafimandimbison et al. 2008, 2014).

Palicourea (abbreviated below as *Pal.*) is, in the broad sense used here, a large Neotropical genus of about 600 species (Taylor 2015a) and can be recognized by the following characters: persistent, bilobed stipules; terminal inflorescences; inaperturate pollen with thin sexine (Johansson 1992); and usually blue, black or white drupes with 2–5 pyrenes (Taylor 1996, 1997, 2015a, 2015b, Taylor & Hollowell 2016, Taylor et al. 2010, Delprete & Kirkbride 2016). The inflorescences are highly variable within the genus, sometimes lax and thyrsoid, sometimes capitate and involucrate, with all possible intermediate types. The flowers are also variable: the species traditionally included in *Palicourea* have brightly coloured corollas with a tube usually curved and laterally swollen at the base, adapted to hummingbird or butterfly pollination (Steyermark 1972, Taylor 1996, 1997), while those previously included in *Psychotria* subgen. *Heteropsychotria* usually have white corollas with straight tubes, and are presumably mostly bee- or fly-pollinated.

The infrageneric classification of *Palicourea* is not firmly settled at present. Taylor (1997) classified the species of *Palicourea* s. str. (i.e. excluding *Psychotria* subgen. *Heteropsychotria*) in two subgenera, *Pal.* subgen. *Palicourea* and *Pal.* subgen. *Montanae* C.M.Taylor, with four and five sections respectively. This classification obviously needs a revision now that the genus has been considerably enlarged. Borhidi (2017), when he transferred to *Palicourea* most of the species of *Psy.* subgen. *Heteropsychotria*, kept them in a distinct subgenus, *Palicourea* subgen. *Heteropsychotria* (Steyerm.) Borhidi, and organised them in eleven sections largely based on those of Steyermark (1972). He based the segregation of a subgenus on the assumption that the floral differences between *Palicourea* s. str. and *Psychotria* subgen. *Heteropsychotria*, mentioned above, are constant; but in fact transitional forms can be observed, e.g. in *Pal.* subgen. *Heteropsychotria* sect. *Didymocarpae* C.M.Taylor, of which most species have a white but distinctly curved corolla (Taylor 2015a: 458–459). Also, the results of molecular studies do not support the monophyly of *Pal.* subgen. *Heteropsychotria*, and suggest that brightly coloured and curved corollas have arisen more than once in the genus (Andersson & Rova 1999, Sedio et al. 2013). Therefore, in the present paper, we accept the sections of Borhidi (2017), Taylor (1997, 2015a, 2015b), and Taylor & Hollowell (2016), pending a more detailed study of the group, although we do not organize them into subgenera.

Among the sections originally recognised by Steyermark (1972) in *Psychotria* subgen. *Heteropsychotria*, and transferred to *Palicourea* by Borhidi (2017), a particularly distinctive one is *Pal.* sect. *Potaroenses* (Steyerm.) Borhidi [= *Psy.* sect. *Potaroenses* Steyerm.]. This group originally included six species (Steyermark 1972). A seventh, *Psychotria formosissima* Steyerm., was later added (Steyermark 1981) but was overlooked by Borhidi (2017) when he made the new combinations in *Palicourea*. In addition, most new combinations made by Borhidi (2017) in *Pal.* section *Potaroenses* are superfluous, as they were previously published by Delprete & Kirkbride (2016). A synopsis of the section is here presented, with a new combination for *Psy. formosissima*, and the description of a new species, *Palicourea aurantiosplendens* O.Lachenaud & Delprete. The latter was recently discovered by OL along the upper Sinnamary River, in north-central French Guiana, and owes its name to the particularly showy bright orange inflorescences. The fact that such a conspicuous plant has apparently never been collected before, suggests that it is quite rare and probably very restricted in distribution. The Sinnamary basin is not considered a major area of endemism, although a few species, such as *Aristolochia flava* Poncy (Aristolochiaceae), are apparently restricted to this region (Cremers et al. 1994). The lower part of the basin, which was partly flooded in the 1990s by the construction of the Petit Saut dam, has been relatively well-explored by botanists, but the upper part, above the artificial lake, is still botanically poorly known.

French Guiana, covering 83 846 km² of which more than 95% consists of equatorial rain forest, has a very rich flora for its small size, with 5406 species of vascular plants recorded (Funk et al. 2007) and 162 endemic species listed by Granville et al. (1994). These numbers are necessarily approximate, since the botanical knowledge of the Guiana Shield is still far from complete. There is little doubt that some species supposedly endemic to French Guiana will eventually be found in neighbouring Suriname and Brazil. On the other hand, a number of new French Guiana endemics, including the new genus *Cremersia* Feuillet & L.E.Skog (Gesneriaceae), have been added to the list in recent years (Feuillet & Skog 2003, Scharf et al. 2006, Granville 2007, Judziewicz & Sepsenwol 2007, Vlasáková & Gustafsson 2011, Delprete 2014, 2015) and it is quite obvious that further discoveries are still to be made. Even though botanical prospections in French Guiana have been more intensive than in most tropical countries, significant parts of the territory remain scarcely known.

