A revision of the florbella group of *Miconia* (Melastomataceae, Miconieae) with description of three new species

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Abstract. The florbella group of *Miconia* is composed of four species from the central Andes that are characterized by hollow stems inhabited by ants, and pleiostemonous flowers with a calyptrate calyx. The four species are *M. inusitata*, and the newly described here ***M. cava***, ***M. florbella,*** and ***M. valenzuelana***. The combination of pleistemonous flowers and calyptrate calyces suggests that these species could be placed in the former *Conostegia*, but at least three of the four species discussed here (*M. florbella, M. inusitata* and *M. valenzuelana*) do not belong in that clade and are more closely related to other species of Andean *Miconia*. All four species grow in undisturbed areas in low- to middle-elevation forests in the Andes.

Keywords: Calyptrate calyx, *Conostegia*, Florbella, Ecuador, mymercophyly, Peru, pleiostemony.

Conostegia D. Don was created by David Don (1823), probably following Bonpland's ideas (Bonpland, 1816–1823) to accommodate berry-fruited, neotropical members of the Melastomataceae with calyptrate calyces. Shortly after, de Candolle (1828) made all the appropriate combinations in *Conostegia* of species with those characteristics that had been described in *Melastoma* L. Remarkably, most of these species are also pleiostemonous; that is, they have more than double the number of stamens than petals. This concept of *Conostegia*, including both calyptrate and pleiostemonous members of the Miconieae, was subsequently adopted by all other Melastomataceae specialists and has rarely been challenged (Naudin, 1850; Triana, 1871; Cogniaux, 1891).

In that framework, Wurdack (1968) described a remarkable species from the central Peruvian Andes, *Conostegia inusitata* Wurdack. He noted that the winged hypanthium, four-merous flowers, and high number of stamens (up to 96) were quite different from other *Conostegia* and suggested that the species might be placed in its own infrageneric group. In an unpublished doctoral thesis, Schnell (1996) stated that *C. inusitata* differed from most species of *Conostegia* by calyx morphology and anther number and morphology. The calyx in *C. inusitata* is foliose, thin, and apparently photosynthetic (vs. thick non foliose, and not green in other *Conostegia*), and dehisces 1–2 mm above the torus (vs. near or at the torus in *Conostegia*). In *C. inusitata,* the level of pleiostemony is much higher than in other species of *Conostegia*, with 80–100 anthers (vs. up to 30), and the anthers are relatively thinner, borne on comparatively longer filaments, and subulate (not laterally compressed). Based on these and other characters, Schnell (1996) argued that *C. inusitata* did not belong to *Conostegia*, proposing a new genus, "*Florbella*", which not only included this species but also an undescribed one. This second species, for which Schnell proposed the name "*Florbella wurdackii*", was also from central Peru. Unfortunately, this new genus, combination, and species were never validly published (Turland et al., 2018; see article 30.9). That the thesis was not intended as an official publication of the names is stated in page iii of Schnell (1996).

The tribe Miconieae, to which *Conostegia* belongs, is exclusively neotropical and the largest tribe of the Melastomataceae with close to 1900 species (Michelangeli et al., 2004; Goldenberg et al., 2008; Martin et al., 2008; Michelangeli et al., 2008). Phylogenetic analyses have shown that most genera of the tribe are not monophyletic,

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and *Conostegia* is no exception (Michelangeli et al., 2004; Goldenberg et al., 2008; Martin et al., 2008; Michelangeli et al., 2008; Kriebel et al., 2015). All but one species of *Conostegia* sampled in molecular phylogenetic analyses belong to the same clade. However, this large clade also contains several species formerly placed in *Clidemia* and *Miconia* that that lack a calyptra, pleiostemony, or both (Michelangeli et al., 2004; Goldenberg et al., 2008; Martin et al., 2008; Michelangeli et al., 2008; Kriebel et al., 2015; Kriebel, 2016). Kriebel (2016) solved this issue by circumscribing an expanded *Conostegia*, making the appropriate new combinations in *Conostegia* of those species of *Clidemia* and *Miconia*. However, given the difficulty of defining morphologically identifiable clades, most other Melastomataceae specialists recognize an expanded *Miconia* that includes all other genera in the tribe (Ionta et al., 2012; Judd & Ionta, 2013; Michelangeli & Meier, 2013; Gamba & Almeda, 2014; Gamba et al., 2014; Michelangeli, 2014; Ocampo & Almeda, 2014; Majure et al., 2015; Michelangeli et al., 2016; Michelangeli & Goldenberg, 2016; Gamba & Almeda, 2018; Judd et al., 2018; Skean et al., 2018; Mendoza-Cifuentes et al., 2019; Michelangeli et al., 2019). In fact, the combination *Miconia inusitata* (Wurdack) Michelang & R. Goldenb. has already been made under this scheme of an expanded *Miconia* (Michelangeli et al., 2019).

Regardless of whether *Conostegia* is recognized as a separate genus (sensu Kriebel, 2016), or as part of an expanded *Miconia*, it is clear that *C. inusitata* and the unpublished "*Florbella wurdackii*" do not belong in the *Conostegia* clade. Kriebel et al. (2015) were able to obtain a partial nrITS sequence for the undescribed *M. florbella* (cited as "*Florbella wurdackii*)" and found that it was indeed not part of the *Conostegia* clade, but was more closely related to a group of Andean *Miconia*, mostly from section *Amblyarrhena* (clade Miconia III in Goldenberg et al., 2008). Thus, the correct placement for this species is indeed in *Miconia* sensu Cogniaux (1891). Both species grow in the foothills of the Andes in central Peru. Although spottily collected until the 1980s, this region has since been the focus of a major collection effort, particularly the province of Oxapampa. As a result of these efforts over the past ten years, 11 new species of Melastomataceae have been described from Yanachaga-Chemillén National Park (Cárdenas et al., 2014; Michelangeli & Goldenberg, 2018).

In 2017, we conducted an expedition to the eastern section of the Yanachaga-Chemillén National Park. One of our goals was to locate Schnell's undescribed "*Florbella wurdackii*". We succeeded in finding this species, but also a were able to find a related one evidently in the same group. This last species was neither *Miconia inusitata*, nor the species mentioned by Schnell in his thesis (1996). Later examination of herbarium specimens from central Peru confirmed that there was indeed a third species in this group that had been previously collected and misidentified as *C. inusitata*, "*Florbella wurdackii"*, or *M. flaccida* Gleason.

Some of the misidentified specimens were determined as *Miconia flaccida* because the third species, *C. inusitata,* and "*F. wurdacki,"* share with *M. flaccida* hollow stem domatia colonized by ants. The presence of this type of primary ant domatia (sensu Benson, 1985; Jolivet, 1996) is characteristic of a group of large-flowered *Miconia* from middle- and low-elevation forests in central Peru (Michelangeli, 2010) that includes not only *M. flaccida*, but also *M. bailloniana* J. F. Macbride, *M. expansa* Gleason, *M. hospitalis* Wurdack, and *M. pozuzoana* L. Cardenas & Michelang. The last species was recently described from a different area of the Yanachaga-Chemillén National Park (Cárdenas et al., 2014). In all eight of these species, the stems are hollowed out by ants and present an opening towards the distal end of each internode, which is wider than the proximal end; however, young branches of individuals lacking ants are solid.

Miconia bailloniana, *M. flaccida*, *M. expansa*, *M. hospitalis* and *M. pozuzoana* differ from the species treated here in the florbella group because they lack a calyptrate calyx. Also, *M. bailloniana*, *M. expansa*, and *M. hospitalis* seem to be always diplostemonous. *Miconia flaccida* and *M. pozuzoana* can be pleiostemonous, but the degree of pleiostemony is never as pronounced as in the calyptrate species, with the stamens always fewer than 15.

During the examination of herbarium material, we found yet another undescribed species of Miconieae with calyptrate calyces, pleoistemony, and hollow stems. This species has been collected only in the Cordillera del Cóndor in Southern Ecuador, near the border with Peru.

We present here a revision of this group of species with hollow stems, and pleiostemonous flowers with a calyptrate calyx. We informally call this clade the florbella group in recognition of Schnell's unpublished generic name.

