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Monograph of *Acalypha* L. (Euphorbiaceae)  
of the Western Indian Ocean Region,  
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# Monograph of *Acalypha* L. (Euphorbiaceae) of the Western Indian Ocean Region, with the description of a new species from Mayotte

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## ABSTRACT

This work presents a monographic revision of the genus *Acalypha* L. (Euphorbiaceae) from the Western Indian Ocean Region, including Madagascar, the Comoros Archipelago, the Mascarene Islands, the Seychelles Archipelago, and the Scattered Islands. Forty-nine species are recognized, with 42 native and seven probably introduced; 39 are found in Madagascar, eight in the Comoros, eight in the Mascarene Islands, four in the Seychelles, and one in the Scattered Islands. For each species, we provide a description, information about distribution and habitat, a distribution map, and a preliminary conservation assessment. Original illustrations and the first identification key for *Acalypha* species of this region are also included. Lectotypes are designated for 10 names. *Acalypha crateriana* (Coode) I.Montero & Cardiel, comb. nov. is proposed as a new combination and *Acalypha berryi* I.Montero, Cardiel & G.A.Levin, sp. nov., a new species from Mayotte, is described and illustrated.

## KEY WORDS

Euphorbiaceae,  
*Acalypha*,  
Madagascar,  
Comoros,  
Seychelles,  
Mascarene Islands,  
brachyblast,  
lectotypifications,  
new synonyms,  
new combination,  
new species.

## RÉSUMÉ

Révision monographique d'*Acalypha* L. (Euphorbiaceae) de la région de l'Ouest de l'Océan Indien, avec la description d'une espèce nouvelle endémique de Mayotte.

Ce travail présente une révision monographique du genre *Acalypha* L. (Euphorbiaceae) de la région de l'Océan Indien occidental, comprenant Madagascar, les îles Comores, les îles Mascareignes, l'archipel des Seychelles et les îles Éparses. Quarante-neuf espèces sont reconnues, dont 42 indigènes et sept probablement introduites; 39 se trouvent à Madagascar, sept aux Comores, huit aux Mascareignes, quatre aux Seychelles et une aux îles Éparses. Pour chaque espèce, nous fournissons une description, des informations sur la distribution et l'habitat, une carte de distribution et une évaluation préliminaire du statut de conservation. Des illustrations originales et la première clé d'identification des espèces d'*Acalypha* de cette région sont également incluses. Les lectotypes sont désignés pour 10 noms. *Acalypha crateriana* (Coode) I.Montero & Cardiel, comb. nov. est proposée comme nouvelle combinaison et *Acalypha berryi* I.Montero, Cardiel & G.A.Levin, sp. nov., une nouvelle espèce de Mayotte, est décrite et illustrée.

## MOTS CLÉS

Euphorbiaceae,  
*Acalypha*,  
Madagascar,  
Comores,  
Seychelles,  
Mascareignes,  
brachyblaste,  
lectotypifications,  
synonymes nouveaux,  
combinaison nouvelle,  
espèce nouvelle.

## INTRODUCTION

*Acalypha* L. is the type genus of Euphorbiaceae subfamily Acalyphoideae Beilschm. With about 500 species, *Acalypha* is the third most species-rich genus of Euphorbiaceae Juss. [sensu stricto, since *Phyllanthus* L. (sensu lato) includes >600 spp], after *Euphorbia* L. (Riina *et al.* 2013) and *Croton* L. (Berry *et al.* 2005). *Acalypha* is considered a natural and well-characterized genus (Nowicke & Takahashi 2002). Molecular phylogenetic studies strongly support its monophyly (Levin *et al.* 2005; Sagun *et al.* 2010; Levin *et al.* 2022). *Acalypha* is morphologically characterized by three synapomorphies associated with wind pollination: elongate, pendent, twisted anther sacs; small, brevicolporate, almost smooth pollen grains; and highly lacinate stigmas (Nowicke & Takahashi 2002; Sagun *et al.* 2006, Levin *et al.* 2022). It also appears that epidermal crystals are a synapomorphy of the genus (Cardiel *et al.* 2020).

The most recent proposal for an infrageneric classification of the genus (Levin *et al.* 2022) includes four subgenera: three already recognised in the previous classification by Pax & Hoffmann (1924) – *Acalypha*, *Androcephala* Pax & K.Hoffm., and *Linostachys* (Klotzsch ex Schldl.) Pax & K.Hoffm. – and a fourth one, *Hypandrae* (Müll.Arg.) Hurus, proposed by Levin and colleagues based on molecular data.

*Acalypha* species are mainly small trees and shrubs and, to a lesser extent, herbs. Its distribution is mainly pantropical, although some herbaceous species reach temperate areas. They range from tropical humid forests to sub-desert zones, and from sea level to about 4000 m altitude in tropical mountains. The greatest diversity appears in tropical America, with around 250 species (Cardiel *et al.* 2022b), followed by continental Africa, with around 65 species (Cardiel & Montero Muñoz 2018), and the islands of the Western Indian Ocean Region, the subject of this monograph, where we recognize 49 species.

According to the biogeographic system of Brummitt (2001), the Western Indian Ocean Region (hereafter WIOR) includes Madagascar, the Comoros Archipelago (Union of Comoros and the French Department of Mayotte), the Mascarene Islands (Mauritius and the French Department of La Réunion), the Seychelles Archipelago, and the Scattered Islands (Fig. 1).

This area belongs to the Malagasy region of the Paleotropical kingdom, according to Takhtajan (1986).

## TAXONOMIC HISTORY OF ACALYPHA OF WIOR

The first species of *Acalypha* from WIOR, *A. filiformis* Poir. and *A. venosa* Poir., both from Mauritius, were described by Poiret (1804). Willdenow (1805) soon added another species from Mauritius, *A. integrifolia* Willd. Bojer's *Hortus Mauritanus* (Bojer 1837), which included the first catalogue of the native species of Mauritius, listed eight *Acalypha* species, two of them newly named (*A. lantanaefolia* Bojer and *A. tomentosa* Bojer), but unfortunately Bojer's designations are both *nomina nuda*.

One of the 19<sup>th</sup> century botanists who contributed the most to the study of *Acalypha* in WIOR was Henri Baillon. He initially listed two species from Madagascar (*A. reticulata* (Poir.) Müll.Arg. and *A. salviifolia* Baill.) and three from the Mascarene Islands (*A. marginata* (Poir.) Spreng., *A. colorata* (Poir.) Spreng., and *A. arborea* Comm. in Poir.) (Baillon 1858). Soon thereafter, he listed nine species from Madagascar (*A. acuminata* Vahl ex Baill., *A. emirnensis* Baill., *A. goudotiana* Baill., *A. gracilipes* Baill., *A. pervilleana* Baill., *A. rottleroides* Baill., *A. salviifolia*, *A. spachiana* Baill., and *A. urophylla* Boivin ex Baill.), four species from the Comoros (*A. chibomboia* Baill., *A. codonocalyx* Baill., *A. ovalifolia* Baill., and *A. richardiana* Baill.), and three species from the Mascarene Islands (*A. arborea*, *A. commersoniana* Baill., and *A. marginata*); 11 of these species were newly described (Baillon, 1861). Much later, Baillon's (1891) contribution to *Histoire naturelle des Plantes volume III (Atlas) of Grandidier's Histoire physique, naturelle et politique de Madagascar* (Baillon 1891) included excellent plates, made by the illustrator André Revillon d'Apréval, of ten *Acalypha* species, five of them new to science (*A. diminuta* Baill., *A. humblotiana* Baill., *A. leptomyura* Baill., *A. madreporica* Baill., and *A. polynema* Baill.). It should be noted that only plates were published in this work, with no accompanying descriptions or additional information, but under the International Code of Nomenclature (Turland *et al.* 2018), these are sufficient to validate Baillon's new names. Finally, Baillon (1892, 1895a, 1895b) listed 32 *Acalypha* species from



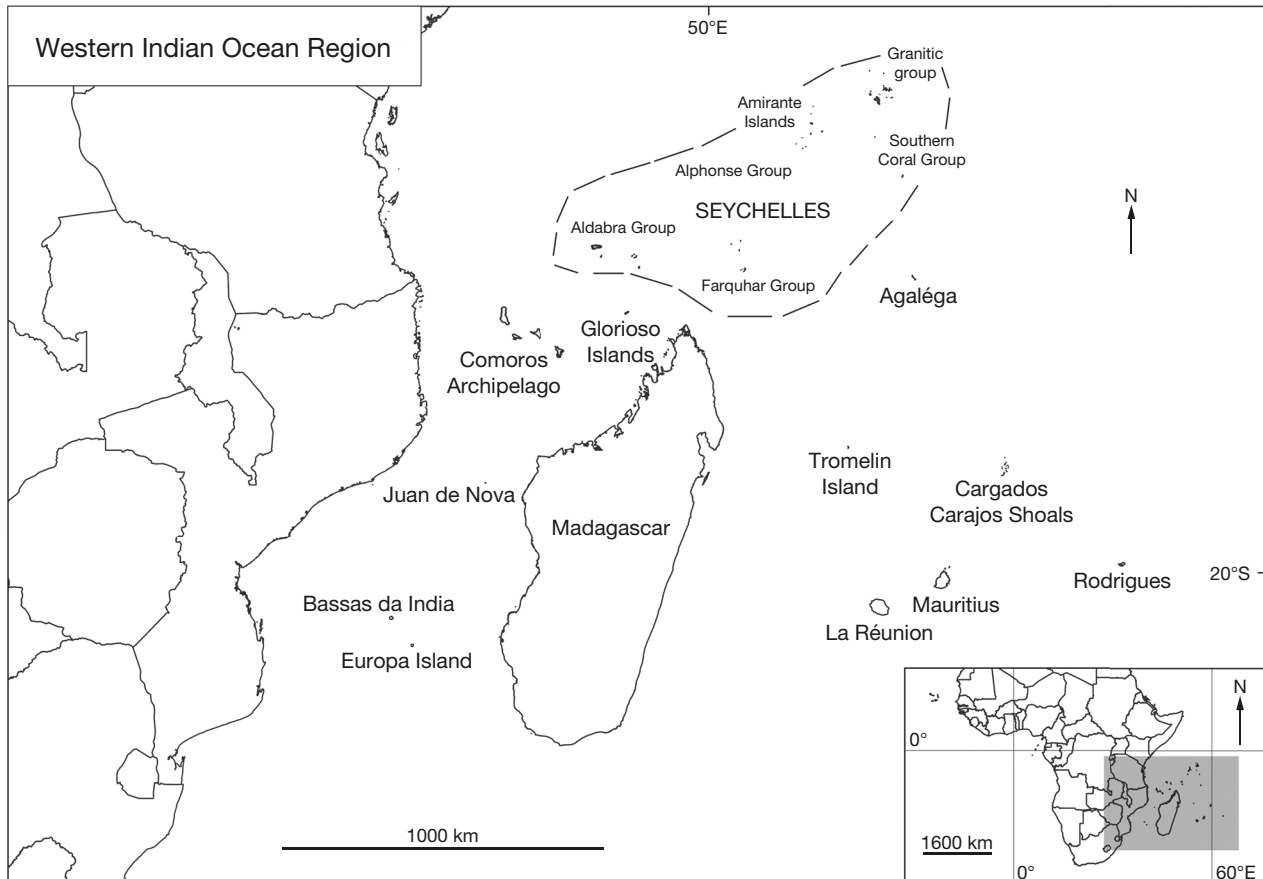


FIG. 1. — Map of the Western Indian Ocean Region (WIOR).

Madagascar, of which five were described for the first time (*A. bakeriana* Baill., *A. hildebrandtii* Baill., *A. meiodonta* Baill., *A. leonii* Baill., and *A. vulneraria* Baill.); he also provided descriptions of some of the species illustrated in the 1891 atlas.

The treatment of *Acalypha* in de Candolle's *Prodromus* (Müller Argoviensis 1865, 1866) included 11 *Acalypha* species from WIOR, six from Madagascar (*A. emirnensis*, *A. reticulata*, *A. rottleroides*, *A. spachiana* Baill., *A. spiciflora* Burm.f. and, as a novelty, *A. fasciculata* Müll.Arg.), three from the Comoros (*A. chibomboia*, *A. codonocalyx*, and *A. richardiana*), and two from the Mascarene Islands (*A. commersoniana* and *A. marginata*). Müller Argoviensis (1882) described one more species from Madagascar, *A. buchenavii* Müll.Arg.

Other 19<sup>th</sup> century authors also treated *Acalypha* from the WIOR. Baker (1877) listed five *Acalypha* species from Mauritius and the Seychelles and provided an identification key. Baker also described four new species from Madagascar (*A. baronii* Baker, *A. hologyna* Baker, *A. lyallii* Baker, and *A. radula* Baker) (Baker 1883, 1884). Strangely, Baron (1889) included only two *Acalypha* species (*A. radula* and *A. urophylla*) from Madagascar. Pax (1894) described four new species from Madagascar and the Comoros (*A. juliflora* Pax, *A. comorensis* Pax, *A. urophylla* Pax, and *A. squarrosa* Pax). Cordemoy (1895) wrote the first flora of La Réunion, in which five *Acalypha* species were included (*A. indica* L., *A. poiretii* Spreng., *A. reticulata*, *A. colorata*, and *A. marginata*).

Early in the 20<sup>th</sup> century, Palacký (1907) compiled a list of 44 previously described *Acalypha* species from Madagascar. Voeltzkow (1917) included seven *Acalypha* species from the Comoros. Hemsley (1919), in his flora of Aldabra and nearby islands, included two species of *Acalypha* endemic to Seychelles (*A. claoxyloides* Hutch. and *A. fryeri* Hutch.), both previously described by Hutchinson (1918). The last worldwide treatment of the genus, in Engler's *Das Pflanzenreich* (Pax & Hoffmann, 1924), included 31 *Acalypha* species from WIOR, only one of which was newly described (*A. madagascariensis* Pax & K.Hoffm.).

Leandri (1942) made an important contribution to our understanding of *Acalypha* in WIOR. In a thorough taxonomic review of *Acalypha* in Madagascar, he treated 22 species and 14 varieties, of which eight species were newly described (*A. andringitrensis* Leandri, *A. boinensis* Leandri, *A. decaryana* Leandri, *A. gagnepainii* Leandri, *A. humbertii* Leandri, *A. lepidopagensis* Leandri, *A. linearifolia* Leandri, and *A. perrieri* Leandri). Leandri (1942) also proposed many new synonyms and provided illustrations and an identification key. Shortly after, he cited seven *Acalypha* species collected by Lam and Meeuse (Leandri, 1948).

Coode (1978, 1979, 1982) reviewed *Acalypha* for the Mascarene Islands. He included five species, three of them introduced, and proposed some new subspecies and varieties. Robertson (1989) recognized five *Acalypha* species from the Sey-

chelles. Several thematic works on ethnobotany, conservation, etc. (e.g.: Heckel 1903; Jenkins 1987, 1990; Goodman 1996; Schatz 2001; Seebaluck *et al.* 2015; Seebaluck-Sandorama, 2018), cited *Acalypha* species from WIOR, although they do not provide relevant taxonomic information.

Due to the insufficient and outdated state of knowledge of *Acalypha* in this region, we started a monographic study of *Acalypha* species from WIOR in 2017, as a part of the PhD dissertation of the first author (Montero Muñoz 2021). The first step was a nomenclatural review of the genus in this region (Montero Muñoz *et al.* 2018a). That was followed by the publication of 12 new species from the region (Montero Muñoz *et al.* 2018b, 2020a, b, 2022).

## MATERIAL AND METHODS

The present work is based mainly on the study of 2312 herbarium specimens of *Acalypha* stored in the following herbaria: A, B, BM, BREM, BRNU, C, CAN, CAS, E, FR, G, GB, GDC, GH, JE, K, L, LD, LE, LMU, M, MA, MAO, MAU, MAUAM, MO, MPU, NY, P, PRE, S, TAN, TEF, TUB, UPS, US, W, and WAG (acronyms according to Thiers 2022). They correspond to 1646 collections from WIOR. Of them, 1117 collections (1597 specimens) are from Madagascar, 91 (140 specimens) from the Comoros, 356 (463 specimens) from the Mascarene Islands, 81 (111 specimens) from Seychelles, and one (one specimen) from the Scattered Islands. We have also reviewed numerous collections from continental Africa and other regions of the Paleotropics to improve our understanding of the diversity and evolution of the genus. Most of the specimens were studied in situ, either in the different herbaria or through loans. We also consulted digitized collections accessible through JSTOR Global Plants (<https://plants.jstor.org>) and other virtual herbaria, especially to review type collections.

The morphological terms used follow those proposed by Harris & Harris (2001) and Ellis *et al.* (2009).

The micromorphological analysis of the epidermal surface was carried out using scanning electron microscopy (SEM). For this purpose, we selected 52 specimens from different herbaria (BREM, COL, G, GH, K, MO, P, SEL, U, and W) corresponding to 30 native and five introduced species of our study area (Appendix I). For the analysis of the foliar surface, we used a scalpel to extract two approximately 3 mm<sup>2</sup> fragments from each specimen. We also examined bracts and flowers using a fragment or the entire organ. The samples were placed on SEM-specific slides and then metallized with a 15 nm gold layer, using a Quorum Q150T-S metallizer. For the observation and analysis of the samples, we used a HITACHI S-3000N electron microscope with X-ray detector (INCAx-sight, Oxford Instruments), which enables energy dispersive X-ray (EDX) analysis.

The information obtained was incorporated into databases (nomenclature, collections, bibliography, morphology, distribution and habitat, images, etc.) using Microsoft Access 2016 © (Redmond, Washington, United States). These databases are integrated and managed through an online information system named *Acalypha Taxonomic Information System* (Cardiel

*et al.* 2022b). This website aims to collect all the taxonomic and biogeographic information of *Acalypha* worldwide in open access, and it is integrated into global biodiversity networks through GBIF. The system allows detailed consultation of all the studied specimens and the available images of them; it also generates distribution maps.

Most collections studied lacked geographical coordinates (81.7%) so we georeferenced them using GeoLocate v.3.22 (Ríos & Bart 2010) and Google Earth. For the older collections (from the 18<sup>th</sup> and 19<sup>th</sup> centuries) we use the “Gazetteer to Malagasy Botanical Collecting Localities” from the Missouri Botanical Garden (Schatz & Lescot 2003), which includes many old names for localities in Madagascar. When localities were ambiguous or imprecise, we assigned generic country or island coordinates. Distribution maps were prepared using QGIS Desktop 3.2.2. (QGIS Development Team 2018). The layers of the administrative boundaries of all the archipelagos of our study area were obtained from DIVA-GIS 7.5 (Hijmans *et al.* 2012; <https://www.diva-gis.org/>), and the altitude layers from SRTM Tile Grabber (Watkins 2020; <https://dwtkns.com/srtm/>).

Preliminary conservation assessments are based on the IUCN Red List Categories and Criteria (IUCN 2017). Area of occupancy (AOO) and extent of occurrence (EOO) were calculated with GeoCAT, a geospatial conservation assessment tool (Bachman *et al.* 2011; <http://geocat.kew.org/>), using a 2 × 2 km grid cell size as recommended by IUCN (2012, 2017).

The nomenclature is based primarily on our previous work (Montero Muñoz *et al.* 2018a). The genus description is based on the WIOR species. The accepted species are arranged first by subgenera, and then alphabetically arranged followed by their author and place of publication. We then list, as appropriate, the basionym, homotypic synonyms in chronological order, and heterotypic synonyms in chronological order, following the same format as for the accepted name. Types are cited for all valid taxa, indicating the type locality, date of collection, collector, collection number, and herbarium/a where they are deposited, including the herbarium barcode if available. Missing information is indicated as *s.loc.* (without locality), *n.d.* (undated), and *s.n.* (without number). If the locality information is ambiguous or imprecise, we indicate it in quotation marks as it appears in the protologue. We provide the bibliographic sources for illustrations of the species, or the number of the figure included in this work. Descriptions are based on the studied specimens and follow the same sequence. When necessary, we use round brackets (parentheses) to indicate uncommon variation in morphological ranges and square brackets to indicate rare variation. The etymology of the specific epithet of each accepted name is also provided.

For each species, we report its general geographic distribution and its distribution in WIOR. For Madagascar, we also indicate the provinces for which there are collection records; for the other archipelagos, we report the island/s where the species occurs. We also describe the habitat, according to the vegetation typology of Gautier *et al.* (2018), and the altitudinal range. This information is based exclusively on the collections studied.



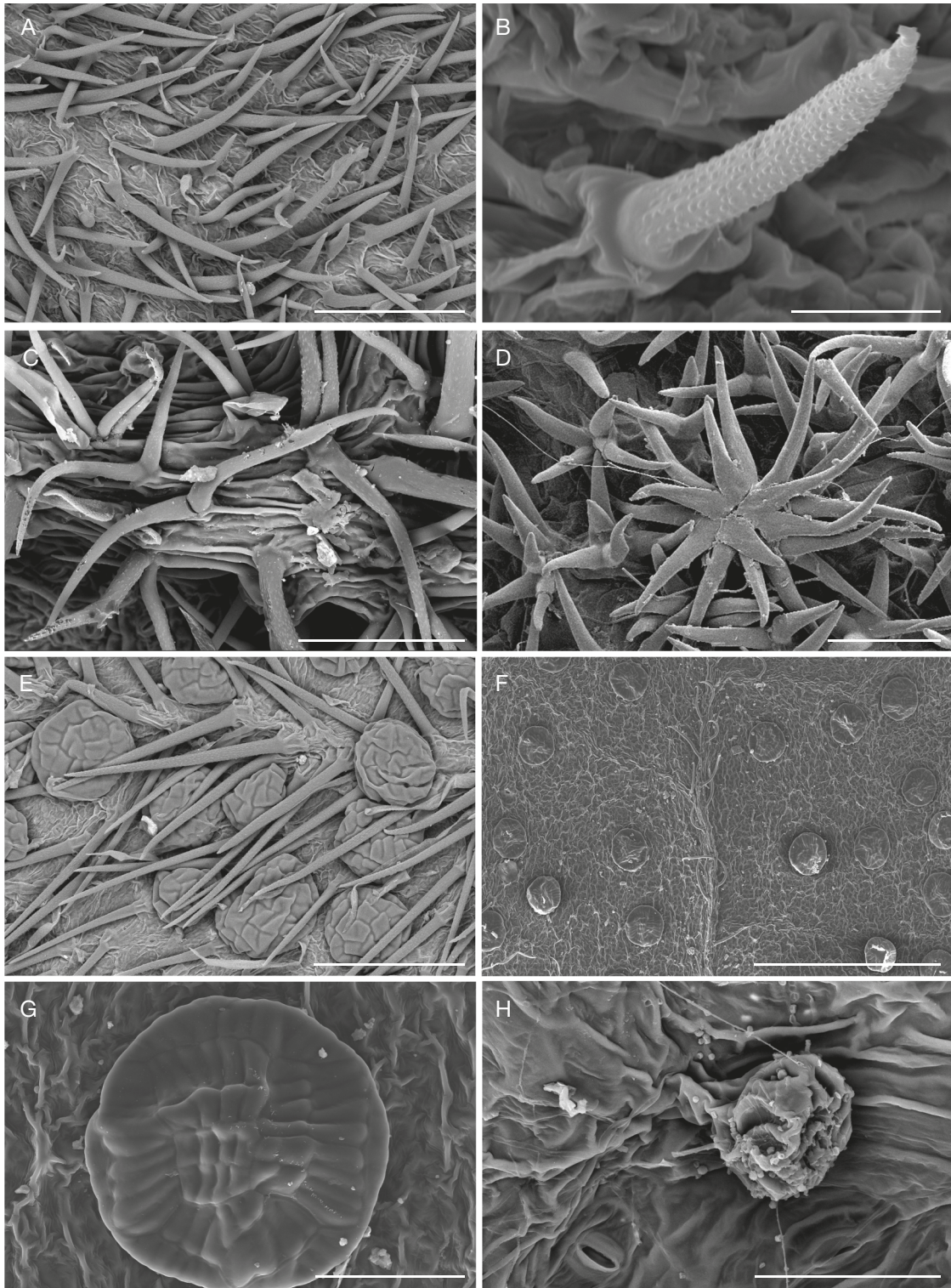


FIG. 2. — Trichomes: **A, B**, simple trichomes: **A**, lower leaf surface of *Acalypha decaryana* Leandri (*P. Rakotomalaza 211*); **B**, lower leaf surface of *A. diminuta* Baill. (*H. Ralimanana 239*); **C, D**, stellate and fasciculate trichomes; upper leaf surface of *A. radula* Baker (*J. M. Hildebrandt 3865* and *Service Forestier s.n.*); **E**, simple and glandular trichomes, lower leaf surface of *A. decaryana* Leandri (*Rakotomalaza 211*); **F, G**, sessile glandular trichomes, lower leaf surface of *A. diminuta* Baill. (*H. Ralimanana 239*); **H**, pedunculate glandular trichomes, lower leaf surface of *A. pervilleana* Baill. (*A. Mocquerys 159*). Scale bars: A, E, 200  $\mu$ m; B, 20  $\mu$ m; C, G, 100  $\mu$ m; D, H, 50  $\mu$ m; F, 1 mm.

