

STUDIES IN NEOTROPICAL VOCHYSIACEAE:  
A NEW SPECIES OF *VOCHYSIA* (SECTION *CILIANTHA*) FROM  
A PLUVIAL FOREST OF WESTERN COLOMBIA

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**Abstract.** *Vochysia carol-scottii* from the pluvial forests of “Chocó biogeográfico,” a megadiverse region between the Pacific Ocean and the slopes of the Colombian Western Cordillera, Valle del Cauca department, is described and illustrated, and its morphological relationships with other similar *Vochysia* species are discussed. This new species is a small tree of 12 m tall and shares features with five species (*V. artantha*, *V. assua*, *V. calamana*, *V. cayennensis*, and *V. tomentosa*) of section *Ciliantha*. Morphologically, it is closest to *V. artantha*, but it differs in its leaves, inflorescences, spurred sepal, petals, and stamen size. A key and synopsis of the 44 species of *Vochysia* found in Colombia is provided. A brief note on the ethnobotany of *Vochysia* in the Amazon basin is presented in an appendix.

**Keywords:** pluvial forest, Flora of Colombia, Valle del Cauca, *Vochysia*, Vochysiaceae

**Resumen.** *Vochysia carol-scottii* de los bosques pluviales del “Chocó biogeográfico,” una región megadiversa entre el Océano Pacífico y la vertiente de la cordillera occidental, departamento del Valle del Cauca, es descrita e ilustrada y sus relaciones morfológicas con sus especie afines son discutidas. Esta nueva especie es un árbol pequeño de 12 m de altura, que presenta similitudes morfológicas con cinco especies (*V. artantha*, *V. assua*, *V. calamana*, *V. cayennensis* y *V. tomentosa*) de la sección *Ciliantha*. Sin embargo, está más relacionada con *V. artantha*, de la cual difiere en sus hojas, inflorescencias, y en el tamaño del cáliz espolonado, los pétalos y el estambre. Se incluye una clave y una sinopsis de las 44 especies de *Vochysia* presentes en Colombia, y una nota breve sobre la etnobotánica de *Vochysia* en la cuenca Amazónica es presentada en un apéndice.

**Palabras clave:** bosques pluviales, Flora de Colombia, Valle del Cauca, *Vochysia*, Vochysiaceae

*Vochysia* Aublet (1775:18), encompassing 145 species, including the new species described herein, is the most diverse and representative genus in Vochysiaceae, a pantropical family (Kawasaki, 2007) of ca. 238 species and eight genera.<sup>4</sup>

*Vochysia* is a Neotropical genus found in southern Mexico (Chiapas, Oaxaca, Tabasco, and Veracruz states) through Central America, Colombia, Venezuela, Guianas, Ecuador, Peru, Brazil, Bolivia, and Paraguay (Marcano-Berti, 1998, 2005). It is represented by relatively few species in Mexico, Central America, the Andes, the Pacific region, and Southeast Brazil and has its highest diversity in the Amazon and Orinoco river basins and the Guayana Shield region (ca. 86 species; Marcano-Berti, 2014).

With regard to habit, some species of *Vochysia* are large trees that can be up to 50 m tall, with well-developed buttresses and wide crowns (e.g., *V. aurantiaca* Stafleu). However, several species are small trees, shrubs (e.g., *V. catingae* Ducke and *V. petraea* Warm.), or perennial herbs or undershrub (e.g., *V. herbacea* Pohl). The genus is characterized by its opposite or verticillate leaves, in whorls of 3, 4, or 5; stipules present, often deciduous, inflorescences thyrses or racemes, usually terminal; spurred calyx-lobe persistent; petals usually 3, yellow, sometimes 1–2 or absent; stamen in the plane of symmetry; stigma terminal or lateral; ovules 2 per locule, seeds 3, unilaterally winged (Stafleu, 1948; Marcano-Berti, 1998, 2005; Kawasaki, 2007).

*Vochysia* was monographed worldwide by Stafleu (1948),

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<sup>4</sup> Including the genus *Ruizterania* Marc.-Berti (Marcano-Berti, 1969), which in the past has been reduced to the synonymy of *Qualea* Aubl. (Litt, 1999; Sajo and Rudall, 2002; León, 2003; Kawasaki, 2007). However, anatomical and morphological evidence (Litt and Stevenson, 2003a,b) and a recent molecular phylogenetic study of Vochysiaceae (Gonçalves et al., 2020) showed that the monophyly of all genera was well supported, except for *Qualea*, which is divided into two monophyletic subclades, *Qualea* I and one that includes two equally monophyletic groups, with less support, *Qualea* II and *Ruizterania*, where *Qualea* II includes the type of the genus. On the basis of this phylogeny, the recognition of *Ruizterania* as a separate genus would render *Qualea* paraphyletic. These authors (Gonçalves et al., 2020) nonetheless indicated that “it is important to point out that not all species of *Ruizterania* and *Qualea* were sampled. Further investigation with expanded sampling is necessary to resolve their delimitation and monophyly.” The authors fully understand that *Ruizterania* is not tenable until further phylogenetic information supporting both it and *Qualea* as monophyletic groups is available, or unless the clade *Qualea* I in Gonçalves et al. (2020) is described as a separate genus. Nonetheless, the senior author maintains, on the basis of five decades of research on Vochysiaceae, that these two genera, *Qualea* and *Ruizterania*, are coherent sister groups rather than a paraphyletic assemblage, and that *Ruizterania* is a natural group, morphologically and unambiguously easy to separate from *Qualea*, on the basis of its spur exerted in bud, the lateral sepals not imbricated (vs. spur hidden in the bud by the lateral sepals), petal elliptic to obovate (vs. obcordate), stamen pseudolaminal, the connective indistinguishable from the filament (vs. stamen laminal, the connective distinguishable from the filament), and ovules 7 in each locule (vs. 4–24).

who divided the genus into three sections (*Ciliantha* Stafleu, *Pachyantha* Stafleu, and *Vochysiella* Stafleu) and eight subsections, recognizing 97 species and describing 14. Later, on the basis of vegetative and flower features, Marcano-Berti (2014) established the section *Apopetala*, to which he also transferred 9 species of section *Ciliantha* Stafleu.

Since F. A. Stafleu's contributions (1948, 1952a,b, 1954, 1955, 1957), 51 new species have been described, 1 has been reestablished, and 5 have been reduced to synonymy (for a review see Ulloa Ulloa et al., 2018 onward). The genus has been treated for the flora of the Guianas (Marcano-Berti, 1998), the flora of the Venezuelan Guayana (Marcano-Berti, 2005) and the *Manual de Plantas de Costa Rica* (Morales Quirós, 2015).

On the basis of our knowledge of this genus, we suspect that a new revision will reveal that several taxa described

before and after Stafleu's last monograph (1948) could be relegated to synonymy or perhaps treated at a rank below species.

The present contribution increases to 44 the number of *Vochysia* species known from Colombia. In this geographical and political context, we treat *V. guatemalensis* Donn. Sm. as different from *V. macrophylla* Stafleu and *V. calamana* Stafleu from *V. vismifolia* Spruce ex Warm.; we reduce *V. columbiensis* Marc.-Berti to the synonymy of *V. laxiflora* Stafleu, *V. gigantea* Stafleu to that of *V. aurantiaca* Stafleu, *V. megalantha* Stafleu to that of *V. duquei* Pilger, and *V. lopezpalaciosii* Marc.-Berti to that of *V. megalophylla* Stafleu.

This new species was detected during research on Vochysiaceae conducted by the senior author in the herbarium of the New York Botanical Garden (NY).

