
Novae Gesneriaceae Neotropicarum XVII: New Combinations and Typifications

John L. Clark,^{1,2} Laurence E. Skog,² and Fred R. Barrie³

¹Department of Biological Sciences, The University of Alabama, Box 870345, Tuscaloosa, Alabama 35487-0345, U.S.A. jlc@ua.edu

²Department of Botany, MRC-166, National Museum of Natural History, Smithsonian Institution, P.O. Box 37012, Washington, DC 20013-7012, U.S.A. skogl@si.edu

³Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166, U.S.A. Corresponding address: Department of Botany, Field Museum of Natural History, 1400 S. Lake Shore Drive, Chicago, Illinois 60605, U.S.A. fbarrie@fieldmuseum.org

ABSTRACT. Fieldwork and current research projects in Central and South America on the Gesneriaceae have shown that nomenclatural and taxonomic changes are needed. The Ecuadorian endemic species *Columnnea albovinosa* (M. Freiberg) J. L. Clark & L. E. Skog is transferred from *Dalbergaria* Tussac. The name *Pentadenia lutea* M. Freiberg is synonymized with *C. angustata* (Wiehler) L. E. Skog. *Amalophyllon ecuadoranum* (Wiehler) J. L. Clark, comb. nov., is recognized as a species distinct from *A. divaricatum* (Poepp.) Boggan, L. E. Skog & Roalson. The application of the name *C. serrata* (Klotzsch ex Oerst.) Hanst. is stabilized by the designation of a neotype. The new name *Drymonia ovatifolia* J. L. Clark is made for the species *Nautilocalyx dressleri* Wiehler. *Resia bracteata*, a name originally published without a Latin diagnosis, is here validly published as *R. bracteata* J. L. Clark & L. E. Skog.

RESUMEN. El trabajo de campo en Gesneriaceae realizado en Centro y Sur América, ha evidenciado la necesidad de realizar algunos cambios taxonómicos y nomenclaturales. *Columnnea albovinosa* (M. Freiberg) J. L. Clark & L. E. Skog, especie endémica de Ecuador, se transfiere de *Dalbergaria* Tussac. *Pentadenia lutea* M. Freiberg es sinonimizada con *C. angustata* (Wiehler) L. E. Skog. Se reconoce a *Amalophyllon ecuadoranum* (Wiehler) J. L. Clark, comb. nov., como una especie diferente de *A. divaricatum* (Poepp.) Boggan, L. E. Skog & Roalson. Para preservar la estabilidad de la especie se designa un neotipo para *C. serrata* (Klotzsch ex Oerst.) Hanst. Se crea un nuevo nombre, *Drymonia ovatifolia* J. L. Clark, para la especie *Nautilocalyx dressleri* Wiehler. La especie *Resia bracteata*, originalmente publicada sin la diagnosis en latín, es válidamente publicada como *R. bracteata* J. L. Clark & L. E. Skog.

Key words: *Alloplectus*, *Amalophyllon*, Colombia, *Columnnea*, Costa Rica, *Dalbergaria*, Ecuador, Ges-

neriaceae, Panama, *Pentadenia*, Peru, *Resia*, Venezuela.

Recent fieldwork in Central and South America has resulted in the need to stabilize the nomenclature of six species in the Gesneriaceae. Herbarium research for ongoing projects and fieldwork to type localities has made it possible to elaborate and clarify the circumscription and nomenclature of previously confused taxa.

Amalophyllon ecuadoranum (Wiehler) J. L. Clark, comb. nov. Basionym: *Phinaea ecuadorana* Wiehler, *Gesneriana* 1: 84, fig. 28. 1995. TYPE: Ecuador. El Oro: along rd. from Loja to Santa Rosa, 20 km past Piñas, 17 Apr. 1986, *H. Wiehler & GRF Expedition 8652* (holotype, QCNE; isotypes, B, E, K, MO, NY, QCA, SEL, US).

This species is widely distributed throughout the horticultural community. The live collections probably originated from cuttings from the holotype (*H. Wiehler & GRF Expedition 8652*) that were distributed by Hans Wiehler from the Gesneriad Research Foundation in the 1980s. This species was treated as a synonym of *Amalophyllon divaricatum* (Poepp.) Boggan, L. E. Skog & Roalson during a recent reorganization and review of the genera *Amalophyllon*, *Niphaea* Lindl., and *Phinaea* Benth. (Boggan et al., 2008). It was noted by Boggan et al. that their circumscription of *A. divaricatum* was broad and that further studies could well indicate that the Ecuadorian and Peruvian populations should be recognized as distinct species. A 2010 research expedition to northern Peru documented extant populations of *A. divaricatum* from the province of San Martín (*J. L. Clark et al. 11934* [UNA, US, USM] and *J. L. Clark et al. 11910* [BRIT, K, MO, NY, SEL, UNA, US,

USM]). As predicted by Boggan et al. (2008), the populations of *A. divaricatum* from northern Peru differ significantly from those in Ecuador and therefore the two are not conspecific.

Some of the obvious differences between these two species are the larger leaves (3–9 cm), elongate shoots with evenly spaced leaves, and a more robust habit in *Amalophyllum ecuadoranum* (Fig. 1). The leaves of *A. divaricatum* are smaller (usually less than 4 cm) and in a basal rosette (Fig. 2). It should be noted that there is considerable variation in *A. divaricatum* from northern Peru (Boggan et al., 2008) and that further studies may merit recognition of additional species.

NOMENCLATURE AND TAXONOMIC ACTIONS IN *COLUMNEA*

1. ***Columnnea albovinosa*** (M. Freiberg) J. L. Clark & L. E. Skog, comb. nov. Basionym: *Dalbergaria albovinosa* M. Freiberg, *Phyton* (Horn) 37: 134, fig. 1B. 1997. TYPE: Ecuador. Imbabura: Los Cedros Biological Reserve, 00°19'N, 78°47'W, 1600–1700 m, 29 June 1996, *M. Freiberg 96216* ([published type distribution] holotype, QCA; isotypes, ULM, QCNE [actual type distribution, holotype, QCA; isotype, ULM]). Figure 3.