Preliminary conservation assessments of each species are provided, indicating the IUCN category, the justification, and the criteria and sub-criteria followed. We cite chronologically

the publications (with page numbers) in which the species are cited for WIOR; after that, we report the total number of collections examined, identifying each one with the primary col-



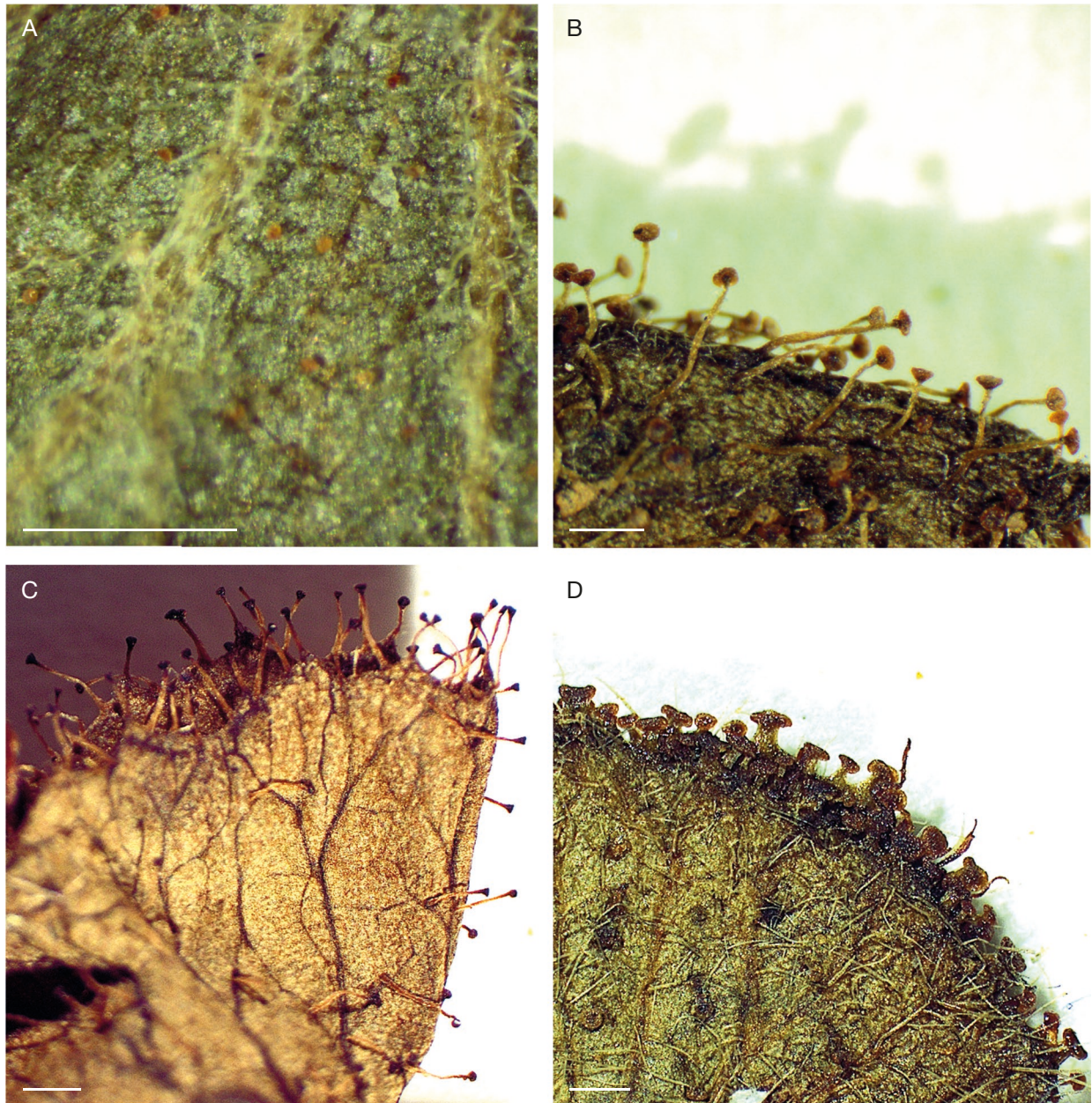


FIG. 3. — Pedunculate glandular trichomes: **A**, lower leaf surface of *Acalypha levinii* I.Montero & Cardiel (*P. Phillipson* 2503); **B**, mature female bract of *A. radula* Baker (*Service Forestier s.n.*); **C**, mature female bract of *A. rottleroides* Baill. (*L. Nusbaumer LN2629*); **D**, mature female bract of *A. vulneraria* Baill. (*F. Randriatafika* 812). Scale bars: 0.5 mm.

lector's name and number; we also cite the herbarium barcode (when available). For full information about each collection, readers can consult the *Acalypha Taxonomic Information System* website (<http://www.acalypha.es/secc/specimens.asp>, using the information provided in the material examined section to search for the collection. Finally, in the notes section, we indicate any additional taxonomic or nomenclatural clarification, or other additional relevant information.

#### DESCRIPTIVE MORPHOLOGY

##### *Habit*

Most native *Acalypha* species from WIOR are shrubs or small trees to six meters high. We only found two herbs or sub-

shrubs: *A. leandrii* I.Montero & Cardiel and *A. rabesabalana* I.Montero & Cardiel. Deciduous species predominate; only *A. andringitrensis*, *A. berryi* I.Montero, Cardiel & G.A.Levin, sp. nov., *A. chibomboia*, *A. leonii*, *A. linearifolia*, *A. radula*, and probably *A. leandrii* and *A. vulneraria*, are evergreen species. For ten species (*A. crateriana* (Coode) I.Montero & Cardiel, comb. nov., *A. filiformis*, *A. gracilipes*, *A. integrifolia*, *A. isaloensis* I.Montero & Cardiel, *A. magistri* I.Montero & Cardiel, *A. marginata*, *A. pervilleana*, *A. richardiana*, and *A. wrophylla* Boivin ex Baill.) we do not have enough information to know if they are deciduous or evergreen.

Branching is usually lax, with thin and slender branches, sometimes divaricate, and with many lenticels. Some spe-



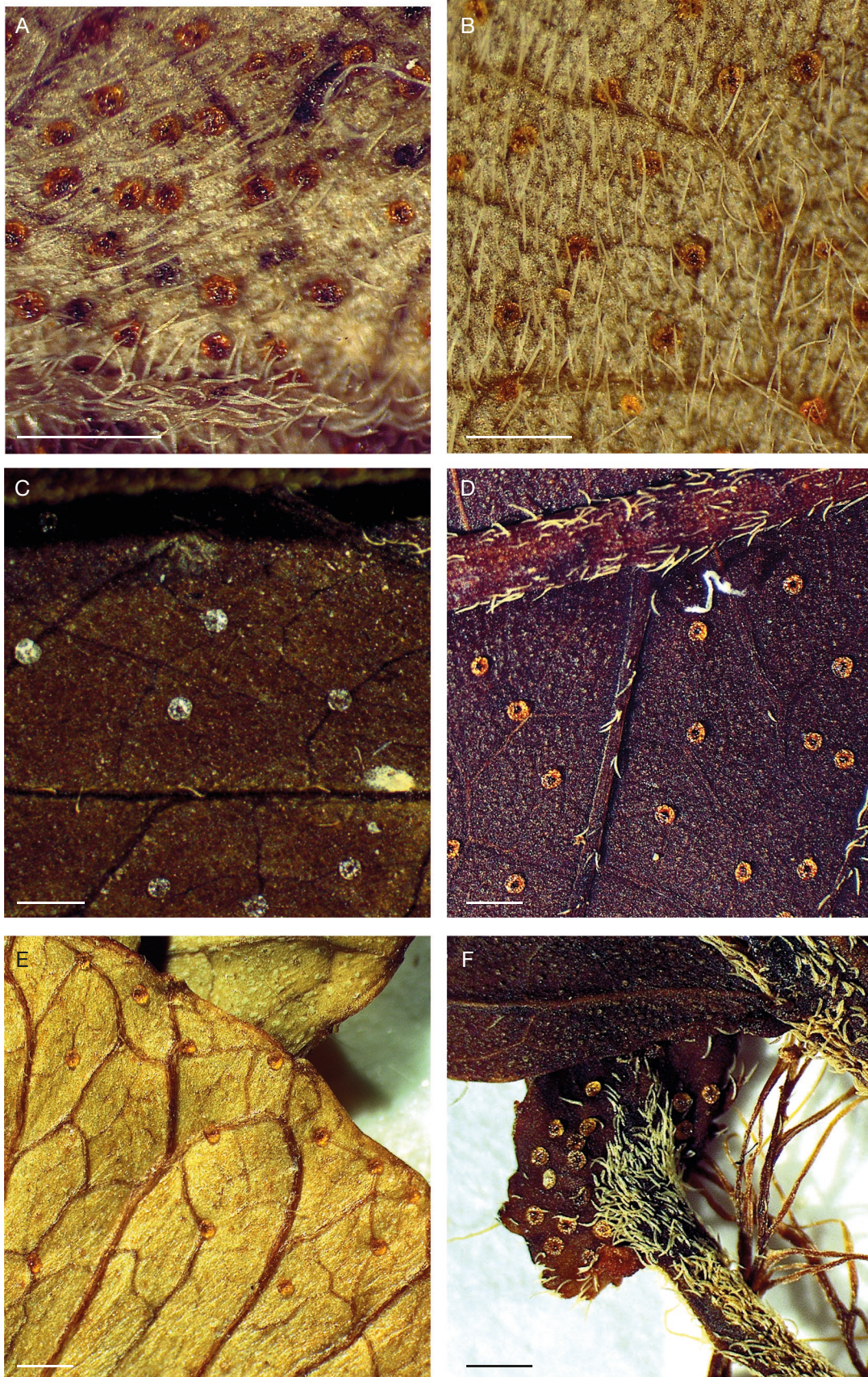


FIG. 4. — Sessile glandular trichomes: **A, B**, lower leaf surface of *Acalypha decaryana* Leandri (P. De Block 2383 and P. Rakotomalaza 211); **C**, lower leaf surface of *A. diminuta* Baill. (S. Wohlhauser SW310); **D**, lower leaf surface of *A. emimensis* Baill. (L. Gautier LG3889); **E**, mature female bract of *A. clooxyloides* Hutch. (F. R. Fosberg 48724); **F**, mature female bract of *A. emimensis* Baill. (L. Gautier LG3889). Scale bars: 0.5 mm.





FIG. 5. — Axillary buds: **A**, *Acalypha emirnensis* Baill. (L. Gautier LG3889); **B**, *A. marginata* (D. S. Léman s.n.); **C**, *A. menavody* (Leandri) I.Montero & Cardiel (*M. Bardot-Vaucoulon* 1016); **D**, *A. rottleroides* Baill. (L. Nusbaumer LN1933). Scale bars: 0.5 mm.

cies have sprawling branches, such as *Acalypha gracilipes*, *A. leandrii*, and *A. urophylla*. All species are unarmed except *A. baretiae* I.Montero & Cardiel, whose old branches become thorny. Some species have brachyblasts covered by stipules and with a tuft of leaves at the apex; these appear in *A. baretiae*, *A. diminuta*, and *A. decaryana*. The presence of brachyblasts has not been described in *Acalypha* before Montero Muñoz *et al.* (2018b).

#### Indument

Most *Acalypha* species present one or, more frequently, several types of trichomes of variable density distributed through most of the plant; only *A. gracilipes* is glabrous. Simple trichomes predominate, but glandular trichomes are also frequent;

stellate or fasciculate trichomes appear only in *A. linearifolia* and *A. radula* (Fig. 2C, D). Simple trichomes (Fig. 2A, B) vary in length and thickness, and can be appressed or erect, straight or curved, and antrorse or retrorse. We also observed another type of simple trichome that is thin and vermiform, which we refer to as arachnoid. This type of trichome gives rise to a whitish, woolly-looking indument, and is found in *A. baretiae*, *A. burmanii* I.Montero & Cardiel, *A. chibomboia*, *A. claoxyloides*, *A. diminuta*, *A. mayottensis* I.Montero & Cardiel, *A. medibracteata* Radcl.-Sm. & Govaerts, *A. menavody* (Leandri) I.Montero & Cardiel, and *A. perrieri*.

Glandular trichomes are topped by a flat or rounded head and can be stalked or sessile. Stalked glandular trichomes reach up to 1.5 mm long in *Acalypha andringitrensis*, *A. leandrii*,



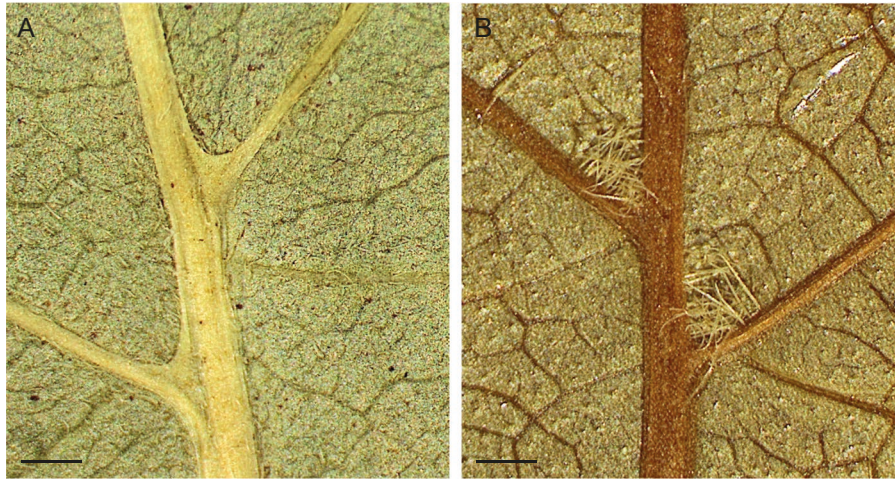


FIG. 6. — **A, B**, Domatia; **A**, pocket-shaped domatia of *Acalypha isaloensis* I.Montero & Cardiel (*J.-N. Labat* 2119); **B**, hair-tuft domatia of *A. menavody* (Leandri) I.Montero & Cardiel (*M. Bardot-Vaucoulon* 1016). Scale bars: 0.5 mm.

*A. radula*, *A. rottleroides*, *A. spachiana*, and *A. vulneraria*, or up to 0.5 mm long in *A. ankaranensis* I.Montero & Cardiel, *A. cardielii* I.Montero & G.A.Levin, *A. levinii* I.Montero & Cardiel, *A. pervilleana*, *A. perrieri*, and *A. urophylla* (Figs 2H; 3). Sessile glandular trichomes are usually flattened or sometimes rounded, resinous or amber-colored; they appear in *A. chibombo*, *A. claoxyloides*, *A. decaryana*, *A. diminuta*, *A. emirnensis*, *A. medibracteata*, and *A. lepidopagensis* (Figs 2E-G; 4).

#### Axillary buds

A characteristic of numerous *Acalypha* species in WIOR is the presence of buds protected by perules. The perules are two or four scales that partially or completely cover the buds. The scales can be membranous and valvate or slightly imbricated, or coriaceous and then overlapping to form a continuous cover on the bud. Perules are especially conspicuous in deciduous species (Fig. 5) and are rarely found in species outside WIOR (e.g., *A. gillmanii* Radcl.-Sm.; Radcliffe-Smith 1975).

#### Leaves

Leaves are simple, alternate, and petiolate; only *Acalypha linearifolia* has subsessile leaves, with petioles up to 2 mm long. Leaf blades can vary from linear (*A. linearifolia*) to broadly ovate-lanceolate. They are unlobed except in *A. gillespieae* G.A.Levin & I.Montero, which is one of the few *Acalypha* species that has lobed leaves. The base varies from cuneate to cordate, the apex from rounded to caudate, and the margin varies from entire to serrate, and sometimes is revolute, reddish or discolored, and/or slightly callous. The texture is usually membranous or chartaceous; only *A. linearifolia* and *A. integrifolia* have coriaceous leaf blades. The venation usually is actinodromous, but is pinnate in some species. Several species have domatia in the axils of the secondary veins. They can be membranous, forming a small pocket in each axil, as in *A. isaloensis* (Fig. 6A), or can be a dense tuft of hairs (Fig. 6B). Pocket-shaped domatia had not been described in *Acalypha* prior to our work.

#### Stipules and stipels

All species produce stipules; these usually are deciduous, so can be observed only on young branches. The shape and size of the stipules vary among species, so they are good diagnostic characters. Their size varies from 1 mm long in *Acalypha linearifolia*, up to 13 mm in *A. andringitrensis*, and their shape varies from filiform to triangular-lanceolate. Sometimes they have scarious (*A. leandrii*, *A. radula*, and *A. tremula* I.Montero & Cardiel) or greenish margins (*A. integrifolia*).

Many *Acalypha* species bear stipels, which are two or more minute and inconspicuous appendages at the base of the leaf blade. We found them in 17 species of WIOR. They can be glandular and tiny (*A. berryi* sp. nov., *A. boinensis*, *A. burmanii*, *A. cardielii*, *A. claoxyloides*, *A. emirnensis*, *A. lamiana* (Leandri) I.Montero & Cardiel, *A. medibracteata*, *A. menavody*, *A. perrieri*, *A. richardiana*, *A. spachiana*, *A. urophylla*, and *A. vulneraria*), filiform (*A. ankaranensis*, *A. levinii*), triangular (*A. leandrii*), or linear-lanceolate (*A. leptomyura*).

#### Inflorescences

Most of the species are monoecious. Only *Acalypha leandrii* appears strictly dioecious. Other species, such as *A. andringitrensis*, *A. chibombo*, *A. filiformis*, *A. integrifolia*, *A. marginata*, and *A. radula*, have a clear tendency to dioecy, with most specimens we studied having inflorescences of only one sex, but some specimens having both male and female inflorescences on the same branch. Inflorescences can be unisexual or bisexual, and usually are axillary, rarely terminal or sub-terminal. They usually are spiciform, rarely racemose, paniculate or glomerulate. Solitary female flowers sometimes are present.

Male inflorescences are always axillary (in other regions they can be terminal) and densely flowered. They are spiciform thyrses with short-pedicellate flowers grouped in small cymes (flower glomeruli) along the rachis. Male inflorescences can be pedunculate or subsessile and vary from 1.4 cm long in *Acalypha linearifolia* to 12 cm long in *A. chibombo* (Fig. 7A-D).

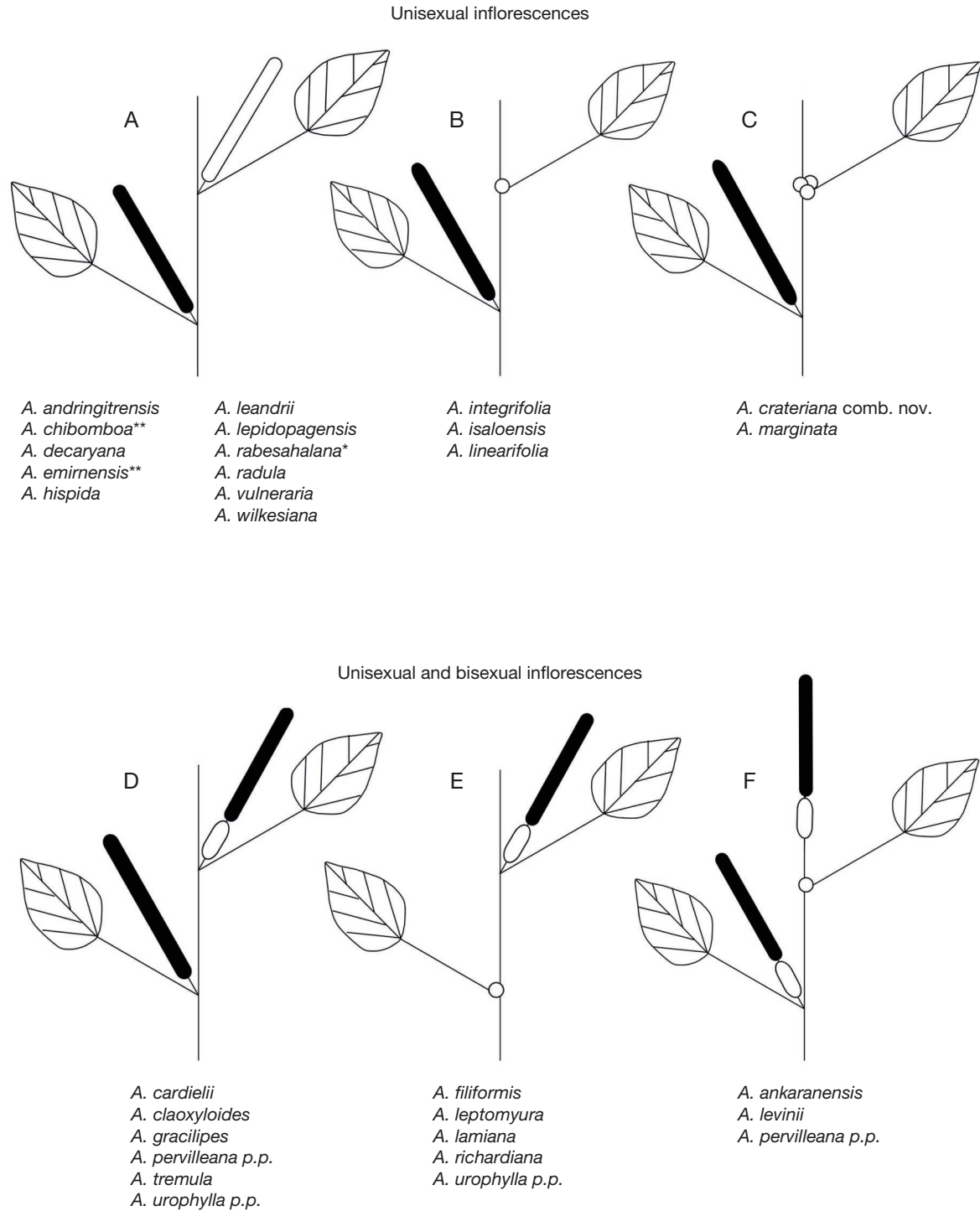


FIG. 7. — Models of unisexual and bisexual inflorescences: **in black**, male inflorescences; **in white**, female inflorescences or flowers.

The female inflorescences are axillary (subterminal only in *Acalypha rabesahalana*), usually spiciform, and densely to laxly flowered. They can be pedunculate or sessile, and their lengths vary from 3 cm, in *A. decaryana* and *A. rabesahalana*, to 13 cm in *A. vulneraria* (Fig. 7A). In some species the female inflorescences are reduced to a single bract with one (rarely to three) flowers; this bract can be long-pedunculate (*A. filiformis*), subsessile (*A. linearifolia*), or sessile (*A. ankaranensis*,

*A. berryi* sp. nov., *A. integrifolia*, *A. isaloensis*, *A. lamiana*, *A. leptomyura*, *A. levinii*, *A. pervilleana*, *A. richardiana*, and *A. urophylla*) (Fig. 7B, E, F).

*Acalypha marginata* and *A. crateriana* comb. nov. have a unique female inflorescence structure, consisting of a single glomerulus or compact cyme of 3–4 sessile or subsessile flowers (Fig. 7C).