#### MATERIALS AND METHODS

This work is based on morphological (using a dissecting stereomicroscope) and herbarium studies in COAH, COL, GH, HUA, MER, MO, NY, PORT, and VEN (herbarium codes after Thiers, 2019). In addition, historical and current taxonomic literature on *Vochysia* was examined, in particular a monograph of the genus (Stafleu, 1948), the treatments of Vochysiaceae in the *Flora of Guianas* (Marcano-Berti, 1998) and the *Flora of the Venezuelan Guayana* (Marcano-Berti,

2005), and the checklist *Catálogo de plantas y líquenes de Colombia* (Marcano-Berti, 2016). Type specimens of *Vochysia* species involved in this study were examined using online images from JSTOR Global Plants (<https://plants.jstor.org/>). The specific terminology for vegetative characters, vestiture description, inflorescences, flowers, and fruit morphology follow Font-Quer (2001) and Harris and Harris (2006).

#### TAXONOMY

***Vochysia carol-scottii*** Marc.-Berti & Aymard. *sp. nov.* TYPE: COLOMBIA. Valle del Cauca: Buenaventura. Corregimiento Bajo Calima, Vereda San Isidro, km 39 of road to Bahía Málaga, zona de explotación forestal (Cartón de Colombia), Frente B1 ("Canalete"), 4°02'N, 76°58'W. 30–50 m 16 May 1989 (fl). Douglas C. Daly, Ricardo Callejas P. & Miryam Monsalve B. 5991 (Holotype: CUVC; Isotype: HUA, NY). Fig. 1–2.

*Arbor plus minusve 12 m alta. Folia opposita; stipulae circa 2.4 mm longae; petioli 1–1.1 cm longi, glabri; lamina elliptica, circa 9 cm longa et circa 4 cm lata, glabra; venis lateralibus plus minusve 16 in utroque semilimbo, sub angulo cum vena media plus minusve 63°. Inflorescentiae circa 16 cm longae. Cincinni 4-flori, circa 1.9 cm longi. Sepalo calcarato in anthesim 11–12 mm longo. Calcare circa 7.5 mm longo recto vel subincurvo. Petalis 3, inaequalibus; intermedia 2/3 minora stamini longitudini. Ovarium glabrum. Capsula glabra.*

*Trees 12 m high. Leaves opposite, glabrous to glabrescent above, loosely spread pubescent below with grayish appressed hairs, generally elliptic, ca. 9.2 × ca. 4.2 cm, apex obtuse-retuse; base acute, midvein impressed above, prominent below, main lateral veins ca. 16 on each side, subplane above, very slightly prominent above, slightly curved upward, at an angle of ca. 63° with the midvein; secondary lateral veins 0–1 between each pair of main secondary ones; remaining venation forms a network (reticulate) with meshes of different forms and sizes; marginal vein present near apical fourth of blade, margin slightly revolute, stipules triangular acuminate, ca. 2.4 mm long, petiole 1.0–1.1 cm long, glabrous to glabrescent. Inflorescence terminal, ca. 16 cm long; cincinni 4-flowered, ca. 1.9 cm long, peduncle 6.5–7.5 mm long, pedicels 4.5–5.0 mm long. Flower bud near*

anthesis ca. 1.8 mm wide near apical third, obtuse at apex; spurred sepal, including the hypanthium, 11–12 mm long at anthesis, spur ca. 7.5 mm × ca. 0.9 mm toward the central part, ca. 2 mm wide near base, straight to very slightly incurved, at an angle of 35°–60° with pedicel and 100°–130° with spurred sepal, spur plus spurred sepal arched to C-shape, smaller sepals subequal, ca. 3.3 mm long; petals 3, central petal canal-shape 2/3 shorter than the stamen, ciliate at obtuse apex, throughout pubescent on the dorsum, lateral petals, slightly shorter than central petal, with a narrow line of appressed hairs (along central part) dorsally, ciliate at apex, at least one of them with a little notch near apex; stamen 1, subrounded at apex, totally pubescent on the convex (posterior) side, pubescent on the concave (anterior) surface, except the thecae glabrous, anther, ca. 3.5 times longer than the filament, staminodes ciliate at apex, subtriangular, ca. 0.7 × ca. 0.5 mm at base, ca. 0.2 mm wide at truncated apex; ovary glabrous, style ca. 0.5 mm wide at base, ca. 0.6 mm wide at middle, ca. 0.7 mm wide at truncated apex, stigma subterminal, slightly pointed. Young fruit 10.1–20.0 × 3–4 mm, glabrous, dried black in herbarium specimens.

**Phenology:** this new species had been collected with flowers in bud in May and June, with young fruits in July.

**Etymology:** *Vochysia carol-scottii* is named after Scott A. Mori (1941–2020) and his wife Carol Gracie. Scott was one of the most distinguished botanists of the 20th and 21st centuries. His outstanding, productive career as a tropical botanist at the New York Botanical Garden and his notable interpersonal skills earned him the admiration and respect of students and colleagues, and emphasize the broad range of his scientific pursuits and accomplishments. The vernacular name "Soroga" was recorded in the specimen *M. Monsalve B. 1515*.





FIGURE 1. Holotype of *Vochysia carol-scottii* Marc.-Berti & Aymard (Daly, Callejas and Monsalve B. 5991, CUVC).

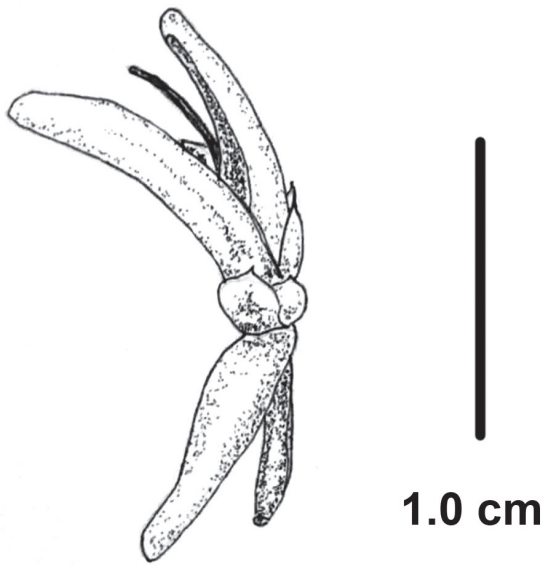


FIGURE 2. Sketch of a partial dissection of the flower of *Vochysia carol-scottii* Marc.-Berti & Aymard (drawn by Johanna Bakker Kalkman).

**Distribution and ecology:** the species is known to occur on primary or secondary pluvial forest on dissected terrain at 50–100 m elevation, in the type locality in the “Bajo Calima” region, Valle del Cauca department. These plant communities are common in the plains of western Colombia and northwestern Ecuador, areas that harbor some of the wettest forests in the world (Arellano-Peña and Rangel-Ch., 2004). This natural region is known as the biogeographical Chocó or “Chocó biogeográfico,” a broad strip of land found between the Pacific Ocean and the slopes of the Colombian Western Cordillera (Cuatrecasas, 1989; Rangel-Ch., 2004). The area includes sections of five ecoregions (Olson et al., 2001), and its plant diversity and number of endemic species are among the highest on earth (Gentry, 1986; WWF, 2019). It is one of the world’s biodiversity hotspots and yet is threatened by road building, degradation, and deforestation (Myers et al., 2000; WWF, 2019), as well as mining activities (Valois-Cuesta and Martínez-Ruiz, 2016).

**Additional specimens examined:** COLOMBIA. Valle del Cauca: Buenaventura. Corregimiento Bajo Calima, Concesión Pulpa Papel/Buenaventura, 3°55'N, 77°00'W. 100 m 03 June 1987 (fl). *Miryam Monsalve B. 1515* (CUVC); same locality: 27 July 1989 (fr). *Miryam Monsalve B. 3121* (CUVC).