Columnnea albovinosa is similar to *C. rubriacuta* (Wiehler) L. P. Kvist & L. E. Skog in the dorsiventral habit, tubular corollas with a nearly radial limb, short corolla lobes, and nearly sessile flowers (Figs. 3, 4). The two species differ by the presence of a white corolla with red lobes in *C. albovinosa* (Fig. 3) and uniformly bright yellow corollas in *C. rubriacuta* (Fig. 4). Freiberg (1997) cited only the type collection in the description of *C. albovinosa*. Additional populations have been documented in the private reserve of the Bosque Integral Otonga in the province of Cotopaxi, Ecuador, on the western slopes of the Andes (*J. L. Clark, F. Nicolalde & R. Hall 7386*, AAU, COL, E, F, K, MO, NY, QCA, QCNE, SEL, UNA, US) and in the Awá community of San Francisco near Lita in the province of Imbabura, Ecuador, near the border with Esmeraldas and Carchi (*J. L. Clark, R. Hall & F. Nicolalde 752*, AAU, COL, E, F, K, MO, NY, QCA, QCNE, SEL, UNA, US). Current revisionary work in *Columnnea* L. by others may result in the synonymy of these two species.

This species and the one following were among 10 published by Martin Freiberg based on collections from expeditions in northwestern Ecuador (Freiberg, 1996, 1997, 1998, 2000). Some of the types designated by Freiberg and isotypes cited in his publications as being at Ecuadorian herbaria have either not yet been distributed or are still only

available from the University of Ulm (ULM). For example, no Freiberg collections have been found at the Museo Ecuatoriano de Ciencias Naturales (QCNE), even though isotypes were cited as being there. Thirty collections are deposited at Pontificia Universidad Católica del Ecuador (QCA), but some of the collections that Freiberg had labeled as types at QCA do not match collection numbers cited in the protologues of the species. The first author visited type localities of many of Freiberg's species in 2001 and 2003 and studied all the available type material at QCA.

2. ***Columnnea angustata*** (Wiehler) L. E. Skog, *Ann. Missouri Bot. Gard.* 65(3): 844. 1978 [1979]. Basionym: *Pentadenia angustata* Wiehler, *Selbyana* 2(1): 118–119, tab. 33C. 1977. TYPE: Colombia. El Valle: old rd. from Cali to Buenaventura, 8 km past La Elsa, 30 Apr. 1972, *H. Wiehler, Dressler & Williams 7276* (holotype, SEL; isotypes, COL, K, MO, NY, US).

Pentadenia lutea M. Freiberg, *Phyton* (Horn) 37: 133–140. 1997. TYPE: Ecuador. Imbabura: Los Cedros Biological Reserve, 00°19'N, 78°47'W, 1300–1400 m, 22 Mar. 1996, *M. Freiberg 96019* ([published type distribution] holotype, QCA; isotypes, ULM, QCNE [actual type distribution, holotype, QCA; isotype, ULM (2)]).

Pentadenia lutea is a synonym of the widespread taxon *Columnnea angustata* (Wiehler) L. E. Skog. It should be noted that *P. ecuadorana* Wiehler and *C. sericea* Mansf. (nom. illeg.) are also treated as synonyms of *C. angustata*. This taxon is differentiated from other congeners by the combination of the following characters: presence of isophyllous leaves in contrast to anisophyllous leaves; elongate shoots with evenly spaced leaves in contrast to dorsiventral shoots with clustered leaves; nectary with five lobes in contrast to single lobes; and narrowly tubular corollas in contrast to strongly bilabiate corollas.

3. ***Columnnea serrata*** (Klotzsch ex Oerst.) Hanst., *Linnaea* 34: 390. 1865. Basionym: *Stenanthus serratus* Klotzsch ex Oerst. *Centralamer.*, *Gesner.* 49. 1858. *Ortholoma serratum* (Klotzsch ex Oerst.) Wiehler, *Phytologia* 27: 323. 1973. *Trichantha serrata* (Klotzsch ex Oerst.) Wiehler, *Selbyana* 1(1): 35. 1975. TYPE: Costa Rica. Heredia: Sarapiquí, Rara Avis, ca. 15 km suroeste de Horquetas, 10°16'48"N, 08°01'48"W, 400–600 m, 8 Nov. 1989, *O. Vargas 291* (neotype, designated here, INB; isoneotype, MO). Figure 5.

The name *Columnnea serrata* has been confused with and applied to specimens of several superficially