MATERIAL AND METHODS

This paper is based on a study of the material from BR, CAY, F, K, L, NY, U and US; additional type specimens from F, K, MO, P, RB and VEN were consulted online. The description of the new species is based on field observations, dried herbarium material, and spirit material. Barcode numbers of herbarium specimens, when available, are cited in square brackets after the herbarium acronym; when the barcode number is not available, the accession number, preceded by "No.", is cited instead. All specimens cited have been examined, unless indicated by "n.v." (not seen) after the herbarium acronym. A preliminary extinction risk assessment of the new species was made using the IUCN Red List Categories and Criteria (IUCN 2012). Georeferenced specimen data were imported into GeoCAT (Bachman et al. 2011) to estimate the area of occupancy (AOO) and extent of occurrence (EOO).

The AOO cell size was set at 2 × 2 km, as recommended by IUCN (2016).

TAXONOMIC TREATMENT

Palicourea section ***Potaroenses*** (Steyerm.) Borhidi (Borhidi 2017: 48).
Psychotria section *Potaroenses* Steyerm. (Steyermark 1972: 662). – Type: *Psychotria potaroensis* (Sandwith) Steyerm. = *Palicourea potaroensis* (Sandwith) Delprete & J.H.Kirkbr.

Shrubs, dichotomously branched. Stipules consisting of an internal sheath surrounded by two interpetiolar parts, free from each other and connected to the sheath by their central portion. Leaves with lateral veins strongly ascending and almost reaching the margin. Inflorescence terminal, capitate, sessile or shortly pedunculate, surrounded by an involucre of 4–20 elliptic, yellow to red bracts; usually without bracts among the flowers (except in *Pal. formosissima*). Flowers 5(–6)-merous, sessile, heterostylous (as far as is known). Calyx tubular, the lobes triangular and shorter than the tube, the latter sometimes splitting on one side. Corolla white; tube 2–2.6 cm long (presumably more in *Pal. fanshawei*: see notes under that species), straight, densely villose outside, inside usually with a ring of dense hairs near the base (pubescent in the distal half and glabrous basally in *Pal. phaneroneura*). Anthers included, usually apiculate in long-styled flowers, or exserted and muticous in short-styled flowers. Style exserted, with suborbicular to obovate stigmatic branches in long-styled flowers, or included, with ± elliptic stigmatic branches, in short-styled flowers. Ovary 2-locular. Fruits blue, ellipsoid, crowned with the persistent calyx. Pyrenes planoconvex with 4–5 dorsal ridges; no preformed germination slits. Seeds with a T-shaped ventral groove, otherwise entire.

Morphological characters of the section – *Palicourea* sect. *Potaroenses* forms a well-defined and rather homogeneous group, characterised by the capitate inflorescences with an involucre of 4–20 elliptic, yellow to red bracts (often resembling in shape the outer ligulate flowers of some Asteraceae), the leaves with lateral veins strongly ascending and almost reaching the margin, the long tubular calyx, the unusually long corolla for the genus, and the peculiar stipule morphology. The latter character is especially diagnostic, but has not been described with full accuracy by previous authors. The stipules of *Palicourea* sect. *Potaroenses* consist of an internal sheath surrounded by two interpetiolar units, which are free from each other and connate to the sheath by their central portion (this is well illustrated in the original figure of *Pal. potaroensis*: Sandwith 1935, and in fig. 1B of the present paper). This type of stipule appears to be unique in Rubiaceae; intrastipular sheaths are rare in the family, and when present (e.g. in the African genus *Hymenocoleus* Robbr.: Robbrecht 1975) are free from the interpetiolar units.

The internal sheath of the stipules is usually truncate, but at the flower-bearing nodes of *Pal. aurantiosplendens* and *Pal. formosissima* it is provided with one or two pairs of lateral appendages. These are not homologous with the structure described by Steyermark (1972) as "a central or intermediate appendage (...) on the uppermost sheath of the stipule immediately subtending the capitate inflorescence", which is actually a vestigial leaf (as illustrated in Steyermark's fig. 87C, and confirmed by our reexamination of the material – this structure is not inserted on the sheath, but exactly at the place of a normal leaf). Such vestigial leaves only occur at some of the flower-bearing nodes of *Pal. potaroensis* and *Pal. psittacina*, and are apparently absent in the other species; therefore, they do not represent a characteristic of the section, as implied by Steyermark (1972).

The other characters used by Steyermark (1972) to define the section, i.e. the presence of an internal ring of hairs near the base of the corolla (exceptional in *Psychotria*, but common in *Palicourea*), the long-styled flowers with apiculate anthers and suborbicular stigmatic branches, and the absence of bracts and bracteoles subtending the flowers, are not entirely reliable characters. As noted by Steyermark (1972: 668), at least one species of the section, *Pal. phaneroneura*, lacks the basal ring of hairs in the corolla throat, and has non-apiculate anthers in long-styled flowers. In *Pal. aurantiosplendens*, *Pal. formosissima* and *Pal. psittacina* these characters have not been studied due to the incompleteness of the material. Also, some bracts are present among the flowers of *Pal. formosissima* (Steyermark 1981).