**Conservation status:** currently, *Vochysia carol-scottii* is known only from three collections made at the type locality, and under IUCN (2017) guidelines that constitutes insufficient data to accurately determine its conservation status. Although conservation status assessments can still be carried out for species with such low numbers of collections (Rivers et al., 2011), it may be hard to determine whether an appearance of rarity in a species is due to the lack of data or to its actual rarity. Also, it is important to note that a species with such limited data actually can be endangered, and thus a reassessment will be needed when more data become available (Maas et al., 2019). Nonetheless, according to IUCN criteria (IUCN, 2017), this species would be ranked as Endangered (EN Alc) because the region of the type and additional specimens represents a small area where much of the forest has been removed in the last four decades.

Regardless, we expect this species to have a wider distribution along the wetter coastal forests of western Colombia and northwestern Ecuador, like numerous other taxa (e.g., *Cassipourea calimensis* Cuatr., *C. floribunda* Cuatr., and *Dacryodes granatensis* Cuatr.) that share the same habitats in the biogeographical Chocó natural region.

Because of its leaves opposite, petal pubescent on the abaxial side, stamen pubescent on both sides, staminodes ciliate, and ovary glabrous, *Vochysia carol-scottii* belongs in section *Ciliantha* subsection *Ferrugineae* (Stafleu, 1948; Marcano-Berti, 2016).

This new species is morphologically related to five other taxa of section *Ciliantha*—*Vochysia artantha* Stafleu, *V. assua* Stafleu, *V. calamana* Stafleu, *V. cayennensis* Warm., and *V. tomentosa* (G. F. W. Meyer) DC.—but it is most closely related to *V. artantha* from the middle Rio Vaupés basin of Colombia. Both species have stamen pubescent and glabrous ovary. However, *V. carol-scottii* differs from *V. artantha* and the other four species in the characters presented in Table 1 and in the key to the species below.

KEY TO THE COLOMBIAN SPECIES OF *VOCHYSIA*

1a. Ovary pubescent	2
1b. Ovary glabrous	9
2a. Corolla present	3
2b. Corolla absent	7
3a. Cincinni 1-flowered, petals ciliate at the apex	4
3b. Cincinni (1)–2- to 4-flowered; petals not ciliate at the apex	5
4a. Stigma terminal	<i>V. expansa</i>
4b. Stigma lateral	<i>V. diversa</i>
5a. Plants dried black in herbarium specimens; spurred sepal (including the hypanthium or calyx tube) 1.0–1.1 cm long at anthesis; inflorescence 1.6–1.8 cm long, cincinni 1- to 2-flowered; style glabrous; stigma (lateral part) 0.3 × 0.4–0.5 mm.	<i>V. obscura</i>
5b. Plants dried brown or green in herbarium specimens; spurred sepal (including the hypanthium or calyx tube) 1.2–1.6 cm long at anthesis; inflorescence 2.5–3.5 cm long, cincinni 2- to 4-flowered; style sparsely pubescent in the lower 1/3; stigma (lateral part) 1.0–1.2 × 0.8–1.0 mm	6
6a. Cincinni 2- to 3-flowered; spurred sepal (including the hypanthium or calyx tube) 1.2–1.3 cm long at anthesis; central petal slightly shorter than the stamen	<i>V. lehmannii</i>
6b. Cincinni 3- to 4-flowered; spurred sepal (including the hypanthium or calyx tube) 1.4–1.6 cm long at anthesis; central petal half as short to slightly shorter than the stamen.	<i>V. venezuelana</i>



KEY TO THE COLOMBIAN SPECIES OF *VOCHYSIA* CONT.

- 7a. Lower surface of leaf blade densely appressed-pubescent, with sessile or subsessile malpighiaceous trichomes . . . . . *V. pinkusii*  
 7b. Lower surface of leaf blade pubescent on the veins, trichomes 2-branched . . . . . 8  
 8a. Leaves opposite, 7–12 × 3–6 cm; spurred sepal (including the hypanthium or calyx tube) ca. 1.8 cm long at anthesis . . . . . *V. steyermarkiana*  
 8b. Leaves 3- to 4-verticillate, 23–27 × 11–13 cm; spurred sepal (including the hypanthium or calyx tube) 3.0–3.2 cm long at anthesis . . . . . *V. pachyantha*  
 9a. Corolla absent . . . . . 10  
 9b. Corolla present (1 or 3 petals) . . . . . 11  
 10a. Leaf blades 14–18 cm long; glabrous on both sides, submarginal vein lacking or the lateral veins irregularly joined near of margin forming a submarginal pseudovein . . . . . *V. megalophylla*  
 10b. Leaf blades 6–12 cm long, sparsely to subdensely adpressed-pubescent on the lower surface, trichomes 2-branched, sessile or subsessile; submarginal vein present . . . . . *V. punctata*  
 11a. Petal 1 . . . . . 12  
 11b. Petals 3 . . . . . 16  
 12a. Lower surface of leaf blade densely ferruginous pubescent tomentose, mostly along the midrib and secondary venation, trichomes ca. 2 mm; spurred sepal (including the hypanthium or calyx tube) no longer than 12 mm at anthesis; petal 1/3 shorter than stamen . . . . . *V. moskovitsiana*  
 12b. Lower surface of leaf blade glabrous, sparsely pilose to pilose, grayish-brownish, trichomes 0.5–1.0 mm long; spurred sepal (including the hypanthium or calyx tube) 15–24 mm long at anthesis; petal 2/3–4/5 shorter than stamen . . . . . 13  
 13a. Petiole 2–3 mm long; petal 4/5 shorter than stamen . . . . . *V. pacifica*  
 13b. Petiole 12–27 mm long; petal 2/3–3/4 shorter than stamen . . . . . 14  
 14a. Apex of the leaf blade subrounded-retuse; inflorescence ca. 4 cm long; spurred sepal (including the hypanthium or calyx tube) ca. 16 mm long, at anthesis . . . . . *V. jefensis*  
 14b. Apex of leaf blade acuminate or cuspidate. Inflorescence 9–30 cm long . . . . . 15  
 15a. Petiole 1.3–1.5 cm long; leaf blade 9.8–12.0 × 4.7–5.9 cm, apex acuminate, glabrous on the lower surface; inflorescence 9–13 cm long; staminal filament ca. 7 times shorter than anther; staminodes ciliate . . . . . *V. gentryi*  
 15b. Petiole 1.7–2.7 cm long; leaf blade 16.0–19.5 × 7.0–9.5 cm, elliptic oblong, apex cuspidate; sparsely adpressed pubescent on the entire lower surface; inflorescence 17–30 cm long, staminal filament ca. 5 times shorter than the anther; staminodes glabrous . . . . . *V. antioquiae*  
 16a. Stamen glabrous . . . . . 17  
 16b. Stamen ciliate or pubescent on one or both sides . . . . . 21  
 17a. Leaves opposite, lower surface of leaf blade densely adpressed-pubescent . . . . . *V. calophylla*  
 17b. Leaves 3- to 5-verticillate; lower surface of leaf blade glabrous, glabrescent on the midvein or sparsely patent pilose . . . . . 18  
 18a. Stigma lateral, 2-branched . . . . . *V. grandis* var. *uaupensis*  
 18b. Stigma terminal, not 2-branched . . . . . 19  
 19a. Apex of the leaf rounded to rounded-emarginate . . . . . *V. catingae*  
 19b. Apex of the leaf acute to acuminate . . . . . 20  
 20a. Margin of the leaf flat; no marginal vein present; spurred sepal at anthesis ca. 17 mm long . . . . . *V. guatemalensis*  
 20b. Margin of the leaf strongly revolute; marginal vein present; spurred sepal at anthesis ca. 7 mm long . . . . . *V. parviflora*  
 21a. Leaves opposite . . . . . 22  
 21b. Leaves 3- to 5-verticillate . . . . . 37  
 22a. Spurred sepal (including the hypanthium or calyx tube) 6.0–10.8 cm long at anthesis . . . . . 23  
 22b. Spurred sepal (including the hypanthium or calyx tube) 1.2–2.6 cm long at anthesis . . . . . 32  
 23a. Spur incurved-uncinate; leaf on the lower surface densely pubescent, mainly on the venation, with 2-branched trichomes, each with an erect or suberect end much longer than the other, nearly obsolete end; main lateral veins ca. 12 . . . . . *V. ferruginea*  
 23b. Spur straight or slightly curved; leaf on the lower surface glabrous or densely adpressed pubescent, with 2-branched sessile or subsessile trichomes; main lateral veins 15–20 . . . . . 24  
 24a. Leaf on the lower surface densely pubescent, with ferruginous trichomes . . . . . 25  
 24b. Leaf on the lower surface densely pubescent, with gray to pale golden trichomes . . . . . 29  
 25a. Apex of the leaf truncate-emarginate to bilobulate . . . . . *V. biloba*  
 25b. Apex of the leaf shortly acuminate, obtuse to obtuse-retuse . . . . . 26  
 26a. Petals glabrous; leaf blade with 2 submarginal veins . . . . . *V. elegans*  
 26b. Petals pubescent dorsally (at least the central one), leaf blade with 1 submarginal vein . . . . . 27  
 27a. Inflorescence 30–43 cm long; central petal cucullate, larger than the stamen and covering the apex of it . . . . . *V. splendens*  
 27b. Inflorescence 9–13 cm long; central petal 1/4 to 1/2 shorter than the stamen . . . . . 28  
 28a. Leaf blade 8–12 × 3.0–4.4 cm; inflorescence 5–10 cm long . . . . . *V. vismiifolia*  
 28b. Leaf blade 12–18 × 5.0–7.5 cm; inflorescence ca. 15 cm long . . . . . *V. casiquiarensis*  
 29a. Central petal 2/3 shorter than the stamen; lateral petals pubescent dorsally . . . . . *V. carol-scottii*  
 29b. Central petal as long as the stamen or 1/3 shorter than it; lateral petals glabrous dorsally, sometimes ciliate at the margin . . . . . 30  
 30a. Apex of the leaf blade obtuse-retuse to rounded-retuse . . . . . *V. angustifolia*  
 30b. Apex of the leaf blade acute to acuminate . . . . . 31  
 31a. Apex of the leaf blade acute; central petal as long as the stamen, sparsely pubescent dorsally . . . . . *V. artantha*  
 31b. Apex of the leaf blade acuminate; central petal covers ca. 2/3 of the stamen, with a narrow strip of adpressed trichomes at the central portion dorsally, glabrous at the borders . . . . . *V. calamana*