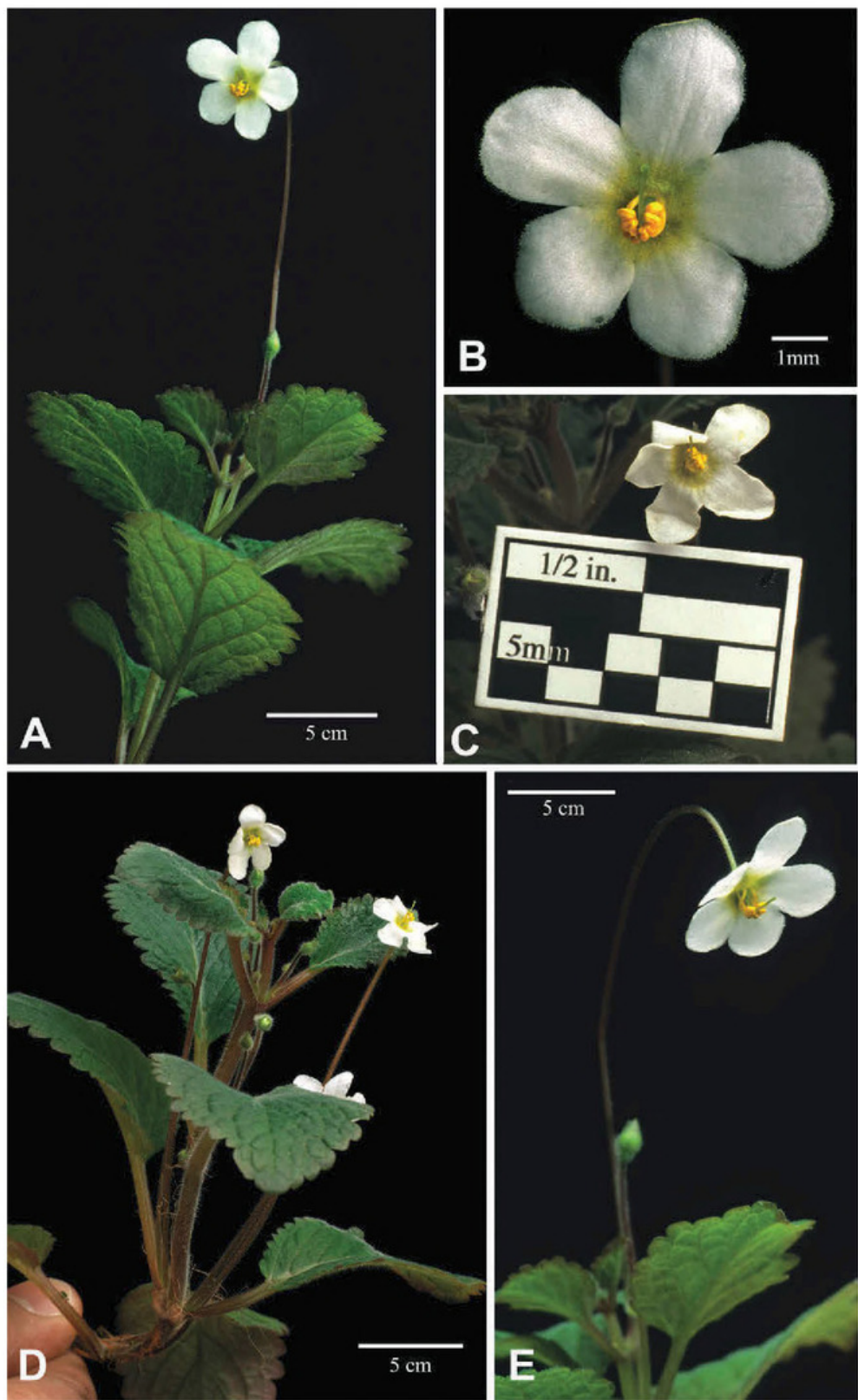


Figure 1. *Amalophyllon ecuadoranum* (Wiehler) J. L. Clark. —A, D. Habit showing elongate stem with evenly spaced leaves. —B, C. Face view of corolla. —E. Flower during anthesis with long, slender, curving pedicel. Note that the flowers as shown are resupinate, which may not be their natural orientation. Images A–E of voucher *J. L. Clark 8840* (US and United States Botany Research Greenhouse acc. # 1988-009). Photos by James Di Loreto (Smithsonian Institution National Museum of Natural History [NMNH] Imaging).

