Brittonia
https://doi.org/10.1007/s12228-024-09808-9

ORIGINAL RESEARCH

Synoptic checklist of Trioleneae (Melastomataceae), including 15 new lectotypes and an expert-validated taxonomic dataset

Kate E. Samra[1,2] · **Eve J. Lucas**[1] · **Fabián A. Michelangeli**[2]

Received: 5 December 2023 / Revised: 10 August 2024 / Accepted: 9 October 2024 / Associate Editor: Antoine Nicolas

Abstract
Here we summarize knowledge of the 45 accepted species and subspecies in the tribe Trioleneae (Melastomataceae). Fifteen lectotypes are designated, all available holotype and isotype locations are provided, and accepted synonyms for each species are listed. Country and district level distributions are curated, and distribution and species richness maps are provided. Validated notes on elevation, habit, habitat, and plant uses are also included. In addition, preliminary conservation assessments are completed according to IUCN criteria. Finally, representative specimens are cited and taxonomic issues discussed; possible synonyms are suggested for several taxa of uncertain delimitation and species complexes are highlighted that would benefit from further systematic research.

Keywords Andes · conservation · lectotypes · Neotropics · taxonomy

Introduction

Trioleneae, a tribe of Melastomataceae, comprises two genera, *Monolena* Triana in Bentham & Hooker and *Triolena* Naudin, both previously included in the tribe Bertolonieae (Triana, 1871 [1872]; Cogniaux, 1885, 1891). Recent molecular study recovered them as sister to one another, in the clade now named Trioleneae (Bacci et al., 2019). Trioleneae are distinguished by their herbaceous habit, scorpioid cymes, 5-merous flowers, 3-locular ovaries, 1 to 3 ventral anther appendages, and triquetrous 'splash cup' fruits (Fig. 1).

The distributions of *Monolena* and *Triolena* largely overlap, ranging from southern Mexico to Bolivia and into western Amazonia (Fig. 2A). In addition to comparable distributions, *Monolena* and *Triolena* have similar climatic preferences, as modeled by Bacci et al. (2022). Trioleneae are almost exclusively found in the understories of moist forests at low and medium elevations, most often in and along streams and rivers. The wet niche of this group is likely due to their dehiscent 'splash cup' fruits, which are dependent on water for dispersal (Pizo & Morellato, 2002). Although most species grow terrestrially, many are also lithophytic or epiphytic on trunks and low branches.

Monolena includes sixteen accepted species, all characterized by a unique habit in which the leaves are produced in clusters on a fleshy rhizome, along with a single appendage on each anther, and a glabrous ovary apex (Bacci et al., 2019).

Triolena is easily distinguished from *Monolena* by the lack of a bulbous rhizome. The roots of *Triolena* are rhizomatous, but the stem is obvious, and the leaves are opposite, as expected in Melastomataceae (although some species present strong anisophylly). Members of *Triolena* also differ in their 2 to 3 ventral stamen appendages (exceptionally 1 in *T. paleacea)*, and a pilose ovary apex (Bacci et al., 2019).

Triolena encompasses 29 species and includes taxa once placed in *Diolena* Naudin and *Diplarpea* Triana in Bentham & Hooker. *Diolena* was previously distinguished by its double or two-lobed anther appendages (in contrast to three in *Triolena*), but was reduced to synonymy after unpublished notes by Paul Standley suggested that this distinction was weak (see Williams, 1963). The single species of *Diplarpea* was distinguished in part by its isomorphic

✉ Kate E. Samra
ksamra@nybg.org

[1] Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE, UK

[2] Center for Biodiversity & Evolution, New York Botanical Garden, 2900 Southern Boulevard, Bronx, NY 10458, USA

Fig.1. Trioleneae characters; all photos by F.A. Michelangeli or otherwise credited to their respective *iNaturalist* owners. **A.** *Monolena panamensis* flower (Oliver Komar). **B.** *Monolena primuliflora* closed flowers with bracts. **C.** *Monolena sp.* habit and leaves (Sofía Nogales). **D.** Rhizomatous leaf attachment and lithophytic habit in *Monolena trichopoda* (ramon_d). **E.** *Monolena primuliflora* splash cup fruits. **F.** *Triolena pustulata* habit (Juan E. Yèpez C.). **G.** *Triolena hirsuta* flower with anther appendages. **H.** Anisophyllous leaves in *Triolena pileoides* (Nolan Exe). **I.** *Triolena hirsuta* splash cups and buds. **J.** *Triolena vasquezii* scorpioid cyme.

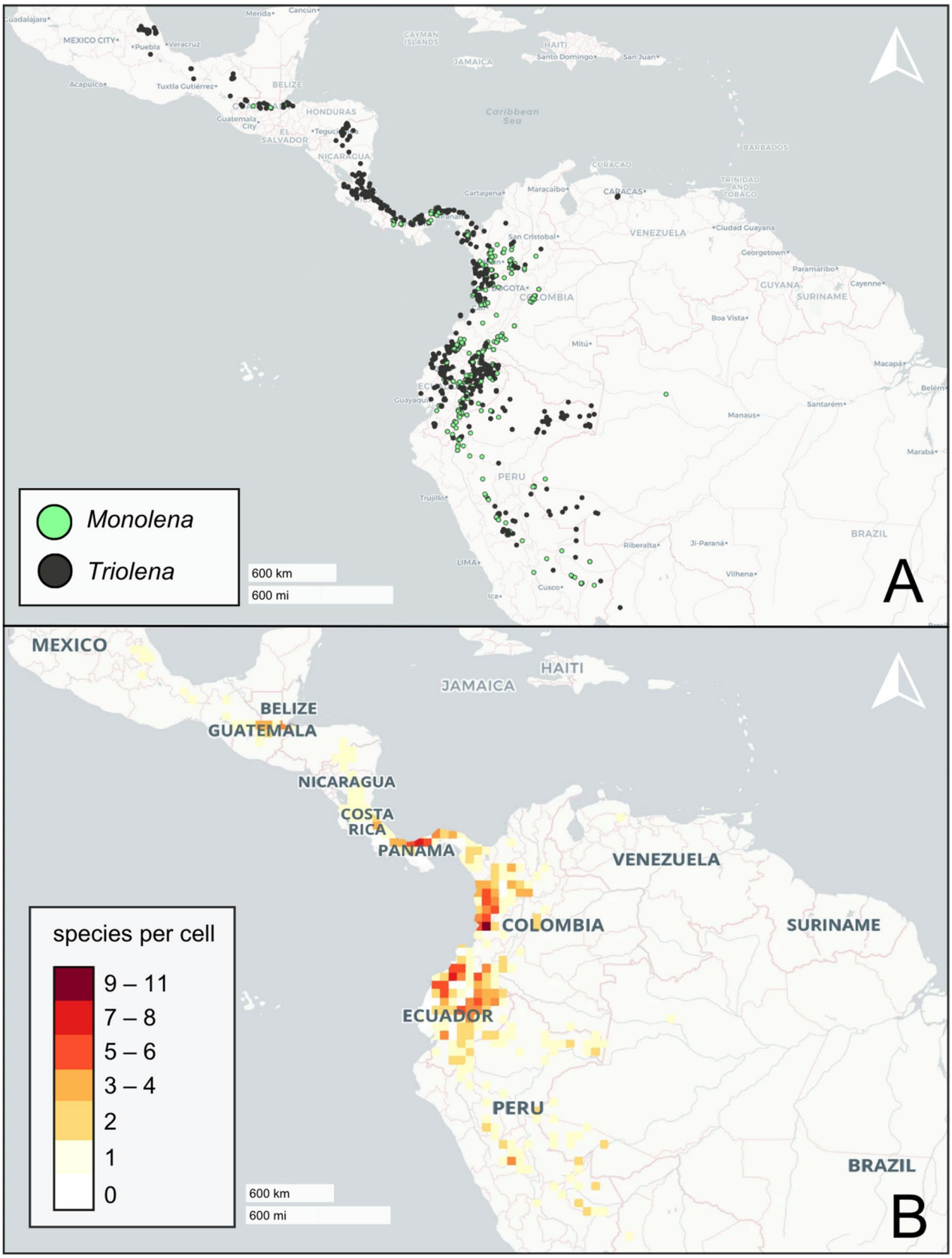

Fig. 2. **A** Distribution of *Monolena* and *Triolena* in Central and South America. **B.** Species richness in Trioleneae.

Table 1. Species covered in regional treatments and checklists in chronological order (X). Asterisk (*) indicates species first described in the publication.

	MacBride, 1941 Peru	Gleason, 1958 Panama	Standley & Williams, 1963 Guatemala	Wurdack, 1973 Venezuela	Wurdack, 1980 Ecuador	Almeda & Umaña, 1991 Costa Rica	Warner, 2002 C. America	Almeda, 2009 C. America
M. bracteata								
M. cordifolia								
M. coriacea								
M. dressleri							*	X
M. elliptica								
M. grandiloba							*	X
M. guatemalensis			X				X	X
M. lanceolata								
M. morleyi							*	X
M. multiflora							*	X
M. ovata		X						
M. panamensis							*	X
M. pilosiuscula								
M. primuliflora	X				X		X	X
M. pygmaea								
M. trichopoda							*	X
T. agrimonioides								
T. allardii								
T. amazonica	X							
T. anisophylla								
T. asplundii					X			
T. auriculata								
T. barbeyana	X				X			
T. calciphila			X					X
T. campii					X			
T. dressleri								X
T. hirsuta		X			X	X		X
T. hygrophila				X				
T. izabalensis			X					X
T. lanceolata								
T. obliqua					X			
T. paleacea								
T. paleolata			X					X
T. pedemontana					X			
T. pileoides					X			X
T. pileoides subsp. *panamensis*								X
T. pluvialis					X			
T. pumila						*		X
T. purpurea								
T. pustulata					X			
T. rojasiae								
T. scorpioides			X					X
T. spicata		X				X		X
T. stenophylla			X					X
T. vasquezii								

stamens (dimorphic in *Triolena* and *Monolena*) with single anther appendages. It was transferred to *Triolena* by Almeda and Alvear in Bernal et al. (2015) after phylogenetic analysis placed it sister to the rest of *Triolena* (Goldenberg et al., 2012). Additional molecular studies have supported the transfers of both *Diolena* and *Diplarpea* to *Triolena* (Bacci et al., 2019; Penneys et al., 2022).

The most recent complete revision of the genera now included in Trioleneae was published by Cogniaux (1891) over 130 years ago, and thus does not include the majority of currently accepted species. Several regional checklists and revisions have been published since 1941 (Table 1), but Trioleneae lacks an updated, inclusive revision of its 45 species, and nearly one third of these species (excluding those described in the last ten years) have not been formally treated since their original publications. Furthermore, typification of the several J.J. Triana collections has proven difficult due to his complex cataloging system and limited available material. This lack of comprehensive study and the barriers to typification has resulted in 15 names that currently lack specified types, representing an overall gap in knowledge of the distributions, ecology, and taxonomy of the species in Trioleneae.

Materials & Methods

Typifications Protologues were identified in Plants of the World Online (POWO, 2023) and the International Plant Names Index (IPNI, 2023), and then compiled from Biodiversity Heritage Library (BHL) and the Library and Archives at Royal Botanic Gardens, Kew. Links to protologue literature can be found in Supplemental Material 1 and translated protologues can be found in Supplemental Material 2. Records of holotypes, isotypes, lectotypes, and isolectotypes were gathered from protologues, Global Biodiversity Information System (GBIF, 2023) records, Tropicos (Missouri Botanical Garden, 2023), and specimen labels.

Lectotypes were designated in accordance with the rules of the International Code of Nomenclature (ICN) for algae, fungi, and plants (Turland et al., 2018). Lectotype designations were chosen to ensure that they are deposited in herbaria in the country of collection, unless no such specimen was available or if the local candidate type specimen was in especially poor condition, in which case the home herbarium of the authority was prioritized.

If only one type collection was found to exist, it was designated as the holotype. When more than one potential lectotype sheet was held in a single herbarium, the specimen with the most intact floral and foliar material was chosen.

Some specimens had been annotated as holotypes or isotypes, but if these typifications could not be validated with any published literature, a lectotype was designated. Similarly, in several instances prior to 2001, it appears a holotype was assumed by the accepted nomenclatural rules at the time, but these species were lectotypified here too, as per McNeill (2014) and Prado et al. (2015). When more than one collection was referred to in the protologue, specimens not designated here as lectotypes were recorded as remaining syntypes, as in Murillo-Serna et al. (2019).

For lectotypifications of J.J. Triana's collections, his catalog notes were examined at BM (Triana, n.d.) and compared to a published list of his types housed at COL (Uribe, 1976). If a J.J. Triana specimen label included the type collection number, and did not differ in elevation, date, or locality from the protologue and chosen lectotype, it was considered part of the same gathering and thus, an isolectotype. Following Reinales & Parra-O (2022), if a J.J. Triana specimen lacked the collection number, but included all of the same collection information as the protologue and chosen lectotype, it was considered a remaining syntype as it could represent a different gathering. Similarly, if a J.J. Triana specimen label included the type collection number, but differed slightly in date, locality, or elevation from the protologue and chosen lectotype, it may likewise represent a different gathering and was thus also considered a remaining syntype. Certain complex typification decisions are explained in the 'notes' section of each checklist entry.

For herbaria that use both accession numbers and barcodes, accession numbers are prioritized. Specimens physically examined by the authors are indicated by [!], specimens examined via digital images are indicated by [image!], and specimens not seen are indicated by [n.v.]. Direct hyperlinks to holotypes, isotypes, lectotypes, and isolectotypes can be found in Supplemental Material 1.

Illustrations Illustrations are provided for any species for which these are available. Published plates are listed, followed by sketches by H.A. Gleason and J.J. Wurdack, available at https://sweetgum.nybg.org/science/projects/melastomataceae/portfolio/images/ (Michelangeli et al., 2009). J.J. Triana's floral drawings are then listed, followed by specimens and their barcodes if a drawing on a sheet could prove useful for further taxonomic delimitation. Links to illustrations can be found in Supplemental Material 1.

Distributions Occurrence data were downloaded for each species from GBIF (2023). For species with less than 50 records between GBIF and the K herbarium, specimens without coordinates were georeferenced according to *Georeferencing Best Practices* (Chapman & Wieczorek, 2020). Overall, 109 records were successfully georeferenced and combined with 4,836 GBIF occurrences.

In order to generate a dataset suitable for distribution analyses, all occurrence records with no coordinates, or

coordinates along the prime meridian were removed. Duplicates and any record with an uncertainty radius greater than twenty kilometers were also excluded. The R package *CoordinateCleaner* was used to remove points in the ocean and any collections within two kilometers of a country centroid, capital centroid, or biodiversity institution (R Development Core Team, 2021; Zizka et al., 2019).

Country-level distributions were compiled from cleaned GBIF records, POWO, K specimens, and COL Virtual Herbarium records (Raz & Agudelo-Zamora, 2023). If a species occurrence in a country listed in GBIF records was not corroborated by POWO or K specimens, the country's GBIF and COL record(s) were examined further. Unless an image existed and the determination could be validated by us, or the specimen was not cf. or aff. and had been identified by an authority (see Supplemental Material 1 for list of authorities), the specimen (and its associated occurrence data) was excluded from the species range. The same validation process was used at the district level. After cleaning, the dataset amounted to 1,835 occurrences. Countries and districts are listed in alphabetical order under 'distribution'. A distribution map was generated in R with package *mapview* (Appelhans et al., 2016), using source maps from *CartoDB.Positron* (Carto, 2014). Species richness was mapped in *InfoMap* with a cell size of 0.5° and cell capacity 0–100 (Edler et al., 2017).

A representative specimen from each district is listed alphabetically under 'Selected Specimen(s)' (below). For widespread species that occur in more than five countries, a specimen from each country is cited. If no physical or imaged specimens from a district were available, a specimen that had been identified by an authority is listed, indicated by [n.v]. In some instances, no specimens besides the type exist for a district or country, in which case types are excluded from 'selected specimen(s)'. Paratypes listed under selected specimens are indicated by an asterisk after the collection number. Links to selected specimen records can be found in Supplemental Material 1.

Elevation, Habit, & Habitat Elevation data were gathered from GBIF records, K specimens, and COL Virtual Herbarium images (Raz & Agudelo-Zamora, 2023). If minimum and maximum elevations could be validated with images or physical specimens, they were retained. If not, the next smallest or largest elevation was validated, and so on. Specimens with an "aff." or "cf." determination were excluded. When few or no elevations were verifiable, protologue descriptions and georeferenced elevations extracted with the R package *elevatr* (Hollister et al., 2021) were used. Elevations were rounded inclusively to the nearest 25-m increment.

Notes on plant habit, specifically terrestrial, epiphytic, and lithophytic, were gathered from protologues and herbarium specimen labels that had been identified by authorities. Notes on plant habitat were compiled in the same manner, but extracted WWF ecoregions were also considered in habitat descriptions (Olson et al., 2001).