KEY TO THE COLOMBIAN SPECIES OF *VOCHYSIA* CONT.

32a. Leaf blade glabrous on both surfaces; main lateral veins 24–26	33
32b. Leaf blade pubescent on lower surface; main lateral veins 13–18	34
33a. Spur sepal 2.4–2.6 cm long; central petal 4.7–5.8 mm long; staminodes ciliate at the base	<i>V. garcia-barrigae</i>
33b. Spur sepal ca. 1.8 cm long; central petal ca. 3 mm long; staminodes glabrous	<i>V. complicata</i>
34a. Spur inflate, almost as long as wide	<i>V. densiflora</i>
34b. Spur not inflate, 4–7 times longer than wide	35
35a. Leaf blade 14–21 × 4.5–9.0 cm; inflorescence 30–60 cm long	<i>V. saccata</i>
35b. Leaf blade 6.5–13.0 × 2.5–4.0 cm; inflorescence no longer than 26 cm	36
36a. Main lateral veins 10–15	<i>V. calamana</i>
36b. Main lateral veins 20–25	<i>V. allenii</i>
37a. Leaves 3-verticillate	38
37b. Leaves 4- to 5-verticillate	41
38a. Central petal glabrous, glabrous or ciliate dorsally, ciliate at the margin	39
38b. Central petal pubescent dorsally	40
39a. Leaf blade densely adpressed ferruginous pubescent on the entire lower surface	<i>V. elegans</i>
39b. Leaf blade densely sparsely gray pilose along the midrib on the lower surface	<i>V. macrophylla</i>
40a. Leaf blade 1–2 times longer than wide; central petal spatulate, ca. 2/3 as long as the stamen	<i>V. bracerliniae</i>
40b. Leaf blade 3–4 times longer than wide; central petal obovate, ca. 3/4 as long as the stamen	<i>V. magna</i>
41a. Staminodes ciliate	42
41b. Staminodes glabrous	45
42a. Spur strongly incurved	<i>V. spathiphylla</i>
42b. Spur straight to slightly recurved	43
43a. Leaf blade broadly obovate, 1–2 times longer than wide; central petal ca. 2/3 as long as the stamen	<i>V. bracerliniae</i>
43b. Leaf blade spatulate or obovate, ca. 4 times longer than wide; central petal as long as the stamen	44
44a. Main lateral veins 20–25; stipules ca. 2 mm long; inflorescence densiflorous, cincini 2-flowered	<i>V. lomaphylla</i>
44b. Main lateral veins not more than 16; stipules 4–6 mm long; inflorescence laxiflorous, cincini 3-flowered	<i>V. laxiflora</i>
45a. Cincini 1- to 2-flowered; central petal slightly to strongly cucullate	<i>V. aurantiaca</i>
45b. Cincini 1-flowered; central petal not cucullate	46
46a. Young branchlets, stipules, and leaves on both surfaces glabrous	<i>V. meridensis</i>
46b. Young branchlets and stipules pilose; leaves sparsely pilose on the lower surface, mainly on the venation	<i>V. duquei</i>

TABLE 1. Comparison of diagnostic morphological characters of *Vochysia carol-scottii* and closely related species.

CHARACTER	<i>V. ARTANTHA</i>	<i>V. ASSUA</i>	<i>V. CALAMANA</i>	<i>V. CAROL-SCOTTII</i>	<i>V. CAYENNENSIS</i>	<i>V. TOMENTOSA</i>
Leaves	Elliptic or sub-oblongate, 10–12 × 3–4 cm	Elliptic or elliptic-lanceolate, 7–10 × 2.5–3.5 cm	Elliptic, 8–10 × 3–4 cm	Elliptic, ca. 9.2 × ca. 4.2 cm	Elliptic or oblong 6.0–7.5 × 2.5–3.5 cm	Elliptic, 6–8 × 2–3 cm
Lateral nerves	Ca. 10; angle with the midrib 40°–50°	14–20; angle with the midrib ca. 70°	10–15; angle with the midrib 45°–60°	Ca. 16; angle with the midrib ca. 63°	14–18; angle with the midrib ca. 60°	9–13; angle with the midrib 50°–60°
Cincinni	1- to 2-flowered	1- to 2-flowered	1- to 2-flowered	4-flowered	1- to 2-flowered	1- to 2-flowered
Spurred sepal (including the hypanthium or calyx tube) at anthesis	Ca. 1.4 cm long	1.4–1.5 cm long	Ca. 1.3 cm long	1.1–1.2 cm long	1.6–1.9 cm long	Ca. 1.2 cm long
Central petal	As long as the stamen, sparsely pilose dorsally, not ciliate at the apex	1/5 shorter than stamen, glabrous, ciliate at the apex	1/2 as long as stamen or 1/3 shorter, with a narrow band of appressed hairs dorsally, ciliate at the apex	1/3 shorter than stamen, densely pubescent on back, with a narrow band of appressed hairs dorsally, ciliate at the apex	1/5 shorter than stamen, glabrous	Elliptic-oblong, as long as the stamen or 1/3 shorter, pilose

SYNOPSIS OF THE COLOMBIAN SPECIES OF *VOCHYSIA*

*Vochysia allenii* Standl. & L.O. Williams, Ceiba 3(2): 119. 1952. TYPE: COSTA RICA. Puntarenas: pastures near Esquinas, 80 m, 15 June 1951, *Paul H. Allen 6256* (Holotype: US; Isotypes: EAP, F, GH).