Position within the genus – The relationships of *Palicourea* sect. *Potaroenses* to other sections of the genus are at present unclear, in the absence of molecular data. Steyermark (1972) suggested a possible affinity between this group and *Psychotria* subgen. *Psychotria* sect. *Pseudocephaelis* Steyerm. ser. *Oliganthae* (Müll.Arg.) Steyerm. He included in the latter group *Psy. embirensis* Steyerm. [=*Pal. embirensis* (Steyerm.) Borhidi], *Psy. prancei* Steyerm. [= *Pal. prancei* (Steyerm.) Delprete & J.H.Kirkbr.], *Psy. prunifolia* (Kunth) Steyerm. [= *Pal. prunifolia* (Kunth) Borhidi], and the later described *Psy. viridibractea* Steyerm. [= *Pal. viridibractea* (Steyerm.) Delprete & J.H.Kirkbr.]. These four species indeed resemble *Pal.* sect. *Potaroenses* in their capitate inflorescences with few (usually four) elliptic involucral bracts, but they are easily separated by the leaf venation (the secondary veins forming conspicuous loops at a distance from the margin), by the stipules consisting of a very short sheath bearing on each side two linear awns (the latter inserted on the sheath itself), by the presence of four awn-like bracteoles subtending each flower, and by the shorter corolla tube (not exceeding 12 mm long). Borhidi (2017) included them in a broadly defined *Pal.* subgen. *Heteropsychotria* sect. *Pseudocephaelis* (Steyerm.) Borhidi, which is quite polymorphic, and may have to be divided in the future.

Distribution – The section includes eight species occurring on the Guiana Shield and in the Amazon Basin, westwards to Peru. Most of them have narrow distributional ranges. An exception is *Pal. spectabilis* (Steyerm.) Borhidi, which is relatively widespread in Brazil. The center of diversity of the group is Guyana, with four species. No species is recorded from Suriname, and only *Pal. aurantiosplendens* is known from French Guiana. A previous report of *Pal. spectabilis* from French Guiana is erroneous, see notes under this species.

Key to the species of *Palicourea* sect. *Potaroenses*

1. Inflorescences with 4 bracts connate into a tube c. 2 cm long; stems and leaves densely villose [Guyana] ..... *Pal. aetantha*
1'. Inflorescence with bracts free or nearly so 2

2. Stipules with 4 or more lobes on each side of the node 3
2'. Stipules with 2 lobes on each side of the node (i.e. 4 lobes in total) 5

3. Inflorescences with c. 20 bracts; stems and bracts appressed pubescent [Colombia, Ecuador, Peru] ..... *Pal. phaneroneura*
3'. Inflorescences with 8 large bracts, sometimes with a few additional smaller ones; stems and bracts either glabrous or hirsute (not appressed-pubescent) 4

4. Leaves, stems, calyx lobes and inner side of bracts hirsute; bracts 20–27 × 4.5–8 mm [French Guiana] ..... *Pal. aurantiosplendens*
4'. Leaves with sparse appressed hairs; stems, calyx lobes and bracts glabrous; bracts 35–50 × 9–20 mm [Guyana] ..... *Pal. psittacina*

5. Inflorescence bracts 4(–5), broadly elliptic 6
5'. Inflorescence bracts 6–10, generally narrower 7

6. Stems, leaves, bracts and calyces with appressed hairs; calyx lobes longer than broad; fully expanded corollas 27–33 mm long [Guyana] ..... *Pal. potaroensis*
6'. Stems, leaves, bracts and calyces hirsute; calyx lobes shorter than broad; fully expanded corollas c. 45 mm long [Guyana and eastern Venezuela] ..... *Pal. fanshawei*

7. Calyx appressed-pubescent, spathaceous (splitting on one side); leaves pubescent on both sides; bracts yellow-orange, with dense but rather short appressed hairs; stipules 3–5 mm long [Brazil: Amapá, Pará, Amazonas] ..... *Pal. spectabilis*
7'. Calyx with long spreading hairs, not spathaceous; leaves glabrous above except for midrib, pubescent on nerves below; bracts red, with long spreading hairs; stipules c. 10 mm long [Brazil: Amazonas] ..... *Pal. formosissima*

Conspectus of the species

1. ***Palicourea aetantha*** (Sandwith) Delprete & J.H. Kirkbr. (Delprete & Kirkbride 2016: 412) – *Cephaelis aetantha* Sandwith (1949: 261) – *Psychotria aetantha* (Sandwith) Steyerm. (Steyermark 1972: 665) – Type: Guyana, Eagle Mountain, watershed between Potaro River and Konawaruk River, 25 Jan. 1943, *Fanshawe* 1121 (*Forest Dept.* 3857) (holo-: K [2 sheets, K00017399, K000174400]).

Distribution – Only known from the region of Eagle Mt., Guyana.

Note – This species is unique in the section in having the bracts connate into a long tube at base, while in other species they are free or nearly so.

2. ***Palicourea aurantiosplendens*** O.Lachenaud & Delprete, **sp. nov.**

Type – French Guiana, Commune de Saint-Elie, Sinnamary River, Saut Takari Tanté (above artificial lake of Petit Saut Dam), 4°37′27.34″N, 52°55′40.98″W, 3 Jan. 2011, *Lachenaud* 1039 (holo-: CAY [CAY169733]; iso-: BR, CAY [CAY169732], MO). Figs 1 & 2.