Taxonomic Notes Taxonomic notes are based on literature from previous checklists and treatments, protologue descriptions, and observations from K and NY herbarium specimens and GBIF images. Although some species may need to be synonymized or may contain more than one entity, no taxonomic decisions were made at this time.

IUCN Red List Assessments Preliminary Red List assessments were conducted in accordance with the IUCN Red List Guidelines based on calculated range size (Criterion B), according to IUCN guidelines and criteria (IUCN, 2012; IUCN Standards and Petitions Committee, 2022). Extent of Occurrence (EOO) and Area of Occupancy (AOO) were calculated in *GeoCat* (Bachman et al., 2011) using the cleaned coordinates. The number of populations was estimated by assuming occurrence points within 3 km of each other represented the same subpopulation, following the protocol of Michelangeli and Goldenberg (2018).

Protected areas were overlaid with the occurrence data using the *wdpar* package in R (Hanson, 2022), and regional threats were considered from literature and the Digital Observatory for Protected Areas (DOPA) Explorer (European Commission, 2023). Unless otherwise noted within the checklist, IUCN categories B1ab were used to assess each species. In general, if B1a and/or B2a were met, the species was listed in the appropriate threatened category, unless several populations received strictly implemented protection. If B1a or B2b were met, but the number of populations was 10–20, the species was listed as Near Threatened, unless the majority of populations were strictly protected. Species with less than three occurrences were listed as Data Deficient. Links to occurrence data (in CSV format) and specific regional threats information are available in Supplemental Material 1.

Plant Uses Plant use information was gathered from literature and herbarium labels.

Taxonomic Treatment

Monolena Triana in Bentham & Hooker f., Gen. Pl. 1(3): 732 (756) (1867). TYPE: *Monolena primuliflora* Hook.f., Bot. Mag. 96: t. 5818 (1870).

Monolena bracteata Gleason, Bull. Torrey Bot. Club 57: 64 (1930). TYPE: Colombia: Caquetá, inter Gabinete et Sucre, 9 Jul 1926, *G.J.N. Woronow & S. Juzepczuk 5844* (holotype: NY, barcode 00229525 [!])

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 10.

Distribution. *Monolena bracteata* is found in Colombia (Caquetá), at 600 m, in montane forests.

Taxonomy. Warner (2002) suggests that *Monolena bracteata* belongs in the '*cordifolia* complex', a group that also includes *M. cordifolia, M. dressleri, M. pilioscula,* and *M. pygmaea. Monolena bracteata* most closely resembles *M. pilioscula,* but differs in its more slender and somewhat less pubescent leaves. However, material is limited, and further examination is required.

Preliminary Conservation Status. Known only from the type locality, we recommend *Monolena bracteata* be listed as Data Deficient (DD).

Monolena cordifolia Triana, Trans. Linn. Soc. London 28: 80 (1871 [1872]). Type: Novae Granatae [Colombia]: Chocó, [without specific locality], 500 m, Apr 1853, *J.J. Triana 3870* (**lectotype, here designated:** COL, accession 1719b [image!]). Possible remaining syntype (mixed collection, see note below): [Colombia]: Prov. del Chocó, [without specific locality], 500 m, Apr 1853, *J.J. Triana 3877* (BM, barcode 000953994 [!]).

Selected Specimens. **COLOMBIA. Cauca:** Costa del Pacifico, Río Micay, en Caliche, 5–10 m, 26 Feb 1943, *J. Cuatrecasas 14196-A* (F [!]). **Valle del Cauca:** Bajo Calima, Concesión Pulpapel-Buenaventura, Carretera Hans, 3.91666, -77 [3°54′59.98"N, 77°W], 100 m, 1 Oct 1987, *M. Monsalve Benavides 1887* (MO [n.v.]).

Distribution. *Monolena cordifolia* is found in Colombia (Cauca, Chocó, Valle del Cauca), at 0–500 m, along riverbanks in lowland Chocó-Darién moist forests.

Taxonomy. Another member of Warner's '*cordifolia* complex', *Monolena cordifolia* is perhaps distinct from other species in its larger leaves with a more obviously cordate base. All the collections from the Chocó Dept. (except the type) are annotated as cf. or aff. The leaves and stature appear much smaller than the type and the specimens from Valle del Cauca and Cauca. In general, the determinations indicate a high level of uncertainty around the species and its congeners, and *M. cordifolia* requires urgent taxonomic evaluation.

Notes. Triana (1871 [1872]) did not mention a collection number in the protologue, only a locality and date. There are two specimens collected by J.J. Triana that match *Monolena cordifolia* and which have the correct locality and date: *J.J. Triana 3870* at COL and *J.J. Triana 3877* at BM. The BM specimen has six separate plants on it that belong to two different species (see annotation by R. Warner): four are *M. cordifolia* and two are *M. pilosiuscula*. Given the BM specimen is a mixed collection and the fact the COL specimen is clearly annotated by J.J. Triana, we choose the latter as the lectotype.

Preliminary Conservation Status. *Monolena cordifolia* is known from 12 occurrences and has a known EOO of 12,083 km^2 (VU) and AOO of 36 km^2 (EN). There are seven known subpopulations, two protected within Unidad Ambiental Costera Complejo Malaga Buenaventura. Due to its restricted habitat, major threats to the Chocó-Darién region (deforestation due to population growth and agriculture), and the proportion of unprotected subpopulations, we recommend *M. cordifolia* be listed as Vulnerable (VU).

Uses. In Colombia, the plant is used as a laxative to expel parasites, native vernacular: 'churco' (Benítez & Valois, 2004).

Monolena coriacea Triana, Trans. Linn. Soc. London 28: 80 (1871 [1872]). TYPE: Novae Granatae [Colombia]: Provincia Chocó, [without specific locality or date], *J.J. Triana 3874* (holotype: BM, barcode BM000953993 [image!]).

Selected Specimens. **COLOMBIA. Chocó:** entre Carmen de Atrato y Tutunendo (Carretera de Bolívar a Quibdó, kilómetros 52 a 70), valle de alto Atrato, 500–600 m, 25–26 Jul 1944, *H. Garcia-Barriga 11113* (COL [image!]). **Nariño:** Mun. Barbacoas, Correg. Altaquer, Sitio El Barro, Vía Altaquer hacia la Reserva Los Colibries, 1,300 m, 8 Mar 1995, *G. Lozano* et al. 6832 (COL [image!]). **Valle del Cauca:** Cordillera Occidental, Hoya del Río Digua, Piedra de Moler, 900–1,180 m, 19–28 Aug 1943, *J. Cuatrecasas 14913* (COL [image!]).

Distribution. *Monolena coriacea* is found in Colombia (Chocó, Nariño, Valle del Cauca), at 400–1,300 m, along rivers and slopes in Andean montane forests. *Monolena coriacea* can be terrestrial or epiphytic on tree trunks.

Taxonomy. *Monolena coriacea* resembles *M. elliptica,* but differs in its lanceolate leaves (elliptic in *M. elliptica*), obtuse leaf base (acute in *M. elliptica*), and 5-plinerved leaves (7-plinerved in *M. elliptica*).

Preliminary Conservation Status. *Monolena coriacea* is known from 12 occurrences and has a known EOO of 28,658 km^2 (NT) and AOO of 44 km^2 (EN). There are four known subpopulations, one protected in Farallones de Cali National Park, and one protected in Cuenca Hidrográfica del Río La Vieja. Due to its restricted habitat, limited locations, major threats to the Chocó (deforestation due to population growth and development), and proportion of unprotected occurrences, we recommend *M. coriacea* be listed as Endangered (EN) according to IUCN criterion B2ab.

Monolena dressleri R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 102 (2002). TYPE: Panama: Panamá, El Llano-Carti highway, ca. 12–14 km N of El Llano, 350–400 m, 9 Jan 1973, *R.L. Dressler 4247* (holotype: US, accession 2849137 [!]; isotype: PMA, barcode 849 [image!]).

Selected Specimens. **PANAMA. Guna Yala:** Comarca de San Blas, Nusagandi, El Llano-Cartí road, 9°19'N, 78°55'W, 350 m, 20 Feb 1985, *H. van der Werff 7011* (CAS [image!]). **Panamá:** 14 km from Pan American Hwy. on road to Cartí, 7 Jul 1979, *T. Antonio 1265* (CAS [image!]).

Illustration. An illustration is available in: R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 103, Fig. 2 (2002).

Distribution. *Monolena dresseri* is found in Panama (Guna Yala, Panamá), at 300–400 m, along rivers in lowland Chocó-Darién moist forests. *Monolena dressleri* can be terrestrial, lithophytic, or epiphytic on low branches and trunks.

Taxonomy. *Monolena dressleri* is another member Warner's '*cordifolia* complex', most closely resembling *M. cordifolia* in its larger and cordate leaves. *Monolena dressleri* apparently differs from *M. cordifolia* in its greater number of flowers, a more ovate leaf shape, and by the absence of long hairs on the adaxial surfaces of leaves. We recommend further examination.

Preliminary Conservation Status. *Monolena dressleri* is known from 16 occurrences and has a known EOO of 1,828 km^2 (EN) and AOO of 44 km^2 (EN). There are five known subpopulations, one protected in Narganá Wild Area, and one protected in Soberanía National Park. Due to its restricted habitat, limited locations, proportion of unprotected occurrences, and major threats to the Chocó-Darién region (deforestation due to population growth and development), we recommend *M. dressleri* be listed as Endangered (EN).

Monolena elliptica L.Uribe, Caldasia 8: 319 (1960). TYPE: Colombia: Nariño, Barbacoas, Corregimiento Santander (Buenavista) a Barbacoas (Vertiente del Río Telembí), 200–840 m, 3–5 Aug 1948, *H. García-Barriga 13136* (holotype: COL, accession 58664 [!]; isotype: US, accession 1987188 [!]).

Selected specimen. **COLOMBIA. Nariño:** below Ricaurte, 1,200 m, 7 May 1939, *A.H.G. Alston 8451* (US [!], S [image!]).

Illustration. An illustration is available in: L.Uribe, Caldasia 8: 320, Fig. 1 (1960).

Distribution. *Monolena elliptica* is found in Colombia (Nariño), at 200–1,200 m, along rivers in montane forests. *Monolena elliptica* can be terrestrial or epiphytic on waterfalls.

Taxonomy. *Monolena elliptica* differs from all other *Monolena* species by the combination of its acute leaf base and its lack of any pubescence on leaves, stems, and inflorescences.

Preliminary Conservation Status. Known from only two occurrences, we recommend *Monolena elliptica* be listed as Data Deficient (DD).

Monolena grandiloba R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 104 (2002). TYPE: Panama: Chiriquí, near Cerro Colorado, ca. 10 miles from Chami Camp, along ridge trail in forest, 8°35'N, 81°45'W, 1,600 m, 15 Apr 1986, *G. McPherson 8938* (holotype: MO, accession 3319488 [!]).

Selected Specimens. **PANAMA. Chiriquí:** Cerro Colorado Mine, near higher elevation camp, 8°32′10"N, 81°49′13"W, 1,500 m, 30 May 1980, *T.M. Antonio 4867* (MO [n.v.]). **Veraguas:** vicinity of Continental Divide, third branch of Río Santa Maria to drop-off to lowlands, 12–15 km NW of Santa Fe, 650–750 m, 29–30 Mar 1975, *R.L. Dressler 4998* (US [!]).

Distribution. *Monolena grandiloba* is found in Panama (Chiriquí, Veraguas), at 350–1,600 m, in and along rivers and on slopes in montane cloud forests. *Monolena grandiloba* can be terrestrial, lithophytic, or epiphytic on trunks.

Taxonomy. *Monolena grandiloba* resembles *M. multiflora* in its acrodromous venation that is offset (not joining at the same point near the leaf base) and its many flowers (5–15), but is apparently distinguished by its ovate floral bracts that do not enclose the flower, and a pointed stamen appendage that often dries black in herbarium specimens (Warner, 2002).

Notes. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Costa Rica.

Preliminary Conservation Status. *Monolena grandiloba* is known from eight occurrences and has a known EOO of 672 km^2 (EN) and AOO of 28 km^2 (EN). There are five known subpopulations, only two of which are completely protected within Santa Fe National Park. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the region (agriculture and mining), we recommend *M. grandiloba* be listed as Endangered (EN).

Monolena guatemalensis Donn.Sm., Bot. Gaz. 42: 294 (1906). TYPE: Guatemala: Alta Verapaz, trail from Senjú to Actalá, 17 Jan 1905, *W.R. Maxon & R. Hay 3331* (lectotype, designated by Warner 2002: US, accession 473312 [!]). Remaining syntypes: Guatemala: Alta Verapaz, near the Finca Sepacuite, 21 Mar 1902, *O.F. Cook & R.F. Griggs 106* (US, accession 407860 [!]); Guatemala, Alta Verapaz: near the Finca Sepacuite, 8 Apr 1902, *O.F. Cook & R.F. Griggs 575* (US, accession 408220 [!]); Guatemala: Alta Verapaz, between Sepacuité and Secanquim, 1,200 m, 18 May 1905, *H. Pittier 314* (NY, barcode 00229526 [!]; US, accession 472977 [!]).

Selected Specimens. **GUATEMALA. Alta Verapaz**: Secanquim, trail to Secoyocte, 12 Dec 1904, *G.P. Goll 158* (US [!]). **Izabal:** Cerro San Gil, 300–900 m, 25 Dec 1941, *J.A. Steyermark 41922* (US [!]). **Quiché:** Cerro Putul, "Zona Reyna", 4,500 ft [1,372 m], 3 Dec 1934, *A.F. Skutch 1826* (F [!], US [!]).

Distribution. *Monolena guatemalensis* is found in Guatemala (Alta Verapaz, Izabal, Quiché), at 300–1,375 m, along rivers and moist slopes in humid perennial rainforests. *Monolena guatemalensis* can be terrestrial or epiphytic on stumps and treetops.

Taxonomy. *Monolena guatemalensis* resembles *M. panamensis,* but is distinguished by its acrodromous secondaries joining at roughly the same point at the leaf base.

Preliminary Conservation Status. *Monolena guatemalensis* is known from seven occurrences and has a known EOO of 2,277 km^2 (EN) and AOO of 20 km^2 (EN). There are four known subpopulations, one protected in Cerro San Gil Reserve. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the region (deforestation, agriculture, and mining), we recommend *M. guatemalensis* be listed as Endangered (EN).

Monolena lanceolata L.Uribe, Mutisia 46: 1 (1979). TYPE: Colombia: Chocó, San José del Palmar, 1,550 m, 11 Nov 1978, *G. Lozano & J. Díaz 3052* (holotype: COL, accession 178541 [!]).

Selected Specimens. **COLOMBIA. Antioquia:** Parque Nacional Natural "Las Orquídeas", Sector Calles, Río Calles, 6°32'N, 76°19'W, 1,250 m, 30 May 1988, *A. Cogollo P.* et al. 3073 (MO [n.v.]). **Chocó:** San Jose del Palmar, vía a Alto Galápagos, 1,600–1,750 m, 12 Nov 1985, *G. Lozano* et al. *4970* (COL [image!]). **Valle de Cauca:** El Cairo, Corregimiento Albán, Vereda El Pacífico, Serranía de Los Paraguas, along road to San José del Palmar, 4°49.994'N, 76°10.915'W, 2,025 m, 14 Feb 2011, *F. Almeda* et al. *10377* (NY [!]).

Illustration. An illustration is available in: L.Uribe, Mutisia 46: 2, Fig. 1 (1979).

Distribution. *Monolena lanceolata* is found in Colombia (Antioquia, Chocó, Valle de Cauca), at 1,250–2,100 m, in Andean montane forests. *Monolena lanceolata* can be terrestrial or epiphytic.

Taxonomy. *Monolena lanceolata* closely resembles *M. coriacea,* apparently differing in its larger leaves and but its scales on the floral scape (Uribe, 1979).

Preliminary Conservation Status. *Monolena lanceolata* is known from seven occurrences and has a known EOO of 1,149 km^2 (EN) and AOO of 24 km^2 (EN). There are five known subpopulations, two protected within Las Orquideas National Park and one protected within Serrania de Los Paraguas. Though its EOO and AOO qualify as endangered, because several subpopulations are strictly protected, we recommend *M. lanceolata* be listed as Least Concern (LC).

Monolena morleyi R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 106 (2002). TYPE: Panama: Coclé, 7 km N of El Cope, Forgotten Hill, area surrounding Rivera Sawmill, 650–850 m, 5 Nov 1977, *J.P. Folsom 6204* (holotype: US, accession 2961133 [!]; isotypes: CAS, accession 646875 [image!]; MEXU, accession 327599 [image!]; MO, accession 2947927 [!]).

Selected specimen. **PANAMA. Coclé:** Alto Calvario along summit of Continental Divide, 5.5 mi N of El Copé, 3.5 mi N of Escuela Barrigón, 8°39'N, 80°36'W, 850 m, 13 Sep 1987, *T.B. Croat* 67561 (MO [!]).