**Habitat and ecology:** tree up to 25 m tall; pluvial lowland to montane forests. At elevations of 50–1000 m.

**Distribution:** Colombia (Chocó, Valle), Nicaragua, Costa Rica, and Panamá.

*Vochysia angustifolia* Ducke, Bull. Mus. Hist. Nat. (Paris) sér 2, 4: 738. 1932. TYPE: BRAZIL. Amazonas: Ad ripas fluminis Curicuriary affl. Rio Negro superioris, 20 November 1929, *Walter A. Ducke s.n.* (Holotype: RB [RG2499]; Isotypes: G, K, NY, P, S, U, US).

Heterotypic synonym: *Vochysia javitensis* Stafleu, Recueil Trav. Bot. Néerl. 41: 509. 1948. TYPE: VENEZUELA. Amazonas: Yavita, along río Temi, 31 January 1931, *Llewelyn Williams 14118* (Holotype: F; Isotypes: G, NY, RB, US).

**Habitat and ecology:** tree 3–20 m tall; evergreen riparian forests and high Amazon Caatinga forests. At elevations of 100–200 m.

**Distribution:** Colombia (Amazonas, Caquetá, Guanía), Venezuela, and Brazil.

*Vochysia antioquiiae* Sanoja & Marc.-Berti, Acta Bot. Venez. 29(2): 258–261. 2006. TYPE: COLOMBIA. Antioquia: San Carlos, alto de Samaná, Vereda Miraflores, finca “El Desespero,” en el camino a Jardín, 6°05'N, 74°50'W, *Ricardo Callejas P., Francisco J. Roldán & Iván D. Castaño 8585* (Holotype: HUA; Isotype: NY).

**Habitat and ecology:** tree 15–30 m tall; evergreen montane forests. At elevations of 750–890 m.

**Distribution:** Colombia (Antioquia). Endemic.

*Vochysia artantha* Stafleu, Acta Bot. Neerl. 6: 342. 1957. TYPE: COLOMBIA. Vaupés: Vicinity of Mitú, 21 March 1945, *Paul H. Allen 3347* (Holotype: US; Isotypes: MO, NY)

**Habitat and ecology:** tree up to 30 m tall; evergreen nonflooded forests. At elevations of 50–150 m.

**Distribution:** Colombia (Vaupés). Endemic.

*Vochysia aurantiaca* Stafleu, Recueil Trav. Bot. Néerl. 41: 487. 1948. TYPE: COLOMBIA. Magdalena: Santa Marta, near Valparaiso, 5°46'30"N, 74°20'30"W, 1200 m, 1898–1901, *Herbert H. Smith 1877* (Holotype: NY; Isotypes: BM, BR, G, GH, K, L, MO, P, S).

Heterotypic synonym: *Vochysia gigantea* Stafleu, Recueil Trav. Bot. Néerl. 41: 489. 1948. TYPE: COLOMBIA. Boyacá. Mt. Chapón, 1200 m, *Alexander E. Lawrance 275* (Holotype: NY; Isotypes: A, BM, E, F, G, K, MO, S, US).

**Habitat and ecology:** tree 15–30 m tall; evergreen montane forests. At elevations of 1000–2200 m.

**Distribution:** Colombia (Boyacá, Cundinamarca, Magdalena, Meta, Putumayo), Venezuela, Ecuador, Perú, and Bolivia.

*Vochysia biloba* Ducke, Arq. Inst. Biol. Veg. 2(1): 52. 1935. TYPE: BRAZIL. Amazonas: Sao Paulo de Olivença, 30 November 1934, *Walter A. Ducke 24080* (Holotype: RB; Isotypes: K, NY, P, S, U, US).

**Habitat and ecology:** tree up to 30 m tall; evergreen nonflooded to montane forests. At elevations of 50–1120 m.

**Distribution:** Colombia (Amazonas, Putumayo), Brazil, Ecuador, Perú, and Bolivia.

*Vochysia braceliniae* Standl., Publ. Field Mus. Nat. Hist., Bot. Ser. 22: 149. 1940. TYPE: PERÚ. Loreto: near Yurimaguas, trail to San Ramón, 180 m 25 October 1931, *Ynés E. J. Mexía 6081* (Holotype: F; Isotypes: BM, FI, G, GB, GH, K, LA, MICH, MO, NY, PH, RSA, S, TEX, U, UC, US).

**Habitat and ecology:** tree up to 25 m tall; evergreen nonflooded to montane forests. At elevations of 100–1300 m.

**Distribution:** Colombia (Antioquia, Caquetá, Guaviare, Meta, Putumayo), Ecuador, and Perú.

*Vochysia calamana* Stafleu, Rec. Trav. Bot. Neerl. 41: 498. 1948. TYPE: BRAZIL. Amazonas: Rio Madeira near Calama, 01 January 1931, *Boris A. Krukoff 1299* (Holotype: BM; Isotypes: A, G, K, NY, P, S, U).

**Habitat and ecology:** tree up to 20 m tall; evergreen nonflooded forests. At elevations of 100–200 m.

**Distribution:** Colombia (Amazonas), Brazil.

*Vochysia calophylla* Spruce ex Warm. In Mart., Fl. Bras. 13(2): 98, t. 18, fig 1. 1875. TYPE: COLOMBIA or VENEZUELA. Amazonas: Along the Guainia river, above the mouth of the Casiquiare. 01 January 1854, *Richard Spruce 3538*, Holotype: K; Isotypes: BM, BR, F, G, GH, GOET, LD, NY, P, W).

**Habitat and ecology:** tree 3–15 m tall; seasonally flooded forests along black-water rivers. At elevations of 50–200 m.

**Distribution:** Colombia (Guanía), Brazil, and Venezuela.

*Vochysia carol-scottii* Marc. Berti & Aymard. TYPE: COLOMBIA. Valle del Cauca: Buenaventura, corregimiento Bajo Calima, vereda San Isidro, km. 39 of road to Bahia Málaga, zona de explotación forestal (Cartón de Colombia), Frente B1 (“Canalete”), 4°02'N, 76°58'W. 30–50 m 16 May 1989, *D. C. Daly, Ricardo Callejas & Miryam Monsalve 5991* (Holotype: CUV; Isotype: HUA, NY).

**Habitat and ecology:** tree 12 m tall; pluvial lowland forests. At elevations of 30–100 m.

**Distribution:** Colombia (Valle). Endemic.

*Vochysia casiquiarensis* (as “*cassiquiarensis*”) Stafleu, Acta Bot. Neerl. 3: 405. 1954. TYPE: VENEZUELA. Amazonas: San Jose do Cassiquiare, 12 December 1945, *Ricardo de L. Froes 21503* (Holotype: K; Isotypes: F, K, NY, US).

The epithet of *Vochysia cassiquiarensis* Stafleu is misspelled, with a double “s”. This spelling is corrected

here according to Art. 60.7 of the current International Code of Nomenclature for algae, fungi, and plants (Turland et al., 2018).