Materials and methods

Descriptions were mostly based on herbarium specimens at F, HOXA, MO, NA, NY, US and USM (acronyms follow Thiers, 2017). Additional information on habit, color, and ecology was gathered from herbarium labels, photographs provided by Robin Foster and Günter Gerlach, or from our own observations and photographs. Most of the measurements were taken from dried material, but flower dimensions were taken from rehydrated material.

We use the term anthopodia to describe the terminal segment of the inflorescence peduncles immediately below the pedicel. The pedicel is defined as the portion between the bracteoles and the base of the flower. While the term has only occasionally been used in Melastomataceae descriptions (see Goldenberg & Reginato 2009; Goldenberg & Kollman 2010, Reginato 2011, Reginato & Goldenberg 2013, Reginato et al. 2013), as defined here it offers a clear distinction for the most distal segment that bears the flowers.

Georeferenced locality data, when available, were taken directly from the specimen labels, or whenever possible assigned a posteriori using protocols followed at the NYBG GIS laboratory. Distribution maps were then produced using ArcGIS. Conservation status employed the IUCN Red List categories and criteria (IUCN, 2012; IUCN Standards and Petitions Subcommittee, 2017) and were based on range size (criterion B). Area of Occupancy (AOO) and Extent of Occurrence (EOO) where calculated using the GeoCat tool (Bachman et al., 2011). In the additional specimens examined the information on herbaria housing specimen duplicates not seen by the authors were inferred from specimen labels or information in the Missouri Botanical Garden's Tropicos database (http://www.tropicos.org).

For type specimens, the numbers that follow the herbarium are accession numbers unless preceded bc-, in which case they represent barcode numbers. If a specimen had both an accession and a barcode number we have chosen to report the accession number as this number tends to be printed or written on the sheet, rather than on an adhesive label as barcode numbers usually are.

Seeds for microscopy studies were mounted on aluminum stubs and coated with gold-palladium in a Denton DSK00V-0016 sputter coater. Scanning Electron Microscopy was performed on a Hitachi SU3500-VP and images taken with the SE detector.

Ants found in the hollow stems of several specimens were determined using the key to genera of Bolton (1994) or by Rodrigo Feitosa (Universidade Federal do Paraná).

Taxonomy

Key to the species of *Miconia* with hollow stems and calyptrate calyces (florbella group)

1. Stems terete, the young terminal branches lacking longitudinal lines; flowers sessile; hypanthium and calyptrate calyx terete, non-winged; calyptra hollowed at the apex; petals 6–12, granulose-papillose on both surfaces.
   2. Stamens 42–63, filaments glabrous, connective basally and laterally provided with 1–4 glands on each side, anthers more or less terete, not laterally compressed; anthopodia (segment of the inflorescence axis immediately below the bracteoles) clearly flattened ..... *M. florbella*
   2. Stamens 16–18, filaments with pedicellate glands, connective laterally lacking glands, but these present on its dorsal-basal portion, continuous to the filament, anthers strongly laterally compressed; anthopodia terete to only slightly flattened ..... *M. cava*
1. Stems quadrangular, the young terminal branches with four conspicuous longitudinal lines on each internode; flowers pedicellate; pedicel, hypanthium and calyptrate calyx tetragonal and winged (evident even in fruit); calyptra solid, not hollowed at the apex; petals 4, glabrous on both surfaces.
   3. Inflorescence nodes covered with stellate trichomes < 0.1 mm; inflorescences with 4–6 pairs of paraclades; pedicel+hypanthium 5.2–6.8 mm long and 3.6–4 mm wide at the torus, at anthesis; stamens 18–30 per flower ..... *M. valenzuelana.*
   3. Inflorescence nodes glabrous; inflorescences with 1 or 2 pairs of paraclades; pedicel+hypanthium 12–15 mm long and (6.5–)7.5–9 mm wide at the torus; stamens 38–102 per flower ..... *M. inusitata.*

Miconia cava Michelang. & R. Goldenb**., sp. nov.** Type: Ecuador. Morona-Santiago: Gualaquiza Cantón, Cordillera del Cóndor, Cuangos, 20 km east of Gualaquiza, near disputed Peru-Ecuador border, transect #6, 3°29"S, 78°14W, 1470 m, 19 Jul 1993 (fl), *A. H. Gentry 80,167* (holotype: QCNE-092009; isotypes: F-2137148, MO-6904454, NY-bc-03346607). (Fig. 1.)

Diagnosis: Differs from *Miconia inusitata* due to the terete pedicel and hypanthium (vs. quadrangular and winged), the calyptra hollowed at the apex, and petals 6–7 (vs. always 4). Differs from *Miconia florbella*, due to the flowers with fewer stamens (up to 18, vs. 42–63 per flower in *M. florbella*), filaments with pedicellate glands (vs. glabrous), anthers strongly laterally compressed (vs. more or less terete, not laterally compressed).

Tree 5 cm diam. at breast height. Terminal young stems terete to slightly flattened, lacking longitudinal lines, the internodes widened towards the apex, hollow in the younger branches and with an entrance hole ca. 1.5 mm diam. in the distal portion of the internode, nodes with a conspicuous nodal line between the petioles, the stems glabrescent, when very young with sparse, sessile, stellate, whitish, flat trichomes, up to 0.1 mm, denser near the nodal region. Leaves isophyllous or slightly anisophyllous in each pair; petioles 0.8–1.1 cm long, glabrescent, when young with the same trichomes as the young stems; blades 9–25 × 2.4–6.5 cm, lanceolate-elliptic to elliptic, the base acute, the apex acuminate to shortly caudate, the margins entire to undulate, membranaceous, acrodromous veins 3, sometimes plus a pair of inframarginal faint veins less than 0.5 mm from the margin, the inner pair of secondaries suprabasal, joining the midvein 1–4 mm above the base, the tertiaries more or less evenly spaced 2.2–5.8 mm apart, flattened but conspicuous on both surfaces, the quaternaries flat, laxly reticulate, both surfaces glabrous. Inflorescence a terminal raceme ca. 13 cm long, with 5 nodes, then with positions for ca. 11 flowers, the axes glabrescent, with trichomes similar to those on the stems, denser at the nodes right below the pedicels; peduncles flattened, but apparently not hollow and lacking an entrance hole; bracteoles early deciduous, not seen. Flower sessile or on short pedicels up to 1mm long, the hypanthium 6.7–7.5 mm long, 7.6–8.5 mm wide at the torus, campanulate, not winged nor costate, glabrous; calyx calyptrate in bud, foliaceous (but lacking wings), 9–11 mm long, pale green, sometimes pink towards the apex, dehiscing at anthesis 1.2–1.5 mm above the torus, the inner surface densely covered with barbellate trichomes < 0.15 mm long, the apex acuminate, with a tapering, truncate apical portion, this hollow, with a ca. 3 mm long, oblong chamber ending in an apical, circular opening; petals 6 or 7, 8.8–10 × 4.5–5.7 mm, white, granulose-papillose on both surfaces, oblong to oblanceolate, apex symmetrical, margins papillose-ciliate; stamens 15–18, all with the same shape but slightly different sizes; filaments 3.5–4.5 mm long, color unknown, with sparse to moderate pedicellate glands 0.05–0.15 mm diam.; connective lacking glands on the lateral-basal region, but with some on the dorsal-basal portion (which is continuous with the filament), the glands similar to those on the filaments; anthers 3.9–4.2 mm long, elliptic-oblong, laterally compressed, not sinuous, the thecae not wrinkled (in sico), color unknown, opening by a dorsally inclined pore, ca. 0.35 mm diam.; style ca. 5.5 mm long (before anthesis), sparsely to moderately covered with pedicellate glands, these smaller than the ones on the filaments, stigma peltate and with a hole at the center of the apex, 8–9 mm diam.; ovary completely inferior, 6- or 7-locular. Fruits and seeds not seen.

Distribution and ecology.—*Miconia cava* is known only from two collections from the same locality and collected the same day in cloud forests in the Cordillera del Cóndor near the Peru-Ecuador border at 1470 m (Fig. 2). Its stems are hollow and ant openings are visible at the top of some internodes. However, no ants were recovered from the only known collection. The only fertile collection is mostly in bud with one flower at anthesis, and was collected in July.