Palicourea aurantiosplendens closely resembles *Pal. psittacina* in most of its characters, particularly the inflorescences with 8 narrowly elliptic involucral bracts, and the stipules with 4 lobes on each side of the node. It can be separated from the latter species by the dense hirsute indumentum of the leaves, stems, calyx lobes, and inner side of the bracts (in *Pal. psittacina* all these parts are glabrous, except the leaves with sparse appressed hairs) and the bracts 20–27 × 4.5–8 mm (vs. 35–50 × 9–20 mm). The new species also resembles *Pal. formosissima* and *Pal. spectabilis*, but differs from both by the stipules 4-lobed on each side (vs. 2-lobed), the bracts almost glabrous outside (vs. hirsute on both sides) and the calyx lobes much more pubescent than the tube (vs. the calyx uniformly pubescent). It is further separated from *Pal. spectabilis* by the stipules 8–11.5 mm long (vs. 3–5 mm), the non-spathaceous calyx, and the deep orange (vs. yellow-orange) colour of the bracts; and from *Pal. formosissima* by the leaves densely hirsute on both sides (vs. glabrous above apart from the midrib).

Shrub 1.5 m tall, dichotomously branched; young stems 1–1.5 mm thick, hirsute with long pale brown hairs. Stipules persistent, hirsute, consisting of two opposite interpetiolar units free from each other and connate to an internal sheath; interpetiolar units 8–11.5 × 2–5.5 mm, deeply divided in four linear lobes 4–6 mm long (the lateral lobes smaller); internal sheath c. 4 mm long, cylindrical and truncate at the vegetative nodes, with 2–3 lateral appendages, c. 8 mm long, at the flower-bearing nodes. Leaves opposite, petiolate; petioles 0.5–1.3 cm long, hirsute; blades elliptic, 8.5–14 × 2.9–5.8 cm, shortly acute at base, long-acuminate at apex, thinly papyraceous, drying green, hirsute on both sides; secondary

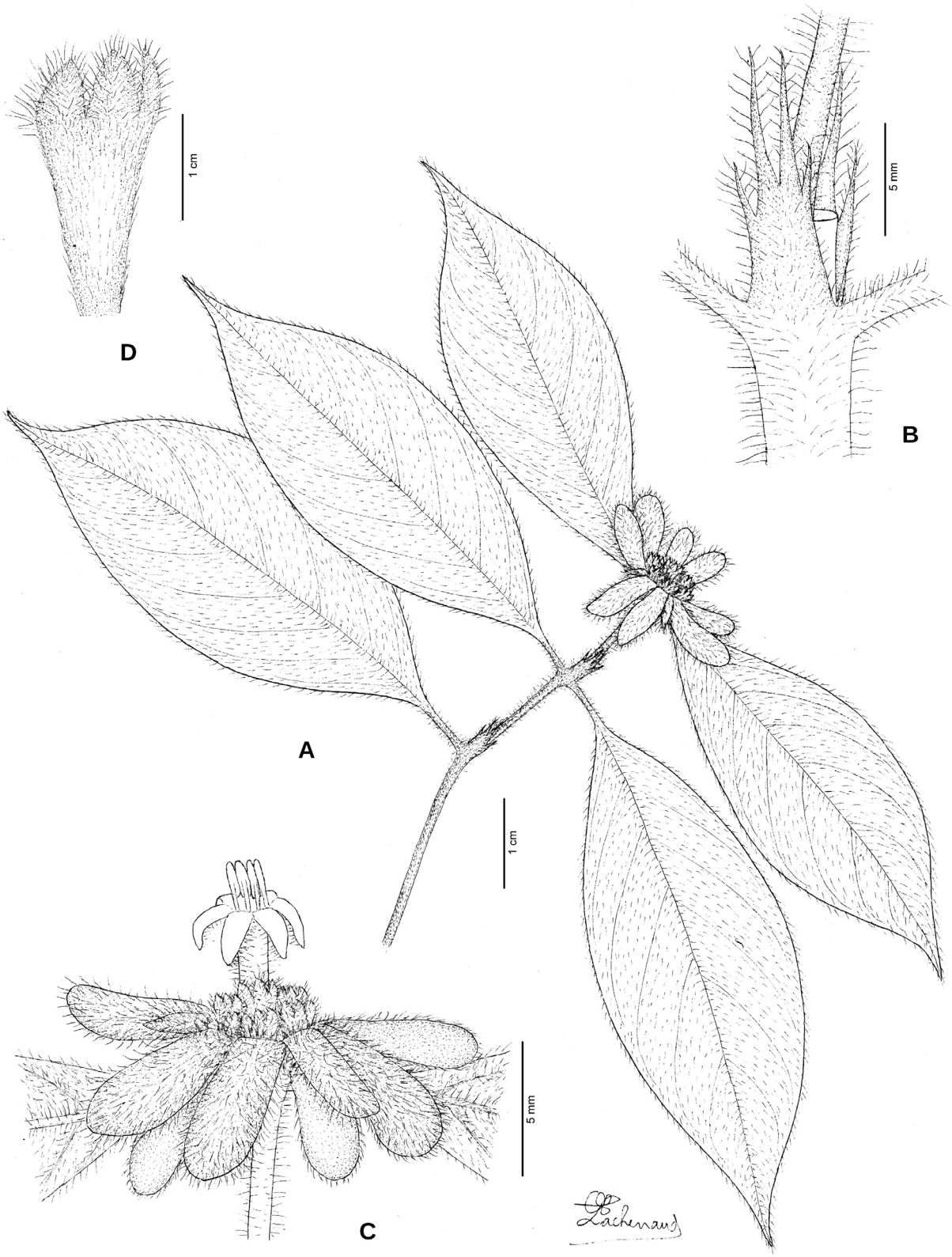

Figure 1 – *Palicourea aurantiosplendens*: A, branch with inflorescence; B, stipules; C, inflorescence; D, calyx. All from *Lachenaud* 1039. Drawn by O. Lachenaud.