**Habitat and ecology:** tree 3–15 m tall; seasonally flooded forests. At elevations of 50–200 m.

**Distribution:** Colombia (Caquetá, Guanía?), Brazil?, and Venezuela.

*Vochysia catingae* Ducke, Arq. Inst. Biol. Veg. 4: 33. 1938. TYPE: BRAZIL. Amazonas: Ad ripas fluminis Curicuriary affl. Rio Negro superioris, 26 February 1936, *Walter A. Ducke s.n.* (Holotype: RB [RG34651]; Isotypes: G, K, U, US).

**Habitat and ecology:** shrub or tree 3–10 m tall; seasonally flooded margins of black-water rivers, scrub savannas on granitic outcrops. At elevations 50–200 m

**Distribution:** Colombia (Guanía, Vichada), Brazil, and Venezuela.

*Vochysia complicata* Ducke, Bull. Mus. Hist. Nat. (Paris) sér 2, 4: 738. 1932. TYPE: BRAZIL. Amazonas: Manaus, 29 October 1929, *Walter A. Ducke s.n.* (Holotype: BR [RB23498]; Isotypes: G, K, P, S, U, US).

**Habitat and ecology:** tree 15–30 m tall; seasonally flooded forests along black-water rivers. At elevations of 100–200 m.

**Distribution:** Colombia (Guainía, Vaupés), Brazil, and Venezuela.

*Vochysia densiflora* Spruce ex Warm., In Mart., Fl. Bras. 13(2): 101. 1875. TYPE: BRAZIL. Amazonas: Panure, ad Rio Uaupes, 1852–1853, *Richard Spruce 2627* (Holotype: K; Isotypes: BM, BR, C, G, GH, K, NY, OXF, P, US, W).

**Habitat and ecology:** tree up to 30 m tall; unflooded and high Amazon Caatinga forests. At elevations of 100–300 m.

**Distribution:** Colombia (Amazonas, Vaupés), Brazil, and the Guianas.

*Vochysia diversa* J.F. Macbr., Publ. Field Mus. Nat. Hist., Bot. Ser. 11: 67. 1931. TYPE: PERÚ. Loreto: Mishuyacu, near Iquitos, December 1929, *Guillermo Klug 685* (Holotype: F; Isotypes: G, NY, US).

**Habitat and ecology:** tree up to 30 m tall; lowland to submontane evergreen forests. At elevations of 100–550 m.

**Distribution:** Colombia (Caquetá), Brazil, and Perú.

*Vochysia duquei* Pilg. in Burret, Notizbl. Bot. Gart. Berlin-Dahlem 13: 498. 1937. TYPE: COLOMBIA. Valle: Cuenca del río Cali, 1600 m, August 1936, *J. M. Duque Jaramillo 55* (Holotype B?; Isotype: US).

Heterotypic synonym: *Vochysia megalantha* Stafleu, Recueil Trav. Bot. Néerl. 41: 485 1948. TYPE: COLOMBIA. Santander [“Cauca” in the protologue]: Portachuelo, 1851, *José J. Triana 3783* (Holotype; G; Isotypes: BM, K, P, W).

The protologue specimen citation includes a misspelling in the main locality (which should be Portachuelo, not Portachueto) and the wrong department (which should be Santander, not Cauca), both corrected here. With regard to the latter, Acuña (2011) reported that in 1851 José J. Triana collected in Santander department, not in Cauca.

**Habitat and ecology:** tree up to 30 m tall; evergreen montane forests. At elevations of 1100–2400 m.

**Distribution:** Colombia (Antioquia, Bolívar, Cundinamarca, Huila, La Guajira, Norte de Santander, Santander, Valle), Ecuador, and Perú.

*Vochysia elegans* Stafleu, Acta Bot. Neerl. 3: 405, fig. 1c–d. 1954. TYPE: BRAZIL. Amazonas: Rio Negro, Uarurá, acima de Uananacá, 03 March 1936, *Walter A. Ducke s.n.* (Holotype: U; Isotypes: RB [RB34656], G, K, P, S, U, US).

**Habitat and ecology:** tree up to 25 m tall; evergreen lowland forests. At elevations of 100–200 m.

**Distribution:** Colombia (Caquetá, Guanía?), Brazil, and Venezuela.

*Vochysia expansa* Ducke, Arq. Inst. Biol. Veg. 4(1): 32. 1938. TYPE: BRAZIL. Amazonas: Ad ripas fluminis Curicuriary affl. Rio Negro superioris, 23 February 1936, *Walter A. Ducke s.n.* (Holotype: RB [RG34655]; Isotypes: G, K, NY, P, S, U, US).

**Habitat and ecology:** tree up to 18 m tall; high Amazon Caatinga forests. At elevations of 100–200 m.

**Distribution:** Colombia (probably in Guanía department), Venezuela (San Carlos de Río Negro, Amazonas state), and Brazil.

*Vochysia ferruginea* Mart., Nov. Gen. Sp. Pl. 1: 151. 1824 [1826]. TYPE: BRAZIL. Amazonas: Provinciae Rio Negro, Sylvis at Pagum ad Coari, November 1819, *Carl F. P. von Martius 2861* (Holotype: M; Isotypes: K, L).

Homotypic synonyms: *Cucullaria ferruginea* (Mart.) Spreng., Syst. Veg. 4(cur. post.): 9. 1827.

*Vochysia ferruginea* (Mart.) Standl. in Britton & Rose, N. Amer. Fl. 25: 302. 1924.

**Habitat and ecology:** tree 6–22 m tall; evergreen lowland to montane forests, riparian forests, secondary forests-savannas border. At elevations of 50–1600 m.

**Distribution:** Colombia (Amazonas, Antioquia, Chocó, Cundinamarca, Guainía, Guaviare, Meta, Nariño, Norte de Santander, Santander, Tolima, Valle, Vaupés, Vichada), Honduras, Nicaragua, Costa Rica, Panamá, Venezuela, Guyana, Ecuador, Perú, Brazil, and Bolivia.

*Vochysia garcia-barrigae* Marc.-Berti, Pittieria 1: 2. 1967. TYPE: COLOMBIA. Vaupés: Río Kananarí y Cerro Isibukuri, 250 m, 29–30 Noviembre 1951, *Hernando García-Barriga 13781* (Holotype: MER; Isotype: COL).

**Habitat and ecology:** tree up to 30 m tall; evergreen lowland forests. At elevations of 100–250 m.

**Distribution:** Colombia (Caquetá, Vaupés). Endemic.

*Vochysia gentryi* Marc.-Berti, Pittieria 20: 113. 1993. TYPE: COLOMBIA. Chocó: lower slopes of Serranía del Darién, west of Ungría, 600–800 m, 17 July 1975, *Alwyn H. Gentry & Luis E. Aguirre 15241* (Holotype: MER; Isotypes: COL, MO).

**Habitat and ecology:** tree up to 30 m tall; evergreen montane forests. At elevations of 600–800 m.

**Distribution:** Colombia (Chocó), Costa Rica, and Panamá.



*Vochysia grandis* Mart. var. *uaupensis* Warm. in Mart. Fl. Bras. (Martius) 13(2): 75. 1875. TYPE: BRAZIL. Amazonas: Rio Uaupes near Panure, 01 October 1852, *Richard Spruce 2657* (Holotype: K; Isotypes: BM, BR, C, G-BOIS, GH, K, NY, OXF, P, W).

**Habitat and ecology:** tree up to 35 m tall; evergreen lowland forests and high Amazon Caatingas. At elevations of 100–200 m.