Bisexual inflorescences usually are axillary, except in *Acalypha ankaranensis*, *A. diminuta*, *A. levinii*, *A. pervilleana*, and *A. spachi-*



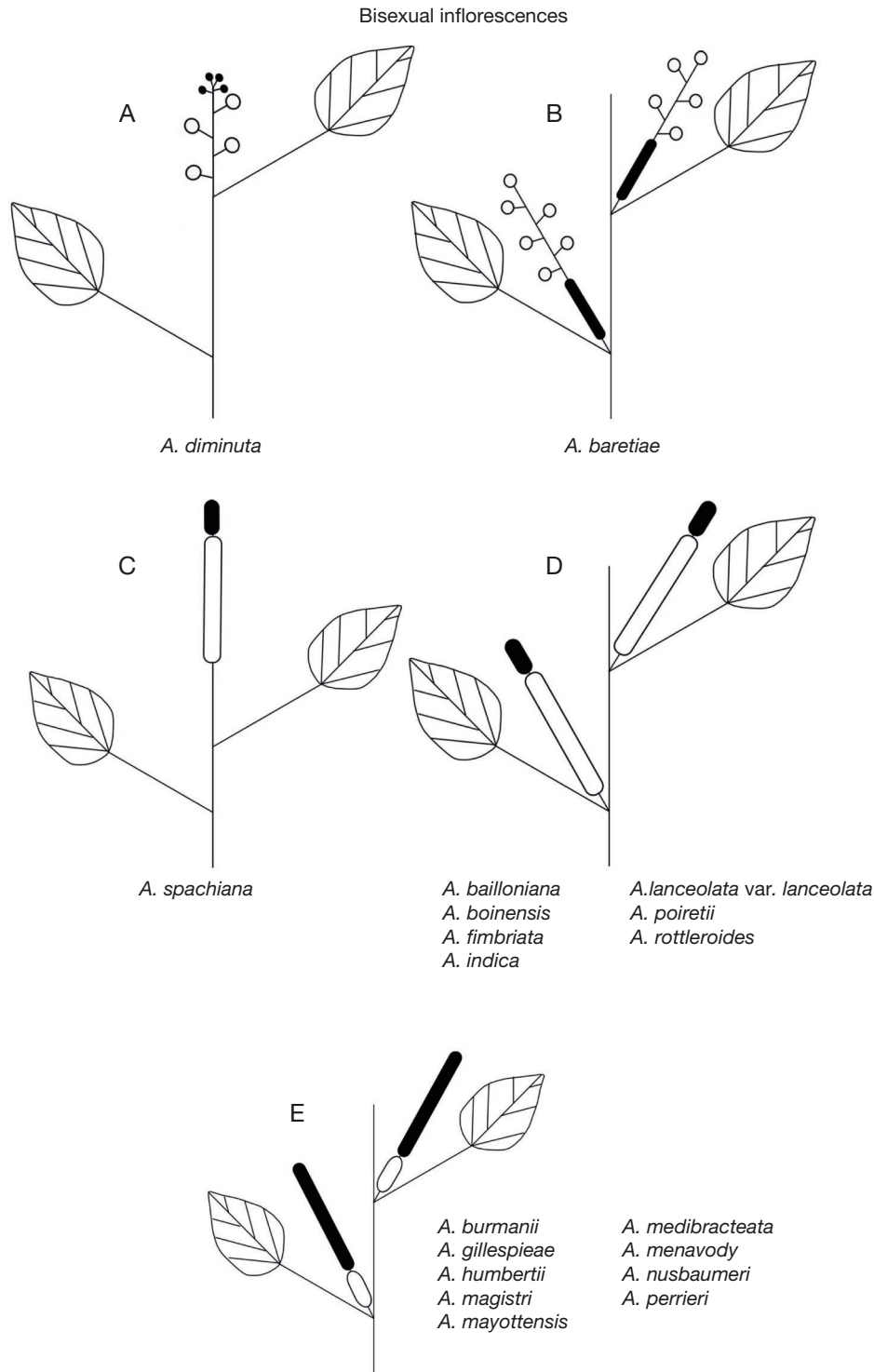


FIG. 8. — Models of bisexual inflorescences: **in black**, male inflorescences or flowers; **in white**, female inflorescences or flowers.

*ana*, which can have terminal inflorescences (Figs 7F; 8C). They usually are androgynous (female proximally and male distally), or rarely (only *A. baretiae*; Fig. 8B) gynecandrous (male proximally and female distally). They vary in length from 1 cm in *A. gillespieae* to 11 cm in *A. filiformis* and *A. chibomboia*.

Most androgynous inflorescences display one of two patterns of sexuality. In one, the inflorescence is mostly female

and the male segment is very short and inconspicuous (less 1.5 cm long); sometimes it is deciduous, so the inflorescence can appear to be female late in development (Fig. 8C, D). An inflorescence that follows the other pattern has a long (usually more than 2 cm), conspicuous, and persistent male segment, with the female segment much shorter, with one or more bracts. A few species do not conform to either pattern.

In *A. chibomboia*, the male and female segments are of about equal length, and *A. gillespieae* and *A. nusbaumeri* I. Montero & Cardiel have very short androgynous inflorescences (up to 1.5 cm long), with a persistent male segment to 1 cm long (Fig. 8E). Species that have androgynous inflorescences often also have male inflorescences and/or solitary female bracts.

*Acalypha baretiae* and *A. diminuta* are the only species with racemose inflorescences and pedicellate female flowers. *Acalypha baretiae* is unique among WIOR *Acalypha* in having gynecandrous inflorescences. *Acalypha diminuta* has androgynous inflorescences with 1-7 pedicellate female flowers proximally and a short terminal racemose to subumbelliform cluster of male flowers (Fig. 8A).

The position and sexuality of the inflorescences in *Acalypha* has been frequently used as diagnostic character for groups of species and forms the basis for the infrageneric classification of subg. *Acalypha*. Although inflorescences position and sexuality have limited phylogenetic utility worldwide (Sagun *et al.* 2010; Levin *et al.* 2022), these characters are relatively stable in the WIOR species, which can be grouped using the models shown in Figs 7 and 8.

#### Bracts

Bracts of the male inflorescences, or of the male segment of bisexual inflorescences, are usually inconspicuous (up to 1 mm long), although longer in *Acalypha rottleroides* (to 1.5 mm long) and *A. boinensis* and *A. emirnensis* (to 2 mm long). They are usually triangular, although they can vary from ovate-lanceolate to orbicular, and in *A. andringitrensis* they are spatulate. In *A. leonii* and *A. filiformis* they can be slightly fleshy.

Bracts of the female inflorescences, or of the female segment of bisexual inflorescences, are usually foliaceous, growing markedly as the fruit matures. The mature sizes of these accrescent bracts range from 2 mm long in *Acalypha nusbaumeri* to 21 mm in *A. mayottensis*. Only *A. baretiae*, *A. crateriana* comb. nov., *A. diminuta*, *A. hispida* Burm.f., and *A. marginata* have small, non-acrescent female bracts. The margin of the mature bracts can be entire, subentire, crenate, or dentate, and is reddish or discolorous in a few species. Although outside WIOR the bracts can be deeply divided, among the species native to WIOR they are mostly no more than shallowly toothed; only *A. rabesahalana* has bracts with teeth up to 1/3 of the bract length. In several species, two small appendages up to 2 mm long are borne at the base of the bract. A detailed developmental study is needed to determine the nature of these structures. Based on their position, they might be homologous with stipules, the interpretation adopted by Sagun *et al.* (2010), who referred to them as bract stipules. Alternatively, they might be bracteoles, an interpretation supported by their complete absence in many species and which we follow here. They usually are linear-lanceolate to triangular-lanceolate, but are glandular in *A. claoxyloides*. We observed bracteoles in *A. andringitrensis*, *A. ankaranensis*, *A. berryi* sp. nov., *A. boinensis*, *A. claoxyloides*, *A. decaryana*, *A. emirnensis*, *A. humbertii*, *A. lepidopagensis*, *A. nusbaumeri*, *A. rabesahalana*, *A. radula*, and *A. vulneraria*.

Female bracts usually subtend a single flower, or rarely two or three. The size, shape, and indument of mature female

bracts are characteristic of each species and therefore good diagnostic characters.

#### Flowers

*Acalypha* has small unisexual, apetalous, and discless flowers. Male flowers are minute, pedicellate or rarely subsessile, with four valvate sepals and eight stamens with two elongated thecae that become vermiform at anthesis. Most specimens bear only closed flowers (probably mostly mature or nearly mature buds). These flowers are very similar in all species, with slight variation only in the indument and the presence or absence of papillae. Regular female flowers usually are sessile, being pedicellate only in *A. baretiae* and *A. diminuta*. The calyx usually has three sepals, sometimes four in *A. chibomboia* and *A. mayottensis*, and five in *A. baretiae* and *A. diminuta*; the sepals are distinct or connate basally. The ovary usually is trilocular (bilocular only in *A. baretiae*) with one ovule per locule. Its surface sculpturing, which can be smooth, papillose, or echinate, and indument are highly variable and usually different in each species. Styles are usually three (two in *A. baretiae*), bright red, distinct or slightly connate at the base, and divided into numerous slender segments, giving them a feathery appearance. In some species, the rachis is thickened and may bear papillae and/or simple trichomes.

**Allomorphic female flowers.** Some *Acalypha* species produce a second type of female flower, which was called “allomorphic” by Radcliffe-Smith (1973), who first described them in detail. In WIOR species, they are solitary, ebracteate, and axillary or borne at the inflorescence apex. These flowers produce viable seeds identical to those found in regular flowers. In WIOR species, they usually are borne on a filiform pedicel up to 2 cm long, and have 3-4 sepals, usually a single carpel (two in *A. spachiana*), and a basal style (two in *A. spachiana*). Their capsules are indehiscent (schizocarps with two indehiscent mericarps in *A. spachiana*), usually with the distal part fimbriate or with long, sharp papillae. The very rare allomorphic flowers of *A. emirnensis* are exceptional. They are subsessile at the apex of the staminate inflorescences and have three carpels and three apical styles; we have not seen mature capsules. In the genus as a whole, they are more frequent on herbaceous species, but in WIOR they appear mainly on shrubs (*A. decaryana*, *A. emirnensis*, *A. integrifolia*, *A. lamiana*, *A. pervilleana*, *A. radula*, *A. richardiana*, *A. spachiana*, *A. levinii*, and *A. cardielii*); they are also present on the herbaceous *A. rabesahalana*.

#### Fruits and seeds

The fruit formed from the normal female flowers is a dehiscent capsule, to 2-3.5 mm in diameter, reaching 6 mm in diameter in *Acalypha burmanii*. The surface is smooth, papillose, or echinate, sometimes with projections up to 3.5 mm long, as in *A. tremula*. The seeds are usually pyriform, sometimes subglobose or globose, with a very reduced caruncle. The surface is foveolate, but the sculpturing can be so fine that the seed appears almost smooth. The seeds are very similar in all the WIOR species region.



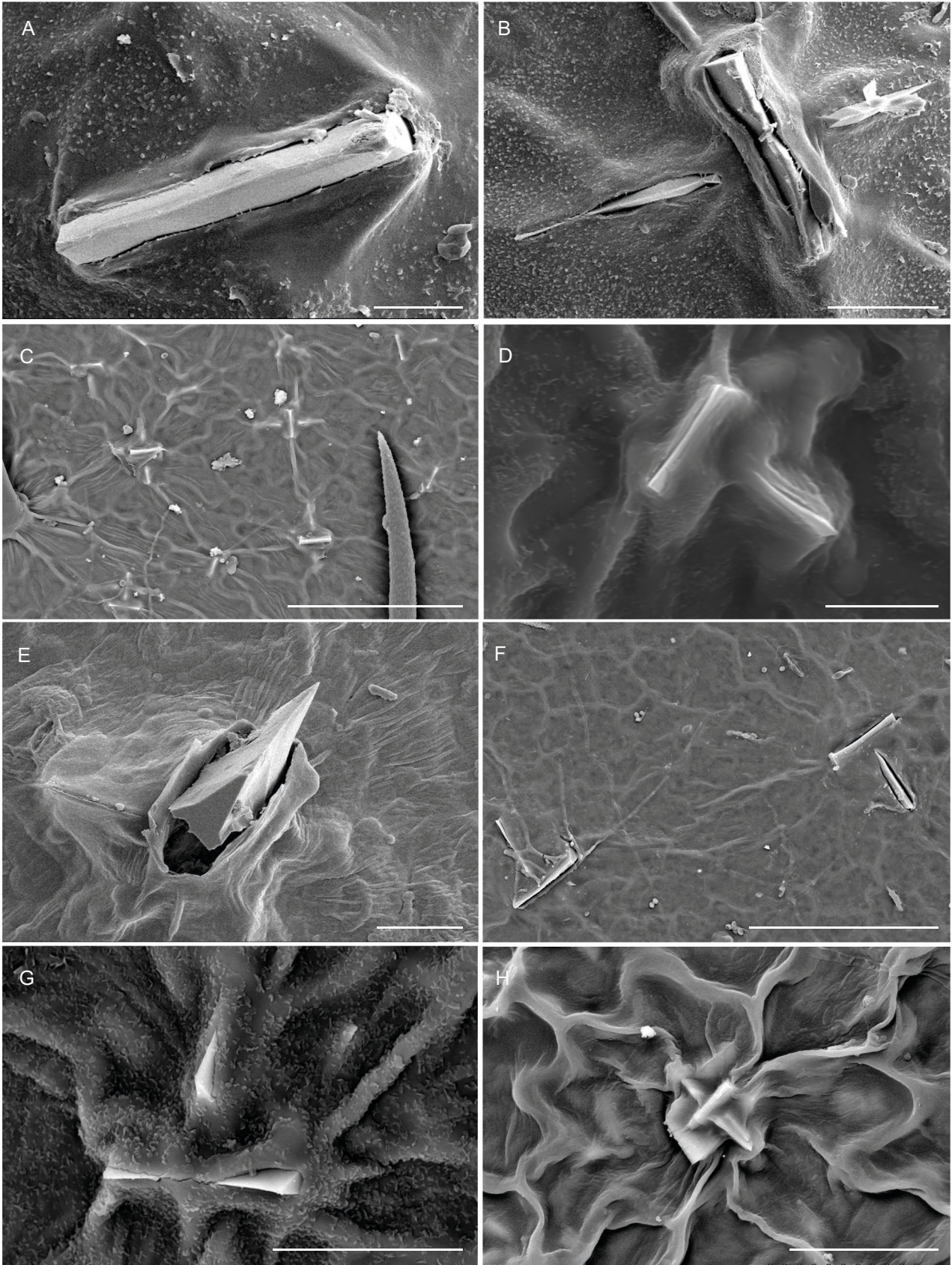


FIG. 9. — Prismatic crystals on the lower leaf surface (Ac): **A, B**, *Acalypha chibomboia* Baill. (F. Barthelat 1436); **C**, *A. decaryana* Leandri (P. Rakotomalaza 211); **D, E, A. emimensis Baill. (C. Rakotovoao 2677 and S. Malcomber 2118); **F**, *A. marginata* (Poir.) Spreng. (P. Commerson s.n.); **G**, *A. pervilleana* Baill. (A. Mocquerys 159); **H**, *A. rabesahalana* I.Montero & Cardiel (H. Humbert 32480). Scale bars: A, 5 µm; B, D, E, 10 µm; C, F, 100 µm; G, H, 20 µm.**



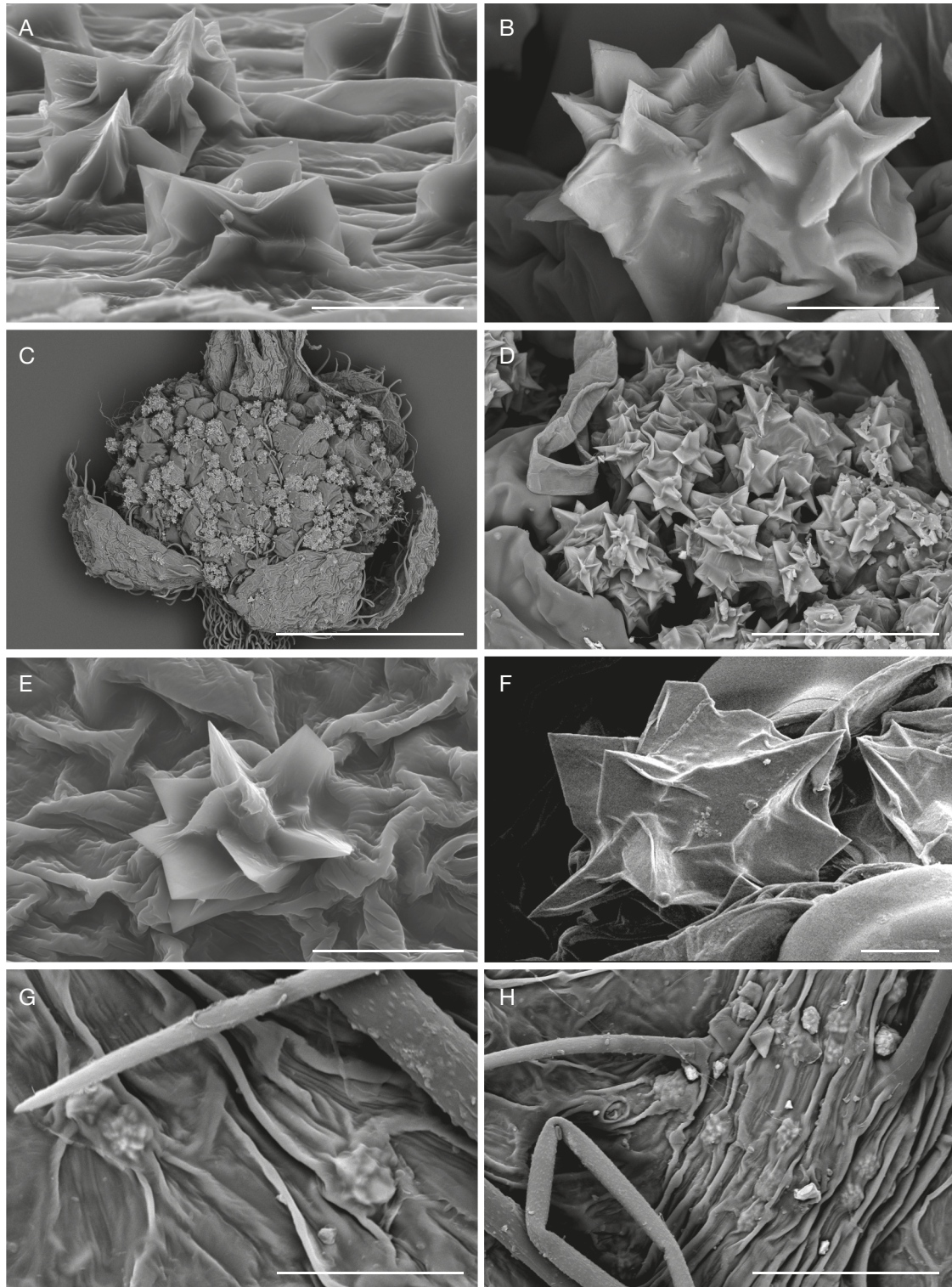


FIG. 10. — Druses (Dc): **A, B**, lower leaf surface of *Acalypha diminuta* Baill. (*H. Ralimanana* 239); **C, D**, female flower and ovary surface of *A. diminuta* Baill. (*H. Ralimanana* 239); **E**, ovary surface of *A. fimbriata* Schumach. & Thonn. (*C. C. H. Jongkind* 2277); **F**, sepal of the female flower of *A. nusbaumeri* I. Montero & Cardiel (*L. N. Nusbaumer* LN1169); **G, H**, lower leaf surface of *A. vulneraria* Baill. (*F. Randriatafika* 2314). Scale bars: A, B, E, 20 µm; C, 1 mm; D, H, 100 µm; F, 10 µm; G, 50 µm.

### Epidermal crystals

Epidermal crystals in *Acalypha* were recently studied by Cardiel *et al.* (2020), who identified them as a new taxonomic trait of the genus. In that study, four types of crystals were

recognized: prismatic crystals, styloids, stellate crystals, and druses. In the WIOR species, we found three types (prismatic, stellate, and druses) in 30 of the 34 analyzed species (Table 1); they appear mainly on the upper and



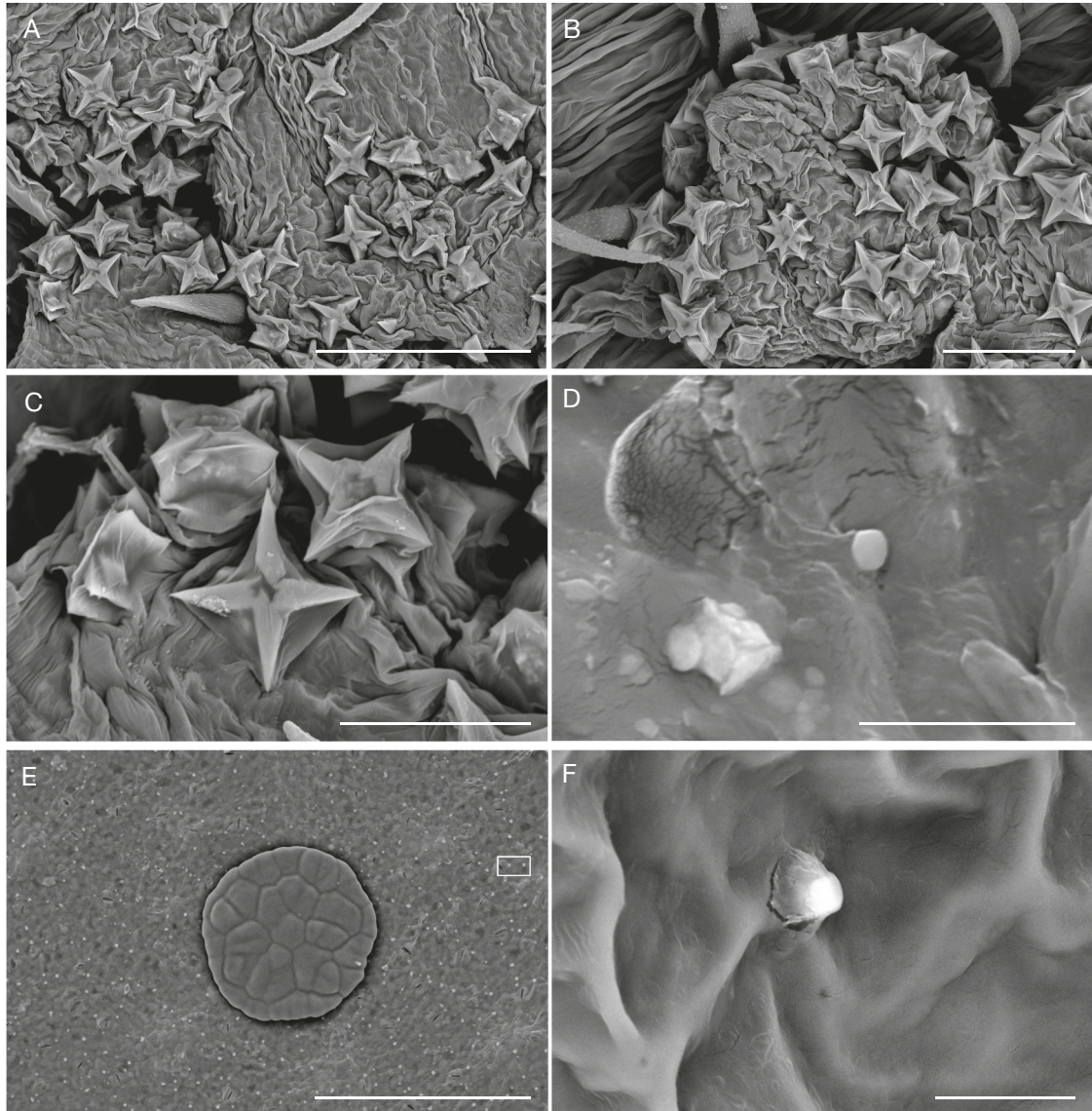


FIG. 11. — **A-C**, Stellate crystals (Cc), male bud surface of *Acalypha fimbriata* Schumach. & Thonn. (C. C. H. Jongkind 2277); **D-F**, granules (Ec): **D**, lower leaf surface of *A. claoxyloides* Hutch. (F. R. Fosberg 49627); **E**, lower leaf surface of *A. emirnensis* Baill., the white rectangle shows a single granule (L. Gautier LG3889); **F**, lower leaf surface of *A. mayottensis* I.Montero & Cardiel (J.-N. Labat *et al.* 3268). Scale bars: A, 100  $\mu$ m; B, 50  $\mu$ m; C, 30  $\mu$ m; D, F, 10  $\mu$ m; E, 200  $\mu$ m.

lower leaf surfaces, and often also on the bracts and flowers. Prismatic crystals (Fig. 9) can appear solitary or grouped, and we frequently observed two overlapping perpendicular crystals. These crystals appear on both the upper and lower leaf surfaces of most of the species studied, and on the female bracts of *A. mayottensis*. Druses can appear solitary or grouped (Fig. 10). We have found them in nine species, on upper and lower leaf surfaces, bracts, and flowers. Stellate crystals (Fig. 11A-C) are very infrequent, appearing mainly in some South American species (Cardiel *et al.* 2020). We have not found them in native species from WIOR, but we have observed them in the male flowers of *A. fimbriata* Schumach. & Thonn., a species native to continental Africa and introduced in Madagascar. Due to insufficient sampling thus far, the systematic importance of crystals across *Acalypha* and among WIOR species requires further evaluation.

In addition to the crystals described by Cardiel *et al.* (2020), we have recently identified another crystal form found on the leaf epidermis, which we have provisionally named “granules”. They have a rounded and smooth appearance and are *c.* 5  $\mu$ m in diameter (Fig. 11D-F). We have found them only on the foliar surface of three native species, *A. claoxyloides*, *A. emirnensis*, and *A. mayottensis* (Table 1). We still do not have conclusive results regarding their nature and composition.