Distribution. *Monolena morleyi* is found in Panama (Coclé), at 650–850 m, on ridges in moist and montane forests. *Monolena morleyi* is epiphytic.

Taxonomy. *Monolena morleyi* resembles both *M. panamensis* and *M. multiflora,* but is distinguished by its fewer flowers, the largest petals in the genus (2–3 cm), and by its lack of any pubescence.

Preliminary Conservation Status. *Monolena morleyi* is known from nine occurrences and has a known EOO of 9 km^2 (EN) and AOO of 20 km^2 (EN). There are two known subpopulations, one protected in General de División Omar Torrijos Herrera National Park. Due to its restricted habitat, major threats to the region (agriculture and mining), limited locations, and the proportion of unprotected subpopulations, we recommend *M. morleyi* be listed as Near Threatened (NT).

Monolena multiflora R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 108 (2002). TYPE: Panama: Panamá, La Envida, region of Cerro Jefe, 18 Apr 1971, *R.L. Dressler & N.H. Williams 3950* (holotype: US, accession 2849129 [!]; isotypes: MO, accession 2154806 [!]; PMA, accession 6069 [image!]; US, accession 2849130 [!]).

Selected Specimens. **PANAMA. Coclé:** Road to Coclesito 12 mi from Llano Grande, 8°47'N, 80°28'W, 200 m, 17 Dec 1983, *H.W. Churchill* et al. *4155* (CAS [image!]). **Colón:** ca. 2–3 miles up the Río Gauche, 10–20 m, 19 Jan 1973, *H. Kennedy & R. Foster 2176* (US [!]). **Guna Yala:** Comarca de San Blas, Yar Bired (Cerro San Jose), continental divide between Cangandi and San Jose, 9°20'N, 79°8'W, 400–500 m, 5 Feb 1986, *G. de Nevers & H. Herrera 7001* (CAS [image!]). **Panamá:** Vicinity of Cerro Jefé, along road to summit which leads S off main road, 9°14'N, 79°22'W, 750–800 m, 8 Jul 1987, *T.B. Croat 67071* (CAS [image!]).

Illustration. An illustration is available in: R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 109, Fig. 3 (2002).

Distribution. *Monolena multiflora* is found in Panama (Coclé, Colón, Guna Yala, Panamá), at 0–900 m, along rivers, roadsides, and rocky areas in moist lowland to montane forests. *Monolena multiflora* can be terrestrial, lithophytic, or epiphytic on trunks and branches.

Taxonomy. *Monolena multiflora* resembles *M. grandiloba* in its many flowers, but differs in its smaller leaves with an acute base. *Monolena multiflora* also resembles *M. trichopoda,* but differs in its ciliolate-serrulate leaf margins and by the lack of two rows of trichomes on the petiole. Warner (2002) describes three unique populations of *M. multiflora.*

Preliminary Conservation Status. *Monolena multiflora* is known from 45 occurrences and has a known EOO of 7,210

km^2 (VU) and AOO of 144 km^2 (EN). There are more than twenty known subpopulations, most of which are fully or partially protected within national parks. Though its EOO and AOO qualify as threatened, due to the proportion of strictly protected subpopulations, we recommend *M. multiflora* be listed as Least Concern (LC).

Monolena ovata Cogn., Bull. Acad. Roy. Sci. Belgique sér. 3, 14: 945 (1887). TYPE: [Colombia]: Quebrada Parada, prope Villavicencio ad pedem orient, Cordillerae Bogotanae, 600 m, 5 Jan 1876, *E. André 1183* (holotype: K, barcode K000535530 [!]).

Selected Specimens. **COLOMBIA. Boyacá:** Puerto Boyacá, vereda La Cunchalita, Sitio La Grilla, 5°48′54.3"N, 74°16′3.7"W, 1,450 m, 20 Sep 1996, *O. Rangel-Churio* et al. *13471* (COL [image!]). **Caquetá:** Mun. Florencia, carretera Florencia-Suaza, km 28, vereda Las Brisas, 1°42'N, 75°43'W, 1,500 m, 6 Aug 2001, *R. Bernal & W. Malagón 2884* (COL [image!]). **Cauca:** Mun. Santa Rosa, 1 km arriba de la desembocadura del Indiyaco en el Caquetá, 600 m, 15 Oct 1996, *R. Sánchez* et al. *3065* (COL [image!]). **Meta:** Mun. Restrepo, Vereda de Caney Alto, 560 m, 10 Jun 1979, *G. Lozano C. 4025* (COL [image!]). **Putumayo:** Mocoa, Vereda San José del Pepino, Centro Experimental Amazónico "CEA", 1°05'N, 76°40'W, 500 m, 22 Jul 1996, *D.M. Díaz CP68* (COL [image!]).

Illustration. An illustration is available in: Gleason, Ann. Mo. Bot. Gard. 45: 237, Fig. 79 (1958).

Distribution. *Monolena ovata* is found in Colombia (Boyacá, Caquetá, Cauca, Meta, Putumayo), at 500–1,500 m, along rivers and and rocky ravines in humid montane forests. *Monolena ovata* is epiphytic.

Taxonomy. *Monolena ovata* resembles *M. primuliflora,* apparently differing in its thinner leaves with purple undersides, 7-plinerves (3–5 in *M. primuliflora*) that join at roughly the same point at the leaf base, and rounded calyx lobes. *Monolena ovata* is a possible synonym of *M. primuliflora,* representing greater variation within the species than currently accepted. Alternatively, some specimens identified as *M. primuliflora* with venation more closely resembling the type of *M. ovata* may be indeed *M. ovata* (e.g., *D.C. Wasshausen 498* (K [!])), but further morphological and molecular analysis is required. As it stands, we see considerable overlapping morphological variation in specimens identified as *M. ovata* and as *M. primuliflora.* One collection from Nariño does not resemble either species (*J.M. Idrobo & Kyburz 2317* (NY [!])) and is likely *M. elliptica* but requires closer examination.

Notes. *Monolena ovata* is listed as a synonym of *M. primuliflora* in Tropicos, but we were unable to find any formally published literature to validate this. Moreover, it is recognized as an accepted species in the *Catálogo de plantas y líquenes de Colombia* (Almeda et al., 2015). Gleason (1958) includes *M. ovata* in *Flora of Panama*, and there are several other collections from Panama. However, Gleason's cited specimen is now filed under *M. primuliflora*, and none of the others hold an authoritative identification, so we have excluded them here.

Preliminary Conservation Status. *Monolena ovata* is known from 10 occurrences and has a known EOO of 115,229 km^2 (LC) and AOO of 36 km^2 (EN). There are nine known subpopulations, three protected within national parks and conservation areas. Due to its restricted habitat, major threats to the Chocó-Darién region (deforestation due to population growth and development), and the proportion of unprotected subpopulations, we recommend *M. ovata* be listed as Vulnerable (VU) according to IUCN criterion B2ab.

Uses. In Colombia, the plant is used to soothe toothaches and heal burns, native vernacular 'Muela Vaca' (*D.M. Díaz CP68* (COL [image!])).

Monolena panamensis R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 111 (2002). TYPE: Panama: Coclé, La Mesa, 4 km N of El Valle, 875 m, 12 Feb 1974, *M. Nee & M. Hale 9638* (holotype: US, accession 2799619 [!]; isotype: MO, accession 2353226 [!]).

Selected Specimens. **PANAMA. Coclé:** La Mesa above El Valle, just below upper dam of Bob Toledano, 900 m, 25 Mar 1979, *R.H. Warner 410* (K [!]). **Panamá:** Capira, NE side of Cerro Trinidad, 950 m, 4 Feb 1971, *R. Foster 2118* (US [!]).

Distribution. *Monolena panamensis* is found in Panama (Coclé, Panamá), at 875–1,700 m, in Isthmian-Atlantic and Isthmian-Pacific premontane to montane forests. *Monolena panamensis* can be terrestrial or epiphytic on trunks and logs.

Taxonomy. *Monolena panamensis* is distinguished from other *Monolena* species by its weakly plinerved leaves, glabrous hypanthium, and inflorescence of 12–20 flowers. Warner (2002) describes a distinct population from Cerro Trinidad.

Preliminary Conservation Status. *Monolena panamensis* is known from 27 occurrences and has a known EOO of 67 km^2 (CR) and AOO of 36 km^2 (EN). There are two known subpopulations, one protected in Altos de Campana National Park, and one partially protected in Cerro Gaital National Monument. Though its EOO and AOO qualify as threatened, due to the proportion of strictly protected subpopulations, we recommend *M. panamensis* be listed as Least Concern (LC).

Monolena pilosiuscula L.Uribe, Caldasia 8: 321 (1960). TYPE: Colombia: Chocó, Quibdó, quebrada de La Platina, 60 m, 29 Mar 1958, *L. Uribe U. 3131* (holotype: COL, accession 67851 [image!]).

Selected Specimens. **COLOMBIA. Chocó:** Mun. de Quibdó, Corregimiento Pacurita, Corporación Michitá-Estación Ambiental Pandó, 5°41.0994'N, 76°36.582'W, 90 m, 25 Jan 2012, *F. Almeda* et al. *10382* (COL [image!], NY [!]). **Valle del Cauca:** Agua Clara, along highway from Buenaventura to Cali, 100 m, 6 Jun 1944, *E.P. Killip & J. Cuatrecasas 38922* (COL [image!]).

Illustration. An illustration is available in: L.Uribe, Caldasia 8: 322, Fig. 2 (1960).

Distribution. *Monolena pilosiuscula* is found in Colombia (Chocó, Valle del Cauca), at 0–100 m, in lowland Chocó-Darién forests. *Monolena pilosiuscula* can be terrestrial or epiphytic on trunks and logs.

Taxonomy. *Monolena pilosiuscula* resembles *M. bracteata*, but apparently differs in its more slender-lanceolate leaves and four floral bracts. Additional examination is suggested.

Preliminary Conservation Status. *Monolena pilosiuscula* is known from 20 occurrences and has a known EOO of 14,054 km^2 (VU) and AOO of 72 km^2 (EN). There are 18 known subpopulations, one protected in Río Anchicaya Forest Reserve, and one protected in Unidad Ambiental Costera Complejo Malaga Buenaventura. Due to its restricted habitat, threats to the Chocó-Darién (deforestation due to population growth and development), and the proportion of unprotected subpopulations, we recommend *M. pilosiuscula* be listed as Near Threatened (NT).

Monolena primuliflora Hook.f., Bot. Mag. 96: t. 5818 (1870); *Monolena "primulaeflora"*. TYPE: Hook. F., Bot. Mag. 96: t. 5818 (1870) (lectotype designated by Swart, ING card 21786 [Nov 1965]; also later superfluously designated by Warner, Proc. Calif. Acad. Sci. 53(9): 112 [2002]).

Bertolonia primuliflora Dombrain, Fl. Mag. (London) 9: t. 471 (1870); *Bertolonia "primulaeflora"* (lectotype designated by Warner [2002: 112]: Dombrain, Fl. Mag. (London) 9: t. 471 (1870).

Selected Specimens. **BRAZIL. Acre:** Mun. Mancio Lima, Parna Serra do Divisor, Trilha para a Cachoeira do Ar condicionado, 7°27′13.4"S, 73°41′30.7"W, 240 m, 23 Aug 2008, *P. Fiaschi* et al. *3386* (NY [!]).

COLOMBIA. Chocó: Carretera (en construcción) Yuto-Lloró, 1 km de Yuto, 70 m, 9 Sep 1976, *E. Forero & R. Jaramillo 2727* (COL [image!]).

COSTA RICA. San Jose: Río Segundo, Asunción, Limón, 500–600 m, 27 Apr 1985, *L.D. Gómez & G. Herrera 23472* (CAS [image!], L [image!], US [!]).

ECUADOR. Napo: Reserva Biológica Jatun Sacha, Río Napo, 8 km al E de Misahuallí, 1°04'S, 77°36'W, 450 m, 19–28 Mar 1987, *C.E. Cerón 1001* (CAS [image!]).

PANAMA. Chiriquí: 10 km N of Los Planes de Hornito, IRHE Fortuna Hydroelectric Project, 8°45'N, 82°12'W, 1,100–1,200 m, 10 May 1982, *S. Knapp 5023* (CAS [image!]).

PERU. Pasco: Oxapampa, Dist. Palcazu, Parque Nacional Yanachaga-Chemillen, Sector Rotpen, 10°24′56"N, 75°18′39"W, 600 m, 28 Oct 2019, *R. Vásquez 36851* (NY [!]).

Illustrations. Illustrations are available in: Mendoza & Ramirez, Guía Ilus. Melastom. Col. 190, Fig. 1.90 (2006); Wurdack, Fl. Ecuador 13: 55, Fig. 9 (1980); Triana, Trans. Linn. Soc. London 28: 81, Tab 6, Fig. 82 (1871 [1872]).

Distribution. *Monolena primuliflora* is found in Brazil, Colombia, Costa Rica, Ecuador, Panama, and Peru, at 0–1,950 m, along rivers, roadsides, and steep slopes in humid lowland forests to montane cloud forests. *Monolena primuliflora* can be terrestrial, lithophytic, or epiphytic on logs and trunks.

Taxonomy. The first described and most widespread in the genus, *Monolena primuliflora* is distinguished by its ovate-elliptic leaves with a cuneate-obtuse base, and 3–6 flowered inflorescence. There is considerable accepted variation within the species (see Warner, 2002), and the selected specimens here represent that variation. There are two specimens with dense pubescence on the adaxial surfaces of leaves (*T.B. Croat 86589* (K [!]), *Lehmann 8980* (K [!])), the latter of which R.H. Warner has annotated as *M. primuliflora* var. *pubescens* ined., but this name is unpublished. There is another group of Colombian specimens that appear quite distinct (*J.W.L. Robinson 244* (K [!]), *H.P. Fuchs 21960* (K [!])), their leaves are thin, and veins on abaxial surface are fleshy and nearly flush with the leaf (where rigid and protruding in other specimens).

Notes. Triana refers to the collection *R. Spruce & W. Lechler 2370* in Triana, Trans. Linn. Soc. London 28: 80 (1871 [1872]), but we have been unable to locate it. *Bertolonia primuliflora* Dombrain was synonymized by Triana (1871 [1872]).

Preliminary Conservation Status. *Monolena primuliflora* is known from 459 occurrences and has a known EOO of 2,693,687 km^2 (LC) and AOO of 1,244 km^2 (VU). There are more than twenty known subpopulations, many of which are protected. Due to its abundance and the number of protected subpopulations, we recommend *M. primuliflora* be listed as Least Concern (LC).

Uses. *Monolena primuliflora* has been marketed and sold in the horticultural sector as an 'ant plant' due to its bulbous rhizome, but the only evidence for an ant mutualism is the presence of pearl bodies in one account (Clausing, 1998). In Colombia, the plant is used a laxative to expel parasites, native vernacular 'churco' (Benítez & Valois, 2004).

Monolena pygmaea L.Uribe, Caldasia 11(51): 90 (1971). TYPE: Colombia: Valle del Cauca, Buenaventura, Campamento "Calima", 100 m, 22 Jun 1969, *L. Uribe U. & P. Ortiz V. 6288* (holotype: COL, accession 119372 [!]; isotype: US, accession 2639756 [!]).

Selected specimen. **COLOMBIA. Valle del Cauca:** Bajo Calima, 3°57′05.5"N, 76°50′56.3"W, 103 m, 21 Feb 2014, *G. Marcía Ruiz 3001* (FMB [n.v]).

Illustration. An illustration is available in: L. Uribe, Caldasia 11(51): 90, Fig. 3 (1971).

Distribution. *Monolena pygmaea* is found in Colombia (Valle del Cauca), at 0–125 m [georeferenced], in Chocó-Darién moist forests. *Monolena pygmaea* is epiphytic.

Taxonomy. *Monolena pygmaea* resembles *M. pilosiuscula* in its uniflorous scape, but differs in its much smaller stature. *Monolena pygmaea* perhaps most closely resembles *M. bracteata,* but the latter apparently has longer (15 mm) bracts and a bifloral scape. These species are known from very few collections and further examination is required.

Preliminary Conservation Status. Known from only two occurrences, we recommend *Monolena pygmaea* be listed as Data Deficient (DD).

Monolena trichopoda R.H.Warner, Proc. Calif. Acad. Sci. ser. 4, 53(9): 114 (2002). TYPE: Panama: Veraguas, NW of Santa Fe, 2.7 km from Escuela Agricola Alto de Piedra on road to Calovébora, 30 Mar 1975, *S. Mori & J. Kallunki 5335* (holotype: MO, accession 2340121 [!]; isotype: US, accession 2727366 [!]).

Selected Specimens. **PANAMA. Coclé:** 7 km N of El Cope, area around the Rivera Sawmill, Alto Calvario, 700–850 m, 5 Jul 1977, *J.P. Folsom 4118* (CAS [image!]). **Veraguas:** 3 mi from Escuela Agriculture Alto Piedra on road to Río Calovébora, 2,400 ft [732 m], 7 Oct 1979, *T. Antonio 2037* (CAS [image!]).