veins 6–8 on each side of midrib, strongly ascending, almost reaching the margin; tertiary veins reticulate, rather lax, prominent beneath. Inflorescence sessile, capitate, few-flowered, 4.2–4.5 cm in diameter, surrounded by an involucre of 8 main bracts (with a few much smaller additional bracts sometimes present); bracts deep orange, narrowly elliptic, entire, 20–27 × 4.5–8 mm, the basal 1/4th slightly concave, the upper part patent, flat, broadly rounded at apex, hirsute inside, glabrous outside except base and margins. Flowers 5- or 6-merous, sessile. Hypanthium appressed-pubescent. Calyx orange; tube narrow, c. 7 mm long, broadening distally, appressed-pubescent outside; lobes shortly triangular-ovate, erect, c. 3 mm long, densely hirsute outside. Corolla pure white; tube narrowly infundibuliform, 20 mm long, 3–4.5 mm broad, villose outside except for the glabrous lower third; lobes narrowly triangular, 6–8 × 2.5–2.8 mm, reflexed, villose outside, glabrous inside; corolla mouth glabrous; interior of tube not known. Stamens exserted; filaments white, exceeding the corolla mouth by 1.5–2 mm; anthers 3 × 0.8 mm, white. Style included, not seen. Fruits ellipsoid, pale blue, pubescent (see notes). Pyrenes and seeds unknown.

Distribution – Only known from a very small area along the upper Sinnamary River, in north-central French Guiana. The species has been collected only once; a second population was observed c. 2 km west of the type locality, at 4°37′27.08″N, 52°56′18.78″W. It is locally not uncommon in its small range, occurring either as isolated plants or in small groups of individuals. The species should be searched for in other localities of the Sinnamary River basin, especially along the upper portion, which is botanically poorly known.

Habitat – Undergrowth of lowland *terra firme* forest, on humid slopes descending to the river (well above the inundation level). The species was consistently encountered in this habitat, where proximity of the water creates a humid microclimate and *Palicourea* spp. are particularly common.