#### *Epicuticular waxes*

The leaf surface of most *Acalypha* species studied is covered by epicuticular waxes of different shapes and densities. Following the classification of Barthlott *et al.* (1998), we found two basic types of waxes: layers and crystalloids (Table 2). Layers are continuous and homogeneous sheets



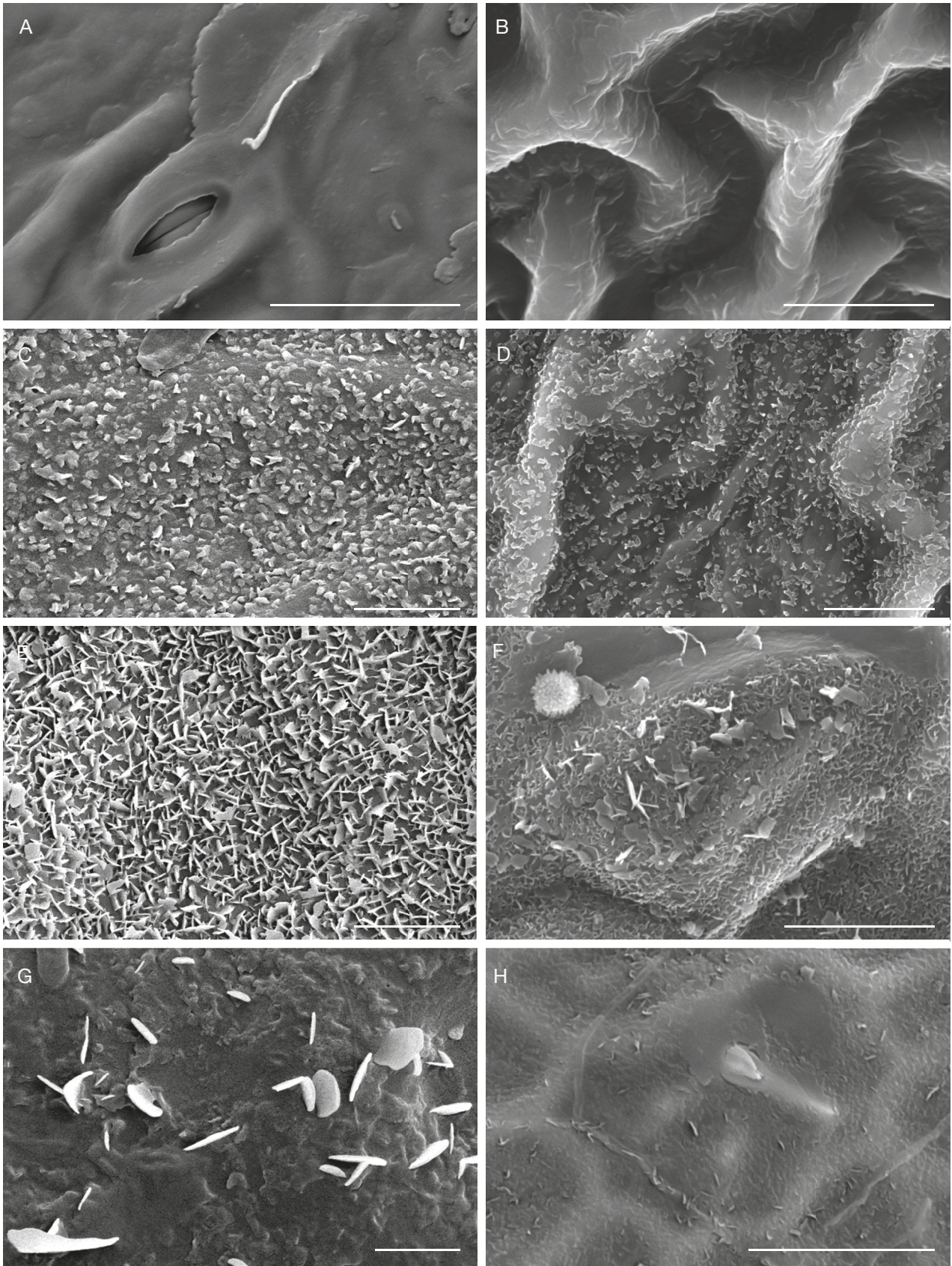


FIG. 12. — **A, B**, Epicuticular waxes, layers: **A**, *Acalypha claoxyloides* Hutch. (*F. R. Fosberg 49627*); **B**, *A. radula* Baker (*J. M. Hildebrandt 3865*); **C-H**, crystalloids; **C**, granules in *A. filiformis* Poir. (*M. J. E. Coode 5062*); **D**, granules in *A. pervilleana* Baill. (*A. Mocquerys 159*); **E**, Platelets in *A. lamiana* (Leandri) I.Montero & Cardiel (*H. J. Lam 6127*); **F**, Platelets in *A. richardiana* Baill. (*J. M. Hildebrandt 1661*); **G**, Plates in *A. emimensis* Baill. (*S. Rakotonandrasana 1279*); **H**, Plates in *A. urophylla* Boivin ex Baill. (*J. M. Hildebrandt 2914*). Scale bars: A, H, 20  $\mu$ m; B, D, F, 10  $\mu$ m; C, E, 5  $\mu$ m; G, 2  $\mu$ m.



TABLE 1. — Crystals found in the studied species of *Acalypha*. Abbreviations: **FC**, foliar crystals; **EC**, extra-foliar crystals; **Ac**, prismatic crystals; **Cc**, stellate crystals; **Dc**, druses; **Ec**, granules; **0**, crystals not found; **–**, material not examined).

Subgenera	Species	FC	EC
Androcephala	<i>A. diminuta</i> Baill.	Ac, Dc	Dc
Hypandrae	<i>A. baretiae</i> I.Montero & Cardiel	Ac	0
Acalypha	<i>A. andringitrensis</i> Leandri	Dc	–
	<i>A. ankaranensis</i> I.Montero & Cardiel	Ac	–
	<i>A. chibomboia</i> Baill.	Ac	–
	<i>A. claoxyloides</i> Hutch.	Ac, Ec	–
	<i>A. crateriana</i> (Coode) I.Montero & Cardiel, comb. nov.	Ac	–
	<i>A. decaryana</i> Leandri	Ac	–
	<i>A. emirmensis</i> Baill.	Ac, Dc, Ec	–
	<i>A. filiformis</i> Poir.	Ac	–
	<i>A. fimbriata</i> Schumach. &Thonn.	Ac, Dc	Cc, Dc
	<i>A. hispida</i> Burm.f.	Ac	–
	<i>A. indica</i> L.	Dc	–
	<i>A. lamiana</i> (Leandri) I.Montero & Cardiel	0	–
	<i>A. leandrii</i> I.Montero & Cardiel	Ac	–
	<i>A. leptomyura</i> Baill.	0	Ac
	<i>A. linearifolia</i> Leandri	0	–
	<i>A. marginata</i> (Poir.) Spreng.	Ac	–
	<i>A. mayottensis</i> I.Montero & Cardiel	Ac, Ec	Ac
	<i>A. menavody</i> (Leandri) I.Montero & Cardiel	Ac	–
	<i>A. nusbaumeri</i> I.Montero & Cardiel	Ac	–
	<i>A. perrieri</i> Leandri	0	–
	<i>A. perrieri</i> aff. Leandri	Ac	–
	<i>A. pervilleana</i> Baill.	Ac, Dc	–
	<i>A. poiretii</i> Spreng.	Ac	–
	<i>A. rabesahalana</i> I.Montero & Cardiel	Ac	Ac
	<i>A. radula</i> Baker	Dc	–
	<i>A. richardiana</i> Baill.	0	–
	<i>A. rottleroides</i> Baill.	Ac	–
	<i>A. indet. 1</i>	Ac, Dc	–
	<i>A. indet. 2</i>	Ac	Dc
	<i>A. tremula</i> I.Montero & Cardiel	Ac	–
	<i>A. urophylla</i> Boivin ex Baill.	Ac	–
	<i>A. vulneraria</i> Baill.	Ac, Dc	–
	<i>A. wilkesiana</i> Müll.Arg.	Ac	–

 TABLE 2. — Epicuticular waxes (**EW**) found in the studied species of *Acalypha*. Abbreviations: **L**, layers; **P**, platelets; **PI**, plates; **G**, granules; **0**, epicuticular waxes not seen.

Subgenera	Species	EW
Androcephala	<i>A. diminuta</i> Baill.	L
Hypandrae	<i>A. baretiae</i> I.Montero & Cardiel	L
Acalypha	<i>A. andringitrensis</i> Leandri	L
	<i>A. ankaranensis</i> I.Montero & Cardiel	G
	<i>A. chibomboia</i> Baill.	G
	<i>A. claoxyloides</i> Hutch.	L
	<i>A. crateriana</i> (Coode) I.Montero & Cardiel, comb. nov.	G
	<i>A. decaryana</i> Leandri	L
	<i>A. emirmensis</i> Baill.	G, PI
	<i>A. filiformis</i> Poir.	G
	<i>A. fimbriata</i> Schumach. &Thonn.	L
	<i>A. hispida</i> Burm.f.	L, P
	<i>A. indica</i> L.	L, P
	<i>A. lamiana</i> (Leandri) I.Montero & Cardiel	P
	<i>A. leandrii</i> I.Montero & Cardiel	G
	<i>A. leptomyura</i> Baill.	G
	<i>A. linearifolia</i> Leandri	–
	<i>A. marginata</i> (Poir.) Spreng.	L
	<i>A. mayottensis</i> I.Montero & Cardiel	L
	<i>A. menavody</i> (Leandri) I.Montero & Cardiel	L
	<i>A. nusbaumeri</i> I.Montero & Cardiel	L
	<i>A. perrieri</i> Leandri	–
	<i>A. perrieri</i> aff. Leandri	L, PI
	<i>A. pervilleana</i> Baill.	L
	<i>A. poiretii</i> Spreng.	L
	<i>A. rabesahalana</i> I.Montero & Cardiel	L
	<i>A. radula</i> Baker	L
	<i>A. richardiana</i> Baill.	P
	<i>A. rottleroides</i> Baill.	L, PI
	<i>A. indet. 1</i>	L, P
	<i>A. indet. 2</i>	L
	<i>A. tremula</i> I.Montero & Cardiel	G
	<i>A. urophylla</i> Boivin ex Baill.	L, PI
	<i>A. vulneraria</i> Baill.	L
	<i>A. wilkesiana</i> Müll.Arg.	L, P

## TAXONOMIC TREATMENT

### Family EUPHORBIACEAE Juss.

#### Genus *Acalypha* L.

*Species Plantarum*: 1003 (Linnaeus 1753); *Genera Plantarum*, ed. 5: 436 (Linnaeus 1754). — Type: *Acalypha virginica* L. (lectotype designated by Small 1913: 457). — *An Illustrated Flora of the Northern United States*, ed. 2., 2: 457.

*Mercuriastrum* Heist. ex Fabr., *Enumeratio Methodica Plantarum*: 202 (Fabricius 1759). — Type: not designated.

*Cupameni* Adans., *Familles des Plantes (Adanson)*, 2: 356 (Adanson 1763), nom. illeg. et superfl. — Type: not designated.

*Caturus* L., *Mantissa Plantarum. Generum Editionis vi et Specierum Editionis II*: 19 (Linnaeus 1767). — *Gaurus* Spreng., *Anleitung zur Kenntniss der Gewachse, Zweite* 364 (Sprengel 1817) nom. illeg. — Type: *Caturus spiciflora* L. [syn. of *Acalypha hispida* Burm.f.].

*Usteria* Dennst., *Schlüssel Hortus Malabaricus*: 31 (Dennstaedt 1818); non *Usteria* Willd., nec *Usteria* Medikus, nec *Usteria* Cav. — Type: not designated.

that cover the entire surface; they vary in thicknesses and can appear folded or fractured (Fig. 12A, B). Crystalloids form a discontinuous cover, are grouped or solitary, have different shapes and sizes, and can appear together with other types of waxes (Barthlott *et al.* 1998). In the WIOR species we have found three types of crystalloids: granules, platelets, and plates. Granules are crystalloids with irregular shapes, but usually isodiametric and rounded (Fig. 12C, D). Platelets and plates are flat, plate-shaped crystalloids; they are the most common crystalloids in plants (Barthlott *et al.* 1998). Platelets have irregular margins (Fig. 12E, F), whereas plates are polygonal and have entire margins (Fig. 12G, H). We do not yet know what, if any, taxonomic significance epicuticular waxes have in *Acalypha*.

*Cupamenis* Raf., *Sylva Telluriana. Mantis Synopt. New genera and species of trees and shrubs of North America*: 67 (Rafinesque 1838), non *Cupameni* Adans. — Type: *Acalypha indica* L.

*Acalyphes* Hassk., *Catalogus Plantarum in Horto Botanico Bogoriensi Culturarum Alter. Bataviae*: 235 (Hasskarl 1844), orth. var.

*Linostachys* Klotzsch ex Schldtl., *Linnaea* 19: 235 (Schlechtendal 1847). — Type: *Linostachys padifolia* Schldtl. [syn. of *Acalypha schlechtendaliana* Müll.Arg.]

*Odonteilema* Turcz., *Bulletin de la Société impériale des Naturalistes de Moscou* 21: 587 (Turchaninov 1848). — Type: *Odonteilema clauseni* Turcz. [syn. of *Acalypha clauseni* (Turcz.) Baill.].

*Paracelsea* Zoll., *Natuurkundig Tijdschrift voor Nederlandsch-Indië*, 14 (4): 171 (Zollinger 1857), *nom. illeg.*

*Calyptrospatha* Klotzsch ex Baill., *Étude générale du Groupe des Euphorbiacées*: 440 (Baillon 1858). — Type: *Calyptrospatha pubiflora* Klotzsch [syn. of *Acalypha pubiflora* (Klotzsch) Baill.].

*Gymnalypha* Griseb., *Bonplandia (Hannover)* 6: 2 (Grisebach 1858). — Type: *Gymnalypha jacquinii* Griseb., *nom. illeg.* [syn. of *Acalypha villosa* Jacq.].

*Corythea* S. Watson, *Proceedings of the American Academy of Arts and Sciences, Boston* 22: 451 (Watson 1887). — Type: *Corythea filipes* S. Watson [syn. of *Acalypha filipes* (S. Watson) McVaugh].

*Ricinocarpus* Burm. ex Kuntze, *Revisio Generum Plantarum* 2: 615 (Kuntze 1891), *nom. illeg.*, non *Ricinocarpus* Desf. — Type: *Acalypha lanceolata* Willd.

*Schizogyne* Ehrenb. ex Pax & K. Hoffm., *Das Pflanzenreich (Engler)*, IV, 147, XVI: 178 (Pax & Hoffmann 1924), *nom. illeg.*, non *Schizogyne* Cass. — Type: *Schizogyne ciliata* Ehrenb. [syn. of *Acalypha ciliata* Forssk.].

*Acalyphopsis* Pax & K. Hoffm., *Das Pflanzenreich (Engler)*, IV, 147, XVI: 178 (Pax & Hoffmann 1924). — Type: *Acalyphopsis celebica* Pax & K. Hoffm., *nom. dub.* [syn. of *Acalypha hoffmanniana* Hurus.].

DISTRIBUTION, HABITAT, AND CLASSIFICATION. — A pantropical genus of about 500 species, with centers of diversity in Mexico and east tropical Africa, and including 49 species in WIOR (42 native and 7 probably introduced). *Acalypha* is distributed in all the archipelagos in the WIOR and grows in a wide variety of habitats. Following the subgeneric classification of Levin *et al.* (2022), subg. *Androcephala* Pax & K. Hoffm. is represented by one species (*A. diminuta*), subg. *Hypandrae* (Müll.Arg.) Hurus. by one species (*A. baretiae*), and subg. *Acalypha* by 47 species. The fourth subgenus, *Linostachys* (Klotzsch ex Schldtl.) Pax & K. Hoffm., does not occur in WIOR. Madagascar is the only island in WIOR where three subgenera are present; other regions of WIOR are home only to species in subg. *Acalypha*. The species in subg. *Acalypha* found in WIOR do not represent a monophyletic group (Montero Muñoz 2021; Levin *et al.* 2022).

#### DESCRIPTION

Small trees, shrubs, or rarely herbs, evergreen or deciduous, monoecious or rarely dioecious. **Branches** usually slender, rarely thorny or with brachyblasts. **Indumentum** velutinous, pubescent or sparsely hairy, rarely absent (glabrous); **trichomes** simple (long or short, erect, curved, or appressed, sometimes hyaline), glandular (long, short, or resinous flattened/rounded), rarely stellate. **Axillary**

**buds** naked or perulate, then with two perules that are imbricate or valvate or four perules that are overlapping (superposed), chartaceous or membranous. **Stipules** usually caducous, linear to triangular or ovate-lanceolate. **Leaves** alternate, undivided, usually petiolate and stipulate. **Leaf blades** entire or more commonly dentate or crenate-serrate, rarely lobed; venation actinodromous or pinnate. **Stipels** sometimes present at apex of petiole or leaf base, minute, glandular, filiform or triangular-lanceolate. **Inflorescences** unisexual or bisexual, axillary, terminal or both, usually spiciform, less commonly racemose or glomerate. **Male inflorescences** always axillary, spiciform, densely or laxly flowered, with several flowers at each node, subtended by a minute bract. **Female inflorescences** usually spiciform, sometimes glomerulate, bracteate, with 1-3 flowers per node; **bracts** minute at anthesis, usually accrescent and foliaceous in the fruit, sometimes non-accescent, margin entire, crenate, or dentate, sometimes with two bracteoles at base. **Bisexual inflorescences** usually spiciform, sometimes racemose, usually with female flowers below and male above (androgynous), rarely with male flowers below and female above (gynecandrous). **Flowers** unisexual, apetalous, disc absent. **Male flowers** inconspicuous, short-pedicellate; calyx 4-lobed, stamens 8, thecae 2, pendulous and vermiform at anthesis; pollen small, oblate-spheroidal to suboblate, apertures 3-8, brevicolporate; pistillode absent. **Female flowers** usually sessile or subsessile, rarely pedicellate; calyx of 3[-4] or sometimes 5 small sepals, distinct or connate at base; ovary with [2]-3 carpels, surface smooth, papillose, or echinate, usually pubescent to densely hispid, sometimes glabrous; styles [2]-3, usually reddish, distinct or connate at base, each divided in several filiform segments; stigmas smooth; ovules 1 per locule. **Allomorphic female flowers** sometimes present, solitary, at apex of the inflorescences or axillary; ebracteate, long-pedicellate or subsessile, calyx as in the normal female flowers, ovary 1-2[-3] lobed, distally fimbriate or papillose, styles 1-2[-3], subbasal (rarely terminal). **Fruits** from normal flowers capsular, [2]-3 lobed, soon dehiscing septicidally into 2-3 bivalved cocci; usually surrounded by the accrescent female bract; surface smooth, papillose, or echinate, usually pubescent to hispid, sometimes glabrous; those from allomorphic flowers indehiscent or schizocarps with indehiscent mericarps, usually distally fimbriate or sharply papillate. **Seeds** usually piriform, sometimes subglobose or globose, minutely foveolate or foveolate, caruncle usually very reduced.

#### TAXONOMIC RESULTS

We found a total of 163 names associated with *Acalypha* of WIOR (Appendix II) published prior to the beginning of our work, of which we accept 36 names (including three new combinations, one made in this paper), 92 are considered as synonyms (7 for the first time here), and 2 are excluded from the genus. The remaining names are invalid or excluded names. Finally, in previous works, we have described 12 new *Acalypha* species (Montero Muñoz *et al.* 2018b, 2020a, 2020b, 2022, and another one in this paper).



KEY TO THE SPECIES OF *ACALYPHA* OF WESTERN INDIAN OCEAN REGION (WIOR)

1. Female flowers pedicellate, calyx with 5 sepals; female bracts not enlarging in fruit (subg. *Androcephala* and *Hypandrae*) ..... 2
- Female flowers sessile, calyx with 3[4] sepals; female bracts enlarging in fruit, except in *A. crateriana* comb. nov., *A. hispida*, and *A. marginata* (subg. *Acalypha*) ..... 3
2. Inflorescences gynecandrous; male segment 2-3(-3.5) cm long, flowers glomerate .....  
..... *A. baretiae* I.Montero & Cardiel
- Inflorescences androgynous; male segment to 0.5 cm long, flowers in a racemose to subumbelliform cluster .....  
..... *A. diminuta* Baill.
3. Inflorescences all unisexual ..... 4
- Inflorescences mostly androgynous (sometimes with the male segment caducous), rarely male inflorescences and/or solitary axillary female bracts ..... 21
4. Female inflorescences sessile or subsessile, with 1 bract that enlarges in fruit, or flowers glomerate and bracts not enlarging ..... 5
- Female inflorescences pedunculate (peduncle more than 5 mm long, usually more than 10 mm long), with more than 2 bracts, usually many, rarely 1 ..... 9
5. Leaf blades linear, *c.* 0.2 cm wide ..... *A. linearifolia* Leandri
- Leaf blades not linear, 1-7(-8) cm wide ..... 6
6. Petioles (2-)3-4.5 cm long; leaf blades membranous, with pocket-shaped domatia on the lower surface .....  
..... *A. isaloensis* I.Montero & Cardiel
- Petioles 0.5-2.5(-3) cm long; leaf blades chartaceous or coriaceous (the mature leaves), without domatia .... 7
7. Leaf blades reddish on lower surface, without discolorous margin; stipules triangular-lanceolate, with two translucent lateral wings; female inflorescences with 1 bract enlarging in fruit ..... *A. integrifolia* Willd.
- Leaf blades greenish on lower surface, usually with discolorous margin; stipules linear-lanceolate, without wings; female inflorescences in glomerules of 3-4 flowers with bracts not enlarging in fruit ..... 8
8. Leaf blades to 10 cm long, elliptic to obovate, with reddish margin .....  
..... *A. crateriana* (Coode) I.Montero & Cardiel, comb. nov.
- Leaf blades to 21 cm long, elliptic-lanceolate, with usually pale margin .....  
..... *A. marginata* (Poir.) Spreng.
9. Female inflorescences with (1-)2-4 bracts, to 6 bracts in *A. chibomboia* ..... 10
- Female inflorescences with more than (4-)9 bracts ..... 13
10. Leaf blades 1.5-2.5(-4)[-7.5] cm long, elliptic to oblong, sometimes obovate .....  
..... *A. decaryana* Leandri
- Leaf blades (5-)7-12(-18)[-26.5] cm long, elliptic-lanceolate to ovate-lanceolate, sometimes obovate-lanceolate ..... 11
11. Female bracts to 5 mm long, orbicular, denticulate ..... *A. chibomboia* Baill. (in part)
- Female bracts to 9-15 mm long, orbicular-reniform, dentate ..... 12
12. Leaf blades elliptic-lanceolate to obovate-lanceolate; base acute to cuneate ..... *A. emirnensis* Baill.
- Leaf blades ovate-lanceolate; base rounded to subcordate ..... *A. lepidopagensis* Leandri
13. Female bracts with only simple trichomes ..... 14
- Female bracts with simple and glandular trichomes or only with glandular trichomes ..... 16
14. Female inflorescences subterminal, laxly flowered, *c.* 3 cm long ..... *A. rabesahalana* I.Montero & Cardiel
- Female inflorescences axillary, densely flowered, 10-40 cm long ..... 15
15. Leaf blades not variegated; female inflorescences up to 40 cm long, pendulous; female bracts not increasing in fruit ..... *A. hispida* L.
- Leaf blades variegated; female inflorescences up to 10 cm long, more or less erect; female bracts increasing in fruit ..... *A. wilkesiana* Müll.Arg.
16. Leaf blades bullate ..... 17
- Leaf blades not bullate ..... 18