Distribution. *Monolena trichopoda* is found in Panama (Coclé, Veraguas), at 400–1,300 m, in and along rivers in premontane to montane forests. *Monolena trichopoda* can be terrestrial, lithophytic, or epiphytic on branches and logs.

Taxonomy. *Monolena trichopoda* is distinguished from other *Monolena* species by its lanceolate leaves with entire margins and an acute base, two rows of cilia on the petioles, and acrodromous venation that is offset (not joining at the same point near the leaf base).

Notes. Warner (2002) mentions several related but unassigned specimens from Bocas del Toro.

Preliminary Conservation Status. *Monolena trichopoda* is known from 42 occurrences and has a known EOO of 1,774 km^2 (EN) and AOO of 76 km^2 (EN). There are nine known subpopulations, six protected between Santa Fe National Park, Reverendo Padre Jesús Héctor Gallego Herrera National Park, and General de División Omar Torrijos Herrera National Park. Though its EOO and AOO qualify as threatened, due to proportion of strictly protected subpopulations, we recommend *M. trichopoda* be listed as Least Concern (LC).

Triolena Naudin, Ann. Sci. Nat., Bot. sér. 3, 15: 328 (1851). TYPE: *Triolena scorpioides* Naudin, Ann. Sci. Nat., Bot. sér. 3, 15: 328 (1851).

Diolena Naudin, Ann. Sci. Nat., Bot. sér. 3, 15: 329 (1851). TYPE: *Diolena hygrophila* Naudin, Ann. Sci. Nat., Bot. sér. 3, 15: 329 (1851).

Diplarpea Triana in Bentham & Hooker f., Gen. Pl. 1(3): 732 (756) (1867). TYPE: *Diplarpea paleacea* Triana, Trans. Linn. Soc. London 28: 80 (1871 [1872]).

Triolena agrimonioides (Triana) Almeda & Alvear, Phytoneuron 2015-22: 4 (2015). *Diolena agrimonioides* Triana, Trans. Linn. Soc. London 28: 81 (1871 [1872]). TYPE: Novo-Granatensis [Colombia]: in nemoribus provinciae Chocoensis, Prov. De Buenaventura, 550 m, Jun 1853, *J.J. Triana 3871* **(lectotype, here designated:** COL, accession 1429 [!]). Remaining syntype: Nouvelle-Grenade [Colombia]: Prov. De Buenaventura, 500 m, 1851–1857, *J.J. Triana 3871* (P, barcode P02274835 [!]).

Selected Specimens. **COLOMBIA. Antioquia:** Mun. San Luis, Quebrada La Cristalina, 6°N, 74°45"W, 560–570 m, 24 May 1987, *J.G. Ramírez & D.C. López 1011* (COL [!]). **Cauca:** [without precise locality], 100 m, 30 Dec 1946, *O. Haught 5410* (COL [!]). **Valle del Cauca:** Santa Rosa, along Río Caballete, 200–500 m, 22 Sep 1922, *E.P. Killip 11544* (NY [!]).

Illustration. An illustration is available in: Mendoza & Ramirez, Guía Ilus. Melastom. Col. 241, Fig. 1.119 (2006).

Distribution. *Triolena agrimonioides* is found in Colombia (Antioquia, Cauca, Valle del Cauca), at 25–575 m, in and along rivers in dense Chocó-Darién moist forests. *Triolena agrimonioides* is epiphytic.

Taxonomy. *Triolena agrimonioides* resembles *T. pileoides* and *T. anisophylla* in its small and strongly anisophyllous leaves. *Triolena agrimonioides* differs from *T. pileoides* in its longer leaves (~5 cm), and from *T. anisophylla* in its conspicuously dentate margins and its dense pubescence on the stems and adaxial surface of the leaves.

Preliminary Conservation Status. *Triolena agrimonioides* is known from three occurrences and has a known EOO of 9,063 km^2 (VU) and AOO of 12 km^2 (EN). There are three known subpopulations, one protected in Cuenca Hidrográfica de Río Samaná Norte. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the Chocó region (deforestation due to population growth and development), we recommend *T. agrimonioides* be listed as Endangered (EN) according to IUCN criterion B2ab.

Triolena allardii (Wurdack) Wurdack, Phytologia 31: 493 (1975). *Diolena allardii* Wurdack, Phytologia 9: 415 (1964). TYPE: Peru: San Martín, Tingo María, at Las Cueras de los pavos on road to Lima, 625–1,100 m, 30 Oct 1949–19 Feb 1950, *H.A. Allard 20510* (holotype: US, accession 1999760 [!]).

Selected Specimens. **PERU. Huánuco:** Leoncio Prado, Dtto. Emileo Baldizan, carretera Tingo María-Pucallpa La Divisora, 1,600 m, 22 Mar 1980, *M. Rimachi Y. 4989* (CAS [image!]). **San Martín:** Quebrada de Santiago (al este de Puerto Pizana), Mariscal Cáceres, Tocache Nuevo, 350–380 m, 27 Jul 1973, *J. Schunke Vigo 6497 (*US [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena allardii* is found in Peru (Huánuco, San Martín), at 350–1,725 m, along rivers, ravines, and roadsides in moist montane forests of the Peruvian Yungas. *Triolena allardii* can be terrestrial or epiphytic.

Taxonomy. *Triolena allardii* differs from *Triolena amazonica* in its more strongly anisophyllous leaves (the smaller ~ 50% the length of the larger), serrate margins, and longer ventral appendages on the antesepalous stamens.

Preliminary Conservation Status. *Triolena allardii* is known from ten occurrences and has a known EOO of 2,593 km^2 (EN) and AOO of 36 km^2 (EN). There are four known subpopulations, none of which are protected. Due to its restricted habitat, limited locations, proportion of unprotected occurrences, and major threats to the Peruvian Yungas (population growth and development), we recommend *T. allardii* be listed as Endangered (EN).

Triolena amazonica (Pilg.) Wurdack, Phytologia 31(6): 493 (1975). *Diolena amazonica* Pilg., Verh. Bot. Vereins Prov. Brandenburg 47: 168 (1905). TYPE: [Brazil]: Amazonas, Gesellig bei Belem, Rio Juruá, Oct 1901, *E. Ule 5826* (**lectotype, here designated:** MG, accession MG005731 [image!]; isolectotypes: CORD, barcode 00003592 [image!]; HBG, barcode 522824 [image!]; K, barcode K000535529 [!]; L, accession L.2537908 [image!]).

Diolena boliviensis Cogn., Bull. Torrey Bot. Club 23: 277 (1896). TYPE: Bolivia: [without precise locality or date], *M. Bang 2574* (**lectotype, here designated:** BR, barcode BR0000005224265 [image!]; isolectotype: NY, barcode 00228552 [!]).

Selected Specimens. **BRAZIL. Acre:** Mun. Santa Rosa, Rio Purus, Seringal Refugio, Colocação Balbino, trail to Refúgio and São Braz, 9°04′29.9”S, 69°54′56.7”W, 27 Oct 2001, *D.C. Daly* et al. *11132* (NY [!]).

COLOMBIA. Amazonas: Río Amacayacu, 20 km de son embouchure sur l'Amazone, maloca Impata (indiens Ticunas), 3 Feb 1969, *C. Sastre & R. Echeverry 562* (COL [image!], P [!], US [!]). **Putumayo:** Vereda El Líbano, 0.63, -77.07 [0°37′48”N, 77°4′12”W], 832 m, 28 Jul 2019, *D. Cárdenas, 51312* (COAH [!]).

ECUADOR. Napo: Añunga, Río Napo, 260–350 m, 0°31–32'S, 76°23'W, *J.E. Lawesson* et al. *39471* (AAU [image!], RB [image!]). **Orellana:** Parque Nacional Yasuní, Carretera Pompeya Sur-Iro km 84.7, en territorio de la comunidad Huaorani de Dicaro, parcela temporal de muestreo (0.1 ha) Nº21, -0.864317, -76.278717 [0°51′51.5”S, 76°16′ 43.4W”], 250–300 m, 30 Jul 1997, *M.J. Macía & A.P. Yanez 808* (QCA [n.v.]). **Pastaza:** Lorocachi, on path to Lagartococha, 1°38'S, 75°58'W, 200 m, *J. Jaramíllo* et al. *30980* (US [!]). **Sucumbíos:** Sacha Lodge, 3 km NW of Añunga, near the Napo River, 0°30'S, 76°26'W, 200 m, 5–13 Jun 1995, *J.L. Clark* et al. *1013* (US [!]).

PERU. Cusco: 9 miles from Quincemil, Prov. Quispicanchi, 570 m, 3 Oct 1968**,** *B. Maguire & C. Maguire 61601* (US [!]). **Huánuco**: SE of Pucallpa, next to the junction of the Río Pachitea and the Río Yuyapichis, village of Panguana and surroundings, 9°37'S, 74°56'W, 260 m, *W. Morawetz & B. Wallnöfer 12–281085* (US [!]). **Junín:** Cahuapanas, on Río Pichis, 340 m, 20–21 Jul 1929, *E.P. Killip & A.C. Smith 26800* (RB [image!], US [!]). **Loreto:** Río Corrientes, Cachuela, *S. McDaniel & B. Marcos 11199,* 9 Sep 1968 (F [!], US [!]). **Madre de Díos:** Parque Nacional de Manu, Río Manu, Cocha Cashu Station, 350 m, 27 Sep 1979, *R.B. Foster* et al. *7056* (F [!]). **Pasco:** Oxapampa, Palcazu, Río Alto Iscozacin, Ozuz to Río Lobo, 10°19'S, 75°16'W, 400–500 m, 10 May 1985, *R.B. Foster & B. d'Achille 10045* (F [!], US [!]). **Ucayali:** Prov. Purus, Dist. Purus, Río Curanja, cerca de la comunidad nativa de Columbiana, 10°04'S, 71°06'W, 325 m, 15 Jul 1998, *J. Graham 599* (F [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena amazonica* is found in Bolivia (La Paz), Brazil (Acre), Colombia (Amazonas, Putumayo), Ecuador (Napo, Orellana, Pastaza, Sucumbíos), and Peru (Cusco, Huánuco, Junín, Loreto, Madre de Dios, Pasco, Ucayali), at 100–1,100 m, along rivers, ravines, and wet areas in lowland moist forests. *Triolena amazonica* can be terrestrial or epiphytic.

Taxonomy. *Triolena amazonica* most closely resembles *Triolena allardii* but differs primarily in its leaves that are less strongly anisophyllous (the smaller > 50% the length of the larger).

Notes. F holds a photo of a type of *Triolena amazonica* from the Ule Herbarium in Berlin that may have been destroyed (F, accession 0BN016906 [image!]). The BR specimen of *Diolena boliviensis* was chosen as the lectotype because the original description is recorded on the sheet. *Diolena boliviensis* Cogn. was synonymized by Govaerts et al. (2021).

Preliminary Conservation Status. *Triolena amazonica* is known from 136 occurrences and has a known EOO of 964,243 km^2 (LC) and AOO of 392 km^2 (EN). There are more than twenty known subpopulations, many of which are protected. Due to its abundance and the number of strictly protected subpopulations, we recommend *T. amazonica* be listed as Least Concern (LC).

Triolena anisophylla K. Samra & Michelang., Kew Bull. 79(4) (2024). TYPE: Panama: Colón, Dist. Donoso, afueras del área de la concesión de Minera Panamá, al sur del Helipad PC7, 34 m, 8°56'17”N, 80°45'46”W, 15 Aug 2012, *O. Ortiz & O. Orlando 837* (holotype: MO, accession 6750825 [!]; isotype: PMA [n.v.]).

Selected specimen. **PANAMA. Colón:** Donoso, Coclé del Norte, área del helipad CR10, tomando hacia el norte, 8°56′55”N, 80°41′37”W, 17 Jul 2012, *J.E. Aranda B. 4206* (CAS [!], MO [!]).

Illustration. An illustration is available in: Samra & Michelang., Kew Bull. 79(4) (2024).

Distribution. *Triolena anisophyllya* is found in Panama (Colón), at 25–150 m, along rivers and streams in Isthmian-Atlantic moist forests. *Triolena anisophylla* can be terrestrial, lithophytic, or epiphytic on trunks.

Taxonomy. *Triolena anisophylla* differs from *T. lanceolata* in its strongly anisophyllous leaves and stiff, appressed, elongated hairs on the adaxial surface of its leaves. *Triolena anisophylla* differs from *Triolena pileoides* subsp.

panamensis in its longer and more anisophyllous leaves and by the lack of glandular hairs on its stems.

Preliminary Conservation Status. *Triolena anisophylla* was previously assessed as Endangered (EN) in 2024 (Samra et al.).

Triolena asplundii Wurdack, Phytologia 35: 10 (1976). TYPE: Ecuador: Pastaza, about 2 km E of Puyo, 900 m, 9 Feb 1956, *E. Asplund 19308* (holotype: S, accession S-05-3317 [image!]).

Selected specimen. **ECUADOR. Pastaza:** Puyo, 16 Feb 1953, *G.W. Prescott 402* (NY [!]).

Distribution. *Triolena asplundii* is found in Ecuador (Pastaza), at 900–1,200 m, in moist and disturbed areas within montane forests of the Eastern Cordillera. *Triolena asplundii* can be terrestrial or epiphytic.

Taxonomy. *Triolena asplundii* differs from the other pustulate species, *T. dressleri, T. pustulata,* and *T. vasquezii,* in its strongly anisophyllous leaves and that have distinctly oblique leaf bases (one side offset 4–7 mm from the other).

Preliminary Conservation Status. *Triolena asplundii* has previously been listed as Endangered (Cotton & Pitman, 2004a). This species is known from ten occurrences and has a known EOO of 259 km^2 (EN) and AOO of 32 km^2 (EN). There are five known subpopulations, none of which are protected. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the Pastaza region (deforestation due to agriculture, mining, and development), we recommend *T. asplundii* continue to be listed as Endangered (EN).

Triolena auriculata (Triana) Almeda & Alvear, Phytoneuron 2015-22: 4 (2015). *Diolena auriculata* Triana, Trans. Linn. Soc. London 28: 81. (1871 [1872]). TYPE: Nova Granata [Colombia]: ad litus oceani Pacifici prope Buenaventura, 600 m, Jun 1853, *J.J. Triana 3868* (**lectotype, here designated:** COL, accession 36544 [image!]; isolectotypes: BM, barcode BM000953992 [image!]; K, barcode K000535528 [!]; P, barcode P02274834 [image!]).

Selected Specimens. **COLOMBIA. Nariño:** Mun. Barbacoas, Corregimiento de Junín, Reserva Natural de las Aves El Pangán, 1°21.320'N, 78°5.091'W, 726 m, *M. Alvear* et al. *1816* (NY [!]). **Valle del Cauca:** about 18 km E of Buenaventura, 50 m, 14 Feb 1939, *E.P. Killip & H. Garcia 33272* (NY [!]).

Illustration. An illustration is available in: Triana, Trans. Linn. Soc. London 28: 81, Tab 6, Fig. 83 (1871 [1872]).

Distribution. *Triolena auriculata* is found in Colombia (Nariño, Valle del Cauca), at 50–1,025 m, along rivers and roadsides in Chocó-Darién moist forests to Andean montane forests. *Triolena auriculata* can be terrestrial or epiphytic on logs.

Taxonomy. *Triolena auriculata* resembles *T. purpurea* in its extremely anisophyllous leaves where the smaller leaf is orbicular-auriculate, but is distinguished by glabrous adaxial surfaces of the leaf blades and by its more sparsely hirsute stem and hypanthium. *Triolena auriculata* also resembles *T. spicata,* but differs in its secondary venation joining at roughly the same point near the leaf base (where offset 0.5–1 cm in *T. spicata*). A few *T. auriculata* collections from Nariño (Colombia) and Esmeraldas (Ecuador) show significantly broader leaves than the type and other specimens (e.g., *J.L. Clark 11105* (NY [!]), *J.L. Clark 11227* (NY [!]), *J.L. Fernández* et al. *12482* (NY [!])), and could be an undescribed species.

Preliminary Conservation Status. *Triolena auriculata* is known from six occurrences and has a known EOO of 9,213 km^2 (VU) and AOO of 24 km^2 (EN). There are six known subpopulations, one protected in Unidad Ambiental Costera Complejo Malaga Buenaventura. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the region (deforestation due to population growth and development), we recommend *T. auriculata* be listed as Vulnerable (VU).

Triolena barbeyana Cogn., Monogr. Phan. 7: 542 (1891). TYPE: Peru: [without precise locality or date], 1,800 m, *J. Pavón s.n.* (**lectotype, here designated:** BR, barcode BR0000031152624 [image!]; isolectotype: G-BOIS [n.v.]).