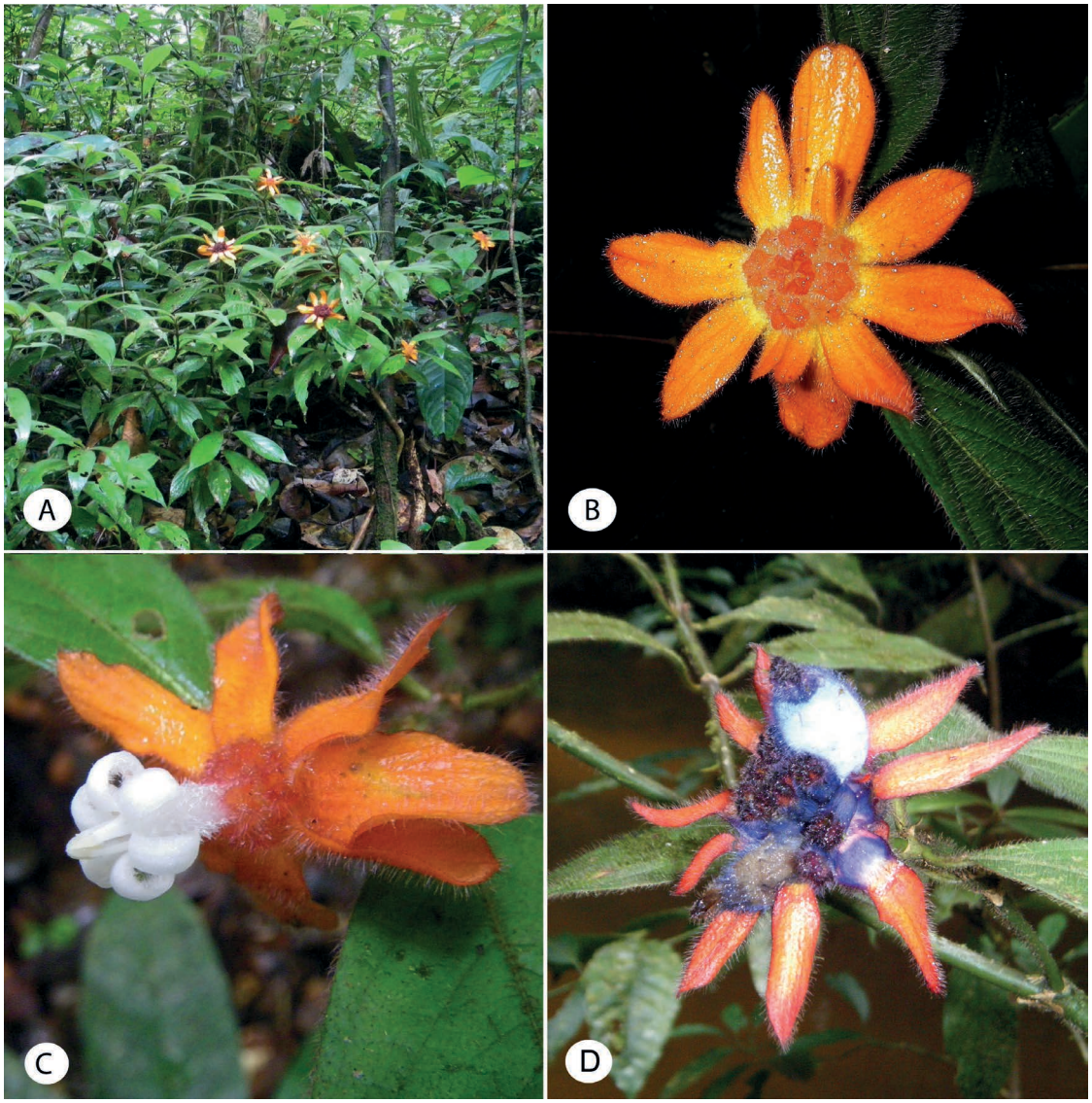

Figure 2 – *Palicourea aurantiosplendens*: A, habit; B, inflorescence; C, same with one flower open; D, infructescence. A, B & C from *Lachenaud* 1039, photos by O. Lachenaud (A, C) & I. Lachenaud (B); D, plant not collected, photo by P. Fresquet.

Table 1 – **Morphological comparison of *Palicourea aurantiosplendens*, *Pal. formosissima*, *Pal. psittacina* and *Pal. spectabilis*.** Diagnostic characters are in bold. Material of *Pal. formosissima* was seen on photograph only, sizes for this species were obtained from Steyermark (1981)

	Pal. aurantiosplendens	*Pal. formosissima*	*Pal. psittacina*	*Pal. spectabilis*
Stipule length	8–11.5 mm	c. 10 mm	8–15 mm	**3–5 mm**
Number of stipule lobes	4 on each side	2 on each side	4 on each side	2 on each side
Stem vestiture	hirsute	hirsute	**glabrous**	hirsute
Leaf vestiture	hirsute on both sides	**glabrous above except midrib**, veins hirsute below	**sparsely appressed-pubescent on both sides**	hirsute on both sides
Bract size	20–27 × 4.5–8 mm	27–45 × 11–13 mm	35–50 × 9–20 mm	22–43 × 3.5–11 mm
Bract vestiture	**hirsute inside, glabrous outside (except near base)**	hirsute on both sides	**glabrous**	hirsute on both sides
Bract colour	deep orange (both when fresh and dry)	red (drying brown)	deep orange (both when fresh and dry)	**yellow-orange** (both when fresh and dry)
Calyx tube	not splitting	not splitting	not splitting	**splitting on one side**
Calyx external vestiture	**tube appressed-pubescent, lobes hirsute**	**tube and lobes uniformly hirsute**	tube sparsely villose, **lobes glabrous**	**tube and lobes uniformly appressed-pubescent**
Distribution	French Guiana	Brazil	Guyana	Brazil

Conservation status – Endangered [EN D1]. *Palicourea aurantiosplendens* is only known from two very close sites along the upper Sinnamary River in north-central French Guiana, near Saut Takari Tanté, which is above the artificial lake formed by the Petit Saut Dam. The extent of occurrence (EOO) is therefore not calculable, and the area of occupancy is estimated to be 8 km² (within the limit for Critically Endangered status under criterion B2). About 100 individuals were observed, which is within the limit for Endangered status under criterion D1. The species occurs in a remote area, without imminent threat, and there is no evidence of a decline (e.g. no indication that it occurred in the area now flooded by the lake, where prospections in the 1990s did not find it), so criterion B cannot apply. However, its restricted range and very small population size make it vulnerable to any stochastic events or threats that might arise in the future. It is therefore considered as Endangered [EN D1] according to IUCN criteria (IUCN 2012, 2016).

Notes – *Palicourea aurantiosplendens* closely resembles *Pal. psittacina*, *Pal. formosissima* and *Pal. spectabilis*. All these species share inflorescences with 6–8 narrowly involucral bracts. They differ however in significant characters, summarized in table 1 and in the diagnosis above. It is not possible to say if there are differences in the corollas, since mature flowers are unknown in *Pal. formosissima* and *Pal. psittacina*. Like these two species, *Pal. aurantiosplendens* is only known from the type collection; despite a thorough search among French Guiana specimens in BR, CAY, P and U, no other material was found.

It is not known whether the species is heterostylous, since only one plant with open flowers was encountered. The style and the interior of the corolla tube are not described, since only two flowers are available for dissection. The fruits are known only from a photograph, taken by P. Fresquet in April 2009 in the type locality (fig. 2D).