17. Leaf blades ovate-lanceolate; stipules to 13 mm long, elliptic to ovate-elliptic ..... *A. andringitrensis* Leandri  
 — Leaf blades narrowly triangular-lanceolate to linear-lanceolate; stipules to 8 mm long, triangular-lanceolate  
 ..... *A. radula* Baker
18. Leaf blades with simple and glandular trichomes ..... *A. rottleroides* Baill. (in part)  
 — Leaf blades with only simple trichomes ..... 19
19. Leaf blades 2-6(-13) cm long; female bracts dentate ..... *A. spachiana* Baill. (in part)  
 — Leaf blades (3.5-)7-17 cm long; female bracts entire ..... 20
20. Petioles (2-)3-8 cm long; leaf blades broadly ovate-lanceolate, base rounded to cordate; female inflorescences to  
 8.5 cm long ..... *A. leandrii* I.Montero & Cardiel  
 — Petioles (1-)2-3 cm long; leaf blades ovate-lanceolate to oblong-lanceolate, base rounded to truncate; female  
 inflorescences to 13 cm long ..... *A. vulneraria* Baill.
21. Androgynous inflorescences with inconspicuous male segment (3.5-15 mm long) ..... 22  
 — Androgynous inflorescences with conspicuous male segment (20-90 mm long) ..... 31
22. Annual or perennial herbs [allochthonous species] ..... 23  
 — Shrubs [native species] ..... 27
23. Female bracts with only simple trichomes; margin crenate-denticulate ..... *A. indica* L.  
 — Female bracts with simple and glandular trichomes; margin dentate ..... 24
24. Female bracts with *c.* 23 teeth, teeth falcate ..... *A. fimbriata* Schumach. & Thonn.  
 — Female bracts with 7-15 teeth, teeth straight ..... 25
25. Female bracts 2-5, central tooth prominent ..... *A. bailloniana* Müll.Arg.  
 — Female bracts 7-15, central tooth not prominent ..... 26
26. Male inflorescence segment *c.* 2 mm long; female bracts 12-15, to 2 × 4 mm, teeth 9-11, broadly triangular  
 ..... *A. lanceolata* Willd. var. *glandulosa* (Müll.Arg.) Radcl.-Sm.  
 — Male inflorescence segment to 10 mm long; female bracts 16-20, to 5 × 6 mm, teeth 7-8, narrowly trian-  
 gular ..... *A. poiretii* Spreng.
27. Leaf blades and/or female bracts with glandular trichomes; androgynous inflorescences with male segment de-  
 ciduous (inflorescences may appear to be female) ..... 28  
 — Leaf blades and female bracts with only simple trichomes; androgynous inflorescences with male segment per-  
 sistent ..... 29
28. Leaf blades with glandular trichomes; androgynous inflorescences axillary; female bracts subtire to crenate  
 ..... *A. rottleroides* Baill. (in part)  
 — Leaf blades without glandular trichomes; androgynous inflorescences terminal (on lateral branches, sometimes  
 appearing leaf-opposed); female bracts dentate ..... *A. spachiana* Baill. (in part)
29. Androgynous inflorescences to 9 cm long, with 4-15 female bracts ..... *A. boinensis* Leandri  
 — Androgynous inflorescences 1-2 cm long, with 1 female bract ..... 30
30. Female bracts to 5 × 9 mm, entire; bracteoles absent; inflorescences with male segment to 3.5 mm .....  
 ..... *A. gillespieae* G.A.Levin & I.Montero  
 — Female bracts to 2 × 2.5 mm, crenate; bracteoles linear-lanceolate; inflorescences with male segment to 7 mm  
 ..... *A. nusbaumeri* I.Montero & Cardiel
31. Androgynous inflorescences with 1 female bract at base; flattened resinous glands absent ..... 32  
 — Androgynous inflorescences with 2 or more female bracts at base, sometimes 1 in *A. claoxyloides* and *A. medi-  
 bracteata*; flattened resinous glands present or absent (if androgynous inflorescences with 1 female bract, then  
 flattened resinous glands present) ..... 46
32. Solitary axillary female bracts absent; androgynous inflorescences sessile or pedunculate, peduncle more than  
 (2.5-)5 mm long ..... 33  
 — Solitary axillary female bracts present; androgynous inflorescences usually sessile or subsessile, peduncle to 3 mm  
 long (to 10 mm in *A. filiformis*) ..... 38
33. Androgynous inflorescences to 7 cm long, sessile or subsessile (peduncle to 2.5 mm in *A. richardiana*); axillary  
 buds to 1 mm long with perules chartaceous or membranous ..... 34  
 — Androgynous inflorescences to 3(-6) cm long, with peduncle 5-15 mm long; axillary buds to 2-4 mm long with  
 perules membranous ..... 36



34. Leaf blades broadly ovate to subtriangular; capsules to 3 mm diameter with long projections to 3.5 mm long ..... *A. tremula* I.Montero & Cardiel  
 — Leaf blades elliptic to ovate-lanceolate; capsules to 2 mm diameter without long projections (only with papillae to 0.5 mm long) ..... 35
35. Branches erect, densely pubescent; petioles 2-6(-9) cm long, no canaliculate, densely pubescent ..... *A. richardiana* Baill. (in part)  
 — Branches flexuous, glabrous; petioles (0.4-)0.7-1.4 (-1.7) cm long, canaliculate, glabrous ..... *A. gracilipes* Baill. (in part)
36. Female bracts to 8 mm wide, dentate to subentire; axillary buds subfusiform ..... *A. humbertii* Leandri  
 — Female bracts to 12 mm wide, entire; axillary buds spherical ..... 37
37. Leaf blades 5-10 cm long, acuminate to subacuminate ..... *A. mayottensis* I.Montero & Cardiel (in part)  
 — Leaf blades 3.5-6(-8.5) cm long, abruptly acuminate ..... *A. perrieri* Leandri
38. Leaf blades (6-)7-17(-22) cm long; branches never flexuous ..... 39  
 — Leaf blades (1.5-)2.5-7.5(-10) cm long (rarely to 11 cm long in *A. urophylla*), if longer than 7 cm long, then branches usually flexuous ..... 41
39. Leaf blades broadly ovate-lanceolate, base cordate ..... *A. ankaranensis* I.Montero & Cardiel (in part)  
 — Leaf blades ovate-lanceolate to elliptic-lanceolate, base rounded to obtuse ..... 40
40. Female bracts usually to 10 mm long (sometimes to 20 mm), margin dentate with or without prominent central tooth ..... *A. pervilleana* Baill. (in part)  
 — Female bracts to 7 mm long, margin subentire, without prominent central tooth ..... *A. richardiana* Baill. (in part)
41. Solitary female bracts long-pedunculate ..... *A. filiformis* Poir.  
 — Solitary female bracts sessile ..... 42
42. Branches glabrous; mature female bracts to 4 × 3.5 mm, bracteoles present; leaf blade apices obtuse, lower surface glabrous; male bracts glabrous; androgynous inflorescences to 2 cm long ..... *A. berryi* I.Montero, Cardiel & G.A.Levin, sp. nov.  
 — Branches hairy, glabrescent; mature female bracts to 5-10 × 5-12 mm, bracteoles absent; leaf blade apices subacuminate to acuminate, lower surface hairy, at least on veins, sometimes glabrescent; male bracts sparsely hairy; androgynous inflorescences to 4-6 cm long ..... 43
43. Leaf blades (1.5-)2.5-6.5 cm long, ovate-lanceolate to subtriangular, acumen rounded ..... 44  
 — Leaf blades (4-)5-7.5(-11) cm long, ovate to elliptic-lanceolate, acumen acute or mucronate ..... 45
44. Leaf blades (1.5-)2.5-3.5(-4.5) cm long; lower leaf surface and female bracts with only simple trichomes; female bracts with margin entire to crenate ..... *A. leptomyura* Baill.  
 — Leaf blades (3.5-)4-6.5 cm long; lower leaf surface and female bracts with simple and minute glandular trichomes; female bracts with margin dentate ..... *A. levinii* I.Montero & Cardiel (in part)
45. Branches straight; female bracts glabrous with reddish margin ..... *A. lamiana* (Leandri) I.Montero & Cardiel  
 — Branches usually flexuous; female bracts pubescent without reddish margin ..... *A. urophylla* Boivin ex Baill.
46. Leaf blades and female bracts with flattened resinous glands; ovary and capsule smooth. .... 47  
 — Leaf blades and female bracts without resinous glands; ovary and capsule papillose to erinaceous. .... 49
47. Androgynous inflorescences with 2-6 female bracts; female bracts *c.* 5 mm long ..... *A. chibombo* Baill.  
 — Androgynous inflorescences with 1-2(-3) female bracts; female bracts 10-12 mm long ..... 48
48. Leaf blades 3.5-5(-7) cm long, linear-lanceolate to oblong-lanceolate ..... *A. medibracteata* Radcl.-Sm. & Govaerts  
 — Leaf blades (5-)6-11(-14) cm long, ovate-lanceolate to elliptic-lanceolate ..... *A. claoxyloides* Hutch.
49. Inflorescences androgynous and male ..... 51  
 — All the inflorescences androgynous ..... 55
51. Androgynous inflorescences with peduncle 10-15 mm long; female bracts with rounded teeth ..... 52  
 — Androgynous inflorescences sessile; female bracts with acute teeth ..... 53
52. Leaf blades 1.8-2.6(-3) cm long, subrhomboidal ..... *A. cardielii* I.Montero & G.A.Levin  
 — Leaf blades 7-10(-12.5) cm long, elliptic-lanceolate to subobovate ..... *A. leonii* Baill.

- 53. Leaf blades 6-16(-21) cm long, apex long-acuminate to caudate; some androgynous inflorescences terminal ..... *A. pervilleana* Baill. (in part)
- Leaf blades (4-)5-7.5 cm long, apex shortly acuminate; all androgynous inflorescences axillary ..... 54
- 54. Petioles (0.4-)0.7-1.4 cm long; leaf blades elliptic-lanceolate; capsules to 2 mm diameter, without long projections (only with papillae to 0.5 mm long) ..... *A. gracilipes* Baill. (in part)
- Petioles (3-)4-6 cm long, leaf blades broadly ovate to subtriangular; capsule to 3 mm diameter with long projections to 3.5 mm long ..... *A. tremula* I.Montero & Cardiel (in part)
- 55. Androgynous inflorescences sessile or subsessile ..... 56
- Androgynous inflorescences pedunculate (peduncle more than 15 mm long) ..... 57
- 56. Leaf blades (6-)7-9 cm long, broadly ovate-lanceolate, subcordate to cordate at the base; female bracts with acute to subacute teeth, with sessile glands at apex ..... *A. ankaranensis* I.Montero & Cardiel (in part)
- Leaf blades (3.5-)4-6.5 cm long, ovate-lanceolate to elliptic-lanceolate, rounded to subcordate at the base; female bracts with rounded teeth without glands ..... *A. levinii* I.Montero & Cardiel (in part)
- 57. Female bracts *c.* 5 mm long ..... *A. magistri* I.Montero & Cardiel
- Female bracts 7-19 mm long ..... 58
- 58. Leaf blades broadly ovate-lanceolate; androgynous inflorescences with peduncle to 45 mm long ..... *A. menavody* (Leandri) I.Montero & Cardiel
- Leaf blades ovate-lanceolate to elliptic-lanceolate; androgynous inflorescences with peduncle to 15 mm long .... 59
- 59. Leaf blades 2.5-5.5 cm long; female bracts to 10 × 11 mm, with discolorous margin ..... *A. burmanii* I.Montero & Cardiel
- Leaf blades (3-)5-10 cm long; female bracts to 19 × 21 mm, without discolorous margin ..... *A. mayottensis* I.Montero & Cardiel (in part)

*Acalypha* subgen. *Androcephala* Pax & K.Hoffm.

*Das Pflanzenreich* (Engler), 147, 16 (Heft 85): 21 (Pax & Hoffmann 1924). — Type: *Acalypha diminuta* Baill.

DESCRIPTION

Inflorescences terminal, androgynous; female segment racemose or paniculate; male segment racemose to subumbelliform (in WIOR species). Female bracts minute, non-acrescent in fruit. Female flowers pedicellate; sepals 5; ovary 3-lobed, styles 3.

1. *Acalypha diminuta* Baill.

*Histoire physique, naturelle et politique de Madagascar*, Atlas, 2, fasc. 27: t. 194 (Baillon 1891). — Type: pl. 194 in Baillon (1891), holotype.

ICONOGRAPHY. — Baillon (1891: pl. 194); Leandri (1942: 254); Fig. 28A.

ETYMOLOGY. — The specific epithet probably refers to the small size of the male segment of the inflorescences.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana, Sofia, Boeny, Melaky, Menabe, Atsimo-Andrefana, Androy, and Alaotra-Mangoro [only one collection]). Dry deciduous forest, spiny thickets; sometimes in riparian forest. On Tertiary limestone, sandstone, and unconsolidated sand. Altitudinal range (40-) 50-850 (-1450) m (Fig. 13).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha diminuta* is estimated to be 310 217 km<sup>2</sup> and its AOO 104 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in the western dry

deciduous forests. Most of these forests are highly degraded (40%) and the major threat to the dry deciduous forests is slash-and-burn clearing for grazing and agricultural lands. Grasslands and pastures have replaced the forests in the western slope and the central highlands (Moat & Smith 2007; Gautier *et al.* 2018). Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha diminuta* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for listing it under the Endangered category.

MATERIAL EXAMINED. — 44 collections. Madagascar. Appert, O.P. 31 (P[P04779831]), 41 (P[P00360914]); Bosser, M.J. 13885 (P[P04779814, P04779816]), 13993 (P[P04779821, P04779824]); Capuron, R. 20581-SF (K, P[P05547246]); Cours, G. 1819 (P[P05547244]); d'Alleizette, Ch. s.n. (L[L0241302]); Decary, R. 16089 (K, P[P05547245]), 16122 (P[P05547250]); Gillespie, L. 4034 (US[US01287336]), 10704 (MO); Grevé, H. 223 (P[P00360915]); Hladik, A. AH7158 (P[P00780280, P00780618]); Humbert, H. 11237 (B[B100009884], P[P00508516, P00360918]), 11288 (P[P00360919]), 11335 (BR[BR0000005045020], NY, P[P00508515, P00360917]), 11506 (P[P00360916, P00508517]); Jard. Bot. Tananarive 5749 (P[P00360923]); Keraudren-Aymonin, M. 25933 (P[P00360920]); Leandri, J. 489 (K, P[P05547061]), 491 (US[US01287337]), 3533 (P[P05547060]), 3569 (B[B100480050], G, NY, P[P05547243]), 3620 (G, P[P05547242]); Lorence, D. 2084 (K, P[P00360921]); Peltier, J. 1432 (P[P05547022]); Perrier de la Bâthie, H. 379 (P[P05577069, P05577067]), 9632 (P[P00508520, P00508521, P00360922]), 9816 (P[P00508519, P00360924, P00360925]), 9818 (P[P00360499, P00360500, P00508518]), 9819 (P[P05547062]); Philipson, P.B. 2431 (MO, P[P00360497]), 2750 (K, MO, P[P00360498]); Pichon, C. CP113 (P[P00780436]); Rakotozafy, A. 319 (P[P05547065]); Ralimanana, H. 239 (G[G00405396], DBEV, K, MO[MO-2965792], P[P05481882], TAN); Richard, M. 173 (K), 547 (K); Service Forestier Madagascar 16576-SF (P[P00360912, P00508522, P00508523]), 27956-SF (P[P00360913]); Seyrig, A. 254 (P[P05547066]), 254B (P[P05547064]), 254 C (P[P05547063]); Wohlhauser, S. SW 310 (G[G00405345], P[P04779528]).



REFERENCES. — Baillon (1895b: 1197); Palacký (1907: 25); Pax & Hoffmann (1924: 21); Leandri (1935: 42); Leandri (1942: 253); Govaerts *et al.* (2000: 60); Sagun *et al.* (2006: 124); Montero Muñoz *et al.* (2018a: 95).

#### DESCRIPTION

Shrubs, deciduous, to 3 m tall, monoecious. **Branches** laxly pubescent with simple, short, curved trichomes and simple, erect trichomes, glabrescent when mature; brachyblasts present. **Axillary buds** subspherical, to 1.2 × 1 mm, perulate, perules 2, imbricate, chartaceous, brownish, glabrous. **Stipules** to 3 mm long, lanceolate to linear-lanceolate, ciliate with some sparse, simple, short trichomes. **Petioles** 0.2–0.3 cm long, indumentum similar to that on young branches. **Leaf blades** 3–5(–5.5) × 1.4–2 cm, usually elliptic to elliptic-lanceolate, sometimes narrowly elliptic-lanceolate, membranous; **base** rounded to cordate; **apex** obtuse and mucronate; **margin** entire to crenate towards apex, teeth rounded; **upper surface** subglabrous, with some sparse, simple trichomes on veins; **lower surface** glabrous, with flattened resinous glands; venation pinnate, secondary veins 5–7 per side. **Stipels** absent. **Inflorescences** racemose, androgynous, terminal, to 5 cm long, mostly female with short male segment; peduncle filiform, to 30 mm long, appressed-pubescent. **Female segment** to 2 cm long; **bracts** 1–7, not enlarging in fruit, to 1 mm long, lanceolate, sparsely hairy; **bracteoles** absent. **Male segment** persistent, to 0.5 cm long; flowers in racemose to subumbelliform cluster; **bracts** to 0.8 mm long, triangular-lanceolate, sparsely hairy with simple, arachnoid trichomes. **Male flowers:** pedicel to 0.8 mm long, sparsely hairy; buds to 1 mm diameter, sparsely hairy with simple, arachnoid trichomes. **Female flowers** 1 per bract, pedicellate; pedicel to 7 mm long, indumentum similar to that on peduncle; **sepals** 5, to 0.8 mm long, triangular, ciliate with simple trichomes to 0.5 mm long; **ovary** *c.* 1 mm diameter, 3-lobed, papillose, surface glabrous but with flattened resinous glands; **styles** 3, to 2.5 mm long, distinct, glabrous, each divided into *c.* 10 segments. **Allomorphic flowers** not seen. **Capsules** to 4 mm diameter, papillose, glabrous, with papillae more or less capitate, surface glabrous but with flattened resinous glands. **Seeds** *c.* 2 mm diameter, globose, minutely foveolate.

#### NOTES

1) *Acalypha diminuta* was first illustrated, without description, in Baillon's *Histoire Naturelle des Plantes* (Baillon 1891). The first description of this species, based only on Baillon's illustration, appears in Engler's *Pflanzenreich* (Pax & Hoffmann, 1924); and 2) this is one of only two species included in *Acalypha* subgen. *Androcephala* Pax & K. Hoffm.; the other is *A. gillmanii* Radcl.-Sm. of eastern Africa (Levin *et al.* 2022).

*Acalypha* subgen. *Hypandrae* (Müll.Arg.) Hurus.

*Journal of the Faculty of Science, University of Tokyo, Section III. Botany* 6: 297 (Hurusawa 1954). — *Acalypha* subser. *Hypandrae* Müll. Arg., *Linnaea* 34: 9 (Müller Argoviensis 1865). — Type: *Acalypha sonderiana* Müll.Arg. (lectotype designated by Levin *et al.* 2022).



Fig. 13. — Distribution map of *Acalypha diminuta* Baill. in Madagascar.

#### DESCRIPTION

Inflorescences axillary, gynecandrous, racemose or paniculate. Female bracts minute, non-acrescent in fruit. Female flowers pedicellate; sepals 5; ovary 2-lobed, styles 2.

#### 2. *Acalypha baretiae* I.Montero & Cardiel

*South African Journal of Botany* 119: 420 (Montero Muñoz *et al.* 2018b). — Type: **Madagascar**. Toliara. Morondava, 10 km de Morondava, route de Malaimbandy, 337 m, 20°23'33"S, 44°56'57"E, X.1963, *M. J. Bosser 18124* (holo-, P[P04779795]). — Paratypes: Madagascar, Toliara: Atsimo-Andrefana region. Beroroha, fokontany Betorabato. Village le plus proche Ambalamanga. Forêt Akolitsika (rivière), 276 m, 21°40'22"S, 44°59'36"E, 18.I.2011. *R. Razakamalala 6064* (MO[MO-3025026], P[P01152840], TAN).

ICONOGRAPHY. — Montero Muñoz *et al.* (2018b).

ETYMOLOGY. — The epithet honors Jeanne Baret (1740–1807), the first woman to circumnavigate the globe. Disguised as a man and calling herself Jean Baret, she served as naturalist Philibert Commerçon's valet and botanical assistant on Louis Antoine de Bougainville's expedition from 1766 to 1769, the first French circumnavigational voyage. She visited Madagascar with Commerçon in 1770–1772,

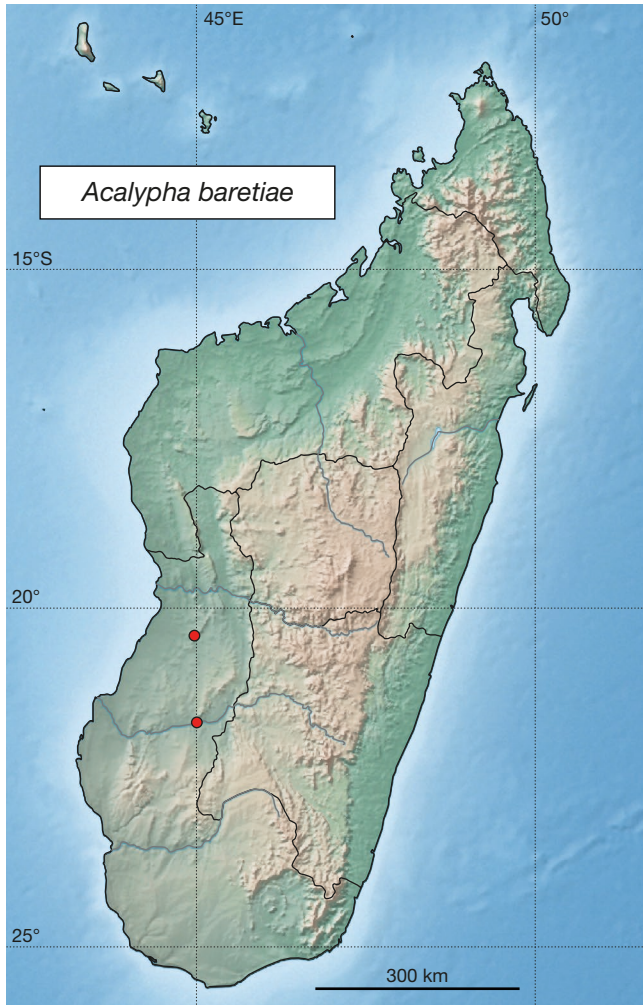


FIG. 14. — Distribution map of *Acalypha baretiae* I. Montero & Cardiel in Madagascar.

and when Commerson died in Mauritius (1773) she returned to France with all the material that they had collected (Knapp 2011).

**DISTRIBUTION AND HABITAT.** — Endemic to Madagascar (Menabe and Atsimo-Andrefana). Dry deciduous forest and dry spiny thickets. Sandstone. Altitudinal range 276–350 m (Fig. 14).

**PRELIMINARY CONSERVATION ASSESSMENT.** — *Acalypha baretiae* is only known from two collections. Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup>. Both collections of *A. baretiae* were made in unprotected areas. This species grows in dry deciduous forest in southwestern Madagascar (see assessment of *A. diminuta*). The habitat of this species continues to be lost, so *A. baretiae* is preliminarily assessed as Critically Endangered: CR B2ab(ii,iii,iv).

**MATERIAL EXAMINED.** — 2 collections. **Madagascar.** *Bosser, M.J.* 18124 (P[P04779795]); *Razakamalala, R.* 6064 (MO[MO-3025026], P[P01152840]).

#### DESCRIPTION

Shrubs, probably deciduous, to 2–3 m tall, monoecious. **Branches** sometimes thorny, pubescent with simple, short, antrorse trichomes, glabrescent when mature; brachyblasts present. **Axillary buds** ovoid, to 2 × 1 mm, perulate, perules 2, valvate, membranous, brownish, puberulent with sim-

ple, short trichomes and ciliate. **Stipules** to 3.5 mm long, triangular-lanceolate, midrib prominent, margin ciliate, apex with simple, long trichomes. **Leaves** alternate or congested on brachyblasts. **Petioles** 0.3–0.8 cm long, pubescent with simple, short, curved trichomes, sometimes also with simple, erect trichomes to 0.7 mm long. **Leaf blades** (2–)3–4 × 1–2(–2.3) cm, elliptic to obovate, chartaceous; **base** acute to subcuneate; **apex** obtuse; **margin** crenate to serrate, slightly revolute, teeth rounded to obtuse, with minute papillae at apex; **upper surface** glabrescent, with some simple, short trichomes on the veins; **lower surface** indumentum similar to that on young branches, axils of the secondary veins with hair-tuft domatia; venation actinodromous, basal veins 3, secondary veins 3–4 per side. **Stipels** absent. **Inflorescences** racemose or paniculate, gynecandrous, axillary, to 7 cm long, about equally male and female; peduncle 5–10(–15) mm long, it and rachis pubescent with simple, short, arachnoid trichomes. **Male segment** persistent, 2–3(–3.5) cm long; flowers glomerate; **bracts** to 0.7 mm long, triangular-lanceolate, ciliate and with some sparse, simple trichomes. **Female segment** 2–3.5 cm long; **bracts** 3–9, not enlarging in fruit, to 0.7 mm long, triangular, margin ciliate and with minute papillae; **bracteoles** absent. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, sparsely hairy. **Female flowers** 2–3 per bract, pedicellate; pedicel to 5 mm long, glabrous; **sepals** 5, to 1 mm long, narrowly triangular, slightly fleshy, ciliate; **ovary** c. 1 mm diameter, 2-lobed, densely papillose-echinate with thick capitate papillae, surface glabrous; **styles** 2, to 3 mm long, connate at thickened base, glabrous, each divided into c. 15 slender segments. **Allomorphic flowers** not seen. **Capsules** to 5 mm diameter, papillose, papillae to 0.5 mm long, capitate, surface glabrous. **Seeds** c. 2.3 × 1.8 mm, subglobose, minutely foveolate.

#### NOTE

This is the only species from Madagascar that belongs to subg. *Hypandrae*; the other species are found on continental Africa.