Due to the scarcity of collections from the area and the fact that only two specimens are known, this species should be considered data deficient (DD) as per IUCN guidelines (IUCN, 2012; IUCN Standards and Petitions Subcommittee, 2017).

Etymology.—The specific epithet refers to the hollow nature of the young terminal branches.

Additional specimen examined. ECUADOR. Morona-Santiago: Gualaquiza Cantón, Cordillera del Cóndor, Cuangos, 20 km east of Gualaquiza, near disputed Peru-Ecuador border, transect #6, 19 Jul 1993 (veg), *A. Gentry 80,174* (MO, QCNE).

While *Miconia cava* shares hollow young terminal branches and the calyptra dehiscing above

Fig. 1. *Miconia cava*. **A**. Fertile branch. **B**. Details of stem with ant holes. **C**. Detail of inflorescence. **D**. Flower bud with calyptra removed and calyptra with longitudinal section of the apex. **E**. Detail of flower apex in bud with the calyptra and proximal petals removed showing inflexed anthers and stigma. **F.** Flower bud in longitudinal section with the calyptra removed and ovary in cross section. **G**. Anthers in lateral and top views. (All from *Gentry 80,167*, NY.)

Fig. 2. Distribution of *Miconia cava*.

the torus with the three other species treated here, it differs from them in stamen number and anther shape. *Miconia cava* has 18 or fewer stamens and elliptic-oblong anthers, while *M. florbella*, *M. inusitata* and *M. valenzuelana* have flowers with 18 stamens or more (much more in the first two species) and slender anthers. The anthers of *M. cava* are more reminiscent of several species in the *Conostegia* clade that also have a peltate and lobed style with a hole or depression in the center. This latter group of species were all treated as *Conostegia* section *Conostegia* by Kriebel (2016), and it is possible that *M. cava* belongs to *Conostegia*. Most species of that group, however, have calyptras that dehisce cleanly at or near the torus, whereas the calyptra in *M. cava* apparently dehisces well above it. Within *Conostegia*, *M. cava* would key out with *M. bernoulliana* (Cogn.) Michelang., a species endemic to Guatemala (Kriebel, 2016). Both species share narrowly elliptic leaves, a smooth calyptra, very similar anther shape, and a peltate stigma. However, *M. bernoulliana* differs primarily by the lack of swollen nodes and hollow terminal branches and the presence of prominently plinerved leaves and glabrous stamens.

Miconia cava was collected in the Cordillera del Cóndor by Alwyn H. Gentry during his last trip to Ecuador two weeks before his tragic death in a plane crash. The Cordillera del Cóndor is a botanically remarkable area with unique geology and some floristic affinities to the Guayana Highlands. This area has yielded three new species of Melastomataceae in the last few years (Ulloa Ulloa & Neill, 2006; Ulloa Ulloa et al., 2012; Burke et al., 2017) and deserves closer attention.

Miconia florbella Schnell ex Michelang. & R.Goldenb., **sp. nov.** Type: Peru. Pasco. Oxapampa. Villa Rica: Cerro El Ascensor, Bosque de Protección San Matías – San Carlos, bosque secundário, 10°45'S, 74°55'W, 1355 m, 30 Jul 2003 (fl, fr), *J. Perea, J. & C. Mateo 110* (holotype: NY; isotypes: HOXA-0008638, MO-6930994, USM). (Figs. 3, 4, 5A,B.)

Diagnosis: Differs from *Miconia inusitata* due to the flowers solitary or in diads, triads or 4–5-flowered fascicules (vs. 5 to more flowers in depauperate panicles or compound dichasia), the pedicel and hypanthium terete (vs. quadrangular and winged), the calyptra hollowed at the apex, and petals (6)7–12 (vs. always 4). Differs from *Miconia cava*, due to the flowers with 42–63 stamens (vs. up to 18 in *M. cava*), the filaments glabrous (vs. with pedicellate glands), the anthers more or less terete, not laterally compressed (vs. strongly laterally compressed).

Shrubs 2–3 m to treelets or trees up to 7 (−10) m tall. Terminal young stems terete to slightly flattened, lacking longitudinal lines, the internodes usually widened towards the apex, hollow in the younger branches and with an entrance hole ca. 1.5 mm diam., nodes with a conspicuous nodal line between the petioles, the stems glabrescent, when very young with sparse, sessile, stellate, reddish trichomes and globose, sessile to very shortly pedicellate glands, both up to 0.1 mm, denser near the nodal region. Leaves isophyllous or slightly anisophyllous in each pair; petioles 0.9–4.4 cm long, glabrescent, when young with the same trichomes as the young stems; blades 8.5–22 × 2–7.5 cm, elliptic to lanceolate-elliptic, the base acute, cuneate to slightly decurrent, the apex acuminate to shortly caudate, the margins entire to repand or very remotely denticulate, membranaceous, acrodromous veins 3, plus a pair of inframarginal faint veins less than 0.5 mm from the margin, the inner pair of secondaries suprabasal, joining the midvein 3–14 mm above the base, the tertiaries more or less evenly spaced 3.1–9.1 mm apart, flattened but conspicuous on both surfaces, the quaternaries flat, laxly reticulate, both surfaces glabrescent, when very young with the same trichomes as the young stems. Solitary flowers terminal or axillary, or the flowers in apical diads, triads or rarely 4–5-flowered fascicles, these sessile or seldom on a common peduncle 8–15 mm long, the peduncle solid, or hollow and with an ant hole; each flower always solitary on a anthopodium 8–12 mm long, strongly flattened, with sparse to moderate, caducous, minute, sessile glandular projections less than 0.1 mm; bracteoles very early caducous, leaving a pair of barely conspicuous opposite scars on the thinner side of the flattened anthopodium's apex. Flowers sessile, lacking a pedicel, the hypanthium 6–10 mm long, ca. 12 mm wide at the torus, broadly campanulate, neither winged nor costate, glabrescent, with the trichomes as on the young stems and inflorescences, but denser on the hypanthium base; calyx calyptrate in bud, foliaceous and lacking wings, 9–11 mm long, pale green, sometimes pink towards the apex, dehiscing at anthesis 1.2–1.5 mm above the torus, the inner surface densely covered with barbellate trichomes, the apex abruptly acuminate, with a terete, truncate apical portion, this

Fig. 3. *Miconia florbella.* **A**. Fertile branch. **B**. Inflorescence peduncle and first internode, both with ant holes and broad, hollow axes; detail of stigma on the left. **C**. Flower bud, lateral view. **D**. Flower bud, with the calyptra cut in longitudinal section (L) and fully detached (R). **E**. Petals (L) and flower bud with the calyptra and proximal petals removed. **F**. Stamens in lateral, ventral and dorsal views. **G**. immature fruit in longitudinal section. **H**. Fruit in cross section. **I**. Detail of fruiting branch. (A–G, from *Perea 110*, NY; H, from *Rojas 8961*, NY; I, from *Foster 8646*, MO.)