**Distribution:** Colombia (Guianía, Vaupés), Brazil, and Venezuela.

*Vochysia guatemalensis* Donn.Sm., Bot. Gaz. 12: 131; 13: 299. 1887. TYPE: GUATEMALA. Alta Verapaz: in the mountain forests of Pansamala, 1200 m, June 1886, *Hans von Türckheim 943* (Holotype: US; Isotypes: A, F, G, GH, K, M, MO, NY, P, PH).

**Habitat and ecology:** tree up to 25 m tall; evergreen lowland to montane forests. At elevations of 5–1600 m.

**Distribution:** Colombia (Chocó), México, Belice, Guatemala, Honduras, Nicaragua, Costa Rica, Panamá, and Ecuador.

*Vochysia jefensis* A. Robyns Ann. Missouri Bot. Gard. 54(2): 188–189. 1967. TYPE: PANAMA. Panamá: Cerro Jefe (summit), 9°14'02"N, 79°22'30"W, 900 m, 12 March 1967, *John D. Dwyer, G. W. Gauger & Richard K. Baker 7269* (Holotype: MO; Isotype: US).

**Habitat and ecology:** shrub or tree up to 25 m tall; evergreen montane forests. At elevations of 700–1600 m.

**Distribution:** Colombia (probably in Chocó department), Panamá (just along the Colombian-Panamanian border, in Cerro Mali, Darién).

*Vochysia laxiflora* Stafleu, Acta Bot. Neerl. 3: 407, 1954. TYPE: COLOMBIA. Vaupés: Río Apaporis, entre los ríos Kananarí y Pacoa, 250 m, 1–15 December 1951, *Hernando García Barriga 13841* (Holotype: US; Isotypes: COL, ECON).

Heterotypic synonym: *Vochysia columbiensis* Marc.-Berti, Pittieria 1: 8. 1967. TYPE: COLOMBIA. Vaupés: Río Kananari (affluent of Río Apaporis), Cerro Isibukuri, 04 December 1951, *Richard E. Schultes & Isodoro Cabrera 14704a* (Holotype: MER; Isotypes: COL, GH).

**Habitat and ecology:** tree 9–25 m tall; evergreen forests. At elevations ca. 250 m.

**Distribution:** Colombia (Caquetá, Guianía, Vaupés), Venezuela.

*Vochysia lehmannii* Hieron., Bot. Jahrb. Syst. 20(3, Beibl. 49): 38. 1895. TYPE: COLOMBIA. Tolima: prope El Carmén, Purificación, Cundai et Dolores, 500–1000 m, without date, *Friedrich C. Lehmann 7427* (Holotype K; Isotype: F).

**Habitat and ecology:** tree 5–35 m tall; deciduous to evergreen lowland and montane forests, along the rivers and streams (gallery forests) and savannas-forests border. At elevations of 20–1700 m.

**Distribution:** Colombia (Arauca, Bolívar, Casanare, Cundinamarca, Guaviare, Magdalena, Meta, Norte de Santander, Santander, Tolima), Brazil, Venezuela, and Perú.

*Vochysia lomatoxylla* Standl., Publ. Field Mus. Nat. Hist., Bot. Ser. 22: 150. 1940. TYPE: PERÚ. Loreto: Gamitanacocha, Río Mazán, 100–125 m, 13 January 1935, *José M. Schunke V. 14* (Holotype F; Isotype: US).

**Habitat and ecology:** tree 5–25 m tall; evergreen lowland riverine and “terra firme” forests. At elevations of 100–1000 m.

**Distribution:** Colombia (Amazonas, Caquetá, Guaviare, Putumayo, Vaupés), Ecuador, Perú, Brazil, and Bolivia.

*Vochysia macrophylla* Stafleu, Recueil Trav. Bot. Néerl. 41: 469. 1948. TYPE: COLOMBIA. Chocó: Quibdó, río Atrato, 60 m, April-May 1931, *William R. Archer 1889* (Holotype: US; Isotype: NY).

**Habitat and ecology:** tree ca. 15 m tall; pluvial lowland forests. At elevations of 60–100 m.

**Distribution:** Colombia (Chocó). Endemic.

*Vochysia magna* Stafleu, Recueil Trav. Bot. Néerl. 41: 502. 1948. TYPE: COLOMBIA. Boyacá: El Humbo, 130 miles North of Bogotá, 5°35'55"N, 74°16'15"W, 1300 m, 12 April 1933, *Alexander E. Lawrence 747* (Holotype: G; Isotypes: F, K, S).

**Habitat and ecology:** tree 20–50 m tall; evergreen montane forests. At elevations of ca. 1300 m.

**Distribution:** Colombia (Boyacá). Endemic.

*Vochysia megalophylla* Stafleu, Acta Bot. Neerl. 3(3): 407. 1954. TYPE: COLOMBIA. Santander: Mesa de los Santos, 1500 m, 11–15 December 1926, *Ellsworth P. Killip & Albert C. Smith 15276* (Holotype: NY; Isotypes: A, GH).

Heterotypic synonym: *Vochysia lopezpalaciosii* Marc.-Berti Pittieria 20: 112–113. 1993. TYPE: COLOMBIA. Santander: Mesa de los Santos, 6°52'00"N, 73°03'00"W, 1100–1300 m, 06 August 1968, *Lorenzo Uribe-Urbe 6156* (Holotype: MER; Isotype: NY).

**Habitat and ecology:** tree up to 25 m tall; evergreen montane forests. At elevations of 1000–1500 m.

**Distribution:** Colombia (Santander), Costa Rica, Panamá, and Venezuela.

*Vochysia meridensis* Marc.-Berti, Pittieria 10: 11. 1982. TYPE: VENEZUELA. Mérida: La Carbonera, carretera Mérida–La Azulita, *Luis B. Marcano-Berti 1188* (Holotype: MER).

**Habitat and ecology:** tree up to 30 m tall; evergreen montane forests. At elevations of 1900–2600 m.

**Distribution:** Colombia (Cundinamarca, Norte de Santander), Venezuela, Ecuador, and Perú.

*Vochysia moskovitsiana* Huamantupa, Phytotaxa 277(3): 293. 2016. TYPE: ECUADOR. Pastaza: Pozo petrolero “Moretecocha” de Arco, río Landayacu, 75 km al este de Puyo, 1°34'S, 77°25'W, 580 m, 4 December 1990, *Edgar Gudiño 1190* (Holotype: QCNE; Isotype: MO).

**Habitat and ecology:** tree up to 40 m tall; evergreen submontane and montane forests. At elevations of 400–1000 m.

**Distribution:** Colombia (Putumayo), Ecuador, and Perú.

*Vochysia obscura* Warm. in Mart., Fl. Bras. 13(2): 73. 1875. TYPE: VENEZUELA. Amazonas: San Carlos, ad Rio Negro, October 1853, *Richard Spruce 3700* (Holotype: K; Isotypes: BM, E, P).

**Habitat and ecology:** tree 5–25 m tall; evergreen lowland, submontane and montane forests. At elevations of 50–1200 m.

**Distribution:** Colombia (Amazonas, Caquetá, Guainía, Guaviare, Meta, Vaupés, Vichada), Venezuela, Brazil, and Perú.

*Vochysia pachyantha* Ducke, Arq. Inst. Biol. Veg. 4(1): 36 1938. TYPE: BRAZIL. Amazonas: Ad ripas fluminis Curicuriary affl. Rio Negro superioris, 21 February 1936, *Walter A. Ducke s.n.* (Holotype [RG34653]: RB; Isotypes: G, K, NY, P, RB, S, U, US).