#### *Acalypha* subgen. *Acalypha*

#### DESCRIPTION

Inflorescences axillary, terminal, or both, unisexual and/or androgynous, usually spiciform, rarely glomerulate. Female bracts minute at anthesis, usually accrescent and foliaceous in fruit, margin dentate, crenate or entire, sometimes with two bracteoles at base. Female flowers usually sessile or subsessile; sepals 3(–4); ovary 3-lobed, styles 3.

#### 3. *Acalypha andringitrensis* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 277 (Leandri 1942). — Type: **Madagascar.** Prov. Fianarantsoa: Massif of Andringitra, IV.1921, *H. Perrier de la Bâthie* 13640 (lecto-, designated by Montero Muñoz *et al.* [2018a: 108]; P[P00508596];



isolecto-, P[P00508594, P00508595]). — Former syntypes: Madagascar, *ibid. loc.*, 1924, H. Humbert 3709 (P[P00224706, P00508591, P00508592, P00508593]); Madagascar, *ibid. loc.*, IV.1921, H. Perrier de la Bâthie 9671 (P[P00508589, P00508590]).

ICONOGRAPHY. — Figs 24A; 28B, C.

ETYMOLOGY. — The epithet refers to the type locality, the Andringitra massif (Madagascar), to which this species seems to be endemic.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Haute Matsiatra, and Ihorombe). Riparian forest and rupicolous vegetation. On basement rocks. Altitudinal range 1400–2000 (–2500) m (Fig. 15).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha andringitrensis* is only known from the Andringitra massif, where this species appears to be a narrow endemic. Its EOO is estimated to be 98 km<sup>2</sup> and its AOO 20 km<sup>2</sup>. Andringitra massif was declared as “Strict Nature Reserve” in 2007 and National Park in 1999 (Category II; Dudley 2008). This protected area has threats to the habitat such as intentional fires (for exploitation of honey or creation of new areas for cattle pasture), logging, and collection of firewood and non-timber products. Even so, the forest habitats remain in good condition, and the areas most affected are at the southeast and at the boundaries of the park (Goodman *et al.* 2018). According to specimen labels this species is uncommon. *Acalypha andringitrensis* is assessed as Critically Endangered: CR B1ab(i,iii,iv).

MATERIAL EXAMINED. — 12 collections. Madagascar. Boiteau, P. 2079 (K, P[P00433253, P00433254]); Gillespie, L. 10838 (MO), 10850 (MO), 10851 (MO), 10852 (CAN), 10853 (MO); Humbert, H. 3709 (G, P[P00224706, P00508591, P00508592, P00508593]); Perrier de la Bâthie, H. 9671 (P[P00508589, P00508590]), 13640 (P[P00224705, P00508594, P00508595, P00508596]); Philipson, P.B. 5669 (MO, P[P04779844]); Rakotovoao 7501-RN (P[P05547070]); Razafindrakoto 3110 (P[P05547265]).

REFERENCES. — Goodman (1996: 61); Govaerts *et al.* (2000: 49); Montero Muñoz *et al.* (2018a: 108) as *A. radula*.

#### DESCRIPTION

Shrubs, evergreen, to 5 m tall, dioecious or sometimes monoecious. **Branches** densely pubescent with simple, short, more or less appressed trichomes and hyaline trichomes to 0.8 mm long, glabrescent when mature. **Axillary buds** ovoid, to 3 × 2 mm, perulate, perules 2, imbricate, chartaceous, blackish, pubescent with simple, short trichomes. **Stipules** to 13 mm long, elliptic to ovate-elliptic, midrib thick, margins hyaline, appressed-pubescent, especially on midrib. **Petioles** 1.5–8 (–12) cm long, indumentum similar to that on young branches and with scattered, short, glandular trichomes. **Leaf blades** conspicuously bullate, 6–14 × (2–)4–8 cm, ovate-lanceolate to ovate, subchartaceous; **base** cordate; **apex** narrowly acute to gradually acuminate, acumen to 10 mm, acute; **margin** serrate; teeth subacute, irregular; **upper surface** pubescent with simple, short, erect, trichomes on top of blisters and main veins, and scattered, short, glandular trichomes, denser on veins near base; **lower surface** pubescent with simple, thin trichomes, denser on veins; venation actinodromous, basal veins 3 or 5, secondary veins 6–10 per side. **Stipels** absent. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** densely flowered, to 10 cm long; peduncle to 8 mm long, indumentum similar to that on young branches; flowers glomerate; **bracts** to 1 mm long, spatulate, densely hairy and



FIG. 15. — Distribution map of *Acalypha andringitrensis* Leandri in Madagascar.

ciliate with simple trichomes, and short, glandular trichomes. **Female inflorescences** densely flowered, becoming more open in fruit, to 8 cm long; peduncle to 10 mm long, indumentum similar to that on young branches; **bracts** 6–16, sessile, enlarging in fruit to 18 × 22 mm, deltoid-reniform, pubescent with simple, thin, erect, trichomes and thick, glandular trichomes to 1 mm long, and ciliate; margin dentate, teeth 25–31, triangular, with glandular trichomes, central tooth not prominent; **bracteoles** triangular, to 1.5 mm long, pubescent with simple, short trichomes, and ciliate. **Male flowers:** pedicel to 1 mm long, sparsely hairy; buds to 1.5 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.8 mm long, oblong-lanceolate, sparsely hairy and ciliate; **ovary** c. 1 mm diameter, 3-lobed, smooth, surface hispid with simple, short, erect trichomes and glandular trichomes; **styles** 3, to 5 mm long, slightly connate at base, sparsely hairy on rachis, each divided into 9–10 segments. **Allomorphic flowers** sometimes present at female inflorescence apex; pedicel filiform, to 20 mm long, sparsely hairy; sepals not seen; ovary not seen. **Capsules** to 5 mm diameter, smooth, surface sparsely hairy with simple, short, erect trichomes and glandular trichomes to 1.5 mm long. **Seeds** c. 3 × 2 mm, pyriform, minutely foveolate.



FIG. 16. — Distribution map of *Acalypha ankaranensis* I.Montero & Cardiel in Madagascar.

#### NOTE

In our previous work (Montero Muñoz *et al.* 2018a) we included *Acalypha andringitrensis* as a synonym of *A. radula*, according to preliminary DNA results, but we have now concluded that *A. andringitrensis* is a different species due to its leaf blades (3-)4-6 cm wide, ovate-lanceolate and stipules to 13 mm long, elliptic to ovate-elliptic vs leaf blades (1.5-)2-3(-3.5) cm wide, narrowly triangular-lanceolate to linear-lanceolate and stipules to 8 mm long, triangular-lanceolate in *A. radula*. Furthermore, additional DNA sampling shows that the two species are reciprocally monophyletic (Levin *et al.* 2022).

#### 4. *Acalypha ankaranensis* I.Montero & Cardiel

*South African Journal of Botany* 146: 635 (Montero Muñoz *et al.* 2022). — Type: Madagascar. Diana region [Antsiranana prov.]: Ambilobe, Réserve Spéciale d'Ankarana. Piste vers le campement des Anglais et la sortie de la réserve, 180 m, 12°54'43"S, 49°06'39"E, 19.II.1994, *M. Andrianarisata et al.* 41 (holo-, P[P00508496]; iso-, MO[MO-2965838]). — Paratypes: Madagascar. Diana region [Antsiranana prov.]: Mahamasina. Réserve Spéciale d'Ankarana,

chemin du canyon forestier, 130 m, 12°55'25"S, 49°06'39"E, 16.I.2003, *M. Bardot-Vaucoulon et al.* 1209 (K, MO, P[P00455503], TAN); Ankarana Res., near Campement des Anglais, 150 m, 12°54'S, 49°08'E, 30.I.1994, *A. J. M. Leeuwenberg et al.* 14374 (BR [BR0000021450266], E, G, K, LMU, MA, MO, P[P04779850], PRE, TAN, WAG).

ICONOGRAPHY. — Montero Muñoz *et al.* (2022); Fig. 24B.

ETYMOLOGY. — The epithet refers to the Ankarana massif (Madagascar), to which this species appears to be endemic.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana), Ankarana massif. Dry deciduous forest on Mesozoic limestone. Altitude *c.* 180 m (Fig. 16).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha ankaranensis* is only known from Ankarana massif, where this species appears to be a narrow endemic. Its EOO and AOO are estimated to be 12 km<sup>2</sup>. The Ankarana massif is a Special Reserve, established in 1956; and it is a category IV protected area (Dudley 2008). The reserve lost 20% of its dry deciduous forests and 85% of its moist evergreen forest from 1996 to 2016, and is threatened mainly by sapphire mining, and by agriculture (commercial cash crops), logging, and locally by fires to improve grazing (Wilson *et al.* 1988; Kull 2000; Goodman *et al.* 2018). In recognition of its restricted geographic range and the cited threats, *A. ankaranensis* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii,iv).

MATERIAL EXAMINED. — 3 collections. Madagascar. *Andrianarisata*, *M.* 41 (K, MO[MO-2965838], P[P00508496]); *Bardot-Vaucoulon*, *M.* 1209 (P[P00455503]); *Leeuwenberg*, *A.J.M.* 14374 (BR[BR0000021450266], E, G, K, LMU, MA[MA-01-00849822], MO, P[P04779850], PRE, TAN, WAG[WAG.1578695, WAG.1578696]).

#### DESCRIPTION

Shrubs, probably deciduous, to 1.2 m tall, monoecious. **Branches** red-tinged, pubescent with simple, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** ovoid, to 1 mm long, perulate, perules 2, overlapping (superposed), membranous, scarious, appressed-pubescent, margin with sessile glands. **Stipules** to 5 mm long, lanceolate to linear-lanceolate, apex acute, sparsely hairy with simple, short trichomes, margin with simple, erect trichomes to 1.5 mm long and short, glandular trichomes. **Petioles** reddish, 3-5 cm long, indumentum similar to that on young branches and with simple, erect trichomes to 1.5 mm long. **Leaf blades** (6-)7-9 × 3.5-5.5 cm, broadly ovate-lanceolate, membranous; **base** subcordate to cordate; **apex** acuminate, acumen to 20 mm long, acute; **margin** serrate, teeth acute, with sessile glands at apex; **upper surface** laxly pubescent with simple, erect trichomes to 1.5 mm long, and with simple, curved trichomes on veins; **lower surface** laxly pubescent with sparse, simple, short trichomes, and with simple, curved trichomes on veins, axils of the secondary veins with pocket-shaped domatia; venation prominent on both surfaces, actinodromous, basal veins 5, secondary veins 5-6 per side. **Stipels** filiform, to 1 mm long, sparsely hairy. **Inflorescences** spiciform, androgynous, and solitary female bracts, mainly axillary, some androgynous inflorescences terminal. **Androgynous inflorescences** to 5.5 cm long, mostly male with short female segment; sessile or subsessile; rachis indumentum similar to that on petioles. **Female segment** to 3.5 cm long; **bracts** 1-4, sessile, enlarging in fruit



to  $8 \times 10$  (-18) mm, reniform, sparsely hairy with simple, erect trichomes to 1 mm long, especially at margin; margin dentate to denticulate, with *c.* 14 teeth, teeth acute to subacute, with sessile glands at apex, central tooth not prominent; **bracteoles** to 0.5 mm long, lanceolate, sparsely hairy. **Male segment** persistent, to 4 cm long, proximal 2 cm sterile; flowers glomerate; **bracts** to 0.8 mm long, oblong, sparsely hairy. **Solitary female bracts** sessile, similar to those on androgynous inflorescences. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.8 mm diameter, sparsely hairy, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.7 mm long, triangular, sparsely hairy, margin with some sessile glands; **ovary** *c.* 1 mm diameter, 3-lobed, apparently smooth, surface hispid with simple, erect trichomes to 1.5 mm long; **styles** 3, to 6 mm long, slightly connate at base, sparsely hairy on rachis, each divided into *c.* 10 segments. **Allomorphic flowers** sometimes present, axillary; pedicel filiform, to 20 mm long, sparsely hairy; sepals 3, similar to those of normal flowers; ovary immature. **Capsules** to 3 mm diameter, papillose-hispid, papillae triangular, to 0.5 mm long, ending in a simple trichome to 1 mm long, surface pubescent with simple, short trichomes. **Seeds** *c.* 1.2 mm diameter, subglobose, apiculate, foveolate.

### 5. *Acalypha bailloniana* Müll.Arg.

*Linnaea* 34: 44 (Müller Argoviensis 1865). — *Ricinocarpus baillonianus* (Müll.Arg.) Kuntze, *Revisio Generum Plantarum* 2: 617 (Kuntze 1891). — *Acalypha indica* var. *bailloniana* (Müll.Arg.) Hutch., *Flora of Tropical Africa* 6 (1): 904 (Hutchinson 1912). — Type: **Tanzania**. Zanzibar: s.l., 1848, *L. H. Boivin s.n.* (holo-, P[P04809900]).

ICONOGRAPHY. — Fig. 24C.

ETYMOLOGY. — The epithet honors French botanist Henri Ernest Baillon (1827-1895).

DISTRIBUTION AND HABITAT. — Native to East Tropical Africa. Probably introduced in the Comoros Archipelago (Anjouan and Grande Comoro), weedy and associated with cultivated areas (Fig. 17).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha bailloniana* is assessed preliminarily as Data Deficient (DD), pending revision of the continental African material.

MATERIAL EXAMINED. — 4 collections. **Comoros Archipelago.** *Boivin, L.H. s.n.* (P[P00196288]); *Kirk, T. 8179* (K); *Viscardi, G. 438* (P[P00852762]), *439* (HCD, P00852763).

REFERENCES. — Montero Muñoz *et al.* (2018a: 93).

#### DESCRIPTION

Herbs, to 50 cm tall, monoecious. **Branches** pubescent with simple, short, curved, antrorse trichomes and some short, glandular trichomes, prominently ribbed and glabrescent when mature. **Axillary buds** naked, pubescent with simple, short trichomes. **Stipules** to 4 mm long, triangular-lanceolate, pubescent with simple, short trichomes, margin with some sessile glands. **Petioles** (1-)1.8-2.8(-3) cm long, indumentum similar to that on young branches. **Leaf blades** 1.5-3.1  $\times$  (0.7-)1-2 cm, rhombic to ovate-lanceolate, membranous; **base** acute; **apex** acute; **margin** serrate, teeth acute; **upper surface** laxly pubes-

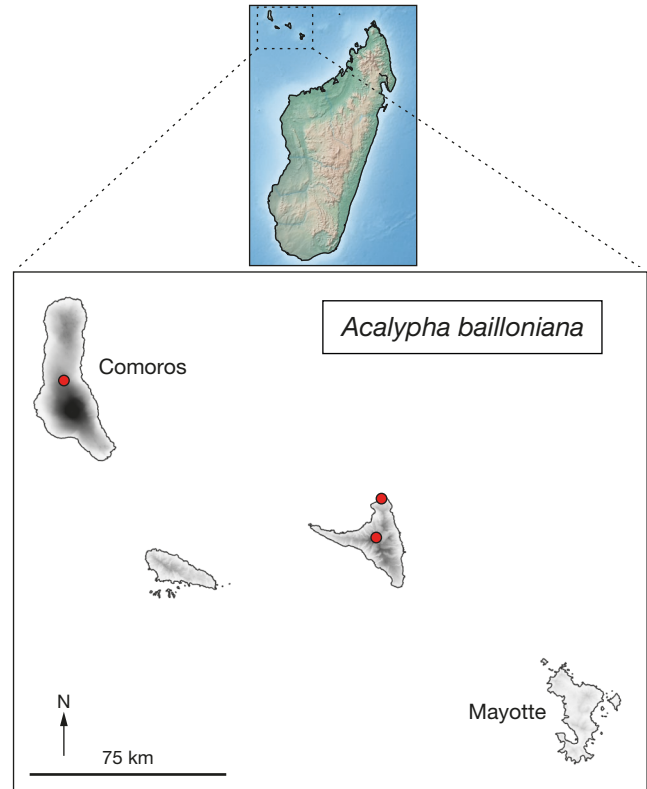


FIG. 17. — Distribution map of *Acalypha bailloniana* Müll.Arg. in Comoros Archipelago.

cent with simple, short trichomes; **lower surface** pubescent with simple, short trichomes; venation actinodromous, basal veins 5, secondary veins 5-7 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 3 cm long, mostly female with short male segment; peduncle to 5 mm long, it and rachis pubescent with simple, short trichomes. **Female segment** to 2 cm long; **bracts** 2-5, sessile, enlarging in fruit to  $8 \times 10$  mm, reniform, pubescent with short, simple trichomes and short glandular trichomes; margin dentate, teeth *c.* 15, triangular, central tooth prominent; **bracteoles** absent. **Male segment** persistent, to 1 cm long; flowers glomerate; **bracts** to 0.5 mm long, triangular-lanceolate, ciliate with simple, short trichomes, and two simple, long trichomes to 0.7 mm long at apex. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, glabrous, papillose. **Female flowers** 2-(3) per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, ciliate with simple, short trichomes, margin with sessile glands; **ovary** *c.* 1 mm diameter, 3-lobed, smooth, surface hispid with simple, short, erect trichomes; **styles** 3, to 4 mm long, distinct, sparsely hairy, each divided into 4-5 segments. **Allomorphic flowers** sometimes present at inflorescence apex, pedicel filiform, to 9 mm long, sparsely hairy; sepals 3, similar to those of normal flowers; ovary 1-lobed, to  $3 \times 2$  mm, hispid with hyaline trichomes to 1 mm long, simple, short trichomes, and some glandular trichomes, distally fimbriate; style 1, to 2 mm long, sparsely hairy. **Capsules** to 3 mm diameter, smooth, surface pubescent with short simple trichomes and short glandular trichomes. **Seeds** *c.*  $1 \times 0.7$  mm, pyriform, foveolate.

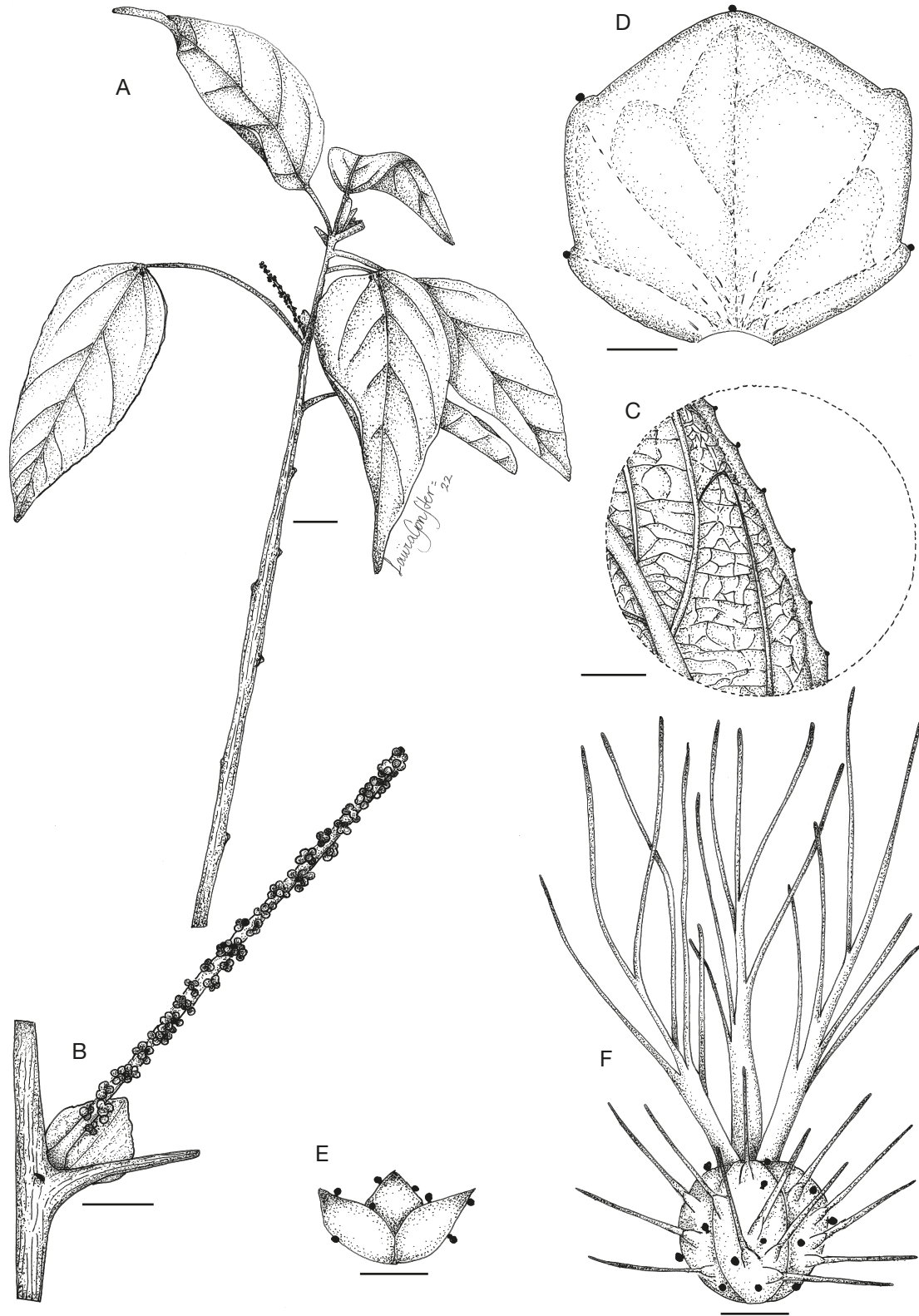


FIG. 18. — *Acalypha berryi* I.Montero, Cardiel & G.A.Levin, sp. nov.: **A**, flowering branch with young leaves; **B**, detail of an inflorescence; **C**, detail of lower leaf surface and margin; **D**, mature female bract; **E**, calyx of the female flower; **F**, ovary and styles. Based on F. Barthelat, V. Guiot & G. Viscardi 1361. Illustration by Laura González Hernández. Scale bars: A, 1 cm; B, 0.35 cm; C, 0.5 cm; D, 1 mm; E, F, 0.5 mm.

NOTE

*Acalypha bailloniana* was first reduced to a subspecies of *A. indica* by Hutchinson (1912), and this treatment was followed

in subsequent floristic works. Radcliffe-Smith (1987, 1996) treated *A. bailloniana* as a synonym of *A. indica*. We consider *A. bailloniana* to be a distinct species that can be distinguished



from *A. indica* by its dentate bracts with a prominent central tooth and with glandular hairs (vs *A. indica* with subentire bracts without a prominent central tooth, and with eglandular hairs).

### 6. *Acalypha berryi*

I.Montero, Cardiel & G.A.Levin, sp. nov.

*Acalypha berryi* I.Montero, Cardiel & G.A.Levin, sp. nov. is morphologically most similar to *A. lamiana* (Leandri) I.Montero & Cardiel, *A. pervilleana* Baill., and *A. richardiana* Baill., but can be distinguished from all three by having stipules to 3 mm long (vs to 6–10 mm long); leaf blades with obtuse apices and glabrous lower surfaces (vs acute to acuminate or caudate apices and lower surfaces at least sparsely hairy); glabrous androgynous inflorescence rachises (vs at least sparsely hairy); glabrous male bracts (vs with hairs on the surfaces and/or margins); mature female bracts to 4 × 3.5 mm (vs to (6–)7–10 × 6–12 mm, or sometimes to 20 × 22 mm in *A. pervilleana*); and bracteoles to 0.25 mm long (vs bracteoles absent).

TYPE. — **Mayotte**. Grande Terre, Tsingoni, Bord de la mangrove de Tsingoni (Mangrove de Mroalé), 11.X.2004, F. Barthelat, V. Guiot & G. Viscardi 1361 (holo-, MAO [02149]; isotypes: K, MO [MO-2966197], P [P00631024]).

ICONOGRAPHY. — Fig. 18.

ETYMOLOGY. — The epithet honors Dr. Paul E. Berry, who has contributed extensively to our understanding of the systematics of Euphorbiaceae, especially of *Croton* and *Euphorbia*, and has worked extensively in Madagascar.

DISTRIBUTION AND HABITAT. — Endemic to Mayotte (Tsingoni). Edge of a mangrove swamp. Sea level (Fig. 19).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha berryi* sp. nov. is only known from one collection made near the Tsingoni Mangrove swamp on Mayotte and it is not a common species in the area (Fabien Barthelat pers. com.). Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup>. The mangrove swamp of Tsingoni, which has high species richness and high heritage value, was selected by the French association “Conservatoire du Littoral” in 1997 to be protected (IUCN category IV). Despite that protection, the swamp has lost about 3% of its surface from 1997 to 2020. In addition, the Ylang-Ylang plantations are affecting the area near the swamp (Dudley 2008; Abdallah & Eymard, 2012; Barthelat 2019; Jeanson *et al.* 2019; UNEP-WCMC 2022). *Acalypha berryi* sp. nov. is assessed, preliminarily, as Critically Endangered: CR B2ab(ii,iii,iv).