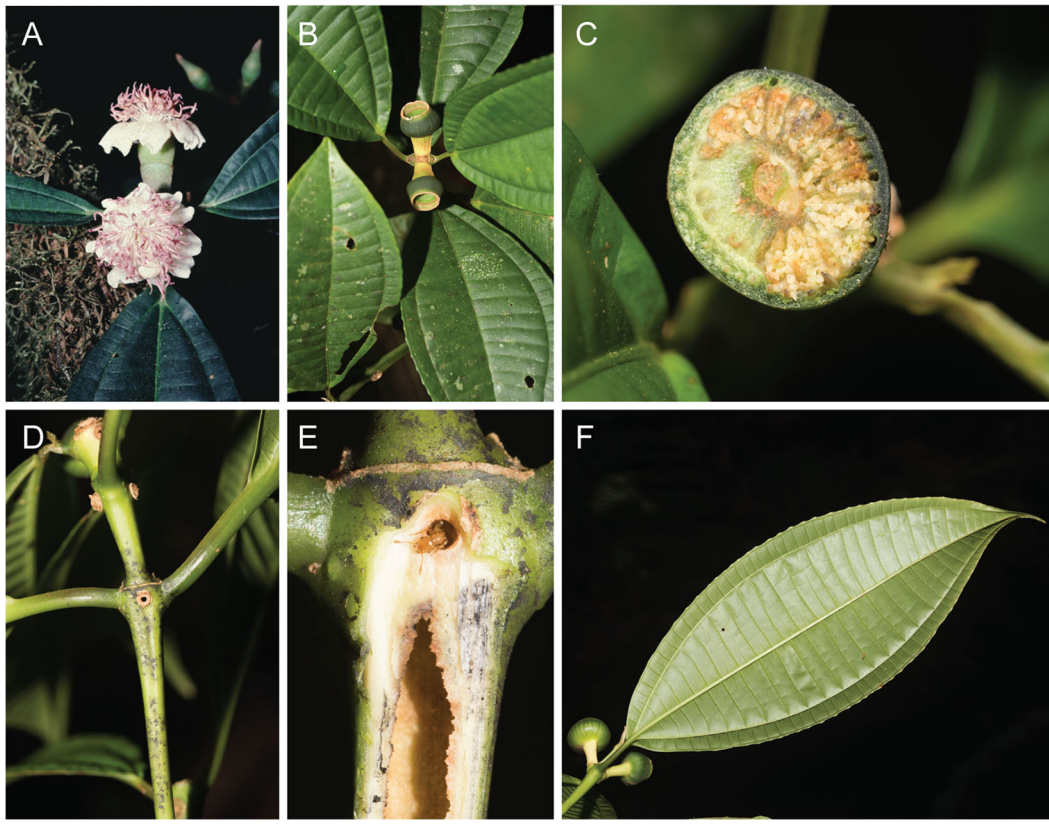

Fig. 4. *Miconia florbella* in the field. **A**. Flowers at anthesis. **B**. Immature fruits (note flattened anthopodium) and leaves, adaxial surface. **C**. Immature fruit in cross section. **D**. Stem with ant opening. **E**. Hollow stem in longitudinal section and *Myrmelachista* ant. **F**. Leaf, abaxial surface. (A, from *Foster 10,920*, photo by R. Foster; B–F, from *Michelangeli 2823*, photos by F. A. Michelangeli.)

hollow, with a 2.9–3.5 mm long, oblong chamber ending in an apical, circular opening; petals (6)7–12, 9–10 × 4.2–4.8 mm, white, granulose-papillose on both surfaces, obovate to oblanceolate, apex asymmetrical, margins papillose-ciliate; stamens 42–63, all with the same shape but slightly different sizes; filaments 4.5–6 mm long, pink to pale lilac, glabrous; connective with 1–7 globose, short-pedicellate glands on each side of the thecae (at the base of the connective); anthers 2.8–4.2 mm long, linear-subulate (not laterally compressed), more or less sinuous, the thecae wrinkled (in sico), pink to pale lilac, opening by a terminal, upright pore as wide as the thecae; style 8–13.5 mm long, glabrous, stigma peltate and with a hole at the center of the apex, 3.6–5.2 mm diam.; ovary completely inferior, 14–21-locular. Fruit a berry, dark purple, 10–13 mm long when ripe, the persistent calyx rim projecting 1.5–2.7 mm above the fruit. Seeds ca 0.5 × 0.2 mm, oblong, testa slightly depressed-foveolate, cells with periclinal walls jigsaw-shaped.

Distribution and ecology.— *Miconia florbella* grows in moist undisturbed forests in the Selva Central on the eastern slope of the Andes in Peru, from 400 to 910 m, in the Departments of Junín and Pasco (Fig. 6). It has been collected in flower from June to September and fruiting year round. Its hollow stems are inhabited by ants of the genus *Pheidole*. Schnell (1996) also reported ants that may belong to *Myrmelachista*.

The species has an EOO of 1432 km^2 and a AOO of 52 km^2, all within the upper Palcazu River basin. Many of the collection localities are outside protected areas and in areas with ongoing deforestation for cattle ranching,

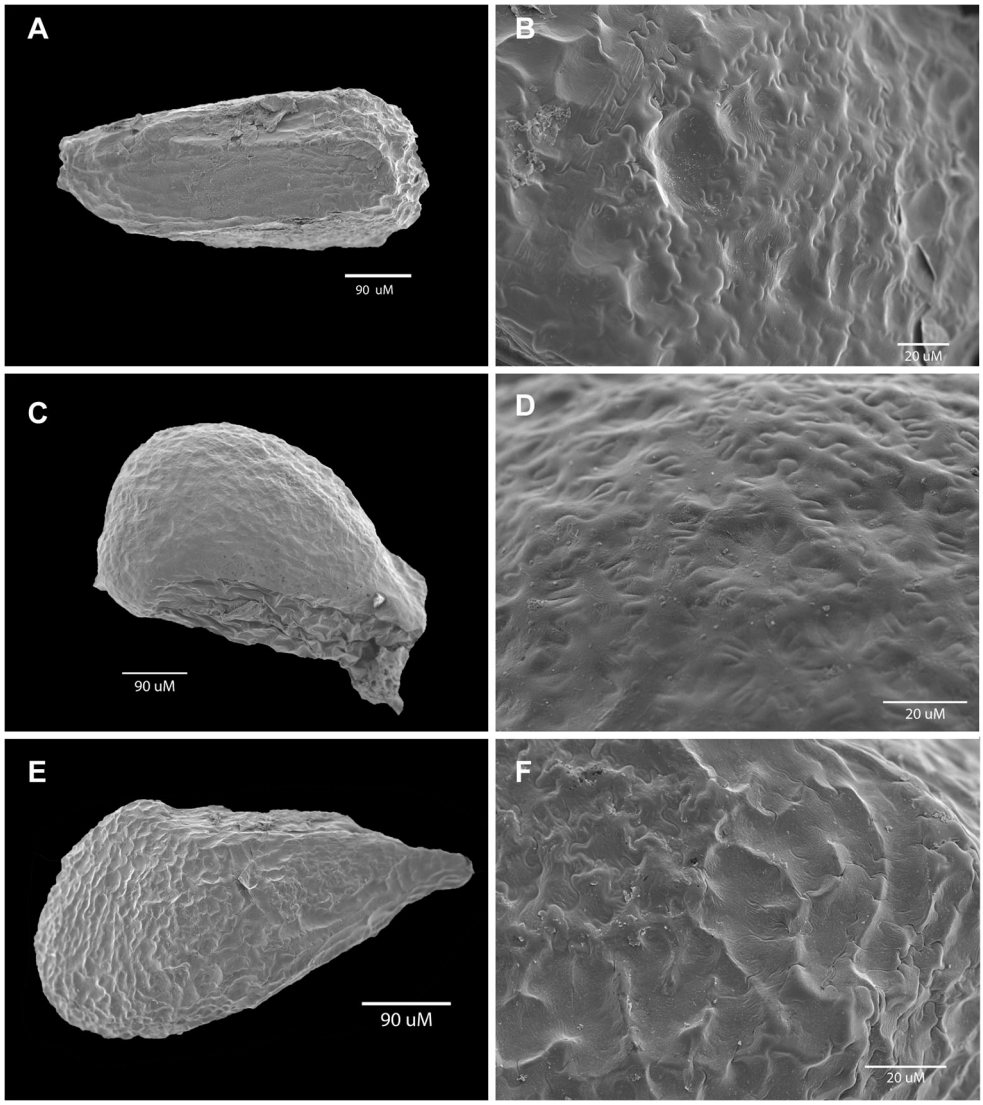

Fig. 5. Scanning electron microscopy photographs of the seeds of *Miconia florbella*, *M. inusitata* and *M. valenzuelana*. **A**. *M. florbella*, entire seed. **B**. *M. florbella*, detail of testa. **C**. *M. inusitata*, entire seed. **D**. *M. inusitata*, detail of testa. **E**. *M. valenzuelana*, entire seed. **F**. *M. valenzuelana*, detail of testa. (A, B, from *Rojas 7487*, NY; C–D, from *Rojas 8419*, NY; E–F, from *Vásquez 32,074*, NY.)

logging, and agriculture. Based on this, we recommend that the species be considered as Endangered following criteria B1B2abiii of the IUCN (2017).

Etymology.—The specific epithet is taken from the generic name that Schnell (1996) planned to give this species in his unpublished thesis. Florbella is a combination of the Spanish words for flower (flor) and beautiful (bella).