3. ***Palicourea fanshawei*** (Standl.) Delprete & J.H.Kirkbr. (Delprete & Kirkbride 2016: 420) – *Cephaelis fanshawei* Standl. (Standley 1948: 574) – *Psychotria fanshawei* (Standl.) Steyerm. (Steyermark 1972: 664) – *Palicourea fanshawei* (Standl.) Borhidi (Borhidi 2017: 48), comb. superfl. – Type: Guyana, Kaieteur Plateau, Wallaba forest, savannas, 8 May 1944, *Maguire & Fanshawe* 23296 (holo-: F [No. 1160153]; iso-: K [K00174448], MO [No. 4312989], NY [00131021], RB [No. RB68625, 00543502], U [U0006190]).

Distribution – Tepui slope forests of Venezuela and Guyana.

Notes – This species closely resembles *Pal. potaroensis*, but differs in the characters mentioned in the key. The corollas, not fully developed in the material we have seen, are apparently the largest in the section: Steyermark (1972: 422) gives the full corolla length as 45 mm, but does not mention the respective size of the tube and the lobes.

4. ***Palicourea formosissima*** (Steyerm.) Delprete & O.Lachenaud, **comb. nov.** – *Psychotria formosissima* Steyerm., Brittonia 33: 387 (Steyermark 1981) – Type: Brazil, Amazonas, Uaupés, Rodovia Perimetral Norte, 2 Apr. 1975 (fr), *O.C. Nascimento et al.* 20 (holo-: VEN [No. 135229]; iso-: IAN [148132]).

Distribution – Only known from the type locality in the state of Amazonas, Brazil.

Notes – This species is only known from the type collection, with immature fruits and no corollas; however, we have no doubt about its distinctiveness. The original figure (Steyermark 1981: fig. 1) includes some errors: only the internal

sheath of the stipules is drawn, without the surrounding interpetiolar units, and the inflorescence is illustrated as long-pedunculate, in contradiction with the description; the type specimen has (sub)sessile inflorescences (though in one of them the upper leaves have fallen off, giving the false impression of a peduncle).

5. ***Palicourea phaneroneura*** (Standl.) Borhidi (Borhidi 2017: 48) – *Cephaelis phaneroneura* Standl. (Standley 1940: 49) [non *Psychotria phaneroneura* Standl. (Standley 1931b: 455)] – *Psychotria peruviana* Steyerm. (Steyermark 1972: 667) [non *Cephaelis peruviana* Spreng. (Sprengel 1824: 749)] – Type: Peru, Dept. Loreto, Gamitanacocha, Río Mazán, 100–125 m, 25 Jan. 1935 (fl), *Schunke* 116 (holo-: F [No. 983042]; iso-: NY [00131062], P [P00837093], US [00129824])

Distribution – Colombia, Ecuador and Peru.

Notes – As noted by Steyermark (1972), this species shows several aberrant characters for the section: the high number of bracts, the corolla tube pubescent inside in the distal half (rather than near the base), and the anthers of long-styled flowers which are not acuminate at apex. It is also geographically separate from the other species. Its position in *Palicourea* sect. *Potaroenses* is nevertheless obvious, due to its stipule morphology, leaf venation, inflorescence structure, calyx, and corolla shape, which all agree very well with the other species of the section.