MATERIAL EXAMINED. — 1 collection. **Mayotte**: Barthelat, F 1361 (K, MAO[MAO02149], MO[MO-2966197], P[P00631024]).

#### DESCRIPTION

Shrubs, probably deciduous, height unknown, monoecious. **Branches** glabrous. **Axillary buds** ovoid, to 1 mm diameter, perulate; perules 2, imbricate, chartaceous, brownish, glabrous. **Stipules** to 3 mm long, triangular-lanceolate, apex acuminate, sparsely hairy with some simple trichomes on midrib and apex. **Petioles** canaliculate, 2–3.5 cm long, pubescent with simple, curved, antrorse trichomes, glabrescent. **Leaf blades** (4–)5–7 × 2–2.5(–3) cm, ovate-lanceolate to oblong-lanceolate, chartaceous; **base** rounded to subcordate; **apex** obtuse; **margin** denticulate, revolute, slightly reddish; teeth minute, with a gland at apex; **upper surface** glabrate, with some simple, short trichomes at base; **lower surface** glabrous; venation actinodromous, basal veins 3, secondary veins (4–)5–6 per side. **Stipels** glandular,

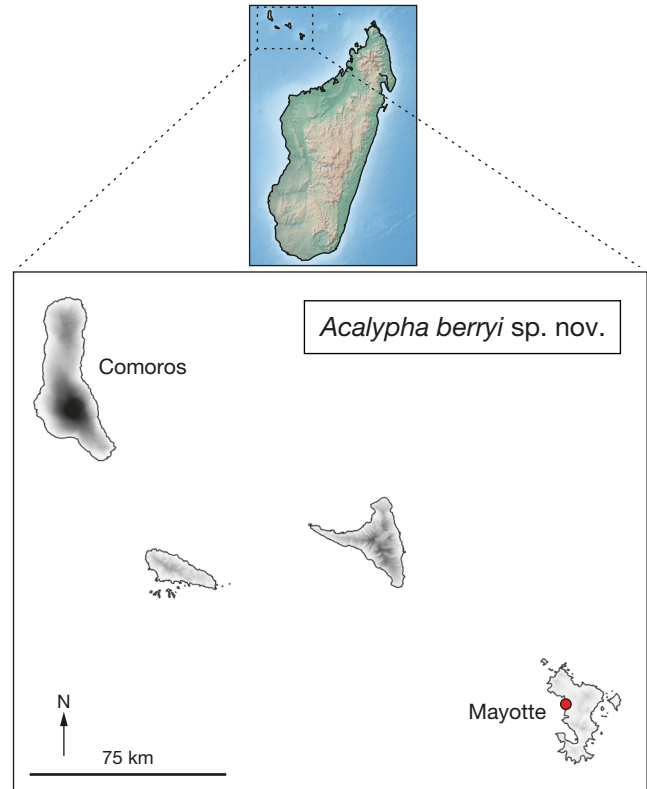


FIG. 19. — Distribution map of *Acalypha berryi* I.Montero, Cardiel & G.A.Levin, sp. nov. in Comoros Archipelago.

0.2 mm long, glabrous. **Inflorescences** spiciform, androgynous, and solitary female bracts, axillary. **Androgynous inflorescences** to 2 cm long, mostly male with 1 female bract; sessile; rachis glabrous. **Female segment: bract** 1, sessile, enlarging in fruit to 4 × 3.5 mm, subtriangular to suborbicular, subglabrous, with some sparse, simple trichomes, especially near base; margin subentire to very sparsely and shallowly crenate, reddish, slightly thickened, teeth *c.* 5, rounded, ending in sessile gland, central tooth not prominent; **bracteoles** to 0.25 mm long, triangular, glabrous, with some sessile glands. **Male segment** persistent, to 2 cm long; flowers glomerate; **bracts** to 0.5 mm long, broadly triangular, glabrous. **Solitary female bracts** sessile, similar to those of androgynous inflorescence. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, glabrous, margin with some sessile glands; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae minute, ending with simple, rigid trichomes to 1 mm long, surface glabrous, with some sessile glands; **styles** 3, to 3.5 mm long, distinct, glabrous, each divided into *c.* 5–6 segments. **Allomorphic flowers** not seen. **Capsules** not seen. **Seeds** not seen.

#### NOTE

Six other species of *Acalypha* are known from Mayotte: *A. chibomboia*, *A. indica*, *A. lanceolata*, *A. mayottensis*, *A. pervilleana*, and *A. richardiana*. Among these, *Acalypha berryi* sp. nov. is morphologically most similar to *A. pervilleana* and *A. richardiana* but can be distinguished using the characters given in the diagnosis.

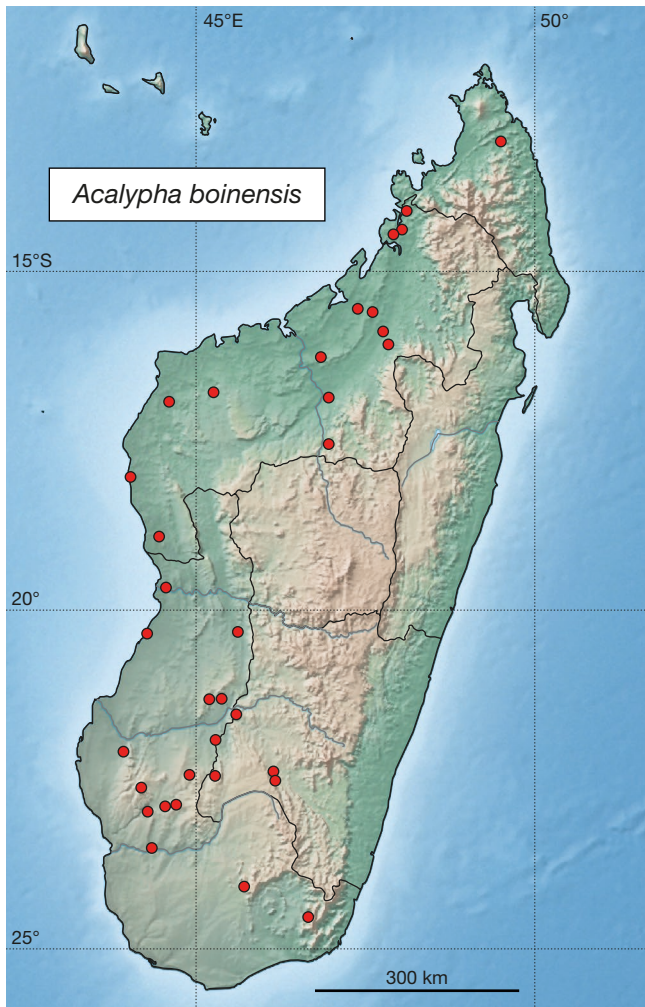


Fig. 20. — Distribution map of *Acalypha boinensis* Leandri Madagascar.

### 7. *Acalypha boinensis* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie.* Paris 10: 268 (Leandri 1942). — Type: Madagascar. Prov. Mahajanga, Ambongo et Boïna, bassin moyen du Bemarivo, 200 m, XI.1919, *H. Perrier de la Bâthie* 9823 (lecto-, designated by Montero Muñoz *et al.* (2018a: 93): P[P00508582]). — Former syntypes: Madagascar. Prov. Mahajanga, Maintirano, s.d., *R. Decary* 8216 (P[P00508588]); Maromandia (Andranosamontana), s.d., *R. Decary* 1045 (P[P00508585]); Morovoay, s.d., *H. Humbert* & *H. Perrier de la Bâthie* 2350 (P[P00508570, P00508571, P00508572, P00508573, P00508574]); Ambongo et Boïna, 300 m, s.d., *H. Perrier de la Bâthie* 9546 (P[P00508576]), 9551 (P[P00508577]); Prov. Toliara, Forêt de Besomaty, entre le Fiherena et l'Isahaina (Mangoky), 750-800 m, s.d., *H. Humbert* 11234 (P[P00508575]). — s.l., s.d., *Baron* 5393 (P[P00508586]), 5450 (P[P00508587]).

ICONOGRAPHY. — Leandri (1942: 257); Figs 24D; 28D, E.

ETYMOLOGY. — The epithet refers to the former Iboina or Boina Region (now Mahajanga province) in northwestern Madagascar.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Sava, Sofia, Boeny, Betsiboka, Melaky, Menabe, Atsimo-Andrefana, Haute Matsiatra, Ihorombe, and Androy). Dry deciduous forest, dry spiny thickets, and medium altitude moist evergreen forest (Analavelona).

On Mesozoic limestone, basalt, and sandstone. Altitudinal range (50-)200-1000(-1250) m (Fig. 20).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha boinensis* is estimated to be 388 446 km<sup>2</sup> and its AOO 140 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in western dry deciduous forests (see *A. diminuta* assessment). It has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires for grazing and crops, logging, mining, etc.). Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha boinensis* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required to list it under the Endangered category.

MATERIAL EXAMINED. — 45 collections. Madagascar. *Anonymous* 5340 (P[P05547039]); *Anonymous* 5448 (P[P05547072]); *Baron*, R. 5393 (P[P00508586]), 5450 (P[P00508587]); *Bosser*, M.J. 13985 (P[P04779823]), 18203 (P[P04779794]); *Capuron*, R. 24329-SF (G, P[P05547235]); *d'Alleizette*, Ch. 208 (P[P00324564]); *Decary*, R. 1038 (P[P05543672]), 1045 (P[P00508585]), 8216 (P[P00508588]), 15006 (P[P05547234]), 16385 (P[P05546982]), 17089 (K, MO[MO-3025004], P[P00324527, P05543670], TAN); *Gillespie*, L. 4037 (MO, US[US01287287]), 10813 (MO), 10817 (MO); *Humbert*, H. 2350 (P[P00508570, P00508571, P00508572, P00508573, P00508574]), 2715 (P[P05546983, P05546984]), 2997 (G, K, MO, P[P00508549]), 2998 (P[P00508579]), 2998 bis (P[P04779536, P04779537]), 6766 (P[P00324579, P05543684]), 11234 (P[P00508575]), 19373 (P[P05547240]), 19402 (P[P05547241]), 19521 (P[P05547236]), 19693 (P[P05547238]); *Keraudren-Aymonin*, M. 25935 (P[P00508583, P00508584]); *Leandri*, J. 401 (P[P00508578]), 3886 (G, P[P05547237]), 3976 (P[P05547239]); *Nusbaumer*, L. LN 1852 (G[G00090225], P[P05481890]); *Perrier de la Bâthie*, H. 116 (P[P00508581]), 3676 (P[P00508580]), 9546 (P[P00508576]), 9551 (P[P00508577]), 9823 (P[P00508582]), s.n. (P[P04779845]); *Phillipson*, P.B. 6220 (K, MO[MO-2965766]); *Rakotovoao*, C. 1052 (MO, P[P04779370], TEF, WAG[WAG0304986]); *Ramanananjany*, R. 115 (MO[MO-2965740], P[P04779320], TEF), 266 (MO[MO-3025031], P[P05481881]); *Razakamalala*, R. 5162 (MO[MO-3025027], P[P01152838], TAN), 6044 (MO[MO-3025025], P[P00887485]); *Seyrig*, A. 81B (P[P05547034]).

REFERENCES. — Govaerts *et al.* (2000: 51); Montero Muñoz *et al.* (2018a: 93).

### DESCRIPTION

Shrubs, deciduous, to 2 m tall, monoecious. **Branches** velutinous and with sparse, simple, erect trichomes to 0.5 mm long, glabrescent when mature. **Axillary buds** ovoid, to 2.5 × 2 mm, perulate, perules 2, valvate, membranous, brownish, puberulent with simple, appressed trichomes. **Stipules** to 5 mm long, elliptic-lanceolate to linear-lanceolate, pubescent with simple, short, appressed trichomes, denser on midrib; margin ciliate and with some minute glands. **Petioles** (1-)1.5-4 cm long, indumentum similar to that of the young branches. **Leaf blades** 3-7 × (2-)2.5-5(-5.5) cm, ovate-lanceolate to subtriangular, membranous; **base** rounded to subcordate; **apex** obtuse to acute; **margin** serrate, teeth acute, reddish, sometimes ending in a minute sessile gland; **upper and lower surfaces** subvelutinous; venation actinodromous, basal veins 5, secondary veins 4-5 per side. **Stipels** glandular,



to 0.5 mm long, sparsely hairy. **Inflorescences** spiciform, androgynous, axillary, to 9 cm long, mostly female with short male segment; peduncle to 15 mm long, it and rachis velutinous. **Female segment** to 7.5 cm long; **bracts** 4-15, sessile, enlarging in fruit to 5 × 7 mm, elliptic, pubescent with short, simple trichomes; margin dentate, teeth 20-30, triangular, sometimes ending in a minute, sessile gland, central tooth not prominent; **bracteoles** to 2 mm long, linear-lanceolate, indumentum similar to that on stipules. **Male segment** persistent, to 2 cm long; flowers glomerate; **bracts** to 2 mm diameter, suborbicular, margin irregular, scarios, appressed-pubescent, ciliate. **Male flowers**: pedicel to 1 mm long, sparsely hairy; buds to 0.4 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, triangular, pubescent with simple, short trichomes; **ovary** c. 1 mm diameter, 3-lobed, apparently smooth, surface hispid with simple, short, erect trichomes; **styles** 3, to 4 mm long, distinct, sparsely hairy on rachis, each divided into 8-10 segments. **Allomorphic flowers** not seen. **Capsules** to 2.5 mm diameter, papillose, papillae rounded, surface sparsely hairy with simple, short trichomes and hyaline trichomes to 1 mm long. **Seeds** c. 1.5 × 1.2 mm, pyriform, foveolate.

#### 8. *Acalypha burmanii* I.Montero & Cardiel

*PhytoKeys* 108: 93 (Montero Muñoz *et al.* 2018a).

*Tragia filiformis* Poir., *Encyclopédie méthodique. Botanique. Paris* 7: 727 (Poiret 1806). — *Acalypha acuminata* Vahl ex. Baill., *Adansonia, Recueil d'observations botaniques* 1: 267 (Baillon 1861) *nom. illeg.*, non *A. acuminata* Benth. (Bentham 1854). — Type: Madagascar?: s.l., s.d., *P. Commerson? s.n.* (holo-, P-LAM [P00367371]).

ICONOGRAPHY. — Baillon (1891: pl. 188.); Fig. 24E.

ETYMOLOGY. — The epithet honors Dutch botanist Nicolaus Laurens Burman (1743-1793).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar, probably from northeast Madagascar (Fénérive, Toamasina Province). Littoral forest. On sandstone. Altitudinal range unknown (Fig. 21).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha burmanii* is known from two collections, one collected in 1771 by *P. Commerson* without locality but probably from northeastern Madagascar, and the other collected in Fénérive by d'Alleizette in 1906. It occurs in littoral forests, which are the most threatened vegetation zone in Madagascar (Bollen & Donati 2006; Andriamandimbarisoa *et al.* 2015). Although data are too limited to estimate its EOO and AOO, *Acalypha burmanii* is assigned a preliminary conservation status of Critically Endangered, CR B2ab(ii,iii) (probably EX).

MATERIAL EXAMINED. — 2 collections. **Madagascar.** *Commerson, P. s.n.* (G[G00324451], P[P04779529, P00324459, P00324460, P00799456]), P-LAM[P00367371]); *d'Alleizette, Ch. s.n.* (L[L0242529]).

REFERENCES. — Müller Argoviensis (1865: 40) as *A. spiciflora* Burm.f.; Müller Argoviensis (1866: 867) as *A. spiciflora*; Baillon (1891: tab. 188) as *A. acuminata*; Baillon (1892: 1004) as *A. acuminata*; Heckel (1903: 198) as *A. acuminata*; Palacký (1907: 24) as *A. acuminata*; Pax & Hoffmann (1924: 137) as *A. spiciflora*; Leandri (1942: 269) as *A. spiciflora*; Montero Muñoz *et al.* (2018a: 93).

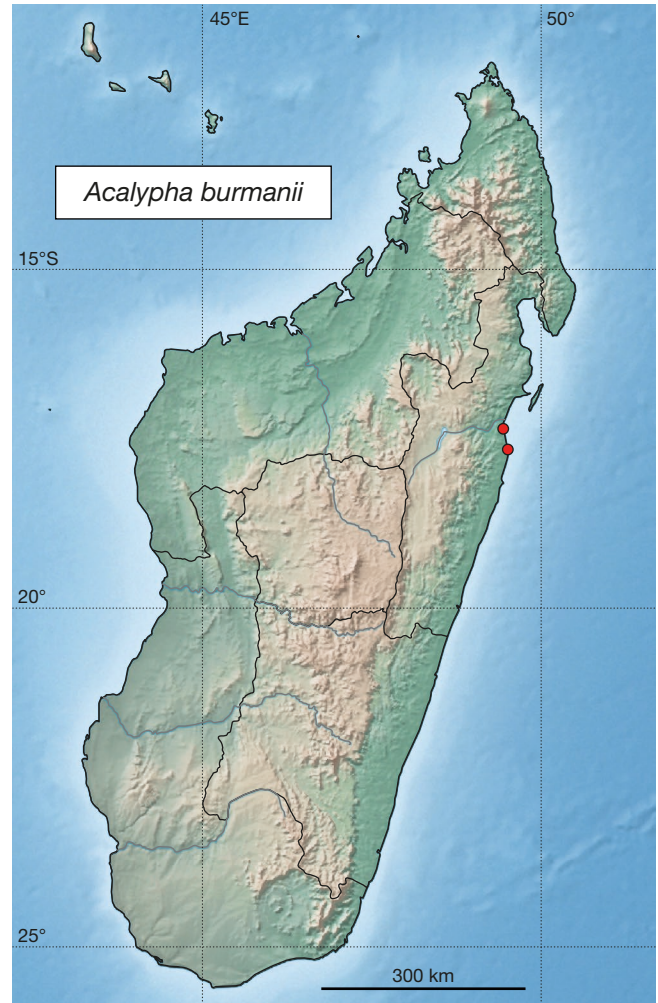


FIG. 21. — Distribution map of *Acalypha burmanii* I.Montero & Cardiel in Madagascar.

#### DESCRIPTION

Shrubs, probably deciduous, height unknown, monoecious. **Branches** subglabrous, with sparse, simple, short trichomes. **Axillary buds** subspherical, to 1 × 1.2 mm, perulate, perules 2, imbricate, chartaceous, light brown, glabrous. **Stipules** to 4 mm long, linear-lanceolate, margin ciliate and with some sessile glands. **Petioles** 0.5-1 cm long, indumentum similar to that on branches. **Leaf blades** 2.5-5.5 × 1.8-3 cm, elliptic to elliptic-lanceolate, membranous; **base** rounded to acute; **apex** acuminate, acumen to 12 mm long, rounded; **margin** crenate-serrate, teeth rounded; **upper surface** glabrous; **lower surface** subglabrous, with simple, short trichomes on veins; margins ciliate in sinuses; venation actinodromous, basal veins 3, secondary veins 3-4 per side. **Stipels** glandular, to 0.3 mm long, glabrous. **Inflorescences** spiciform, androgynous, axillary, to 7 cm long, mostly male with short female segment; peduncle filiform, to 15 mm long, it and rachis subglabrous, with some sparse, simple, short trichomes. **Female segment** to 2 cm long; **bracts** 1-2, sessile, enlarging in fruit to 10 × 11 mm, subelliptic, almost glabrous, with some sparse, simple trichomes; mar-



FIG. 22. — Distribution map of *Acalypha cardielii* I.Montero & G.A.Levin in Madagascar.

gin subentire, slightly discolored; **bracteoles** absent. **Male segment** persistent, to 4 cm long; flowers glomerate; **bracts** to 0.5 mm long, triangular, sparsely hairy. **Male flowers:** pedicel to 0.7 mm long, sparsely hairy; buds not seen. **Female flowers** 2 per bract, sessile; **sepals** 3, to 1 mm long, triangular, sparsely hairy with simple, short, arachnoid trichomes; **ovary** *c.* 1 mm diameter, 3-lobed, papillose, surface puberulent with simple, short trichomes; **styles** 3, to 3 mm long, connate at thickened base, sparsely hairy on rachis, each divided into *c.* 14 segments. **Allomorphic flowers** not seen. **Capsules** to 6 mm diameter, papillose, papillae to 1 mm long, surface sparsely hairy with simple, short, curved trichomes. **Seeds** *c.* 3 × 2 mm, pyriform, minutely foveolate.

#### NOTES

We propose *Acalypha burmanii* as a new name for *Tragia filiformis* Poir. (Montero Muñoz *et al.* 2018a) because combining *T. filiformis* under *Acalypha* is blocked by *A. filiformis* Poir.; nor could we use the illegitimate name *A. acuminata* Baill. See also comments under the excluded species *A. spiciflora*.

#### 9. *Acalypha cardielii* I.Montero & G.A.Levin

*South African Journal of Botany* 146: 636 (Montero Muñoz *et al.* 2022). — Type: **Madagascar**. Melaky region (Mahajanga prov.), Tsingy du Bemaraha, 1932-1933, *J. Leandri* 115 (holo-, P[P00887484]; iso-, P[P05547055]).

ICONOGRAPHY. — Montero Muñoz *et al.* (2022); Fig. 25F.

ETYMOLOGY. — The epithet honors Dr. José María Cardiel, co-director of the first author's PhD dissertation. He has published extensively about the genus and has contributed to worldwide *Acalypha* knowledge.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Melaky). Dry deciduous forest. On limestone. Altitude *c.* 360 m (Fig. 22).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha cardielii* is only known from one collection from the Tsingy de Bemaraha. Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup>. The Tsingy de Bemaraha lies within a national park and a nature reserve that have been IUCN category II and Ia protected areas since 1927, and a UNESCO World Heritage Site since 1990. The forest of this area has local anthropogenic pressures such as fire associated with the renewal of zebu (cattle) pastures, logging for construction, and deforestation for new agricultural lands, resulting in loss of forest cover during the last decade (Dudley 2008; Goodman *et al.* 2018). No specimens of this species have been collected for 88 years, so we cannot rule out that this species has become extinct. In conclusion, due to habitat loss, the restricted geographic range, and the absence of recent collections, *A. cardielii* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii) (probably EX).

MATERIAL EXAMINED. — 1 collection. **Madagascar:** *Leandri, J.* 115 (P[P05547055, P00887484]).

#### DESCRIPTION

Shrubs, probably deciduous, height unknown, monoecious. **Branches** whitish, pubescent with simple, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** spherical, to 1 mm diameter, perulate, perules 2, imbricated, chartaceous, dark brown, glabrous. **Stipules** to 1 mm long, triangular-lanceolate, apex acute, sparsely hairy with simple, short trichomes, margin with some sessile glands. **Petioles** canaliculate, 0.5-1.5(-2) cm long, indumentum similar to that on young branches. **Leaf blades** 1.8-2.6(-3) × 1.1-1.6 cm, subrhombic, membranous; **base** acute; **apex** obtuse to retuse; **margin** crenate-serrate, revolute, reddish, teeth rounded; **upper surface** sparsely hairy with some simple, short trichomes; **lower surface** glabrous; venation actinodromous, basal veins 3, secondary veins 3-4 per side. **Stipels** glandular, to 0.2 mm long, glabrous. **Inflorescences** spiciform, androgynous and male, axillary. **Androgynous inflorescences** to 5.5 cm long, mostly male with short female segment; peduncle to 15 mm long, it and rachis with indumentum similar to that on petioles. **Female segment** to 2.5 cm long; **bracts** 2, sessile, enlarging in fruit to 8 × 6 mm, reniform, glabrous; margin crenate, teeth 6-12, rounded, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 2.5 cm long; flowers glomerate; **bracts** to 1 mm long, elliptic-lanceolate, glabrous. **Male inflorescences** laxly flowered, to 3.5 cm long; subsessile, peduncle to 0.3 mm long; bracts like those on



androgynous inflorescences. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, triangular-lanceolate, glabrous, margin with some sessile glands; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae acute, ending in simple trichome to 0.5 mm long, surface with some sessile glandular trichomes; **styles** 3, to 4 mm long, distinct, glabrous, each divided into 7-9 segments. **Allomorphic flowers** sometimes present at inflorescence apex; pedicel filiform, to 1.5 cm long, glabrous; sepals 3, similar to those of normal flowers; ovary 1-lobed, to 2 × 1.5 mm, sparsely hairy, distally fimbriate; style 1, to 4 mm long, glabrous. **Capsules** to 2 mm diameter, papillose-hispid, papillae triangular, ending in simple trichome to 1 mm long, surface glabrous. **Seeds** not seen.

### 10. *Acalypha chibomboia* Baill.

*Adansonia*, *recueil d'observations botaniques* 1: 269 (Baillon 1861). — Type: Comoros, Anjouan, 1850, *L.H. Boivin s.n.* (holo-, P[P00196274]).

*Acalypha codonocalyx* Baill., *Adansonia*, *recueil d'observations botaniques* 1: 271 (Baillon 1861). — Type: Comoros, Mohéli, “Île Mohilla”, s.d., *M. Richard* 286 (lecto-, designated by Montero Muñoz *et al.* [2018a: 94]: P[P00196282]; isolecto-, P[P00196283]).