Additional specimens examined: PERU. Junín: Pichis Trail, Santa Rosa, 625–900 m, Jul 1929 (fr), *E. P. Killip 26,184* (NY, US). **Pasco**, Oxapampa: Valle del Palcazú, Cordillera de San Matias, Camino de Loma Linda, 910 m, 22 Jul 1981 (fl), *R. B. Foster 4533* (CAS, F, US, USM); Pichis Valley, San Matias Ridge, 10–12 km SW of Puerto Bermúdez, above Santa Rosa de Chivis, trail to Puerto Nuevo, 500–900 m, 8 Sep 1982 (fl, fr), *R. B. Foster 8646* (F, MO, NY, US, USM); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, 400 m, 15 Jul 2017 (fr), *F. A. Michelangeli 2823* (NY, USM); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, parcela

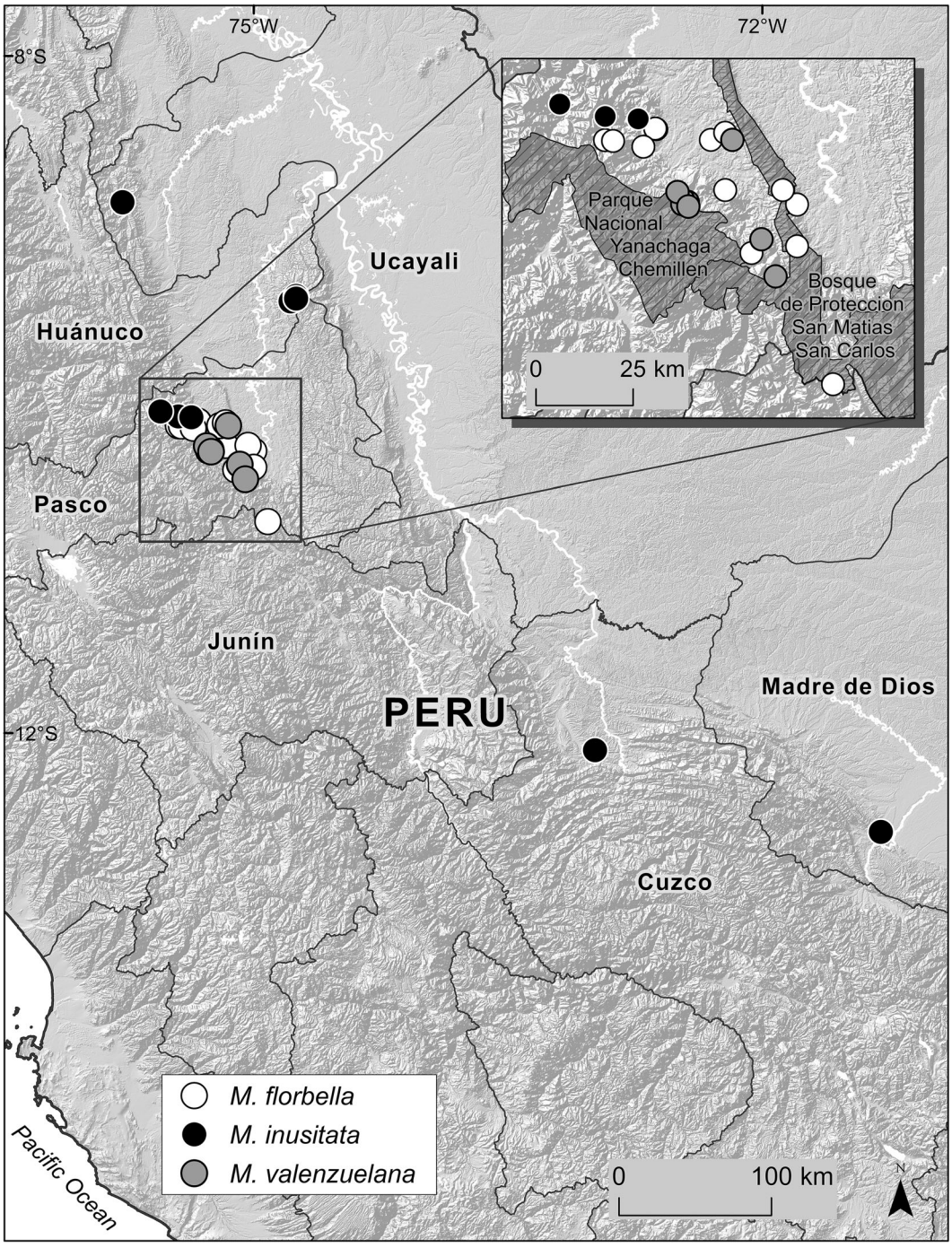

FIG. 6. Distribution of *Miconia florbella*, *M. inusitata* and *M. valenzuelana*.

permanente 1 ha, Proyecto Dinámica de bosques montanos en la selva central del Perú, 850 m, 18 Jun 2005 (fl, fr), *A. Monteagudo 9004* (HOXA, MO-n.v., NY); Dist. Palcazú. Evaluación de los Recursos del Bosque 0.5 ha, Reserva Comunal Yanesha, Comunidad Nativa San Pedro de Pichanaz, Sector Azulis, 910 m, 15 Sep 2005 (buds, fr), *A. Monteagudo 9834* (AMAZ-n.v., HOXA, HUT-n.v., MO-n.v., MOL-n.v., NY, USM); Dist. Palcazú, Iscozacin, Parque Nacional Yanachaga-Chemillén, cruzando el río Paujil, 400 m, 28 Jul 2007 (fr), *A. Monteagudo 14,958* (HOXA, HUT-n.v., MO-n.v., NY, USM-n.v.); Dist. Palcazú, Bosque de protección San Matías-San Carlos, Sector San Francisco de Pichanaz, 700–1200 m, 11 Feb 2005 (fr), *R. Rojas 3453* (HOXA [2 sheets], MO-n.v., NY, USM); Dist. Palcazú, Comunidad Nativa Alto Lagarto, 700 m, 11 Aug 2007 (fr), *R. Rojas 4534* (HOXA, USM-n.v., MO-n.v., NY); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, en las nacientes de las quebrada Cashivo y Palmalanbo y naciente del río Lagarto a 3 horas de la comunidad Nativa Alto Lagarto, 1050 m, 20 Sep 2010 (fr), *R. Rojas 7487* (HOXA, MO-n.v., NY, USM); Dist. Palcazú, Comunidad Nativa Alto Lagarto, Reserva Comunal Yanesha, 500 m, 13 Nov 2011 (fr), *R. Rojas 8106* (HOXA, MO-n.v., NY, USM-n.v.); Dist. Oxapampa, Comunidad Nativa Alto Lagarto-Convento (Reserva Comunal Yanesha), 500 m, 28 Feb 2013 (fr), *R. Rojas 8961* (HOXA, MO-n.v., NY, USM-n.v.); W side of Cordillera de San Matias between Iscozacin and summit, Crest of mountains, 680–860 m, 22 Jun 1982 (fr), *D. N. Smith 2070* (MO, US); Puerto Laguna, 400–450 m, 13 Sep 1984 (fr), *D. N. Smith 8398* (F, MO, NY, US); Dist. Palcazú, Ataz camino al convento, 375–635 m, 9 Sep 2008 (fr), *L. Valenzuela 11,978* (HOXA, HUT-n.v., MO-n.v., MOL-n.v., NY, USM); Dist. Palcazú, Ataz camino al convento., 620 m, 11 Sep 2008 (fr), *L. Valenzuela 12,077* (HOXA, HUT-n.v., MO-n.v., MOL-n.v., NY, USM); Dist. Pozuzo. Sector Alto Lagarto Villa Progreso, Reserva Comunal Yanesha, 1063 m, 5 Dec 2010 (fr), *L. Valenzuela 15,111* (HOXA, MO-n.v.); Dist. Pozuzo, Sector Alto Lagarto Villa Progreso, Reserva Comunal Yanesha, 1063 m, 5 Dec 2010 (fr), *L. Valenzuela 15,250* (HOXA); Dist. Pozuzo, Sector Alto Lagarto Villa Progreso, Reserva Comunal Yanesha, 1063 m, 5 Dec 2010 (fr), *L. Valenzuela 15,500* (HOXA, MO-n.v., NY, USM-n.v.).