Selected Specimens. **ECUADOR. Cañar:** La Troncal, Monta Real, 2°34'S, 79°21'W, 350 m, 6 Nov 1995, *J.L. Clark* et al. *1586* (US [!]). **Esmeraldas:** Reserva Biologica Bilsa, Sendero Amarillo, 0°20′49"N, 79°42′41"W, 540 m, 13 Feb 2009, *S. Stern 394* (NY [!]). **Los Ríos:** Río Palenque Science Center, km 56 Rd. Quevedo-Santo Domingo, 150–220 m, 12 Nov 1979, *E. Schupp 43* (USF [image!]). **Manabí:** 11 km E of San Plácido on road Portoviejo-Pichincha, 400 m, 8 May 1985, *G. Harling & L. Andersson 24982* (US [!]). **Pichincha:** Carretera Quito-Puerto Quita, km 113, 0°05'N, 79°02'W, 800 m, 17 Feb 1984, *N. Betancourt 85* (CAS [image!], US [!]).

COLOMBIA. Chocó: area of Baudó, right bank of river Baudó, about 19 km upstream of estuary, about 700 m upstream of sawmill Porquera, opposite estuary of Quebrada Canalete, 8 m, 8 Feb 1967, *H.P. Fuchs & L. Zanella 21816* (COL [image!], US [!]). **Nariño**: Costa del Pacífico, en la cuenca del Río Telembí, Barbacoas y alrededores, 30 m, 6–10 May 1953, *J.M. Idrobo & H. Weber 1468* (COL [image!]). **Risaralda:** Mun. Pueblo Rico, corregimiento de Santa Cecilia, entre el Río Aguita y Quebrada Piunda, 550 m, 26 Oct 1991, *J.L. Fernández-Alonso* et al. *9369* (COL [image!], US [!]).

Distribution. *Triolena barbeyana* is found in Colombia (Chocó, Nariño, Risaralda,), Ecuador (Cañar, Esmeraldas, Los Ríos, Manabí, Pichincha), and Peru, at 0–1,800 m, along rivers and wet ravines in moist lowland to montane forests. *Triolena barbeyana* can be terrestrial or epiphytic on trunks.

Taxonomy. *Triolena barbeyana* apparently differs from *T. hirsuta* in its more strongly anisophyllous leaves that are adaxially glabrous or with shorter hairs, but this distinction is questionable, and we suggest closer examination of the two taxa.

Notes. The type material of *Triolena barbeyana* is limited and we were unable to view it. The specimen at BR is inside an envelope that was not opened during digitization. Paris holds a photograph of a possible isolectotype at G-BOIS (P, barcode P05259600 [image!]), but like the BR specimen, it is also obscured by paper. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Azuay (Ecuador).

Preliminary Conservation Status. *Triolena barbeyana* is known from 52 occurrences and has a known EOO of 192,742 km^2 (LC) and AOO of 132 km^2 (EN). There are more than twenty known subpopulations, several protected within Mache Chindul Ecological Reserve, and one protected within Abras de Mantequilla Wetland. Due to the abundance of this species and the many strictly protected subpopulations, we recommend *T. barbeyana* be listed as Least Concern (LC).

Triolena calciphila (Standl. & Steyerm.) Standl. & L.O.Williams, Fieldiana, Bot. 29: 585 (1963). *Diolena calciphila* Standl. & Steyerm., Publ. Field Mus. Nat. Hist., Bot. ser. 23: 133 (1944). TYPE: Guatemala: Quiché, Zona Reina, 750 m, 2 Dec 1934, *A.F. Skutch 1811* (holotype: F, accession 934304 [!]; isotypes: GH, barcode 00072196 [image!]; NY, barcode 803656 [!]; US, accession 1644287 [!]).

Selected specimen. **GUATEMALA. Alta Verapaz:** Cobán, 1,350 m, May 1908, *H. von Türckheim 1716a* (F [!], NY [!]).

Distribution. *Triolena calciphila* is found in Guatemala (Alta Verapaz, Quiché), at 450–1,350 m, on steep banks and rocky areas near rivers in montane pine-oak forests. *Triolena calciphila* is terrestrial.

Taxonomy. Standley and Williams (1963) distinguished *Triolena calciphila* from *T. paleolata* by its two anther appendages (three in *T. paleolata*). However, the original description of *T. paleolata* describes 2–3 appendages. Otherwise, these two species are remarkably alike and share a comparable distribution. Further floral and molecular examination is required to accurately distinguish or synonymize the two.

Preliminary Conservation Status. *Triolena calciphila* is known from three occurrences and has a known EOO of 2,877 km^2 (EN) and AOO of 16 km^2 (EN). There are three known subpopulations, none of which are protected. Due to its restricted habitat, limited locations, proportion of unprotected occurrences, and major threats to the region (agriculture), we recommend *T. calciphila* be listed as Endangered (EN).

Triolena campii (Wurdack) Wurdack, Phytologia 31(6): 493 (1975). *Diolena campii* Mem. New York Bot. Gard. 16: 8 (1967). TYPE: Ecuador: along floodplain of Río Itzintza, Cordillera Cutucú, Prov. Santiago-Zamora, 1,050–1,100 m, 17 Nov–5 Dec 1911, *W.H. Camp E-1224* (holotype: US, accession 2404684 [!]; isotype: NY, barcode 00228553 [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 4.

Distribution. *Triolena campii* is found in Ecuador (Morona-Santiago), at 1,050–1,150 m, along rivers and cliffs in montane forests. *Triolena campii* can be epiphytic or lithophytic.

Taxonomy. *Triolena campii* closely resembles *T. lanceolata*, but differs in its shorter cauline, foliar, and hypanthium hairs, and in its longer petioles. The distinction between these two species is unclear, but because both are only known from a single collection, additional material and molecular analysis is suggested.

Preliminary Conservation Status. *Triolena campii* has previously been listed as Endangered (Cotton & Pitman, 2004b). However, because it is only known from a single occurrence, we recommend it be listed as Data Deficient (DD).

Triolena dressleri Wurdack, Phytologia 31: 493 (1975). TYPE: Panama: Veraguas, Guabal, between continental divide and Río Calovébora, NW of Santa Fé, 400–500 m, 7 Sep 1974, *R.L. Dressler 4725* (holotype: US, accession 2639921 [image!]; isotype: PMA, accession 35581 [image!]).

Selected specimen examined. **PANAMA. Veraguas:** Río Segundo Brazo, 700–750 m, 8 Sep 1974, *P.J.M. Maas & R.L. Dressler 1634** (U [image!], US [!]).

Illustration. An illustration is available on: *R.L. Dressler 4275* (US, accession 2639921).

Distribution. *Triolena dressleri* is found in Panama (Veraguas), at 400–800 m, along rivers, steep banks, and rocky areas in lowland Isthmian–Atlantic forests to Talamancan montane forests. *Triolena dressleri* is terrestrial.

Taxonomy. *Triolena dressleri* differs from all other *Triolena* species by the combination of its pustulate 7–9-plinerved leaves its cordate leaf bases. *Triolena dressleri* most closely resembles *T. pustulata*, which is 5-plinerved and has three ventral stamen appendages (two in *T. dressleri*).

Preliminary Conservation Status. *Triolena dressleri* is known from 16 occurrences and has a known EOO of 74 km^2 (CR) and AOO of 36 km^2 (EN). There are six known subpopulations, three protected in Sante Fe National Park and two protected in Reverendo Padre Jesús Héctor Gallego Herrera National Park. Though its EOO and AOO fall in threatened

categories, due to the number of strictly protected subpopulations, we recommend *T. dressleri* be listed as Least Concern (LC).

Triolena hirsuta (Benth.) Triana, J. Bot. 5: 211 (1867). *Bertolonia hirsuta* Benth., Bot. Voy. Sulphur: 94 (1844). TYPE: Ecuador: Guayaquil, [without date], *A. Sinclair s.n.* (holotype: K, barcode K000535523 [!]).

Selected Specimens. **COLOMBIA. Chocó:** Municipio Bahia Soland/Ciudad Mutis, Corregimiento Mecana, Jardín Botánico del Pacífico, Sendero Jaguar (Trail #3), along banks of Quebrada La Resaquita, 6°16.036'N, 77°21.988'W, 15 m, 4 Feb 2012, *F. Almeda* et al. *10461* (NY [!]).

COSTA RICA. Heredia: Estación Biológica La Selva Reserve of the Organization for Tropical Studies, vicinity of the first swamp on the Central Trail, 100 m, 27 Feb 1986, *F. Almeda & B. Anderson 5109* (CAS [image!]).

ECUADOR. Esmeraldas: Quininde Cantón, Mache-Chindul Ecological Reserve, Bilsa Biological Station, Mache Mountains, 35 km W of Quinindé, 0°21'N, 79°44'W, 500 m, 2 Oct 1996, *J.L. Clark 3018* (US [!]).

NICARAGUA. Río San Juan: Río San Juan, Mun. El Castillo, Comunidad Filas Verdes, 11°06′39"N, 84°18′03"W, 200 m, 15 Oct 2004, *R. Velásquez 686* (CAS [image!]).

PANAMA. Colón: Orilla de la carretera hacia la grua de Sherman, 2 Jul 1997, *E. Montenegro 1680* (CAS [image!]).

PERU. Ucayali: Padre Abad, cuencacuenca del Río Aguaytia, carretera al caserio San Miguel y Mapuya, 12 a 17 km de la Aguaytia, 9°05'S, 75°26'W, 350 m, 4 Oct 2004, *J. Schunke Vigo & J.G. Graham 16235* (NY [!]).

Illustrations. Illustrations are available in: Gleason, Ann. Mo. Bot. Gard. 45: 238, Fig. 80 (1958); H.A. Gleason's Archival Notes, Vol. 13; Mendoza & Ramirez, Guía Ilus. Melastom. Col. 242, Fig. 1.120 (2006); Triana, Trans. Linn. Soc. London 28: 81, Tab 6, Fig. 84b (1871 [1872]).

Distribution. *Triolena hirsuta* is found in Colombia, Costa Rica, Ecuador, Nicaragua, Panama, and Peru, at 0–1,500 m, along rivers, roadsides, and slopes from lowland mangroves to montane forests. *Triolena hirsuta* can be terrestrial, epiphytic or lithophytic.

Taxonomy. The most widespread species in the genus, *Triolena hirsuta* shows much variation in petiole length and leaf pubescence.

Notes. *Triolena hirsuta* is enumerated in Trans. Linn. Soc. London 28: (1871 [1872]), and several publications and sources have mistakenly cited this as the protologue. However, J.J. Triana first published this combination in 1867 when listing the Melastomataceae from Chontales, Nicaragua. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Honduras and Brazil.

Preliminary Conservation Status. *Triolena hirsuta* is known from 384 occurrences and has a known EOO of 2,417,874 km^2 (LC) and AOO of 956 km^2 (VU). There are over twenty known subpopulations, many of which are protected. Due to its abundance and the number of strictly protected subpopulations, we recommend *T. hirsuta* be listed as Least Concern (LC).

Triolena hygrophila (Naudin) L.O.Williams, Fieldiana, Bot. 29: 585 (1963); *Triolena "hygrophylla". Diolena hygrophila* Naudin, Ann. Sci. Nat., Bot. sér. 3, 15: 329 (1851). TYPE: Venezuela: Carabobo, [without specific locality or date], *N. Funck & L. Schlim 553* **(lectotype, here designated:** P, barcode P02274833 [!]; isolectotype: BR, barcode BR0000005223534 [image!]).

Salpinga monostachya Pittier, Bol. Soc. Venez. Ci. Nat. 8: 136 (1943). TYPE: Venezuela: Carabobo, Borburata, 670 m, Feb 1942, *F. Tamayo 2225* (holotype: VEN, barcode 10624 [!]).

Selected specimen. **VENEZUELA. Yaracuy:** Distrito Nirgua, Serranía Santa María-Cerro La Chapa: 6 km al norte de Nirgua, 10°12.5'N, 68°33.5'W, 1,200–1,350 m, 18–19 Dec 1991, *W. Meier & M. Roeser 1001* (US [!]).

Illustrations. Illustrations are available in: Naudin, Ann. Sci. Nat., Bot. sér. 3, 16: Plate 24, Fig. 1. (1851); Wurdack, Fl. Venez. 8: 260, Fig. 32 (1973); *N. Funck and L. Schlim 553* (P, barcode P02274833).

Distribution. *Triolena hygrophila* is found in Venezuela (Carabobo, Yaracuy), at 650–1,400 m, along rivers and slopes in Cordillera La Costa montane forests. *Triolena hygrophila* can be terrestrial, lithophytic, or epiphytic on trunks.

Taxonomy. *Triolena hygrophila* is potentially synonymous with or perhaps an isolated subpopulation of *Triolena amazonica*, the only discernible difference being a slightly more undulate margin in *T. hygrophila* (where serrate-crenulate in *T. amazonica*). Otherwise, the separation of the two species is indistinguishable from descriptions and available specimens. Further morphological and molecular analysis is required.

Notes. During the transfer of *Diolena hygrophila* to *Triolena,* Standley & Williams (1963) misspelled the specific epithet as "*hygrophylla*". This is an error to be corrected and the original spelling is reinstated here. F holds a negative of what may be another isolectotype at LUX (F, accession 211012), but we are unable to confirm its existence. *Salpinga monostachya* Pittier was synonymized in *Flora de Venezuela* (Wurdack, 1973).

Preliminary Conservation Status. *Triolena hygrophila* is known from five occurrences and has a known EOO of 12 km^2 (CR) and AOO of 16 km^2 (EN). There are three known subpopulations, all protected within both Macizo de Nirgua Protective Zone and Cuenca Alta del Río Cojedes Protective Zone. Though its EOO and AOO qualify as threatened, because all subpopulations are doubly protected, we recommend *T. hygrophila* be listed as Least Concern (LC).

Triolena izabalensis Standl. & Steyerm., Publ. Field Mus. Nat. Hist., Bot. ser. 23: 138 (1944). TYPE: Guatemala: Izabal, near headwaters of Río Lampará, 7 Feb 1939, *C.L. Wilson 175* (holotype: F, accession 968900 [image!]).

Selected specimen. **GUATEMALA. Izabal:** across Río Dulce from the village of Lampara (about 10 km W of Livingston), 10 m, 10 Feb 1994, *D.R. Hodel & J.J. Castillo 1257* (CAS [image!]).

Distribution. *Triolena izabalensis* is found in Guatemala (Izabal), at 0–50 m, along rivers, slopes, and bluffs in moist lowland forests. *Triolena izabalensis* is lithophytic on limestone.

Taxonomy. *Triolena izabalensis* resembles *T. paleolata*, but apparently differs in its stiff hirsute spreading hairs on the undersurface of the leaves (where strigose and closely appressed in *T. paleolata*). We recommend closer examination of the two.

Preliminary Conservation Status. *Triolena izabalensis* is known from three occurrences and has a known EOO of 44 km^2 (CR) and AOO of 12 km^2 (EN). There are two known subpopulations, one protected in Cerro San Gil Watershed Protection Reserve and one protected within both the Reserve and Río Dulce National Park. Though its EOO and AOO fall in threatened categories, due to the number of strictly protected subpopulations, we recommend *T. izabalensis* be listed as Least Concern (LC).

Triolena lanceolata (Gleason) Almeda & Alvear, Phytoneuron 2015-22: 4 (2015). *Diolena lanceolata* Gleason, Bull. Torrey Bot. Club 52: 374 (1925). TYPE: Colombia: Valle del Cauca, Santa Rosa, along Rio Caballete, 200–300 m, 22 Sep 1922, *E.P. Killip 11537* (holotype: NY, barcode 00228554 [!]; isotypes: GH, barcode 00072199 [image!]; PH, accession 612773 [image!]; US, accession 1143984 [!]).

Illustration. An illustration is available in: Gleason, Bull. Torrey Bot. Club 52: 375, Fig. 2 (1925).

Distribution. *Triolena lanceolata* is found in Colombia (Valle del Cauca), at 200–300 m, along rivers.

Taxonomy. Several collections from Panama have been misidentified as *Triolena lanceolata* due to similar leaf shape, but have since been described as *T. anisophylla*, which differs primarily in its strongly anisophyllous leaves. As noted, a closer inspection of the distinction between *T. lanceolata* and *T. campii* is required.

Preliminary Conservation Status. Known only from the type locality, we recommend *Triolena lanceolata* be listed as Data Deficient (DD).

Triolena obliqua (Triana) Wurdack, Phytologia 35: 243 (1977). *Diolena obliqua* Triana, Trans. Linn. Soc. London 28: 81 (1871 [1872]). TYPE: Novo Granatensis [Colombia]: in Andium Antioquensium reipublicae, *J.J. Triana 3873* (holotype: BM, barcode BM000953991 [image!]).