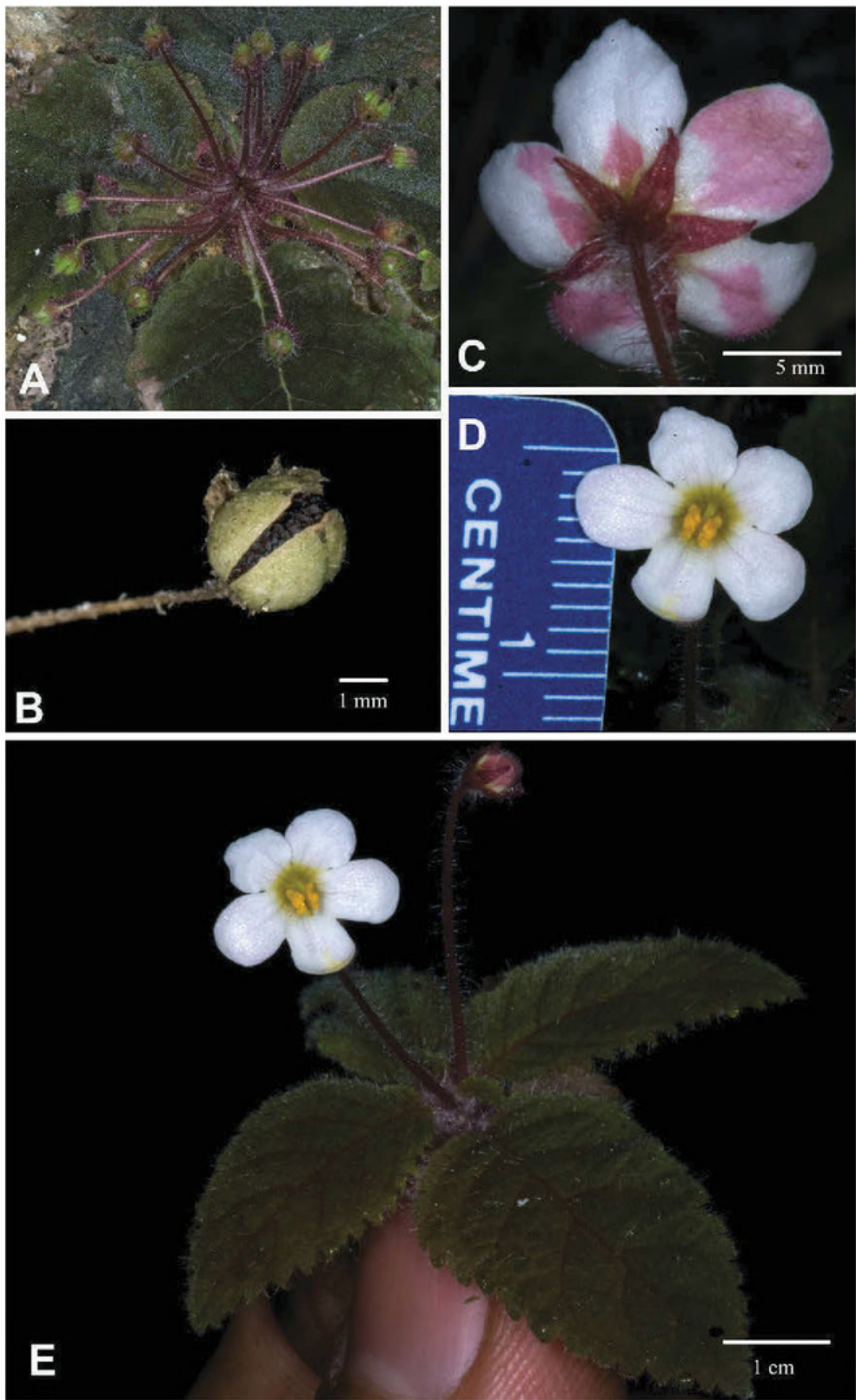


Figure 2. *Amalophyllon divaricatum* (Poepp.) Boggan, L. E. Skog & Roalson. —A. Terminal cluster of pedicels. —B. Mature bivalved capsule. —C. Rear view of mostly white flower; base of corolla lobes white suffused with pink. —D. Face view of uniformly white corolla. —E. Habit showing basal rosette of leaves with erect pedicels. Images A–E of field collection *J. L. Clark et al. 11910* (BRIT, K, MO, NY, SEL, UNA, US, USM).

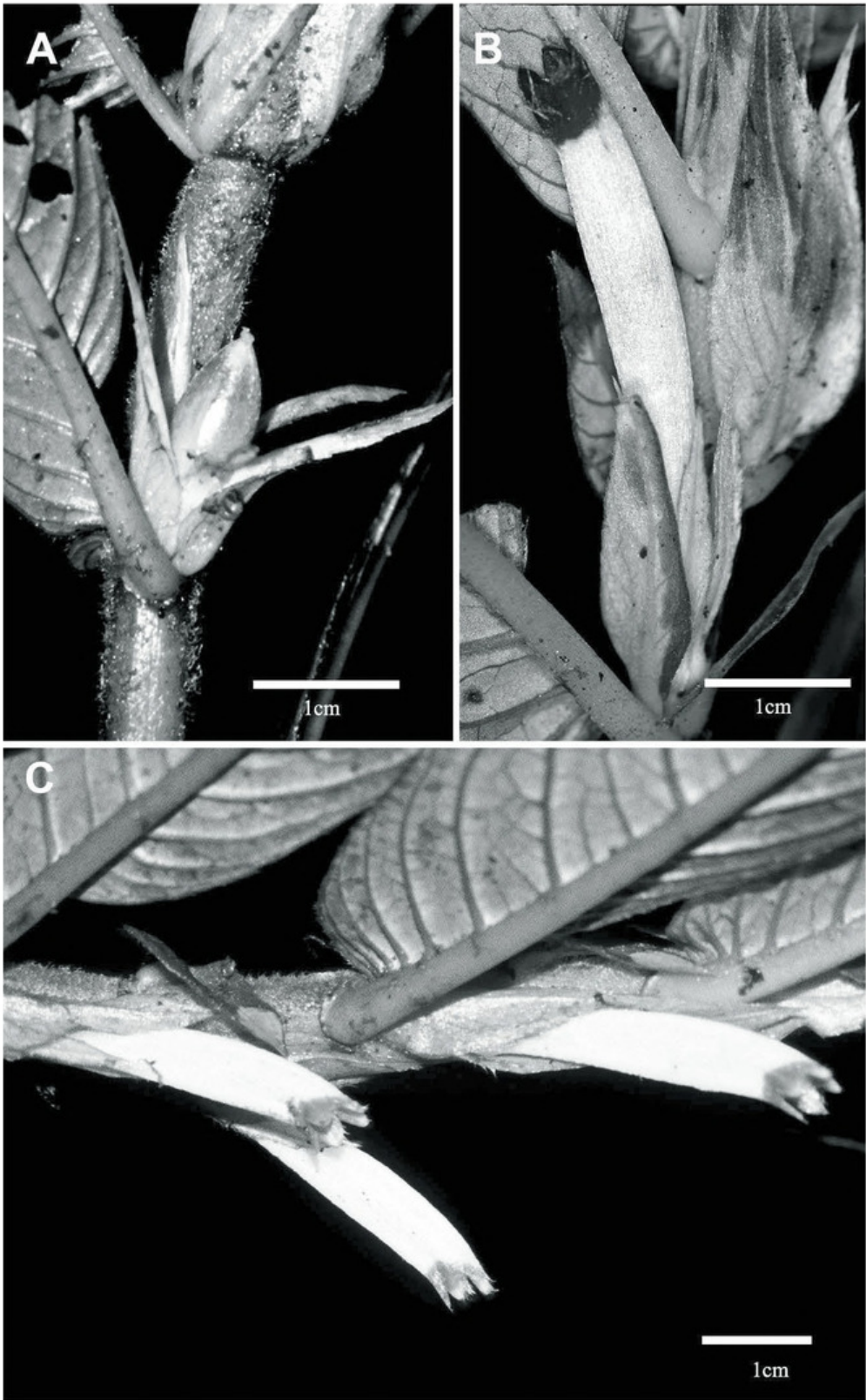


Figure 3. *Columnea albovinosa* (M. Freiberg) J. L. Clark & L. E. Skog. —A. Mature elongate berry. —B, C. Tubular flower; corolla white with red lobes. Images A and C from field collection J. L. Clark, A. Muñoz & C. Tapia 6158 (COL, NY, QCA, QCNE, US), B from J. L. Clark, F. Nicolalde & R. Hall 7386 (MO, QCNE, SEL, UNA, US).