Miconia florbella was included by Schnell (1996) in his doctoral thesis as a new species in the also newly proposed genus "*Florbella*". However, neither the genus nor the species were ever validly published. Since our concept of the genus *Miconia* encompasses all of the other former genera of tribe Miconieae (see above), this species is here described in *Miconia*.

Miconia florbella shares with *M. cava* the presence of sessile flowers, evidenced by a clear line between the hypanthium and the anthopodium, the presence of a chamber at the apex of the calyx before dehiscence, and stems lacking longitudinal lines. However, it differs in anther shape (subulate and not laterally compressed in *M. florbella* vs. obovate and laterally compressed in *M. cava*) and number (42–63 vs. 16–18). *Miconia florbella* is also easily recognized by the flattened anthopodia and ovaries with 14–21 locules.

While our concept of this species agrees with that of Schnell (1996), we had access to a larger number of gatherings than he did, so the ranges for some of the measurements provided here are larger than those that he reported. Based on the quality and distribution of the specimens, we have also chosen to designate a different gathering as the type.

Schnell (1996) remarked that this entity seemed to grow nearby but not with *M. inusitata*. With the additional specimens that we have now this pattern still holds true; however, *M. florbella* has been collected in the same locality as *M. valenzuelana*, less than 50 m apart and in a similar environment.

Besides the additional specimens cited here as paratypes, the two collections listed below may belong to this species. These collections, however, differ from those of *M. florbella* by more developed inflorescences and the anthopodia not as flattened and broad. Also, the calyptras in these two specimens are shorter and dehisce closer to the torus (only 1 to 1.3 mm above). Therefore, we consider these two specimens as *M. aff. florbella* and will wait for further collections from the same region for a more complete evaluation of this entity:

Peru. Huanuco: Pachitea, Pucallpa region, western Sira mountains; c. 24 km SE to c 26 km ESE of Puerto Inca from the beginning of the mountain rain forest next to the "Campamento Pato Rojo, along the mountain crest to the beginning of the elfin forest after the "Campamento Peligroso", 1180 m, 22 Dec 1987 (fl), *Wallnofer, B., 12–221,287* (US, W-n.v.); 1380 m, 25 Jul 1988 (fr), *Wallnofer, B., 16–25,788* (US, W-n.v.).

Miconia inusitata (Wurdack) Michelang. & R. Goldenb. Brittonia 71: 98 [published online 15 October 2018]. *Conostegia inusitata* Wurdack, Phytologia 16: 170–171. 1968. Type: Peru. Loreto [present day Ucayali]: Coronel Portillo, lower Boquerón del Padre Abad, 480 m, 25 July 1964 (fl), *P. C. Hutchinson, J. K. Wright & R. M. Straw 6057* (holotype: US-00120708; isotypes: F-1651609, K-bc-000535834, MICH-n.v., MO-1887623, MO-1887624, NY-bc-00221635, UC-n.v.). (Figs. 5C,D, 7, 8.)

Shrubs or treelets 1.5–3 tall, occasionally a tree up to 8 m tall. Terminal young stems tetragonal to slightly flattened, with the edges not winged but

Fig. 7. *Miconia inusitata*. **A**. Fertile branch. **B**. Detail of branch. **C**. Flower bud, lateral view. **D**. Flower bud with the calyptra and petals removed (L) and hypanthium with style in longitudinal section. **E**. Stamens in lateral, ventral and dorsal views. **F**. Fruiting branch. **G**. Immature fruit. **H**. Fruit in cross section. (A–E, from *Rojas 1091*, NY; F–H, from *Rojas 7879*, NY.)

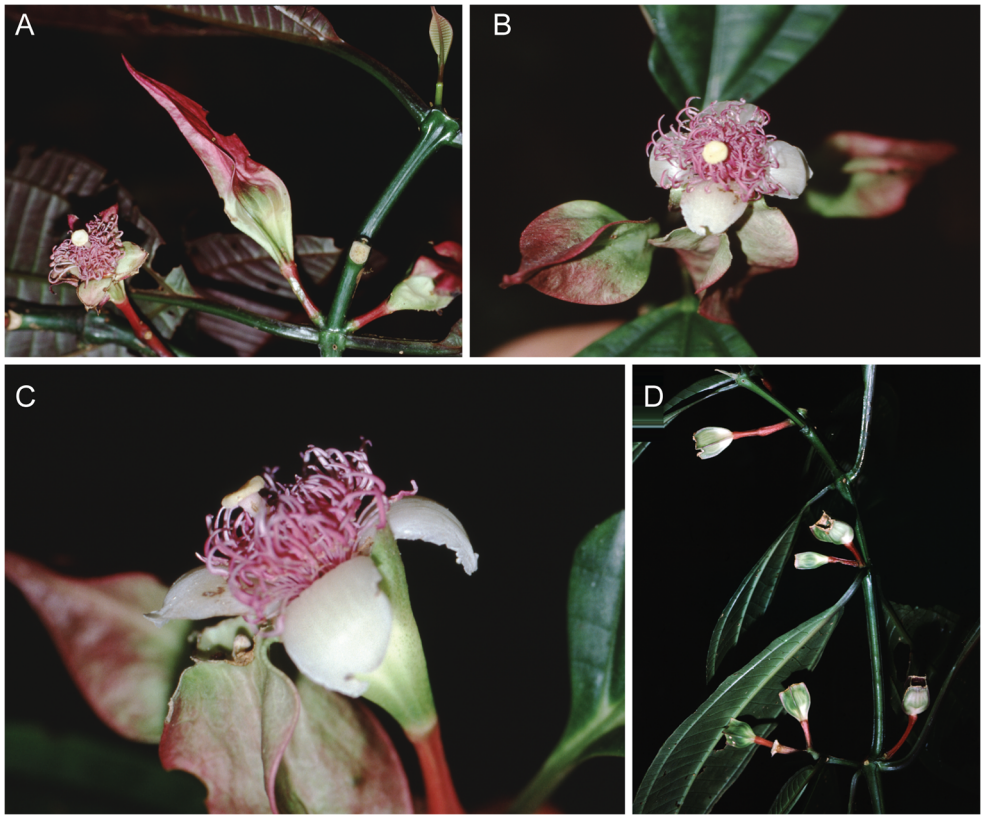

Fig. 8. Photographs of *Miconia inusitata* in the field. **A**. Flower at anthesis and flower bud with winged calyptra. **B**. Flower at anthesis and flower bud, top view. **C**. Flower at anthesis, lateral view, with the calyptra still hanging on its side. **D**. Immature fruits. (A–C, from uncollected plants at the Cordillera Azul, photos by R. Foster and T. Watcher; D, from *Foster 4533*, photo by R. Foster.)

with four conspicuous longitudinal lines that run along the internode, later becoming obscurely quadrate to terete, the internodes usually widened towards the apex, hollow in the younger branches, and with an entrance hole 0.7–1.1 mm diam., nodes with a conspicuous nodal line that unites with the internodal lines, the stems usually glabrescent, with sparse, caducous trichomes up to 0.1 mm diam., stellate, reddish, mostly on nodal regions. Leaves isophyllous or slightly anisophyllous with the smaller leaf 10–15% smaller than the larger one in each pair; petioles 0.7–4.5 (−7) cm long, glabrescent, when young with the same trichomes as the young stems; blades 11–23 (−38) × 4–8 (−11.5) cm, obovate to elliptic, the base acute to cuneate, the apex acute to shortly acuminate (up to 15 mm), more rarely rounded, the margins entire to very remotely denticulate, membranaceous, acrodromous veins 3, plus a pair of inframarginal faint veins 0.7–2 mm from the margin, the inner pair of secondaries suprabasal, joining the midvein 4–10 mm above the base, the tertiaries more or less evenly spaced 6–11 mm apart, flattened but conspicuous on both surfaces, the quaternaries flat, laxly reticulate, abaxial surface glabrescent, with very sparse trichomes as described above, adaxial surface glabrous. Inflorescences terminal, occasionally pseudo-axillary due to being overtopped by lateral branches, lax panicles or sometimes compound dichasia up to 4–11(−16) cm long, with 1–2 pairs of paraclades, 5–14 flowers, glabrous; peduncles flattened and expanded towards the apical end of each internode, often hollow and with an entrance hole (as in the stems), red; bracteoles very early deciduous (not seen). Pedicel red and hypanthium green when fresh, but indistinct from each other when dry, pedicel+hypanthium 12–15 mm long, (6.5–)7.5–9 mm wide at the torus, conical, 4–winged, the wings running from