Selected Specimens. **ECUADOR. Carchi:** Tulcan Canton, Reserva Indígena Awá, Comunidad San Marcos, 25 km al NW de El Chical, parroquia Maldonado, 1°06'N, 78°14'W, 1,500 m, 16–30 Nov 1990, *D. Rubio* et al. *1021* (US [!]). **Esmeraldas:** Cantón, San Lorenzo, Parroquia, Alta Tambo, border region Awá Indigenous Territory, entrance to the Río Bogotá community, near Quebrada Pambilar, 0°58′57"N, 78°35′60"W, 350–600 m, 13 Feb 2003, *J.L. Clark 7173* (NY [!], US [!]). **Morona-Santiago:** Cantón: Limón-Indanza, Cordillera del Condor, trails towards crest of the Cordillera del Condor from camp #1 (ca. 10–15 km S/SE of the Comunidad Warints), 3°13'S, 78°15'W, 830–1,200 m, 17 Dec 2002, *J.L. Clark 7066* (US [!]). **Napo:** Estación Biológica Jatun Sacha, Río Napo, 8 km al este de Misahuallí, 1°04'N, 77°36'W, 450 m, 22 Oct 1988, *C.E. Cerón & C. Iguago 5346* (US [!]). **Pastaza:** 3.5 km N of Puyo, 7 Nov 1952, *F. Fagerlind & P.G. Wibom 1182* (US [!]).

COLOMBIA. Antioquia: Río Claro, along hwy. between Pto. Triumfo and Medellin, near the river S of the hwy ca. 1 km, 8 May 1983, *T.B. Croat 56555* (MO [n.v.]). **Chocó:** carretera (en construcción) Yuto-Lloró, 1 km de Yuto, 70 m, 9 Sep 1976, *E. Forero & R. Jaramillo 2706* (COL [image!]). **Nariño:** cuenca alta de los ríos Rumiyaco-Rancheria, 1,000 m, 7 Sep 1998, *H. Mendoza 5651* (COAH [n.v.]). **Putumayo:** about 10 km SE of Pto. Asis, near San Antonio, 350 m, 8 Jan 1968, *C. Etienne 68–68* (CAS [image!]). **Valle del Cauca:** from Campoalegre into area controlled by Corporacion Valle del Cauca, trail uphill behind last camp (El Chanco), 4°00'N, 76°40'W, 490–700 m, 17 Feb 1989, *J.F. Smith* et al. *1343* (COL [image!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena obliqua* is found in Colombia (Antioquia, Chocó, Nariño, Putumayo, Valle del Cauca), and Ecuador (Carchi, Esmeraldas, Morona-Santiago, Napo, Pastaza), at 50–1,500 m, along rivers, ravines, and roadsides in moist lowland forests to montane forests. *Triolena obliqua* can be terrestrial, lithophytic, or epiphytic on trunks and trees.

Taxonomy. *Triolena obliqua* shares a striking resemblance and similar distribution to *T. purpurea*. The primary difference between most of the collections appears to be a dense pubescence on adaxial surface of leaves in *T. purpurea.* However, the type of *T. obliqua* also looks densely pubescent, while some more recently identified collections have sparse indumentum or are glabrous (e.g., *W. Palacios 3017* (US [!]), *J. Homeier & M.A. Chinchero 2112* (NY [!]), *J.L. Clark* et al. *9167* (US [!])). *A.F. Skutch 4555* (K [!], NY [!], US [!]) has been annotated as a possible new species and shows an affinity towards the sparsely hairy and glabrous specimens mentioned. The type of *T. obliqua* should be compared to these collections and distinctions from *T. purpurea* should be clarified.

Notes. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Sucumbíos (Ecuador) and Cauca (Colombia).

Preliminary Conservation Status. *Triolena obliqua* is known from 53 occurrences and has a known EOO of 167,845 km^2 (LC) and AOO of 152 km^2 (EN). There are more than twenty known subpopulations, eight of which fall in protected areas. Though its AOO qualifies as endangered,

due to the number of strictly protected subpopulations, we recommend *T. obliqua* be listed as Least Concern (LC).

Triolena paleacea (Triana) Almeda & Alvear, Phytoneuron 2015-22: 5 (2015). *Diplarpea paleacea* Triana, Trans. Linn. Soc. London 28: 80 (1871 [1872]). TYPE: Nouvelle-Grenade [Colombia]: Prov. De Barbacoas, Chutucal, Vía de Fúguerres, 600 m, May 1853, *J.J. Triana 3867* (**lectotype, here designated:** BM, barcode BM000953996 [!]; isolectotypes: CAS, accession 766384 [image!]; COL, accession 1435 [!]; E, barcode 00285764 [!]; K, barcode K000535534 [!]; NY, barcode 00228560 [!]; P, barcode P02274836 [!]). Remaining syntypes: Nouvelle-Grenade [Colombia]: Prov. De Barbacoas, Chutucal, Fúguerres, 600 m, May 1853, *J.J. Triana s.n.* (BM, barcode BM000953995 [image!]); Nouvelle-Grenade [Colombia]: Prov. De Barbacoas, Chutucal, 600 m, 1851–1857, *J.J. Triana s.n.* (BR, barcode BR0000030718869 [image!]); Nouvelle-Grenade [Colombia]: Prov. De Barbacoas, Chutucal, 600 m, 1851–1857, *J.J. Triana s.n.* (P, barcode P02274837 [!]).

Selected Specimens. **COLOMBIA. Nariño:** Municipio de Barbacoas, Corregimiento Altaquer, Vereda El Barro, Reserva Natural Río Ñambí, 1°17.166'N, 78°4.470'W, 1,362 m, 2 Feb 2013, *M. Alvear* et al. *1719* (NY [!]).

ECUADOR. Carchi: Awá Indigenous Territory, community of Baboso, about 1 km W of the house of Patrocinio Ortiz, 0°55'N, 78°25'W, 1,080 m, 10 Apr 1995, *H.T. Beck* et al. *3071* (NY [!], US [!]). **Esmeraldas:** Cantón, San Lorenzo, Parroquia, Alto Tambo, 4–8 km W of El Cristal, 0°50′16"N, 78°31′4"W, 27 May 2008, *J.L. Clark* et al. *10303* (NY [!]).

Illustrations. Illustrations are available in: Mendoza & Ramirez, Guía Ilus. Melastom. Col. 128, Fig. 1.48 (2006); Triana, Trans. Linn. Soc. London 28: 81, Tab 6, Fig. 81 (1871 [1872]).

Distribution. *Triolena paleacea* is found in Colombia (Nariño) and Ecuador (Carchi, Esmeraldas), at 600–1,500 m, in montane forests. *Triolena paleacea* is terrestrial.

Taxonomy. *Triolena paleacea* is distinguished from all other *Triolena* by its essentially isophyllous leaves, single anther appendages, and flaky white trichomes.

Notes. The COL type is in especially poor condition, so the most intact BM specimen was chosen as the lectotype.

Preliminary Conservation Status. *Triolena paleacea* is known from nine occurrences and has a known EOO of 538 km^2 (EN) and AOO of 32 km^2 (EN). There are five known subpopulations, none of which are protected. Due to its restricted habitat, limited locations, lack of protected subpopulations, and major threats to the region (deforestation due to population growth and development), we recommend *T. paleacea* be listed as Endangered (EN).

Triolena paleolata Donn.Sm., Bot. Gaz. 13: 28 (1888). TYPE: Guatemala: Alta Verapaz, Pansamalá forests, 3800 feet [1,158 m], Aug 1886, *H. von Türckheim 726* (**lectotype, here designated:** US, accession 1363511 [image!]; isolectotypes: BR, barcodes BR0000005224272 [image!], BR0000005224296 [image!], BR0000005264155 [image!]; F, accession 575711 [!]; GH, barcode 00073291 [image!]; K, barcode K000535525 [!]; NY, barcodes 658555 [!], 245865 [!]; P, barcode P02274832 [!]; US, accessions 1363507 [!], 1363508 [!]).

Selected Specimens. **GUATEMALA. Alta Verapaz:** Choval, 15°30'N, 90°25'W, 800 m, 16 May 1976, *I. Kunkel 559* (BR [image!]). **Huehuetenango:** between Yulhuitz and Maxbal, Sierra de los Cuchumatanes, 1,400–1,500 m, 15 Jul 1942, *J.A. Steyermark 48683* (F [!], US [!]). **Izabal:** Cerro San Gil, along Río Frío, 75 m, 17 Dec 1941, *J.A. Steyermark 39950* (MO [n.v.]).

Distribution. *Triolena paleolata* is found in Guatemala (Alta Verapaz, Huehuetenango, Izabal), at 75–1,500 m, along rivers and limestone slopes in dense lowland forests to montane perennial forests. *Triolena paleolata* is lithophytic.

Taxonomy. Standley and Williams (1963) note that *Triolena paleolata* is probably synonymous with *T. radicans* [= *T. scorpioides*]. It is unclear if this species has two or three anther appendages, as there are differing accounts. Further floral examination could aide in its delimitation.

Notes. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Atlántida (Honduras).

Preliminary Conservation Status. *Triolena paleolata* is known from nine occurrences and has a known EOO of 4,559 km^2 (EN) and AOO of 28 km^2 (EN). There are seven known subpopulations, two protected in Reserva Protectora de Manantiales and one protected in Texiguat Wildlife Refuge. Due to its restricted habitat, limited locations, proportion of unprotected occurrences, and major threats to the region (deforestation and agriculture), we recommend *T. paleolata* be listed as Endangered (EN).

Triolena pedemontana Wurdack, Phytologia 35: 243 (1977). TYPE: Ecuador: Pichincha, 20 km W of Santo Domingo de los Colorados, 300 m, 29 Oct 1961, *P.C.D. Cazalet & T.D. Pennington 5195* (holotype: K, barcode K000535613 [!]; isotypes: NY, barcode 00245867 [!]; US, accession 2405337 [!]).

Selected Specimens. **ECUADOR. Carchi:** Border area between Prov. Carchi and Esmeraldas, about 20 km past Lita on road Lita-Alto Tambo, 0°53'N, 78°30'W, 550 m, 26 Jun 1991, *H. van der Werff* et al. *12035* (MO [n.v.]). **Cotopaxi:** Río Guapara, ± 20 km NW El Corazón, 250 m, 19 Jun 1967, *B. Sparre 17125** (S [image!]). **Esmeraldas:** Mache-Chindul Ecological Reserve, Bilsa Biological Station, Mache Mountains, 35 km W of Quinindé, 0°21'N, 79°44'W, 500 m, 2 Oct 1996, *J.L. Clark 3019* (US [!]). **Napo:** Road Lita-Alto Tambo, km 18, 10 km al Norte de la carretera principal, 0°47'N, 78°30'W, 400 m, 13 Jan 1991, *B. Øllgaard* et al. *98784* (AAU [n.v.]). **Pichincha:** Carretera Quito-Puerto Quito, km 113, 0°05'N, 79°02'W, 800 m, 18 Feb 1984, *N. Betancourt 95* (US [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena pedemontana* is found in Ecuador (Carchi, Cotopaxi, Esmeraldas, Napo, Pichincha, Santo Domingo de los Tsáchilas), at 300–1,000 m, along rivers and disturbed areas in wet lowland forests to montane forests. *Triolena pedemontana* can be terrestrial or epiphytic on trunks.

Taxonomy. *Triolena pedemontana* differs from *T. spicata* in its strongly dentate leaves (crenulate in *T. spicata). Triolena pedemontana* differs from *T. obliqua* in its broader leaves and larger inflorescence. *Triolena pedemontana* perhaps most closely resembles *T. pluvialis,* but the latter has a more oblique leaf base, secondary acrodromous venation joining at roughly the same point, and more obviously asymmetric leaves. There are two cf. specimens from Los Rios Province (*T.B. Croat 56996* (US [!]), *T.B. Croat 56997* (US [!])) that appear unique.

Preliminary Conservation Status. *Triolena pedemontana* has previously been listed as Vulnerable (Cotton & Pitman, 2004c). The species is known from 35 occurrences and has a known EOO of 21,455 km^2 (NT) and AOO of 92 km^2 (EN). There are 19 known subpopulations, one protected within Mache Chindul Eco Reserve. Due to its restricted habitat, major threats to the region (deforestation due to agriculture, mining, and development), and the proportion of unprotected subpopulations, we recommend *T. pedemontana* be listed as Near Threatened (NT).

Triolena pileoides (Triana) Wurdack, Phytologia 35: 9 (1976). *Diolena pileoides* Triana, Trans. Linn. Soc. London 28: 81 (1871 [1872]). TYPE: [Ecuador]: Archedena Andium Quitensium, [without date], *W. Jameson 772* **(lectotype, here designated:** E, barcode 00505270 [!]; isolectotype: K, barcode K000535527 [!]). Remaining syntype: [Colombia]: Prov. Barbacoas, a pede occidentali Andium Pastoensium ad litus oceani Pacifici, [without date], *J.J. Triana 3875* [n.v.].

Selected Specimens. **COLOMBIA. Chocó:** Mun. de Atrato, Corregimiento Doña Josefa, road between Quibdó and Mun. de Atrato (formerly Yuto), 1 km on the road to Corregimiento Doña Josefa on the Finca Faya, property of Fabio García Cossio, along quebrada Inginia, 5°34.238'N, 76°38.131'W, 80 m, 31 Jan 2012, *F. Almeda* et al. *10445* (NY [!]). **Valle del Cauca:** Dindo area, Bajo Calima, 3°59'N, 76°58'W, 100 m, 20 Jul 1984, *A. Gentry & M. Monsalve 48426* (US[!]).

ECUADOR. Esmeraldas: Reserva Ecológica Cotacachi-Cayapas, Charco Vicente, Río San Miguel, afluente del Río Cayapas, 0°43'N, 78°53'W, 150 m, 6–9 Sep 1993, *W.A. Palacios & M. Tirado 11297* (MO [n.v.]). **Napo:** at Río Payamino, 60 km along Río Payamino W of Coca, 0°29'S, 77°12'W, 350 m, 18 Jun 1968, *L. Holm-Nielsen & S. Jeppesen 775* (US [!]). **Sucumbíos:** Alto Río Aguarico, Río Chingual, ridge just before Chingual Bridge, between Río Recodo and Río Chinqual, along new trail toward Bermejo, from new road to Tulcán above Puerto Libre, 0°15.22'N, 77°28.25'W, 700–800 m, 7 Jul 2000, *R. Aguinda* et al. *806* (F [!], NY [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena pileoides* is found in Ecuador (Esmeraldas, Napo, Pichincha, Sucumbíos) and Colombia (Chocó, Nariño, Valle del Cauca), from 0–1,700 m, along rivers, slopes, and disturbed areas in lowland moist forests to montane forests. *Triolena pileoides* can be terrestrial or epiphytic on trunks.

Taxonomy. *Triolena pileoides* is the only South American *Triolena* with such small (the larger of the pair 1–1.7 cm long) and strongly anisophyllous leaves.

Notes. Triana refers to two collections in the protologue, *W. Jameson 772* and *J.J. Triana 3875*, but we were unable to locate any specimens of the J.J. Triana collection.

Preliminary Conservation Status. *Triolena pileoides* is known from 31 occurrences and has a known EOO of 91,319 km^2 (LC) and AOO of 100 km^2 (EN). There are twenty known subpopulations, three protected in Cayambe Coca National Park, and one protected in De la Cuenca Hidrográfica de los Rios Escalarete y San Cipriano National Reserve. Due to its restricted habitat, major threats to the region (deforestation due to agriculture, mining, and development), and the proportion of unprotected occurrences, we recommend *T. pileoides* be listed as Near Threatened (NT).

Triolena pileoides subsp. ***panamensis*** Wurdack, Phytologia 35: 9 (1976). TYPE: Panama: Veraguas, along the first branch of the Río Santa Maria about 8 km W of Santa Fe, 650 m, 18 May 1975, *R.L. Dressler 5035* (holotype: US, accession 2776819 [image!]; isotypes: CAS, accession 680439 [image!]; PMA, accession 038206 [image!]; US, accession 2823439 [!]).

Selected Specimens. **PANAMA. Bocas del Toro:** along oleoducto road between continental divide at first crossing N from divide, 8°50–55'N, 82°9–12'W, 120 m, 1–2 May 1985, *B. Hammel 13730* (CAS [image!]). **Veraguas:** at base of Cerro Tuti, 6.5 km outside Santa Fe, 6 May 1977, *J.P. Folsom 3037* (CAS [image!]).

Distribution. *Triolena pileoides* subsp. *panamensis* is found in Panama (Bocas del Toro, Veraguas), at 100–650 m, along rocky riverbanks, roadsides and shady areas in moist lowland to montane forests. *Triolena pileoides* subsp. *panamensis* can be terrestrial, lithophytic or epiphytic on trunks.

Taxonomy. *Triolena pileoides* subsp. *panamensis* differs from the South American subspecies in its inflorescence of multiple flowers (solitary or subsolitary in S. American specimens) and its large glandular hairs (0.1 mm long) on the pedicels, but this distinction seems weak.

Preliminary Conservation Status. *Triolena pileoides* subsp. *panamensis* is known from eight occurrences and has a known EOO of 632 km^2 (EN) and AOO of 24 km^2 (EN). There are five known subpopulations, two protected in Palo Seco Protected Forest and two protected within Santa Fe National Park.

Though its EOO and AOO qualify as threatened, due to the several protected subpopulations, we recommend *T. pileoides* subsp. *panamensis* be listed as Least Concern (LC).