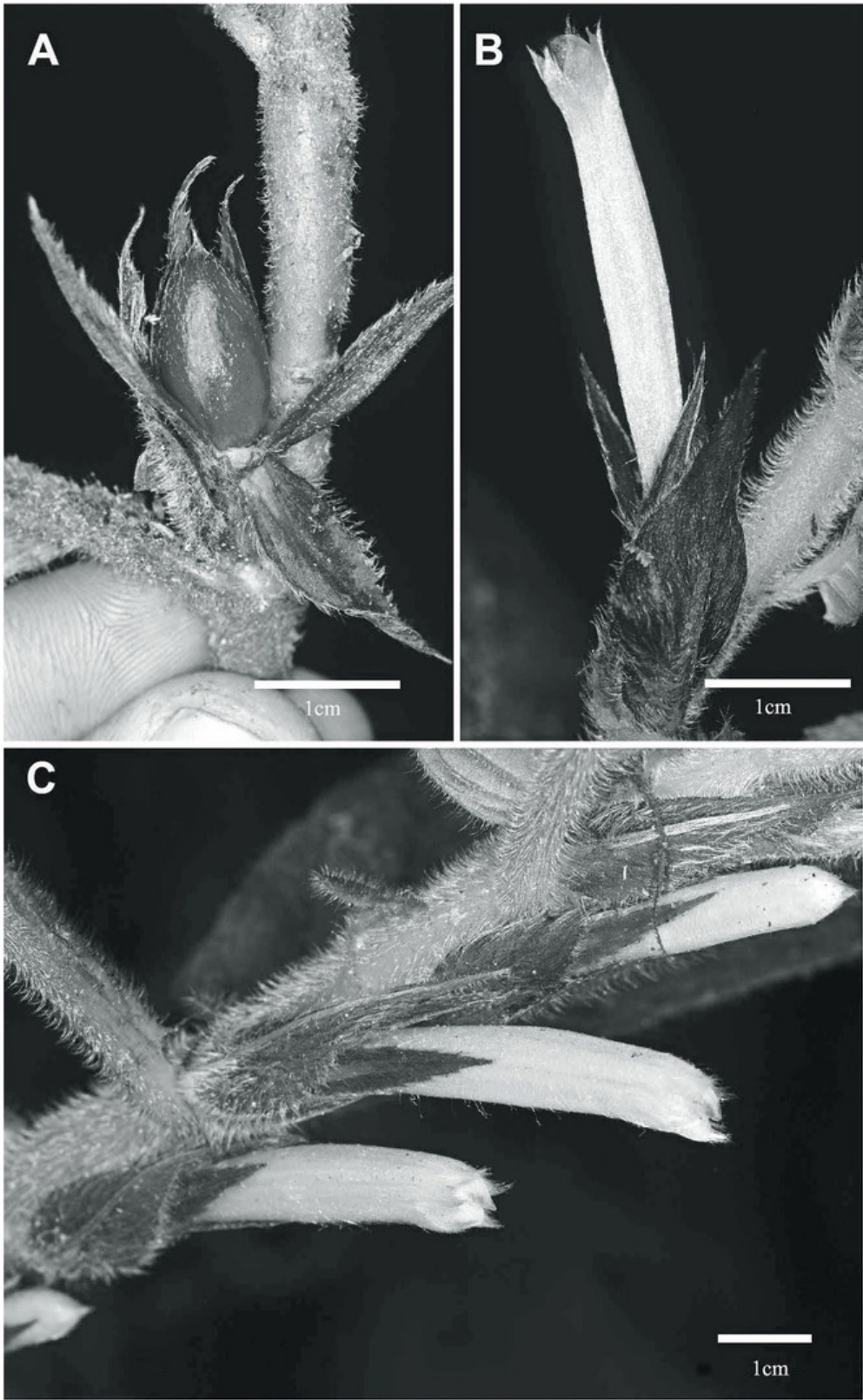


Figure 4. *Columnea rubriacuta* (Wiehler) L. P. Kvist & L. E. Skog. —A. Mature elongate berry. —B, C. Uniformly tubular yellow corolla. Images A from field collection *J. L. Clark et al.* 7493 (COL, NY, QCA, QCNE, US), B from *J. L. Clark* 8807 (MO, QCNE, SEL, UNA, US), C from *J. L. Clark* 10122 (MO).



Figure 5. Neotype specimen of *Columnnea serrata* (Klotzsch ex Oerst.) Hanst., O. Vargas 291 (INB).

similar species. The confusion arises from the shared character of the fimbriate calyx (Figs. 5–7). The misidentified material falls into two groups. The first includes specimens that are correctly identified as *Alloplectus weirii* (Kuntze) Wiehler (Fig. 6), one of

only five species currently included in *Alloplectus* Mart. (Clark, 2005). The second group includes species currently recognized in *Columnnea*, including *C. sanguinolenta* (Klotzsch ex Oerst.) Hanst., *C. segregata* B. D. Morley, and *C. purpurata* Hanst. In