the base of the pedicel thorough the hypanthium to the apex of the calyx, projecting 0.9–1.8 mm from these structure's surfaces, glabrous; calyx calyptrate in bud, foliaceous, 12–40(−53) mm long, reddish to pale green, if pale green then sometimes pink towards the apex, dehiscing at anthesis 0.7–2.1 mm above the torus, long-acuminate, the apex solid (not hollow); petals 4, 7.0–14 × 8–12 mm, white, glabrous, obovate, apex asymmetrical, margins irregular, eciliate; stamens 38–102, all with the same shape but of slightly different sizes; filaments 4–7 mm long, pink to pale lilac, glabrous; connective glabrous; anthers 3.5–7 mm long, linear-subulate, terete (not laterally compressed), more or less sinuous, the thecae wrinkled (in sico), pink to pale lilac, opening by a terminal, upright pore as wide as the thecae; style 6–12 mm long, glabrous, the stigma peltate and with a hole at the center of the apex, 2–3.2 mm diam.; ovary completely inferior, 8–12-locular. Fruit a berry, purple, 16–20 mm wide when ripe. Seeds 0.4–0.5 × ca.0.3 mm, ovoid, testa slightly depressed-foveolate, cells with periclinal walls jigsaw-shaped.

Distribution and ecology.—Found in extremely moist forests in Peru from 500 to 1568 m on the eastern slope of the Andes from Ucayali and Huanuco to Cusco and Madre de Dios (Fig. 6). Besides the specimens cited here, *M. inusitata* has also been photographed farther north in the Parque Nacional Cordillera Azul in Ucayali at 1200 m. It has been collected in flower in February and March and from June to September and fruiting year round. Its hollow stems are inhabited by ants of the genus *Pheidole*.

Miconia inusitata has an EOO of 49,511 km^2 and an AOO of 36 km^2. Even though the species has a broad geographic range, it seems (based on the low AOO) that the conditions where it grows are fairly specific. Based on its distribution we assess it as Vulnerable following criteria B1B2abiv of the IUCN (2017).

Additional specimens examined: PERU. Cusco: La Convención: 680 m, 29 Aug 2011 (fl), *N. Fernandez 81* (USM). **Huanuco**: Southwestern slope of the Rio LlullaPichis watershed on the ascent of the Cerros del Sira, 1500 m, 22 Jul 1969 (fl), *T. R. Dudley,13,111* (NA); Puerto Inca, Dist. Yuyapichis. CC.NN Tahuantinsuyo, Reserva Comunal el Sira, 1568 m, 2 May 2014 (fr), *L. Valenzuela 27,530* (HOXA, MO, USM); Pachitea: Pucallpa region, western Sira mountains, 800 m, 5 Aug 1988 (fr), *B. Wallnofer 16–5888* (US, W-n.v.); Pachitea, Southwestern slope of the Rio LlullaPichis watershed on the ascent of the Cerros del Sira, 1535 m, 28 Jul 1969 (fl), *F. Wolfe 12,407* (US). **Madre de Díos**, Manú: Cerro de Pantiacolla, Río Palotoa, 10–15 km NNW of Shintuya, 700–1300 m, 16 Nov 1985 (fr), *R. B. Foster 10,920* (F, US, USM); Cerro de Pantiacolla, Rio Palotoa, 10–15 km NNW of Shintuya, 1000 m, 13 Nov 1985 (fr), *T. Watcher 25* (F, US, USM). **Pasco**, Oxapampa: Dist. Oxapampa, Alto Lagarto, 900–1000 m, 28 Apr 2003 (fr), *R. Rojas 1091* (HOXA, MO-n.v., NY, USM); Dist. Palcazú, Comunidad Nativa Alto Lagarto, Reserva Comunal Yanesha, 500 m, 12 Sep 2009 (fr), *R. Rojas 6863* (HOXA, MO-n.v., NY, USM); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Sector Alto Lagarto, 1380 m, 20 Aug 2011 (fl, fr), *R. Rojas 7879* (HOXA, MO-n.v., NY, USM); Dist. Palcazú, Comunidad Nativa Alto Lagarto, Reserva Comunal Yanesha, 500 m, 30 May 2012 (fl), *R. Rojas 8329* (HOXA, MO-n.v., USM); Dist. Palcazú, Comunidad Nativa Alto Lagarto, Reserva Comunal Yanesha, 500 m, 30 Jun 2012 (fr), *R. Rojas 8419* (HOXA, MO-n.v., USM); Comunidad Nativa Alto Lagarto, Convento (Reserva Comunal Yanesha), 500 m, 30 Apr 2014 (fl), *R. Rojas 9134* (HOXA, MO-n.v., USM-n.v.). **Ucayali**: [San Martín on the label], Boquerón, cerca de Aguaitía, entre Tingo María y Pucallpa, 17 Sep 1946 (fl, fr), *R. Ferreyra 1173* (US, USM); [Loreto on the label] Pucallpa-Tingo María Rd., Boquerón, 500 m, 10 Nov 1980 (fl), *P. Maas, 4578* (U-n.v., USM).

Miconia inusitata, as its name indicates, is a highly unusual species of Melastomataceae due to its floral morphology. Noteworthy is the elevated number of stamens, surpassing 100 in some individuals, making it perhaps the member of the family with the highest degree of pleiostemony.

The presence of ant domatia is also remarkable because these are not only located in hollow stems, but also in the central axis of the inflorescence, a character otherwise known in the tribe only in *M. valenzuelana*.

Schnell (1996) reported a high amount of size variation in the flowers of this species, a finding corroborated here. Flowers in the specimens from the Sira Mountains are almost half the size of some of those from further south. However, there is enough size variation across the range of this species as to consider it all one entity.

Miconia valenzuelana Michelang. & R. Goldenb., **sp. nov.** Type: Peru. Oxapampa: Palcazú, Parque Nacional Yanachaga-Chemillén, Estacion Biologica Paujil, bosque secundario de 25 años, 10°19′25”S 75°15′ 48”W, 389 m, 5 Mar 2011 (fl, fr), *R. Vásquez, M. Villalba & C. Mateo 37,205* (holotype: NY; isotypes: HOXA, MO-6930995, USM). (Figs. 5E–F, 9, 10.)

Diagnosis: Differs from *Miconia inusitata* (Wurdack) Michelang. & R.Goldenb. due to its inflorescence nodes covered with trichomes (vs. glabrous in *M. inusitata*), smaller flowers with pedicel+hypanthium 5.2–6.8 mm long (vs. 11–

Fig. 9. *Miconia valenzuelana*. **A**. Fertile branch. **B**. Inflorescence peduncle and first internode, both with ant holes and broad, hollow axes. **C**. Flower bud, lateral view. **D**. Flower bud, with the detached calyptra. **E**. Flower bud, the same as D, but with petals removed. **F**. Flower, lateral view. **G**. Flower, longitudinal section with petals and stamens removed. **H**. Stamens, lateral, ventral and dorsal views (from left to right). **I**. Infrutescence, partial (distal) view. **J**. Young fruit, lateral view (R), and transversal section. (A–H, from *Vásquez 37,205*, NY; I–J, from *van der Werff 18,184*, NY.)

Fig. 10. *Miconia valenzuelana* in the field. **A**. Stem with ant orifice (notice longitudinal ridges on the internodes). **B**. Hollow stem in longitudinal section with *Myrmelachista* ant. **C**. Flowering branch with young inflorescence. **D**. Inflorescence. **E**. Flower bud showing dehiscing calyptra. **F**. Flower at anthesis. **G**. Flower at anthesis. **H**. Immature fruits (A–B, from *Michelangeli 2825*, photos by F. A. Michelangeli, C–H, from uncollected plants, photos by G. Gerlach.)