Triolena pluvialis (Wurdack) Wurdack, Phytologia 31: 493 (1975). *Diolena pluvialis* Wurdack, Phytologia 9: 414 (1964). TYPE: Peru: Loreto, Prov. Alto Amazonas, in lower NW slopes of Cerros Campanquiz, Rio Marañón just above Pongo de Manseriche, 250–350 m, 17 Oct 1962, *J.J. Wurdack 2276* (holotype: US, accession 2404447 [!]; isotypes: K, barcode K000535612 [!]; F, accession 1601296 [!]; GH, barcode 00072200 [image!]; NY, barcode 228556 [!]; P, barcode P02274831 [!]; S, accession S05-3316 [image!]; UC, barcode UC1289627 [image!]; USM [n.v.]).

Selected Specimens. **COLOMBIA. Cauca:** Municipio de Santa Rosa, Vereda Signo Carmelo, zona amortiguadora del Parque Nacional Serranía de Los Churumbelos, cercanías de la quebrada Toroyaco, 1°15.305'N, 76°33.438'W, 722 m, 19 Feb 2013, *M. Alvear* et al. *1894* (NY [!]). **Nariño:** Cuenca alta de los ríos Rumiyaco-Ranchería, 0°30′7"N, 77°13′49"W, 750 m, 7 Sep 1998, *H. Mendoza* et al. *5402* (FMB [n.v.]). **Putumayo:** Mun. Mocoa, Granja Rumiyaco de la secretaria de desarrollo agropecuario de Mocoa, ca 20 minutos del centro de Mocoa, por la vía a Villa Garzón, 500 m, 26 Jan 1990, *J.E. Ramos* et al. *2533* (US [!]).

ECUADOR. Morona-Santiago: Taisha, 8–10 km N-NW of the military camp, 650–700 m, 16 Jun 1980, *J. Brandbyge & E. Asanza C. 31911* (US [!]). **Napo:** San Pablo de los Secoyas, SW-W of the village, 0°15'S, 76°21'W, 300 m, 5 Aug 1981, *J. Brandbyge* et al. *32996* (CAS [image!]). **Orellana:** along road between Coca and Narupa (jct. of Baeza-Tena Hwy.), 12.9 km W of jct. in Coca, 0°29′47"S, 77°07′50"W, 284 m, 7 Oct 2007, *T.B. Croat* et al. *99420* (K [!]). **Pastaza:** Pozo petrolero 'Moretecocha' de ARCO, Río Landayacu, 75 km al este de Puyo, 1°25'S, 77°25'W, 580 m, 25 Nov 1990, *E. Gudiño 1103* (US [!]). **Sucumbíos:** Alto Río Aguarico, between Flor de Valle y Cabeno, 6 km from Aguarico Bridge on ridge just N of new road to Pto. Libre and Tulcán, 0°03.94'N, 77°20.82'W, 500–600 m, 6 Jul 2000, *R. Aguinda* et al. *747* (F [!]).

PERU. Amazonas: Río Cenapa, Quebrada flowing into Nahim, which flows into the Huampami, 1 days walk by trail, trailside E of Huampami, to Shaim, 27 Nov 1972, *B. Berlin 385* (US [!]). **San Martín:** 35 to 37 km from Tarapoto on road to Yurimaguas, slope above Río Caynarachi, 12 Feb 1985, *B. Stein 2147* (CAS [image!], US [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena pluvialis* is found in Colombia (Cauca, Nariño, Putumayo), Ecuador (Morona-Santiago, Napo, Orellana Pastaza, Sucumbíos), and Peru (Amazonas, San Martín), at 200–1,000 m, along rivers, slopes, and disturbed areas in wet premontane to montane forests. *Triolena pluvialis* can be terrestrial or epiphytic.

Taxonomy. *Triolena pluvialis* most closely resembles *T. pedemontana* but differs in its broader, more oblique leaf base, and its acrodromous secondary veins joining at a single point at the leaf base.

Preliminary Conservation Status. *Triolena pluvialis* is known from 110 occurrences and has a known EOO of 828,546 km^2 (LC) and AOO of 288 km^2 (EN). There are more than twenty known subpopulations, many of which are protected. Though its AOO qualifies as endangered, due to the several protected subpopulations, we recommend *T. pluvialis* be listed as Least Concern (LC).

Uses. In Ecuador, the leaves are crushed and used as a gargle to cure coughs, native vernacular 'shashaqui panga' (*F. Hurtado 2827* (US [!]).

Triolena pumila Umaña & Almeda, Brittonia 43: 149 (1991). TYPE: Costa Rica: Limón, Cordillera de Talamanca, Cantón de Matina, Formación caliza, Barbilla en confluencia de Río Dantas y Río Cañon Seco (Quebrada Barreal), 10°00'36"N, 83°25'W, 200–300 m, 18 Oct 1988, *G. Herrera 2209* (holotype: CR, accession 156997 [n.v.]; isotypes: CAS, accession 923195 [!]; MO, accession 04909803 [!]; USJ [n.v.]).

Illustration. An illustration is available in: Almeda & Umaña, Brittonia 43: 149, Fig. 2 (1991).

Distribution. *Triolena pumila* is found in Costa Rica (Limón), at 200–300 m, near rivers in moist lowland forests. *Triolena pumila* is lithophytic on limestone.

Taxonomy. *Triolena pumila* resembles *T. pustulata,* but differs in its smaller and more strongly anisophyllous leaves. *Triolena pumila* also resembles *T. scorpioides,* but differs in its smaller stature, its strongly serrate leaf margin with longer cilia, and its densely pubescent inflorescence. Almeda and Umaña (1991) mention an affinity toward a possibly undescribed species filed under *T. scorpioides* from Mexico at CAS (*B. Ortiz & Martiniano 128*; *A. Marcelo & Aureliano 114*). *Triolena pumila* would benefit from additional collections and analysis.

Preliminary Conservation Status. Known only from the type collection, we recommend *Triolena pumila* be listed as Data Deficient (DD).

Triolena purpurea (Gleason) Almeda & Alvear, Phytoneuron 2015-22: 5 (2015). *Diolena purpurea* (Gleason), Bull. Torrey Bot. Club 68: 246 (1941). TYPE: Colombia: Chocó, on the upper Rio San Juan, Corcovado Region, 200–275 m, 24–25 Apr 1939, *E.P. Killip 35243 (lectotype, here designated*: COL, accession 1431 [!]; isolectotypes: NY, barcode 228557 [!]; US, accession 1771985 [!]).

Selected Specimens. **COLOMBIA. Chocó:** Municipio de Atrato, Corregimiento Doña Josefa, road between Quibdó and Mun. de Atrato (formerly Yuto), 1 km on the road to Corregimiento Doña Josefa on the Finca Faya, property of Fabio García Cossio, along quebrada Taita Pablo, 5°34.068'N, 76°38.030'W, 97 m, 31 Jan 2012, *F. Almeda* et al. *10440* (CAS, NY [!]). **Valle del Cauca:** Costa del Pacífico, Río Naya, Puerto Merizalde 5–20 m, 22 Feb 1943, *J. Cuatrecasas 14048* (NY [!]).

ECUADOR. Esmeraldas: Parroquia Ricaurte, Comunidad Balsareño a 10 km al este de Ricaurte, Reserva Etnica Awá, 1°09'N, 78°31'W, 80 m, 15–29 Apr 1991, *D. Rubio & C. Quebral 1340* (MO [n.v.]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 4.

Distribution. *Triolena purpurea* is found in Colombia (Chocó, Valle del Cauca) and Ecuador (Esmeraldas), at 0–275 m, along steep slopes and rivers in moist lowland forests. *Triolena purpurea* can be terrestrial or epiphytic.

Taxonomy. *Triolena purpurea* resembles *T. auriculata*, but differs in its more densely hirsute stem, foliage, and hypanthium.

Preliminary Conservation Status. *Triolena purpurea* is known from nine occurrences and has a known EOO of 22,986 km^2 (NT) and AOO of 36 km^2 (EN). There are eight known subpopulations, one protected within Unidad Ambiental Costera Complejo Malaga Buenaventura. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the region (deforestation due to population growth and development), we recommend *T. purpurea* be listed as Vulnerable (VU) according to IUCN criterion B2ab.

Triolena pustulata Triana, Trans. Linn. Soc. London 28: 81 (1871 [1872]). TYPE: [Ecuador]: in Andibus Ecuadorensibus ad flum de Guayaquil, prope Ventanas, [without date], *R. Spruce 6235* **(lectotype, here designated**: K, barcode K000006363 [!]; isolectotype: BM, barcode BM000778338 [!]).

Selected Specimens. **ECUADOR: Bolívar:** Clementina Farms, Cerro Samama, 5.7 km S and W of main Pueblo-Viejo-Caluma Road, 5.2 km W from bridge over Río Pita, (turnoff is 6.3 km E from Potosí), 1°38′51"S, 79°19′52"W, 371–600 m, 14 Aug 2004, *T.B. Croat* et al. *93324* (MO [n.v.]). **Cañar:** La Troncal, Manta Real, en la base occidental de los Andes, a 20 km al sureste de La Troncal, 2°33′35"S, 79°20′5"W, 800 m, 2 Jun 2005, *H. Vargas & W. Defas 5783* (NY [!]). **Chimborazo:** foothills of the western cordillera near the village of Bucay, 1,000–1,250 m, 8–15 Jun 1945, *W.H. Camp E-3838* (K [!], US [!]). **Cotopaxi:** 3 km E of El Palmar on road Quevedo-Latacunga, 800 m, 5 Apr 1980, *C.H. Dodson & A. Gentry 10212* (CAS [image!]). **Esmeraldas:** Reserva Biologica Bilsa, Sendero Amarillo, 0°20′49"N, 79°42′41"W, 540 m, 14 Feb 2009, *S. Stern & E.J. Tepe 404* (CAS [image!], NY [!]). **Guayas:** Hills above Hacienda La Elvira, c. 5 km W of Bucay, 2°11'S, 79°07'W, 500 m, 6 Jul 1979, *B. Løjtnant & U. Molau 15631* (AAU [image!]). **Los Ríos:** Surroundings of Montaivo (foothills of the Andes, ca. 20 m E of Babahoyo), 1°47'S, 79°17'W, 100–200 m, 30 Mar–2 Apr 1973, *L. Holm-Nielsen* et al. *2695* (AAU [image!], US [!]). **Morona-Santiago:** trail along Río Inimkis, ca 3 km NE of village of Inimkis (San Luis) toward foothills of Cord. Cutucú, 2°23'S, 78°06'W, 900–1,000 m, 14 Nov 1995, *B. Øllgaard & H. Navarrete 1434* (AAU [image!]). **Pastaza:** on banks of Río Pastaza S of Madre Tierra, 1°35'S, 78°02'W, 1,000 m, 22 Jan 1992, *B. Øllgaard 99597* (AAU [image!]). **Pichincha:** 20 km W. of Santo Domingo de los Colorados, 1,000 m, 15 Oct 1961, *P.C.D. Cazalet & T.D. Pennington 5020* (K [!], NY [!], US [!]).

Illustration. An illustration is available in: Wurdack, Fl. Ecuador 13: 57, Fig. 10 (1980).

Distribution. *Triolena pustulata* is found in Ecuador (Bolívar, Cañar, Chimborazo, Cotopaxi, Esmeraldas, Guayas, Los Ríos, Morona-Santiago, Pastaza, Pichincha), at 50–1,000 m, on moist slopes and disturbed areas in lowland to montane forests. *Triolena pustulata* can be terrestrial or epiphytic on trees and roots.

Taxonomy. *Triolena pustulata* resembles *T. hirsuta and T. barbeyana,* but differs in its pustulate leaves and a more densely pubescent inflorescence.

Notes. Wurdack (1980) mentions that *Triolena pustulata* is cultivated in some greenhouses as '*Bertolonia pubescens',* but this name is unplaced. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Santo Domingo de los Tsáchilas (Ecuador).

Preliminary Conservation Status. *Triolena pustulata* has previously been listed as Least Concern (Cotton & Pitman, 2004d). The species is known from 60 occurrences and has a known EOO of 54,957 km^2 (LC) and AOO of 172 km^2 (EN). There are more than twenty known subpopulations, six of which fall within protected areas. Due to its abundance and the number of protected subpopulations, we recommend *T. pustulata* continue to be listed as Least Concern (LC).

Triolena rojasiae Michelang. & R.Goldenb., Phytotaxa 374(3): 199 (2018); "*Triolena rojasae*". TYPE: Peru: Pasco, Province of Oxapampa, Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Sector Paujil, Quebrada Tunel, 429 m, 10°20'42"S, 75°15'48"W, 17 Mar 2008, *R. Vásquez et al. 34034* (holotype: USM [!]; isotypes: AMAZ [!]; BRIT [!]; HOXA [!]; HUT [!]; MO, accession 6999928 [!]; MOL [!]; NY, barcode 3777394 [!]).

Selected Specimens. **PERU. Huánuco:** Leoncio Prado, Pucayacu, Camino rumbo a catarata Otorongo y alrededores, 8°40′43.02"S, 76°5′21.30"W, 660 m, 13 Jan 2020, *R. Fernandez-Hilario* et al. *1832* (NY [!]). **Pasco:** Oxapampa, Palcazú, Parque Nacional Yanachaga-Chemillén, sector Paujil, sendero en la margen oeste del Río Iscozacín, camino colpa Lobo, 10°19′50.8"S, 75°15′14.6"W, 380 m, 13 Jul 2017, *F.A. Michelangeli & R. Goldenberg 2796** (NY [!]).

Illustration. An illustration is available in: Michelang. & R.Goldenb., Phytotaxa 374(3): 200, Fig. 9 (2018).

Distribution. *Triolena rojasiae* is found in Peru (Huánuco, Pasco), at 300–675 m, along rivers and in shady areas in Ucayali moist forests. *Triolena rojasiae* can be terrestrial or lithophytic.

Taxonomy. *Triolena rojasiae* resembles *T. obliqua,* but differs its subisophylous to anisophylous leaves, entire margins on internal laminae of the sepals, and antesepalous stamens without a dorsal connective spur (Michelangeli & Goldenberg, 2018).

Preliminary Conservation Status. *Triolena rojasiae* was previously assessed as Endangered in 2018 (Michelangeli & Goldenberg). The species is known from six occurrences and has a known EOO of 857 km^2 (EN) and AOO of 20 km^2 (EN). There are three known subpopulations, one protected

in Yanachaga-Chemillén National Park. Due to its restricted habitat, limited locations, proportion of unprotected occurrences, and major threats to the region (deforestation and development), we recommend *T. rojasiae* continue to be listed as Endangered (EN).

Triolena scorpioides Naudin, Ann. Sci. Nat., Bot. sér. 3, 15: 328 (1851). TYPE: Mexico: Chiapas, prope Zacualpan, [without date], *J.J. Linden 647* **(lectotype, here designated:** P, barcode P02274830 [!]; isolectotypes: G, barcodes G00319899 [image!], G00368053 [image!], G00368054 [image!]; GENT, barcodes BR0000008805157 [image!], BR0000008804822 [image!]; K, barcode K000535526 [!]).

Triolena radicans Brandegee, Univ. Calif. Publ. Bot. 4: 379 (1913). TYPE: Mexico: Veracruz, Sierra Madre between Misantla and Naolinco, Aug 1912, *C.A. Purpus 6201* (holotype: UC, barcode UC168606 [image!]; isotypes: BM, barcode BM000953989 [!]; F, accession 386620 [!]; GH, barcode 00073292 [image!]; NY, barcode 00245866 [!]; US, accession 464638 [!]).

Triolena roseiflora (Standl. & Steyerm.) Standl. & L.O.Williams, Fieldiana, Bot. 29: 586 (1963). *Diolena roseiflora* Standl. & Steyerm., Publ. Field Mus. Nat. Hist., Bot. ser. 23: 134 (1944). TYPE: Guatemala: Izabal, along Rio Tameja, Cerro San Gil, 50 m, 24 Dec 1941, *J.A. Steyermark 41819* **(lectotype, here designated:** F, accession 1137817 [!]). Remaining syntypes**:** Guatemala: between Escobas and Montaña Escoba, across the bay from Puerto Barrios, 1-100 m, 13 Apr 1940, *J.A. Steyermark 39317* (F, accession 1048263 [!]); Guatemala: Escoba, May 1939, *P.C. Standley 72900* [n.v.] , *72943* [n.v.].

Selected Specimens. **GUATEMALA. Izabal:** Livingston, Creek Jute, Bíotopo Chocon Machaca, 15°36'N, 88°24'W, *P. Tenorio L.* et al. *14971* (CAS [image!], MO).

HONDURAS. Atlántida: 5 km SE of Mataras, 16 Mar 1980, *D.L. Hazlett 3346* (CAS [image!], MO).