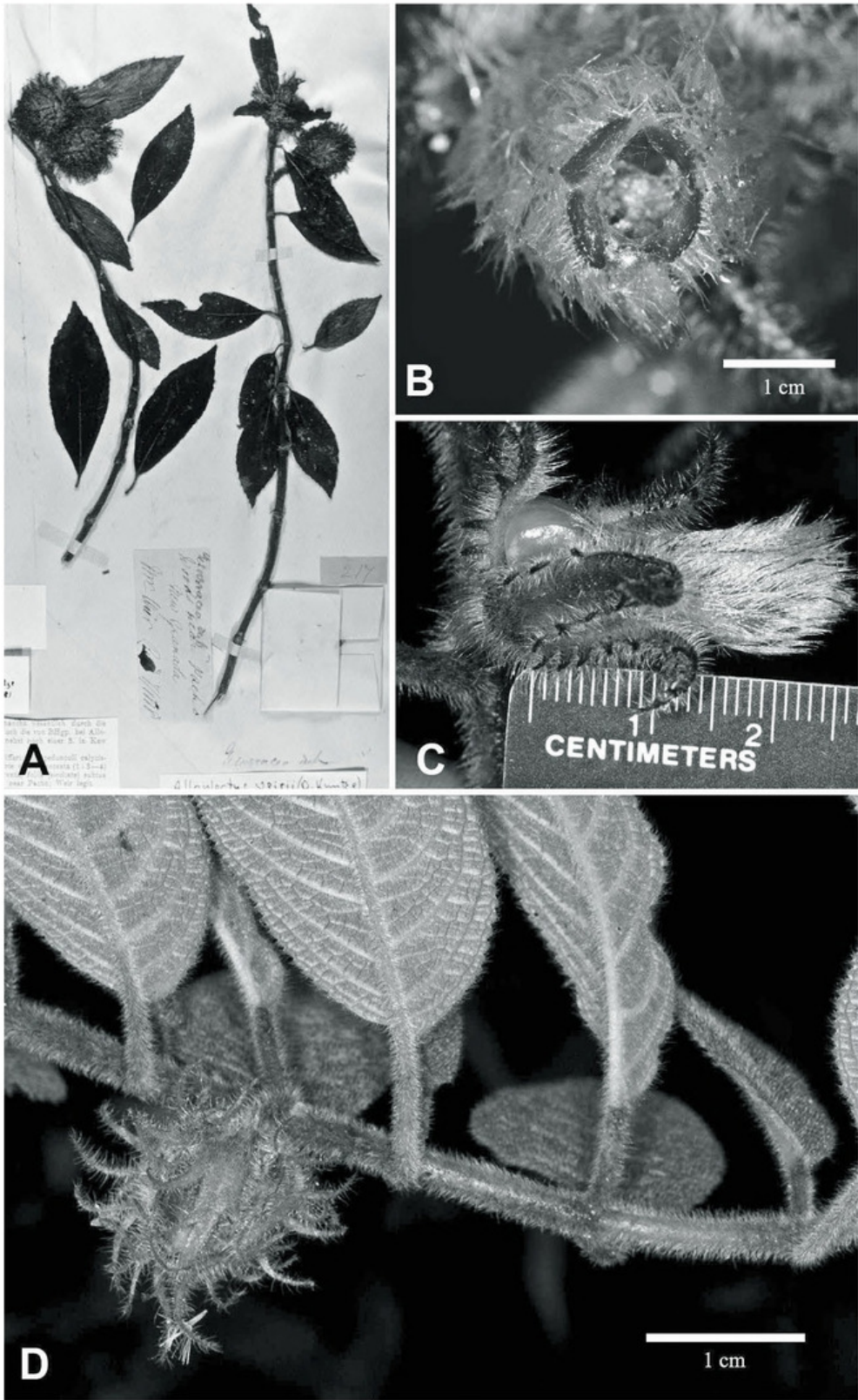


Figure 6. *Alloplectus weirii* (Kuntze) Wiehler. —A. Holotype of *Columnnea weirii* Kuntze, J. Weir 217 (K). —B. Front view of corolla. —C. Lateral view of flower. —D. Vegetative stem showing isophyllous leaves and mature calyx. Images B and C from field collection J. L. Clark, L. Bohs & N. Leon 8914 (LOJA, QCA, QCNE, US), D from J. L. Clark 9881 (AAU, COL, E, F, MO, NY, QCNE, SEL, UNA, US).