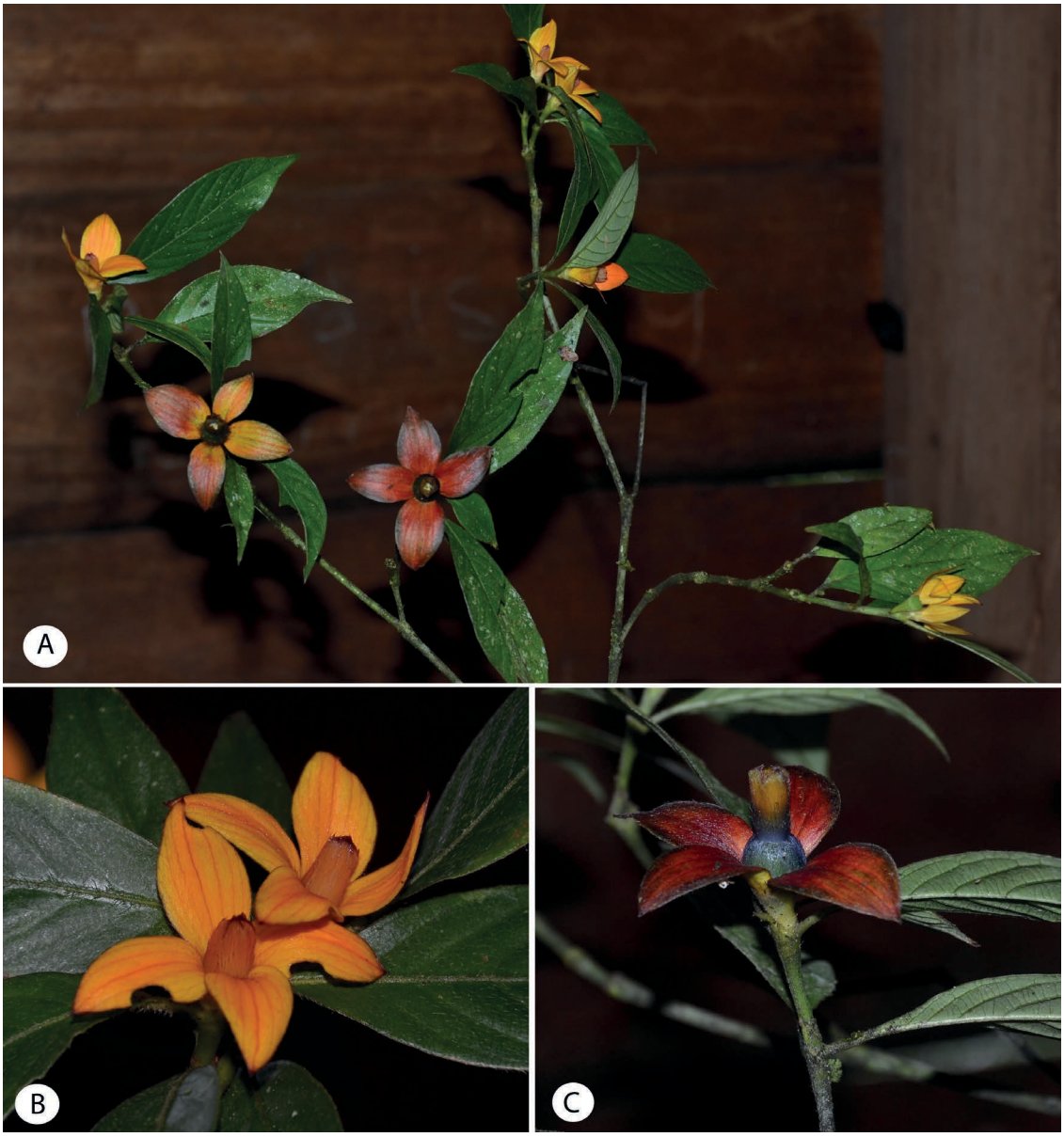

Figure 3 – *Palicourea potaroensis*: A, branch with flowers and fruits; B, inflorescences (flowers fallen; note orangish-yellow bracts); C, infructescence with one fruit (note the bracts turning brownish-red at fruiting stage). All from *Delprete & Benjamin* 12811, photos by P.G. Delprete.

6. ***Palicourea potaroensis*** (Sandwith) Delprete & J.H.Kirkbr. (Delprete & Kirkbride 2016: 428) – *Cephaelis potaroensis* Sandwith (Sandwith 1935: t. 3300) – *Psychotria potaroensis* (Sandwith) Steyerm. (Steyermark 1972: 662) – *Palicourea potaroensis* (Sandwith) Borhidi (Borhidi 2017: 48), comb. superfl. – Type: Guyana, Potaro River, Waratuk Portage, 200 ft [= 60 m], Aug. 1933, *Tutin* 470 (lecto-: K [K000174481 and spirit collection 14509.000], designated by Delprete & Kirkbride 2016: 428; isolecto-: BM n.v., U [U0006234]).

Distribution – Endemic to central-western Guyana, in the Upper Potaro and Upper Mazaruni River Basins.

Note – This species is illustrated in fig. 3; a beautiful plate was published along with the original description (Sandwith 1935).

7. ***Palicourea psittacina*** (Steyerm.) Delprete & J.H.Kirkbr. (Delprete & Kirkbride 2016: 428) – *Psychotria psittacina* Steyerm. (Steyermark 1972: 665) – *Palicourea psittacina* (Steyerm.) Borhidi (Borhidi 2017: 48), comb. superfl. – Type: Guyana, Upper Mazaruni River Basin, Mount Ayanganna, NE side, 800–900 m, 2 Aug. 1960, *Tillett et al.* 45007 (holo-: NY [00132787]; iso-: F [No. 1704838], K [K000174478], US [00138941], VEN [No. 82230]).

Distribution – Only known from Mt. Ayanganna, Guyana.

Notes – This species is only known from the type collection, with fruits and flowers buds; it is not known whether the flowers are heterostylous. For an illustration of the species see Steyermark (1972: fig. 87).

8. ***Palicourea spectabilis*** (Steyerm.) Borhidi (Borhidi 2017: 48) – *Cephaelis duckei* Standl. (Standley 1931b: 374) [non *Psychotria duckei* Standl. (Standley 1936: 236), nec *Palicourea duckei* Standl. (Standley 1940: 195)] – *Psychotria spectabilis* Steyerm. (Steyermark 1972: 664) – *Palicourea adolfoduckei* Delprete & J.H.Kirkbr., nom. nov. superfl. (Delprete & Kirkbride 2016: 411). – Type: Brazil, Pará, Amazon River estuary, Breves Region, Aramá River, 29 Nov. 1922, *Ducke* s.n. (RB 18828) (holo-: B†; lecto-: K [K000174473], designated by Delprete & Kirkbride, 2016: 411; isolecto-: P [P02428068], U [U0006243], US [00129809], frag [ex B] F [No. 638770]).

Distribution – Amazonian Brazil (Amapá, Pará, Amazonas). Steyermark (1972) recorded this species from French Guiana, but the specimen he cited, *Geay* s.n. (P), was instead collected in the contiguous Brazilian state of Amapá. No collections of *Pal. spectabilis* from French Guiana have been seen by the authors.

Notes – Both *Psychotria spectabilis* Steyerm. and *Palicourea adolfoduckei* Delprete & J.H.Kirkbr. are replacement names for *Cephaelis duckei*; the second name is superfluous, since the epithet *spectabilis* is available in *Palicourea*.

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