MEXICO. Chiapas: at Agua Azul, Mun. Palenque, 300 m, 8 Nov 1980, *D.E. Breedlove 47324* (CAS [image!], US [!]). **Puebla:** Mun. Cuetzalan, Taxipehuatl, Cascada de Taxipehuatl on Río Cuichat, 20°01.647'N, 97°27.415'W, 510–525 m, 11 Oct 2015, *T. Daniel 12212* (CAS [image!]). **Veracruz de Ignacio de la Llave:** camino real a Puxtla, al norte del municipio de Mecatlán, 20.21711, -97.68131 [20°13′1.60"N, 97°40′52.72"W], 867 m, 18 Sep 2017, *O. López Francisco & M. Gorostiza Salazar 76302* (CAS [image!]).

Illustrations: Illustrations are available in: Triana, Trans. Linn. Soc. London 28(1): 81, Tab 6, Fig. 84a (1871 [1872]); *J.J. Linden 647* (P, barcode P02274830).

Distribution. *Triolena scorpioides* is found in Guatemala (Izabal), Honduras (Atlántida), and Mexico (Chiapas, Puebla, Veracruz de Ignacio de la Llave), at 0–1,150 m, along rocky banks, slopes, and ravines in lowland forests to higher altitude pine-oak forests. *Triolena scorpioides* can be terrestrial or lithophytic.

Taxonomy. Differences in leaf size and hair density on internodes previously separated *Triolena scorpioides* from the synonyms listed above. Almeda (2009) suggests that these are merely slight variations to be expected in such a widely distributed species.

Notes. The collection number *J.J. Linden 647* is not exclusively referred to in the protologue of *Triolena scorpioides*, but the original description and illustrations are on the P specimen of this collection. We did not locate any *Triolena roseiflora* remaining syntypes of the P.C. Standley collections. Records available on GBIF but filtered via the validation protocols above suggest unverified occurrence of this species in Tabasco (Mexico). *Triolena radicans* Brandegee and *Triolena roseiflora* (Standl. & Steyerm.) Standl. & L.O.Williams were synonymized by Almeda (2009).

Preliminary Conservation Status. *Triolena scorpioides* is known from 55 occurrences and has a known EOO of 137,233 km^2 (LC) and AOO of 172 km^2 (EN). There are more than twenty known subpopulations, at least five within strictly protected areas. Due to its abundance and the several strictly protected subpopulations, we recommend *T. scorpioides* be listed as Least Concern (LC).

Triolena spicata (Triana) L.O.Williams, Fieldiana, Bot. 29: 586 (1963). *Diolena spicata* Triana, Trans. Linn. Soc. London 28: 81 (1871 [1872]). TYPE: Novo-Granatensium [Colombia]: in montibus prov. Chocoensis, 600 feet [183 m], May 1853, *J.J. Triana 3869* (**lectotype, here designated:** COL, accession 1434 [!]; isolectotypes: BM, barcode BM000953990 [!]; P, barcode P02274829 [!]).

Selected Specimens. **COLOMBIA. Antioquia:** Municipio de San Luís, Canon del Río Claro, 5°53'N, 74°39'W, 340 m, 16 Jun 1984, *A. Cogollo 1830* (COL [image!]). **Cauca:** Gorgona Island, 9 Oct 1924, *C. Longfield 551* (K [!]). **Chocó:** a lo largo del Río Baudó, 15 km, desde su desembocadura, De Puerto Pizarro a La Sierpe, Trocha Carpio-La Sierpe, 18 Feb 1967, *H.P. Fuchs* et al. *21931* (COL [image!], K [!], L [image!], U [image!], US [!]). **Valle del Cauca:** Municipio Buenaventura, community of San Isidro, 3°59'N, 76°57'W, 236 m, 15 Nov 1979–6 Dec 1979, *J. van Rooden* et al. *606* (CAS [image!], COL [image!], K [!], U [image!]).

COSTA RICA. Limón: Cantón de Limón, El Progreso, entre Cerro Muchilla y Cerro Avioneta, cabeceras de Río Suruy, Fila Matama, Valle de Estrella, 9°47′25"N, 83°06′30"W, 550 m, 16 Apr 1989, *G. Herrera & A. Chacón 2638* (CAS [image!]).

ECUADOR. Esmeraldas: Awá Reserve, community of Mataje, 1°15'N, 78°40'W, 200 m, 25 Jan 1993, *H.T. Beck* et al. *1793* (NY [!], US [!]).

PANAMA. Bocas del Toro: along oleoducto road between continental divide at first crossing N from divide, 8°50–55'N, 82°9–12'W, 120 m, 1–2 May 1985, *B. Hammel 13731* (CAS [image!]). **Coclé:** Parque Nacional Omar Torrijos, Sendero Cuerpo de Paz, 8°39.85'N, 80°35.41'W, 700–800 m, 13 Feb 2005, *D.S. Penneys & M.S. Blanco Coto 1762* (CAS [image!], FLAS [image!], US [!]). **Colón:** Dist. Donoso, site of proposed copper mine (MPSA), 8°57′55"N, 80°41′59"W, 70 m, 3 Dec 2009, *G. McPherson 21051* (CAS [image!], CAS [image!], US [!]). **Guna Yala:** Comarca San Blas, Yar Bired (Cerro San Jose), continental divide between

Cangandi and San Jose, 9°20'N, 79°8'W, 400–500 m, 5 Feb 1986, *G. de Nevers & H. Herrera 6987* (CAS [image!]). **Panamá:** El Llano-Carti Road, 16 km N of Pan.Am. Hwy. at El Llano, 400–450 m, 16 Jan 1974, *M. Nee & R. Dressler 9357* (US [!]). **Veraguas:** NW of Santa Fe, 10.8 km from Escuela Agricola Alto de Piedra, on road to Calovebora, 18 Jun 1975, *S. Mori 6731* (US [!]).

Illustration. An illustration is available in: H.A. Gleason's Archival Notes, Vol. 13.

Distribution. *Triolena spicata* is found in Colombia (Antioquia, Cauca, Chocó, Valle del Cauca), Costa Rica (Limón), Ecuador (Esmeraldas), and Panama (Bocas del Toro, Coclé, Colón, Guna Yala, Panamá, Veraguas), at 0–900 m, in and along rivers, ravines, and disturbed areas in dense lowland forests to montane forests. *Triolena spicata* can be terrestrial, lithophytic, or epiphytic on trunks.

Taxonomy. *Triolena spicata* differs from *T. obliqua* in its leaf shape, though Almeda and Umaña (1991) suggest that foliar characters may not reliably distinguish the two. Several specimens from Ecuador identified as *T. spicata* or aff. *spicata* do not resemble the type or other material (*G. Tipaz 320* (US [!]), *B. Øllgaard* et al. *57483* (AAU [image!]), *A.S. Barfod* et al. *48905* (AAU [image!])). These few specimens resemble collections identified as *T. auriculata* from Colombia (e.g., *M. Alvear 1780* (NY [!])). Further attention is required to identify these or distinguish them as a possible new species.

Preliminary Conservation Status. *Triolena spicata* is known from 114 occurrences and has a known EOO of 455,452 km^2 (LC) and AOO of 340 km^2 (EN). There are more than twenty known subpopulations, several of which are protected. Due to its abundance and the number of strictly protected subpopulations, we recommend *T. spicata* be listed as Least Concern (LC).

Uses. In Ecuador, the plant is used as an antidote for snakebites, native vernacular 'contra' (*H.T. Beck* et al. *1793* (NY!)).

Triolena stenophylla (Standl. & Steyerm.) Standl. & L.O.Williams, Fieldiana, Bot. 29: 586 (1963). *Diolena stenophylla* Standl. & Steyerm., Publ. Field Mus. Nat. Hist., Bot. ser. 23: 135 (1944). TYPE: Guatemala: Huehuetenango, between Maxbal and the lake to the SE, 1,500 m, 15–16 Jul 1942, *J.A. Steyermark 48728* (holotype: F, accession 1137808 [!]; isotypes: GH, barcode 00072198 [image!]; NY, barcode 228559 [!]; US, accession 1920018 [!]).

Selected specimen. **GUATEMALA. Alta Verapaz:** along Río Icvolay, N and NW of Finca Cubilgütz to Quebrada Diablo, 300–350 m, 6 Mar 1942, *J.A. Steyermark 44767* (NY [!], US [!]).

Illustration. An illustration is available in: Standley & Williams, Fieldiana, Bot. 24: 523, Fig. 84 (1963).

Distribution. *Triolena stenophylla* is found in Guatemala (Alta Verapaz, Huehuetenango), at 200–1,500 m, on rocky riverbanks and wooded slopes from Petén-Veracruz moist forests to higher altitude pine-oak forests. *Triolena stenophylla* is lithophytic.

Taxonomy. *Triolena stenophylla* is distinguished from other Guatemalan *Triolena* by its small and narrow leaves that are conspicuously hirsute abaxially (Standley & Steyermark, 1944). *Triolena stenophylla* differs from *T. anisophylla* in its weakly anisophyllous leaves (extreme in *T. anisophylla*). This species perhaps most closely resembles the South American *T. campii* and *T. lanceolata.*

Preliminary Conservation Status. *Triolena stenophylla* is known from nine occurrences and has a known EOO of 3,425 km^2 (EN) and AOO of 28 km^2 (EN). There are five known subpopulations, one protected within Piedras de Kab'tzin, San Juan Ixcoy Municipal Park. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the region (agriculture), we recommend *T. stenophylla* be listed as Endangered (EN).

Triolena vasquezii Michelang. & R.Goldenb., Phytotaxa 374(3): 203 (2018). TYPE: Peru: Pasco, Province of Oxapampa, Dist. Pozuzo, Parque Nacional Yanachaga-Chemillén, sendero Pan de Azúcar, ca. 4 km al sur del puesto de control Huampal, 10°11'48.8"S, 75°35'15.2"W, 1,145 m, 18 Mar 2016, *F.A. Michelangeli et al. 2705* (holotype: USM [!]; isotypes: MO, accession 6934329 [!]; NY, barcode 2676227 [!]).

Selected specimen. **PERU. Pasco:** Oxapampa, District Pozuzo, Parque Nacional Yanachaga-Chemillén, sector Huampal, cerca de la quebrada Pan de Azúcar, 10°11′05"S, 75°34′51"W, 1,100 m, 8 Aug 2007, *L. Hernani & A. Peña 217* (NY [!]).

Illustration. An illustration is available in: Michelang. & R.Goldenb., Phytotaxa 374(3): 205, Fig. 12 (2018).

Distribution. *Triolena vasquizii* is found in Peru (Pasco), at 375–1,500 m, along rivers, cliffs, and rocky slopes in Peruvian Yungas and Ucayali moist forests. *Triolena vasquezii* can be terrestrial or lithophytic.

Taxonomy. *Triolena vasquezii* differs from *T. pustulata* in its shorter trichomes on the adaxial surfaces of leaves, and stamens with two (3 in *T. pustulata*) ventral appendages (Michelangeli & Goldenberg, 2018).

Preliminary Conservation Status. *Triolena vasquezii* was previously assessed as Endangered in 2018 (Michelangeli & Goldenberg). It is known from 11 occurrences and has a known EOO of 199 km^2 (EN) and AOO of 16 km^2 (EN). There are

three known subpopulations, one protected within Yanachaga-Chemillén National Park. Due to its restricted habitat, limited locations, proportion of unprotected subpopulations, and major threats to the region (deforestation and development), we recommend *T. vasquezii* continue to be listed as Endangered (EN).

Results & Discussion

In this study, fifteen lectotypes were designated, eight accepted species were identified as requiring urgent taxonomic revision, and seven potentially undescribed species were also noted. Meticulously validated notes on distribution, elevation, habit, and habitat provide a comprehensive summary of each species and its range and ecology. Five species in Trioleneae have been recorded as having medicinal value to Indigenous peoples. The study also highlighted a significant gap in knowledge and collection of many of the South American species in Trioleneae; of the 14 species that have never been treated following their original description, all occur only in Colombia, Ecuador, and/or Peru. The cumulative nomenclatural, morphological, ecological, and ethnobotanical data presented here contributes to species-level knowledge in Melastomataceae systematics, and serves as a foundation for further research in Trioleneae. The mobilization of this expert-generated dataset, in a form that biodiversity data scientists can easily utilize, represents an important step towards a more streamlined taxonomic process that incorporates automation and machine learning.

Over a third of species in Trioleneae were preliminarily assessed in one of the three threatened categories according to IUCN criteria (Fig. 3A). This is largely due to the characteristic habitat of the group (restricted to understory riparian zones), as well as significant and ongoing threats to the forests of this region. The Chocó-Darien region, a global biodiversity hotspot (Myers et al., 2000) with high levels of endemism and species richness in Trioleneae (Fig. 2B), is threatened by heavy deforestation from population growth and development (Fagua et al., 2019). Unsustainable agricultural practices and mining pressures in Central America and Amazonia are among the most serious threats to the species of Trioleneae, especially those endemic to small regions (Blackman et al., 2014). The six species assessed here as Data Deficient would greatly benefit from further surveying and more accurate assessment, and recent studies suggest that most of these Data Deficient species should in fact be assumed to be threatened (Bland et al., 2015; Borgelt et al., 2022).

Overall, this synopsis provides a stepping-stone for future study of Trioleneae. A complete revision, combining inclusive molecular analysis and thorough morphological examination of all material is now urgently needed. This would allow delimitation of difficult complexes and likely uncover new species.

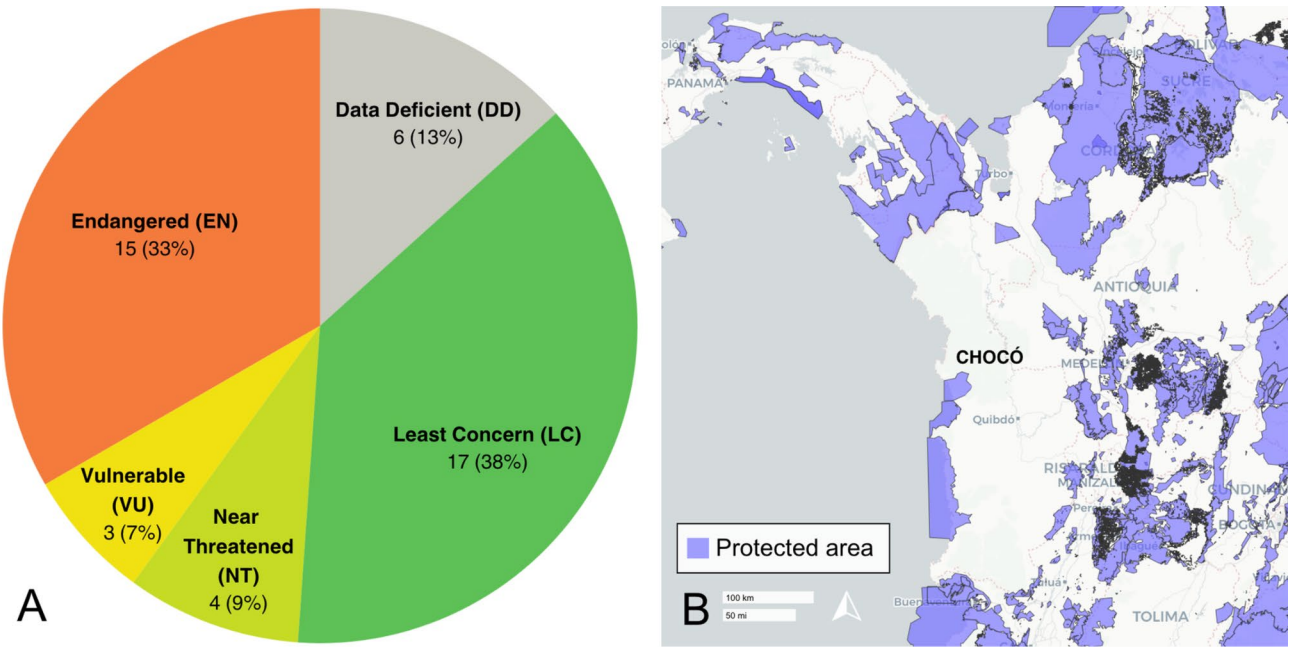

Fig. 3. **A** Proportion of species in Trioleneae falling into IUCN Red List categories. **B.** Overlaid protected areas in Colombia and Panama, illustrating a large gap in protected area in the Chocó region, where many Trioleneae species are endemic.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s12228-024-09808-9.

Acknowledgements

We would like to thank Robbin Moran and Laura Briscoe for their expertise and input on lectotypification issues. We thank the curators of the BM, CAS, COL, E, F, GH, K, MO, MOL, NY, P, US, and USM herbaria for access to their collections. This research was partially funded by the National Science Foundation (DEB-2001357).

Author Contributions

EJL, FAM and KES conceived the idea for the synopsis. KES compiled the literature, cleaned the occurrence data, completed the conservation assessments, made the figures and maps, constructed the checklist, and wrote the text. EJL and FAM provided expertise on nomenclatural and typification decisions and gave editorial guidance.

Funding

This research was partially funded by the National Science Foundation (DEB-2001357).

Data Availability

The data used in this study are available within the supplementary material.

Declarations

Conflicts of Interest

The authors declare no conflicts of interest that are relevant to the content of this article.

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