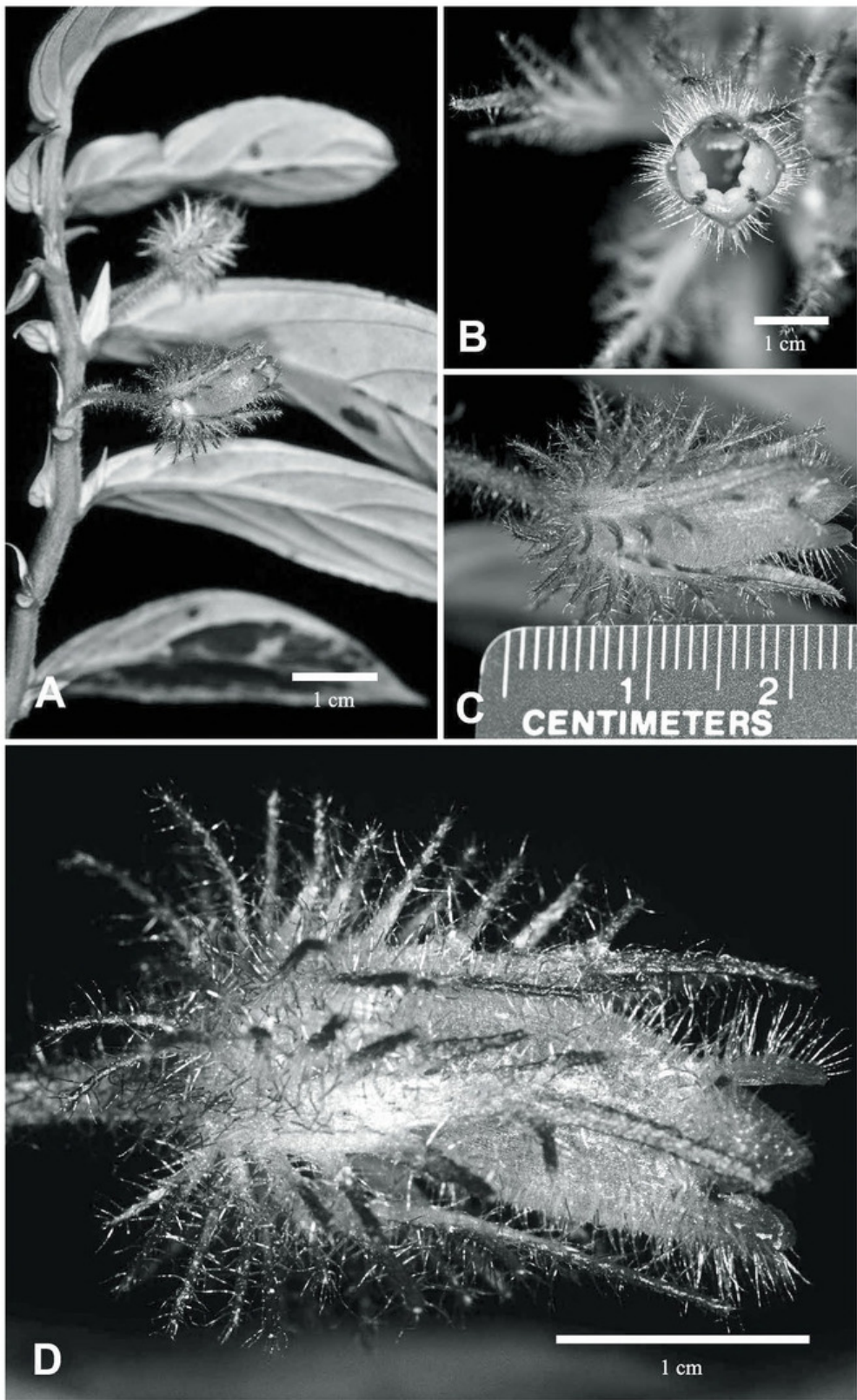


Figure 7. *Columnnea serrata* (Klotzsch ex Oerst.) Hanst. —A. Vegetative stem showing anisophyllous leaves and mature flower. —B. Front view of corolla. —C. Lateral view of flower with scale. —D. Lateral view of flower. Images A–D of field collection J. L. Clark & J. Katzenstein 8878 (SEL, US).

both groups, the leaves are opposite, the flowers are borne singly or in pairs in the leaf axils, and the calyx is fimbriate. However, in *A. weirii*, the leaves are equal or subequal in size and the fruit, as in all species of *Alloplectus*, is a fleshy capsule. In *Columnnea* the fruit is a berry and, in this group of species, the leaves are borne in markedly unequal pairs. Oersted (1858) describes the leaves of *Stenanthus serratus* as being in unequal pairs. Consequently, the name cannot apply to *A. weirii* but rather to a species of *Columnnea*.

In the protologue of *Stenanthus serratus*, Oersted (1858) indicated that he took the name, and possibly the description, from a manuscript written by Klotzsch. The description is based on a Warscewicz specimen that was housed in the Berlin herbarium, which Hanstein (1865: 390) gives as *Warscewicz 19*, but has since been destroyed. We have been unable to locate a duplicate specimen. The neotype designated here has been selected to conform as closely as possible to the original description. As with most of Warscewicz's collections, the locality is ambiguous. Warscewicz collected in both Costa Rica and Panama, but the labels on his specimens are rarely specific with respect to locality, typically citing "Costa Rica et Veragua" or "Veragua." Thus it is not unreasonable to assume that the type of *C. serrata* was collected in Costa Rica.

The relationship of *Columnnea serrata* to the other species of *Columnnea* with a toothed or fimbriate calyx is currently under consideration as two of the authors (Barrie and Skog) prepare a treatment of the genus for the Flora Mesoamericana project.

A NEW NAME IN *DRYMONIA*

Drymonia ovatifolia J. L. Clark, nom. nov. Replaced name: *Nautilocalyx dressleri* Wiehler, Selbyana 2: 114, fig. 32D. 1977, non *Drymonia dressleri* Wiehler, Selbyana 5: 80, fig. 2C 1978. TYPE: Panama, Coclé: hills N of El Valle de Antón, 800 m, 17 Jan 1973, R. L. Dressler 4258 (holotype, SEL; isotype, MO).

The new name and transfer made here reflect recent phylogenetic results (Clark et al., 2006) that strongly support the inclusion of this taxon in *Drymonia* and not in *Nautilocalyx* Linden ex Hanst. *Drymonia ovatifolia* is widespread in Panama (Chiriquí, Coclé, Comarca Kuna Yala, Darién, Panamá, and Veraguas) and Costa Rica (Limón). The erect unbranched habit and membranous leaf texture are features that *D. ovatifolia* shares with *D. foliacea* (Rusby) Wiehler and *D. crenatiloba* (Mansf.) Wiehler. These three species were strongly supported

in a clade based on molecular and morphological data presented in Clark et al. (2006). Wiehler (1977) noted that the anthers of *D. ovatifolia* dehisce by complete longitudinal slits, but observations by the first author of the holotype (Dressler 4258) suggest that the sagittate anthers are in an early stage of anthesis with basal pores. This sort of dehiscence was described in Clark et al. (2006) as an intermediate pore stage that later develops into longitudinal dehiscence when the flowers are mature.

VALIDATION AND NEW COMBINATION OF A NAME IN *RESIA*

Resia bracteata J. L. Clark & L. E. Skog, sp. nov. *Resia ichthyoides* subsp. *bracteata* L. E. Skog & F. de Jesus, BioLlania (Ed. Spec.) 6: 520. 1997, nom. inval. [no diagnosis]. *Resia bracteata* (L. E. Skog & F. de Jesus) Fern. Alonso, Revista Acad. Colomb. Ci. Exact 30: 175. 2006, nom. inval. TYPE: Colombia. Santander: Mpio. Charala, 25 June 1993, X. Londono & L. P. Kvist 812 (holotype, COL; isotypes, AAU, HUA, K, MO, TULV, US, VEN).

Haec species ab aliis speciebus *Resiae* H. E. Moore inflorescentiis bracteatis differt.

In a review of *Resia* H. E. Moore from Colombia and Venezuela, Skog and de Jesus (1997) proposed a subspecies of *R. ichthyoides* Leeuwenb., *R. ichthyoides* subsp. *bracteata*. The authors failed to include a Latin description, therefore the name was not validly published (McNeill et al., 2006). Consequently, the combination based on the subspecies name, published by Fernández-Alonso (2006), was also not validly published. To rectify the situation and finally validate the new taxon, we present here a Latin diagnosis and recognize the subspecies at the rank of species.