15 mm), calyptra 6.3–11 cm long (vs. 12–40 (−53) mm), petals oblong to oblanceolate and 2.7–3 mm wide (vs. obovate and 8–12mm), and 18–25 stamens (vs. 38–102).

Shrubs 1–1.2 tall. Terminal young stems tetragonal to slightly flattened, with the edges not winged but with four conspicuous longitudinal lines that run along the internode, later becoming obscurely quadrate to terete, the internodes usually widened towards the apex, hollow in the younger branches, inside with food bodies 1–1.5 mm diam., globose to irregular, light brown, and with an entrance hole 0.7–1.5 mm diam., nodes with a conspicuous nodal line that unites with the internodal lines, the stem glabrescent, with irregularly sparse to moderate, sessile, stellate, reddish trichomes and globose, sessile to very shortly pedicellate glands, both up to 0.1 mm and denser near the nodal region. Leaves isophyllous or slightly anisophyllous; petioles 0.7–4.1 (−6) cm long, glabrescent, when young with the same trichomes as the young stems; blades 9–26 (−35) × 3.4–10 (−12) cm, elliptic, the base acute, the apex acute, acuminate to long-acuminate and frequently asymmetric (slightly curved to one side), the margins entire, repand to slightly denticulate, membranaceous, acrodromous veins 3, plus a pair of inframarginal faint veins 0.4–1.2 mm from the margin, the inner pair of secondaries suprabasal, joining the midvein (0.8–) 3–7 mm above the base, the tertiaries more or less evenly spaced 3.5–10 mm apart, flattened but conspicuous on both surfaces, the quaternaries flat, laxly reticulate, abaxial surface glabrescent, with very sparse trichomes as described above, mostly near the veins and at the base of the leaf blade, adaxial surface glabrous. Inflorescences terminal, lax panicles 5.5–13 cm long, with 4–6 pairs of paraclades, (8–) 30–46 flowers, the axes glabrescent, with the same trichomes described for the stems, and also more dense at the nodes, right below the pedicels; peduncles flattened and expanded towards the apical end of each internode, often hollow and with an entrance hole (as in the stems); bracteoles ca. 0.5 mm long, triangular-subulate, deciduous before anthesis. Pedicel and hypanthium indistinct from each other, pedicel+hypanthium 5.2–6.8 mm long, 3.6–5.2 mm wide at the torus, conical, 4-winged, the wings running from the base of the pedicel through the hypanthium to the apex of the calyx, projecting 0.2–0.6 mm from these structure's surfaces, glabrescent or covered at the base with the same trichomes as on the inflorescences and stems; calyx calyptrate in bud, foliaceous, 6.3–11 mm long, pale green to light pink, adaxially covered with trichomes on its folds (mostly at the apex), dehiscing at anthesis 0.8–1.3 mm above the torus, the apex long-acuminate, solid (not hollow); petals 4, 9–12 × 2.7–3 mm, white, glabrous, oblong to oblanceolate, margins irregular, eciliate, light pink in bud, becoming whitish at anthesis; stamens 18–30, all with the same shape and size; filaments 5.5–6 mm long, whitish to pale lilac, glabrous; connective glabrous or with 1–2 globose, short-pedicellate glands on each side of the thecae (at the base of the connective); anthers 3.5–5 mm long, linear-subulate, terete (not laterally compressed), more or less sinuous, the thecae wrinkled (in sico), pink to lilac, opening by a terminal, upright pore as wide as the thecae; style 9–10 mm long, glabrous, the stigma peltate and with a hole at the center of the apex, ca. 0.5 mm diam.; ovary completely inferior, 6–8-locular (the locules visible only in flowers, not visible in young or ripe fruits). Fruit a berry, pale green when young, purple, 9–10 mm wide when ripe. Seeds 0.4–0.5 × ca. 0.2 mm, ovoid, testa slightly depressed-foveolate, cells with periclinal walls jigsaw-shaped.

Distribution and ecology.— *Miconia valenzuelana* grows in primary forests over clay soils from 380 to 700 m (once collected at ca. 1300 m) (Fig. 6). It has been collected in flower from February to April, with fruiting extending into July. Its hollow stems are inhabited by ants of the genera *Pheidole* and *Myrmelachista.*

Miconia valenzuelana has an EOO of 344 km^2 and an AOO of 28 km^2, restricted to the upper basin of the Palcazú River. Moreover, the great majority of the collections are concentrated around the eastern limits of the Yanachaga-Chemillén National Park in the forest surrounding the Iscozacín River and its small tributaries. Based on this distribution we assess it as Endangered following the criteria B1B2abiv of the IUCN (2017).

Etymology.—This species is dedicated to Peruvian Botanist Luis Valenzuela Gamarra, whose plant collections, including one of the paratypes of this species, have greatly augmented knowledge of the flora of Peru.

Additional specimens examined (Paratypes): PERU. Pasco: Oxapampa: Dist. Palcazú. Parque Nacional

Yanachaga-Chemillén, estación biológica Paujil, Quebrada Paujil., 389 m, 10 May 2008 (fr), *J. R. Ayerbe 42* (HOXA, MO-n.v., NY, USM); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, sector Paujil, sendero al S de la estación paralelo a Quebrada Paujil hacia las cascadas, 390 m, 15 Jul 2017 (veg), *F. A. Michelangeli 2825* (NY, USM); Dist. Palcazú, Comunidad Nativa Santa Rosa de Pichanaz, Sector Santo Domingo, 1289 m, 12 Apr 2013 (fl, fr), *L. Valenzuela 22,785* (HOXA, MO, USM-n.v.); Along road Chatarra-Pto. Bermudez, 700 m, 9 Jul 2003 (fr), *H. H. van der Werff 18,184* (HOXA, MO-n.v., NY); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil, 400 m, 25 Feb 2005 (fl), *R. Vásquez 30,704* (HOXA-n.v., MO-n.v., NY); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil-hacia pozo tigre, 450 m, 2 Apr 2006 (fl), *R. Vásquez 31,408* (HOXA, MO-n.v., NY); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil, 400 m, 10 Mar 2007 (fr), *R. Vásquez 32,074* (AMAZ-n.v., HOXA, HUT-n.v., MO-n.v., MOL-n.v., NY, USM-n.v.); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Sector Paujil, Trocha hacia la parcela Paujil-Ozus, 429 m, 12 Mar 2008 (fl, fr), *R. Vásquez 33,976* (AMAZ-n.v., HOXA-n.v., HUT-n.v., MO-n.v., MOL-n.v., NY USM [2]); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil, 380 m, 14 Mar 2009 (fl), *R. Vásquez 35,603* (MO-n.v., NY, USM).

Miconia valenzuelana appears to be closely related to *M. inusitata* based on its four-merous flowers with winged hypanthia and calyptras, anthers linear-subulate with proportionally long filaments, and stems with longitudinal ridges. This species was not mentioned by Schnell (1996) in his thesis, and he did not see any of the specimens of it cited here, all having been collected after 1996. While there is considerable size variation within *M. inusitata*, *M. valenzuelana* not only differs in its markedly smaller flowers, but also in the presence of stellate trichomes on the inflorescences, hypanthium and calyptra (vs. glabrous in *M. inusitata*). Moreover, *M. valenzuelana* has more paraclades in the inflorescence (4–6 vs. 1–2), fewer stamens (18–30 vs. 38–102), and a proportionally shorter, more tapered pedicel/hypanthium. Additionally, it may be that the flowering season differs for the two species: *M. valenzuelana* seems to flower at the end of the rainy season (from February to April), whereas *M. inusitata* flowers for a longer time, with flowers reported in February and March, and from June to September.

Other Specimens Assigned to this Group

Besides the specimens mentioned above, the following two specimens belong to the *Miconia florbella* species group. Because the specimens lack flowers or fruits, specific determination is not feasible at this time; however, given their vegetative characters and geographic provenance, we tentatively determine them as *Miconia* cf. *inusitata*:

PERU. Huanuco: Southwestern slope of the Rio LlullaPichis watershed on the ascent of the Cerros del Sira, 1290 m, 18 Jul 1969 (veg), *F. Wolfe, 12,365* (US!); ibid., 19 Jul 1969 (veg), *F. Wolfe 12,369* (US!).

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