**Habitat and ecology:** tree up to 25 m tall; evergreen submontane forests. At elevations of ca. 600 m.

**Distribution:** Colombia (Putumayo), Brazil.

*Vochysia pacifica* Cuatrec., Revista Acad. Colomb. Ci. Exact. 6: 548. 1946. TYPE: COLOMBIA. Valle: Río Cajambre, 10 m, 09 May 1944, *José Cuatrecasas 17468* (Holotype: VALLE; Isotypes: F, U, US).

**Habitat and ecology:** tree 25–30 m tall; pluvial lowland forests. At elevations of 10–50 m.

**Distribution:** Colombia (Valle). Endemic.

*Vochysia parviflora* Spruce ex Warm. Flora Brasiliensis 13(2): 75. 1875. TYPE: BRAZIL. Amazonas: Rio Negro, inter Barcellos and Sta. Isabel, December 1851, *Richard Spruce 1974* (Holotype: K; Isotypes: BM, C, E, F, FI, G-BOIS, GH, K, LD, M, NY, OXF, P, RB, W).

**Habitat and ecology:** tree ca. 20 m tall; evergreen nonflooded forests. At elevations of 100–300 m.

**Distribution:** Colombia (Vaupés), Brazil.

*Vochysia pinkusii* A.C. Sm., Bull. Torrey Bot. Club 67: 288. 1940. TYPE: BRAZIL. Roraima: Maurukow Creek (tributary of Rio Cotinga), near Venezuelan boundary, 1350 m, 22 February 1939, *Albert S. Pinkus 167* (Holotype: NY; Isotypes: G, GH, IFI, K, NY, S, US).

**Habitat and ecology:** tree ca. 20 m tall; evergreen lowland to montane forests. At elevations of 100–1400 m.

**Distribution:** Colombia (Caquetá, Guainía), Venezuela, and Brazil (along the Venezuelan-Brazilian border in Roraima state).

*Vochysia punctata* Spruce ex Warm. In Mart., Fl. Bras. 13(2): 102. 1875. TYPE: BRAZIL. Amazonas: Rio Uaupes near Panure, 01 October 1852, *Richard Spruce 2675* (Holotype: K; Isotypes: BM, BR, G-BOIS, GH, NY, OXF, P, W).

**Habitat and ecology:** tree 15–30 m tall; evergreen lowland to submontane forests. At elevations of 100–450 m.

**Distribution:** Colombia (Amazonas, Caquetá, Guainía, Vaupés), Venezuela, Ecuador, and Brazil.

*Vochysia saccata* Stafleu, Recueil Trav. Bot. Néerl. 41: 508. 1948. TYPE: BRAZIL. Amazonas: Ad ripas fluminis Curicuriary affl. Rio Negro superioris, 23 November 1936, *Walter A. Ducke s.n.* – RG34654 (Holotype: U; Isotypes: G, K, P, S, U, US).

**Habitat and ecology:** tree up to 25 m tall; evergreen lowland to montane forests. At elevations of 100–1200 m.

**Distribution:** Colombia (Caquetá), Venezuela, and Brazil.

*Vochysia spathiphylla* Stafleu, Acta Bot. Neerl. 6: 341. 1957. TYPE: COLOMBIA. Vaupés: Cabeceras del río Cubiyu, 08 December 1943, *Paul H. Allen 3248* (Holotype: US).

**Habitat and ecology:** tree 15–30 m tall; evergreen lowland to montane forests. At elevations of 100–1700 m.

**Distribution:** Colombia (Vaupés), Venezuela, and Brazil.

*Vochysia splendens* Spruce ex Warm. In Mart., Fl. Bras. 13(2): 101. 1875. TYPE: BRAZIL. Amazonas: Rio Uaupes near Panure, 01 October 1852, *Richard Spruce 2697* (Holotype: K; Isotypes: BM, BR, G-BOIS, GH, NY, OXF, P, W).

**Habitat and ecology:** tree 15–30 m tall; evergreen riparian and “terra firme” lowland forests. At elevations of 100–200 m.

**Distribution:** Colombia (Amazonas, Caquetá, Guainía, Vaupés), Venezuela, and Brazil.

*Vochysia steyermarkiana* Marc.-Berti, Pittieria 13: 10. 1986. TYPE: VENEZUELA. Amazonas: Yavita, 110 m, *Llewelyn Williams 14162* (Holotype: MER; Isotypes: G, NY, VEN).

**Habitat and ecology:** tree 15–25 m tall; evergreen “terra firme” lowland forests and high Amazon Cattinga. At elevations of 100–200 m.

**Distribution:** Colombia (Guainía), Venezuela.

*Vochysia venezuelana* Stafleu, Recueil Trav. Bot. Néerl. 41: 437. 1948. TYPE: VENEZUELA. Bolívar: Lower Caura river, 50–80 m, 07 February 1939, *Llewelyn Williams 11200* (Holotype: F; Isotypes: S, US).

**Habitat and ecology:** tree 5–20 m tall; deciduous to evergreen lowland and montane forests, along the rivers and streams (gallery forests) and savannas-forests border. At elevations of 20–1200 m.

**Distribution:** Colombia (Arauca, Bolívar, Casanare, Cundinamarca, Guaviare, Meta, Vichada), Venezuela.

*Vochysia vismüfolia* Spruce ex Warm. In Mart., Fl. Bras. 13(2): 99. 1875. TYPE: BRAZIL. Amazonas: Manaos, 1851, *Richard Spruce 1823* (Holotype: K; Isotypes: BM, C, G, GH, NY, OXF, P, W).

**Habitat and ecology:** tree 15–30 m tall; evergreen lowland to montane forests. At elevations of 100–1300 m.

**Distribution:** Colombia (Caquetá, Chocó, Guaviare, Guainía, Putumayo, Valle, Vaupés, Vichada), Venezuela, Brazil, Ecuador, Perú, and Bolivia.

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#### APPENDIX

The ethnobotany of *Vochysia* has been largely ignored in monographs and recent nomenclatural contributions. However, information on this topic is relatively well known due to R. E. Schultes's research from the 1950s to the 1970s. Schultes (1977) reported that, along the Piriparaná River (Vaupés, Colombia), members of the Maku nation prepare poison for arrows from the bark of *V. columbiensis* Marc.-Berti (treated here as a synonym of *V. laxiflora* Stapf) as a curare substitute. He also recorded use of the decoction of the bark of *V. ferruginea* Mart. by the Kubeo people from the Querarí River (Vaupés, Colombia) to wash ulcering sores on the legs, and their use of the dried and powdered leaves added to coca (*Erythroxylon coca* Lam.) in the belief that they are beneficial for sores of the mucous membrane of the mouth and gums. The Puinave Indians call *V. laxiflora* by the same name ("Po-ho-glo") that they use for *V. ferruginea*, although they easily recognize the two as different; they do not use

it medicinally (Schultes, 1977). The several Indian tribes (Taiwanos, Barasanas, and Makunas) residing in the middle Apaporis River region (Vaupés, Colombia), on the contrary, value *Vochysia laxiflora* for several therapeutic purposes: its leaves are boiled with the leaves of coca (*E. coca*) to prepare a tea "when urination is painful or impossible"; and the bark, dried and finely powdered, is rubbed into skin sores that will not react to more common treatments with various washes. The bark is also thrown on fires and the acrid smoke thus produced is vigorously inhaled to relieve asthmatic and other respiratory ailments (Schultes, 1977).

Finally, Schultes (1977) also reported that the Barasana Indians from the Pacoa River (Vaupés, Colombia) gave the pulverized leaves and bark of a tree called "ka-kwee-gaw-ya" (*V. lomatophylla*) to pregnant women in warm *chicha* as an abortifacient, and that it "was formerly used for this purpose."