Resia bracteata is different from all other congeners by the presence of inflorescence bracts. The absence of bracts in all other species of *Resia* was an important character that was emphasized for the classification of this genus in the tribe Beslerieae (Wiehler, 1983; Skog & de Jesus, 1997). All members of Napeanthae are characterized by the presence of inflorescence bracts, and all members of the tribe Beslerieae are characterized by the absence of inflorescence bracts. The tribal placement of *Resia* needs to be reconsidered, and fieldwork in Colombia or Venezuela to collect leaf material for molecular systematic studies will help resolve the tribal placement of this enigmatic genus. *Resia* is one of three genera (the other two are *Lampadaria* Feuillet & L. E. Skog in the Episcieae and *Cremospermopsis*

L. E. Skog & L. P. Kvist in the Beslerieae) in the New World Gesneriaceae that has not yet been evaluated using molecular sequence data.

Additional vegetative characters are also useful for differentiating *Resia bracteata* from *R. ichthyoides*. *Resia bracteata* has chartaceous leaves with prominent tertiary venation and bullate leaf surfaces. In contrast, *R. ichthyoides* has membranous leaves with suppressed tertiary venation and non-bullate leaf surfaces (Fernández-Alonso, 2006).

Acknowledgments. Funding for this project came from the National Science Foundation (DEB-0841958, DEB-0949169) to John L. Clark. We thank Marcela Mora and Laura Clavijo for providing the Spanish translation of the abstract; Barry Hammel (MO/INB) for providing the image of the neotype of *Columnea serrata*; Christian Feuillet (US) for providing the Latin diagnosis for *Resia bracteata*; Kanchi N. Gandhi (HUH) for providing guidance on nomenclature; Marina Gáslac Gáloc (Jefatura del Bosque de Protección Alto Mayo), Juan Pérez (Guardaparque del Bosque de Protección Alto Mayo), and Miguel Chocce (Universidad Nacional Mayor de San Marcos) for facilitating our research in northern Peru; three anonymous reviewers and Harry Luther for providing helpful comments on an early version of the manuscript; and James Di Loreto (Smithsonian Institution NMNH Imaging) for providing images in Figure 1.

Literature Cited

- Boggan, J. K., L. E. Skog & E. H. Roalson. 2008. A review of the Neotropical genera *Amalophyllon*, *Niphaea*, and *Phinaea* (Gesneriaceae–Gloxinieae). *Selbyana* 29: 157–176.
- Clark, J. L. 2005. A monograph of *Alloplectus* (Gesneriaceae). *Selbyana* 25: 182–209.
- Clark, J. L., P. S. Herendeen, L. E. Skog & E. A. Zimmer. 2006. Phylogenetic relationships and generic boundaries in the Episcieae (Gesneriaceae) inferred from nuclear, chloroplast, and morphological data. *Taxon* 55: 313–336.
- Fernández-Alonso, J. L. 2006. Novedades taxonomicas y nomenclaturales en *Cremosperma* y *Resia* (Gesneriaceae) de Colombia. *Revista Acad. Colomb. Ci. Exact.* 30: 171–180.
- Freiberg, M. 1996 [1997]. Gesneriad flora of the Los Cedros Biological Reserve, northwest Ecuador, part 1: Four new species in *Gasteranthus* (Gesneriaceae). *Phyton (Horn)* 36: 303–309.
- Freiberg, M. 1997. The gesneriad flora of the Los Cedros Biological Reserve, northwest Ecuador, part 2: New species in *Alloplectus*, *Dalbergaria*, *Paradrymonia* and *Pentadenia* (Gesneriaceae). *Phyton (Horn)* 37: 133–140.
- Freiberg, M. 1998. Two remarkable new species of *Gasteranthus* (Gesneriaceae) from central Ecuador. *Phyton (Horn)* 38: 167–173.
- Freiberg, M. 2000. Three new species of *Gasteranthus* (Gesneriaceae) from Ecuador. *Brittonia* 52: 203–209.
- Hanstein, J. 1865. Die Gesneraceen des Königlichen Herbariums und der Gärten zu Berlin, nebst monographischer Uebersicht der Familie im Ganzen, II. Abschnitt. Gattungen und Arten. Drittes Stück. Die Eugesnereen, Rhytidophylleen, und Beslerieen. *Linnaea* 34: 225–462.
- McNeill, J., F. R. Barrie, H. M. Burdet, V. Demoulin, D. L. Hawksworth, K. Marhold, D. H. Nicolson, J. Prado, P. C. Silva, J. E. Skog, J. H. Wiersema & N. J. Turland (editors). 2006. International Code of Botanical Nomenclature (Vienna Code). *Regnum Veg.* 146.
- Oersted, A. S. 1858. Centralamericas Gesneraceer, et systematisk, plantegeographisk bidrag til Centralamerikas Flora. Pp. 1–78, pl. 1–11, preprint of pp. 77–152, pl. 1–11. 1861. K. Danske Vidensk. Selsk. Skr., Naturvidensk. Math. Afd. Ser. 5.
- Skog, L. E. & F. F. de Jesus. 1997. A review of *Resia* (Gesneriaceae). *BioLlania*, Ed. Espec. 6: 515–525.
- Wiehler, H. 1977. New genera and species of Gesneriaceae from the neotropics. *Selbyana* 2(1): 67–132.
- Wiehler, H. 1982 [1983]. A synopsis of the neotropical Gesneriaceae. *Selbyana* 6: 1–219.



Clark, John L., Skog, Laurence E, and Barrie, Fred R. 2011. "Novae Gesneriaceae Neotropicarum XVII: New Combinations and Typifications." *Novon a journal of botanical nomenclature from the Missouri Botanical Garden* 21(4), 413–423. <https://doi.org/10.3417/2011002>.

View This Item Online: <https://www.biodiversitylibrary.org/item/180102>

DOI: <https://doi.org/10.3417/2011002>

Permalink: <https://www.biodiversitylibrary.org/partpdf/218514>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

Copyright Status: Permission to digitize granted by rights holder

Rights: <https://www.biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.