*Acalypha comorensis* Pax, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie*. Leipzig 19(1): 95 (Pax 1894). — Type: Comoros, Anjouan, “Johanna”, VI-VIII.1875, *J. M. Hildebrandt* 1662 (holo-, B or WRS, presumably destroyed; lecto-, designated by Montero Muñoz *et al.* [2018a: 94]: BREM[BREM0001792]; isolecto-, K[K000186524, K000186525], L[L0241274], P[P00196280], W[W0004243]). — Former syntype: Comoros, Grande Comore, 1886, *C. W. Schmidt* 192 [n.v.].

ICONOGRAPHY. — Baillon (1891: pl. 192); Fig. 24G.

ETYMOLOGY. — The epithet refers to the vernacular name of this plant, known as “chibomboia/choubomboia” in Comoros, according to Baillon (1861).

DISTRIBUTION AND HABITAT. — Madagascar (Diana) and Comoros Archipelago (Grande Comoro, Anjouan, Mohéli, and Mayotte). In Madagascar: dry deciduous forest on basalt; altitudinal range 120-1020 m. In Comoros Archipelago: in valley forest on clay soil; altitudinal range 200-700 m (Fig. 23).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha chibomboia* is known from Madagascar and Comoros. In the Comoros, its EOO is estimated to be 8131 km<sup>2</sup> and its AOO 44 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. The Comoros archipelago has lost at least 80% of its native vegetation, and is now dominated by cash-crops and subsistence cultivation. Deforestation rate has decreased but is still ongoing, making Comoros the archipelago with the highest annual net loss of forest in WIOR. In addition, alien species have a detrimental effect on the native flora (Safford 2001; Chakravarty *et al.* 2012; Baret *et al.* 2013). Ongoing habitat loss will cause continued decline of its EOO and AOO. In the Comoros, *A. chibomboia* is assessed as Near Threatened (NT) under criterion B, because it meets the values needed for a threatened category for the AOO, but the number of locations is too high to meet the conditions required for a listing under Endangered category.

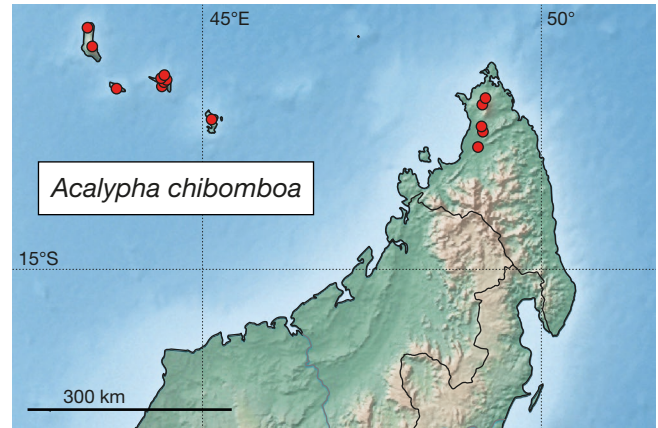


FIG. 23. — Distribution map of *Acalypha chibomboia* Baill. in Comoros Archipelago and Northern Madagascar.

In Madagascar, its EOO is estimated to be 253.391 km<sup>2</sup> and its AOO 20 km<sup>2</sup>. This species is only known from six locations in dry deciduous forests in the north of the island (see assessment of *A. diminuta*). This species has been collected in some protected areas, as Ankarana Special Reserve (see assessment of *A. ankaransensis*), and in the Montagne d’Ambre National Park, where the forests are affected mainly by slash-and-burn agriculture. Currently, Montagne d’Ambre is under additional threat because qat (*Catha edulis*, Celastraceae) cultivation is increasing (Goodman *et al.* 2018). Due to ongoing habitat loss that will cause continued decline of its EOO and AOO, *A. chibomboia* is assessed as Endangered (EN) EN: B1ab(i,iii,iv) + B2ab(ii,iii,iv) in Madagascar.

In the whole region, *Acalypha chibomboia* can be assessed as Near Threatened (NT). It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 23 collections. **Comoros Archipelago.** *Attoumane*, *M.* 15 (MO[MO-2965775]); *Barthelat*, *F.* 1436 (P[P00631096]); *Boivin*, *L.H. s.n.* (P[P00196274]); *Bosser*, *M.J.* 18011 (P[P00196228, P00196229]); *Coulon*, *P.* 205 (P[P00184949]); *d’Alleizette*, *Ch. s.n.* (L[L0241232]); *Hildebrandt*, *J.M.* 1662 (BREM[BREM\_0001792], K[K000186524, K000186525], L[L0241274], P[P00196280], W[W0004243]); *Humboldt*, *L.* 206 (K), 1206 (P[P00196275, P00196276, P00196277]); 1377 (P[P00196278, P00196279]); *Jaquemin*, *H.* 837 (P[P00324456]), 837-J (P[P00538326]); *Rakotozafy*, *A.* 1152 (P[P00196236]); *Richard*, *M.* 225 (P[P00196281]), 286 (P[P00196282, P00196283]); *Service Forestier Madagascar* 16651-SF (P[P00334973, P00184984]); *Waterlot*, *M.* 964 (P[P00196284]). **Madagascar.** *Andrianantoanina*, *O.* 960 (P[P04779784]); *Bardot-Vaucoulon*, *M.* 1227 (K, MO[MO-3025011], P[P00455522], TAN); *Cours*, *G.* 5485 (P[P00324546, P05510111]); *Dorr*, *L.J.* 3622 (BR[BR0000021450280], C, L[L0449357], MO, P[P00508514, P01295515], WAG[WAG0133270]); *Malcomber*, *S.* 1239 (CAS, K, MO[MO-2965805]); *Razanajatovo*, *M. G.* MHR027 (G[G00170087], K, P[P05516023]).

REFERENCES. — Baillon (1891: pl. 192 as *A. codonocalyx*); Palacký (1907: 24); Voeltzkow (1917: 447); Pax & Hoffmann (1924: 165); Leandri (1942: 280); Govaerts *et al.* (2000: 55); Montero Muñoz *et al.* (2018a: 94).

#### DESCRIPTION

Small trees, evergreen, to 5 m tall, monoecious. **Branches** striate, pubescent with simple, short, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** ovoid, to 1.5 × 1 mm, perulate, perules 2, valvate, membranous, brownish, sparsely

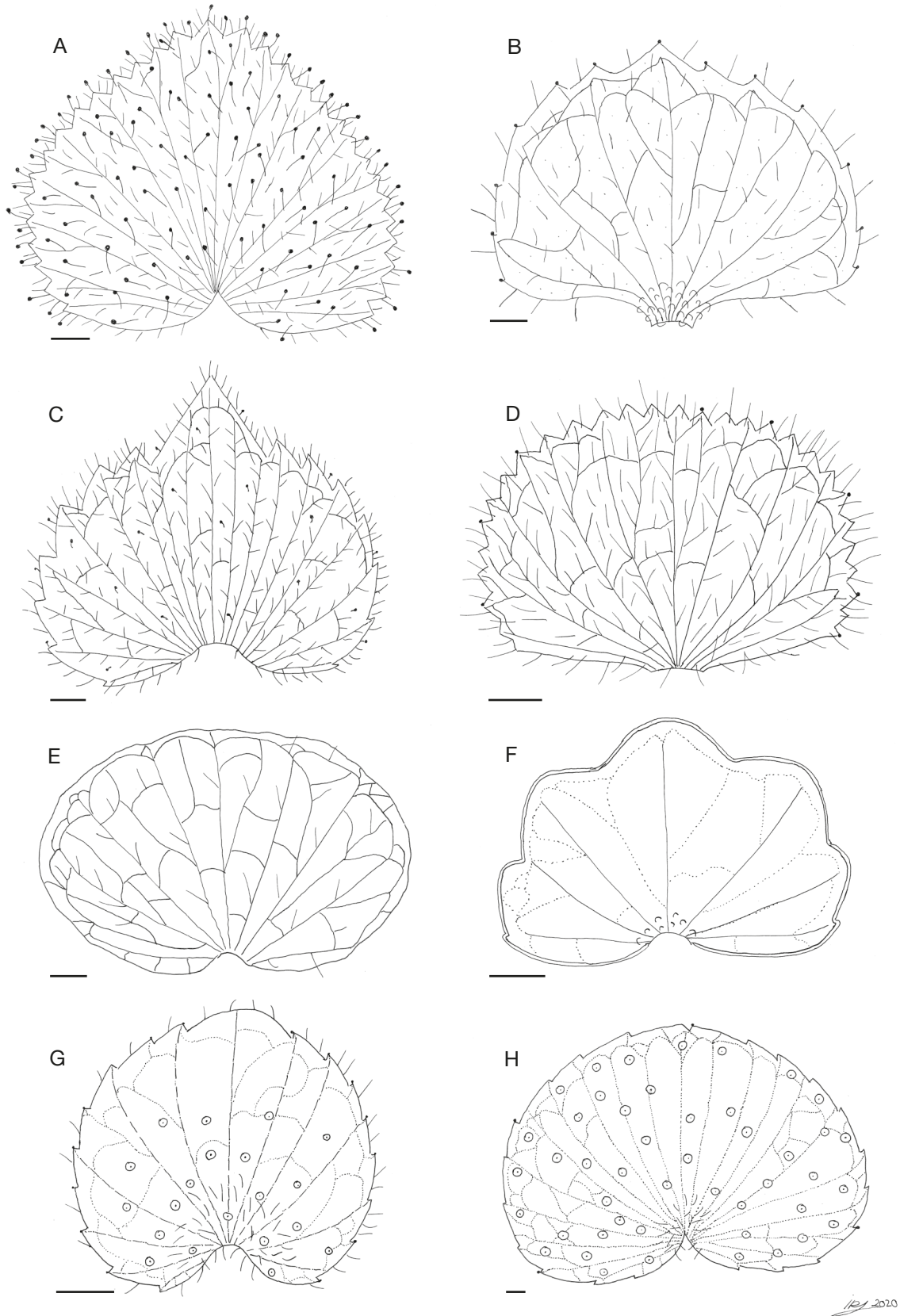


FIG. 24. — Mature female bracts: **A**, *Acalypha andringitrensis* Leandri (*H. Perrier de la Bâthie* 13640); **B**, *A. ankaranensis* I.Montero & Cardiel (*A. J. M. Leeuwenberg* 14374); **C**, *A. bailloniana* Müll.Arg. (*G. Viscardi* 439); **D**, *A. boinensis* Leandri (*R. Ramananjahary* 115); **E**, *A. burmanii* I.Montero & Cardiel (*P. Commerson* s.n.); **F**, *A. cardelii* I.Montero & G.A.Levin (*J. Leandri* 115); **G**, *A. chibomboia* Baill. (*F. Barthelat* 1436); **H**, *A. clooxyloides* Hutch. (*F. Friedmann* 5633). Illustration by Iris Montero Muñoz. Scale bars: A, 2 mm; B-H, 1 mm.

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hairy with simple, short trichomes. **Stipules** to 3 mm long, linear-lanceolate, ciliate with simple, erect trichomes to 0.5 mm long. **Petioles** very slender, 2.5–9 cm long, indumentum similar to that on young branches but less dense, glabrescent. **Leaf blades** (8–)9–14(–15.5) × 3.5–6 cm, elliptic-lanceolate, membranous; **base** rounded to subcuneate; **apex** acuminate, acuminate to 25 mm long, acute; **margin** serrate, teeth acute; **upper surface** puberulent with sparse, simple, short trichomes, and with simple, short, appressed trichomes on veins, glabrescent; **lower surface** subglabrous, with sparse simple, short trichomes and flattened resinous glands; venation actinodromous, basal veins 3 or 5, secondary veins 6–9 per side. **Stipels** absent. **Inflorescences** spiciform, usually unisexual, sometimes androgynous, axillary. **Androgynous inflorescences** laxly flowered, to 11 cm long, about equally male and female; peduncle filiform, to 40 mm long, indumentum similar to that on petioles. **Female segment** to 5.5 cm long; **bracts** 2–6, sessile, enlarging in fruit to 5 mm diameter, orbicular, sparsely hairy with simple, short, arachnoid trichomes at base, with flattened resinous glands, and ciliate with simple, short trichomes; margin denticulate, teeth 17–19, triangular, ending in sessile gland, central tooth not prominent; **bracteoles** absent. **Male segment** deciduous, 6 cm long; **bracts** to 1 mm long, ovate, pubescent with simple, short, arachnoid trichomes; flowers glomerate. **Male inflorescences** laxly flowered, to 12 cm long; peduncle to 30 mm long, it and rachis with indumentum similar to that on petioles. **Female inflorescences** laxly flowered, to 5 cm long; peduncle filiform, to 20 mm long, it and rachis with indumentum similar to that on petioles; **bracts** 2–5, they and bracteoles like those on androgynous inflorescences. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds to 1 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; **sepals** 3–4, to 1.3 mm long, triangular, subglabrous, ciliate with simple, minute trichomes; **ovary** *c.* 1 mm diameter, 3-lobed, smooth. surface pubescent with simple, short, arachnoid trichomes and flattened resinous glands; **styles** 3, to 4 mm long, slightly connate at base, sparsely hairy on rachis, each divided into *c.* 6 segments. **Allomorphic flowers** not seen. **Capsules** to 4 mm diameter, smooth, surface pubescent with simple, arachnoid trichomes and flattened resinous glands. **Seeds** *c.* 3 × 2.3 mm, pyriform, minutely foveolate.

### 11. *Acalypha claoxyloides* Hutch.

*Bulletin of Miscellaneous Information, Royal Gardens, Kew* 1918: 205 (Hutchinson 1918). — Type: Seychelles. Astove, Cosmoledo and Aldabra, IV.1907, *H. P. Thomasset 243* (lecto-, designated by Montero Muñoz *et al.* [2018a: 94]: K[K000186504]).

*Acalypha fryeri* Hutch., *Bulletin of Miscellaneous Information, Royal Gardens, Kew* 1918: 206 (Hutchinson 1918). — Type: Seychelles. Aldabra, s.d., *J. Fryer 92* (lecto-, designated here, or possibly holotype: K[K000186506]).

*Acalypha aldabrica* Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 136 (Pax & Hoffmann 1924). — Type: Seychelles. Aldabra, s.d., *W. L. Abbott s.n.* (holo-, B?, presumably destroyed; lecto-, designated by Montero Muñoz *et al.* [2018a: 94]: P[P00887488]; isolecto-, P[P00887489]).

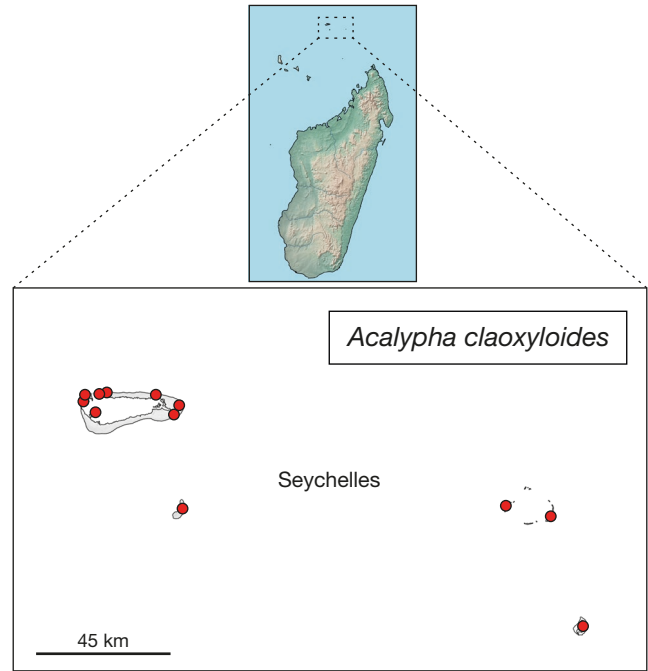


Fig. 25. — Distribution map of *Acalypha claoxyloides* Hutch. in Seychelles (Aldabra group).

ICONOGRAPHY. — Fig. 24H.

ETYMOLOGY. — The epithet refers to *Claoxyton* A.Juss. (Euphorbiaceae), the genus to which the type specimen was first assigned by Baker.

DISTRIBUTION AND HABITAT. — Endemic to Seychelles (Aldabra group). Mixed xeric scrub on coral limestone, at sea level (Fig. 25).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha claoxyloides* is known from the Aldabra Group Islands (Seychelles). Its EOO is estimated to be 5 233 km<sup>2</sup>, close to the threshold of the B1 subcriterion of the Vulnerable category, and its AOO 52 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. The ecosystems in the Aldabra atoll are remarkably intact and it has been a UNESCO World Heritage Site since 1982, but on the other atolls the forests have been seriously degraded by conversion to plantations, mainly coconut, and by guano extraction. Currently the main threat is alien species (Roberts 1988; Safford 2013; Baret *et al.* 2013). *Acalypha claoxyloides* seems to be a very common shrub on the atolls of this group of islands, and it meets the EOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category; it therefore could be assessed as Near Threatened (NT) under criterion B. However, ongoing habitat loss on some atolls and the presence of alien species will likely cause continued decline of its EOO and AOO in the near future, so we assess this species as Endangered under subcriteria B1 and B2.

MATERIAL EXAMINED. — 35 collections. **Seychelles.** *Abbott, W.L. s.n.* (P[P00887488, P00887489]); *Fitzgerald, D.V. 5989* (BR[BR0000014624568]), 6017 (BR[BR0000014624575]), P[P04779371]); *Fosberg, F.R. 48741* (MO[MO-2965769]), 48742 (MO[MO-2965771], NY[NY03091181], US[US01287312]), 48771 (M[MO-2965756], NY[NY3091176], [US01287313]), 48900 (MO[MO-2965770], NY[NY3091177], US[US01287308]), 49065 (MO[MO-2965773], NY[NY3091179], US[US01287316]), 49627 (US[US01287309]), 49661 (GH[GH01097234], MO[MO-2965772], NY[NY3091178]), 49662 (MO[MO-2965768],

NY3091180, US01287315), 49730 (US01287304), 49804 (US01287307); *Frazier*, J. 3 (US01287328), 29 (K), 602 (US01287306); *Friedmann*, F. 5633 (P[P00870926, P00870927]), 5634 (P[P00870925]); *Fryer*, J.C.F. 18 (K[K000186505]), 92 (K[K000186506]); *Gardiner*, J.S. 18 (K); *Gwynne* 1240 (K); *Merton* 7010 (K); *Renvoize*, S. A. 748 (BR[BR0000014624629], L[L0241259, L0241260]), 768 (L[L0241258], P[P05481893]), 1001 (BR[BR0000014624605], L[L0241257], P[P05481872]), 1288 (BR[BR0000014624582], L[L0241255, L0241256]), 1289 (BR[BR0000014624599], L[L0241253, L0241254], P[P05481871]), 1314 (K); *Rhyne*, C. 863 (US[US01287317]); *Ridgway*, T. 111 (US[US01287305]); *Stoddart*, D.R. 748 (K), 998 (K), 1231 (K); *Thomasset*, H.P. 243 (K[K000186504]).

REFERENCES. — Hemsley (1919: 130); Hemsley (1919: 131) as *A. fryeri*; Pax & Hoffmann (1924: 136) as *A. aldadbrica*; Fosberg (1974: 263); Renvoize (1975: 152); Robertson (1989: 199); Govaerts *et al.* (2000: 56); Sagun *et al.* (2006: 124); Montero Muñoz *et al.* (2018a: 94).

DESCRIPTION

Small trees, deciduous, to 3 m tall, monoecious. **Branches** reddish, subglabrous, with some simple, arachnoid trichomes, greyish, with thick nodes, and glabrescent when mature. **Axillary buds** spherical, to 1.5 mm diameter, perulate, perules 2, valvate, membranous, light brown, woolly with simple, arachnoid trichomes. **Stipules** to 1.5 mm long, triangular-lanceolate, pubescent with simple, arachnoid trichomes. **Petioles** 2-3 cm long, indumentum similar to that on young branches. **Leaf blades** (5-)6-11(-14) × (3-)4-8 cm, ovate-lanceolate to elliptic-lanceolate, chartaceous; **base** rounded to acute; **apex** acuminate, acumen to 5 mm long, obtuse; **margin** crenate, slightly revolute, teeth rounded; **upper and lower surfaces** subglabrous, with some simple, arachnoid trichomes on veins, lower surface also with flattened resinous glands; venation pinnate, secondary veins to 8 per side. **Stipels** glandular, to 0.5 mm long, glabrous. **Inflorescences** spiciform, androgynous and male, axillary. **Androgynous inflorescences** to 5.5 cm long, mostly male with short female segment; peduncle to 30 mm long, it and rachis laxly pubescent with simple, arachnoid trichomes. **Female segment** to 2 cm long; **bracts** 1-2, sessile, enlarging in fruit to 10-19 mm, reniform, subglabrous, appressed-pubescent at base, and with flattened resinous glands, margin denticulate, teeth 19-23, triangular, sometimes ending in sessile gland, central tooth not prominent; **bracteoles** sessile glands, glabrous. **Male segment** deciduous, to 3 cm long; flowers glomerate, with stalked, flattened resinous glands between pedicels; **bracts** to 1 mm long, ovate-lanceolate, sparsely hairy with simple, arachnoid trichomes. **Male inflorescences** to 4 cm long; subsessile, peduncle to 3 mm long, it and rachis appressed-pubescent with simple, short trichomes; flowers glomerate; **bracts** similar to those on the male segment in androgynous inflorescences. **Male flowers**: pedicel to 2 mm long, sparsely hairy; buds to 1 mm diameter, sparsely hairy. **Female flowers** 2 per bract, sessile; **sepals** 3, to 1 mm long, ovate-triangular, woolly with simple, arachnoid trichomes; **ovary** c. 1 mm diameter, 3-lobed, smooth, surface woolly with simple, arachnoid trichomes, and with flattened resinous glands; **styles** 3, to 5 mm long, distinct, sparsely hairy on rachis with simple, arachnoid trichomes, each divided into c. 10 segments. **Allomorphic flowers** not seen. **Capsules** to

3.5 mm diameter, smooth, surface appressed-pubescent with simple, short, trichomes and flattened resinous glands. **Seeds** c. 1.3 × 1 mm, pyriform, foveolate.

NOTE

1) Hutchinson did not indicate the herbarium where the holotype is located, so the single specimen found is designated as the lectotype; and 2) *Acalypha claoxyloides* is widespread in the Seychelles archipelago. It is very closely related to *A. pubiflora* (Klotzsch) Baill., known from southeastern Africa (Botswana, Malawi, Mozambique, South Africa and Zimbabwe), of which it may be a synonym. More study of the African material, as well as the Australian material treated as *A. pubiflora* var. *australica* Radcl.-Sm. (Radcliffe-Smith 1990, 1996), is needed to unravel the *A. pubiflora* Baill. complex.

12. *Acalypha crateriana* (Coode) I.Montero & Cardiel, comb. nov.

*Acalypha integrifolia* Willd. subsp. *marginata* (Poir.) Coode var. *crateriana* Coode, *Kew Bulletin* 34: 44 (Coode 1979). — Type: Mauritius. Tamarin Falls, 2.III.1975, D. Lorence 1138 (holo-, K[K000431104]; iso-, K[K000431105], MAU[n.v.]).

ICONOGRAPHY. — Unknown.

ETYMOLOGY. — The epithet probably refers to the Kanaka crater in Mauritius.

DISTRIBUTION AND HABITAT. — Endemic to the Mascarene Islands (Mauritius). Degraded lowland evergreen moist forest. Altitudinal range 700-800 m (Fig. 26).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha crateriana* comb. nov. is only known from Kanaka crater and Grand Bassin peak in Mauritius. Its EOO is estimated to be 12.9 km<sup>2</sup> and its AOO 12 km<sup>2</sup>. Native forest remnants of Mauritius are very restricted, covering less than 5% of the total landmass. This massive deforestation is due mainly to agriculture and urban expansion. Another threat to the Mauritius native flora is the widespread occurrence of alien species. Native plants are seriously affected by invasive plants, reducing their growth rate so regeneration of forests is extremely low (Safford 1997; Florens 2008; Baider & Florens 2013; Norder *et al.* 2017). No specimens of this species have been collected for 45 years. In recognition of its restricted geographic range (a single known location), the cited threats, and the absence of recent collections, *A. crateriana* comb. nov. is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii,iv).

MATERIAL EXAMINED. — 16 collections. **Mauritius**. *Coode*, M.J.E. 4694 (K), 4700 (K), 4701 (P[P04779343]), 4704 (K), 4705 (K, MO[MO-2452045]), 4718 (K), 4720 (K), 4721 (P[P04779349]), 4722 (K), 4729 (K), 4732 (K, MO[MO-2452041]), 4737 (K), 4744 (K, MO[MO-2452042]), 4748 (P[P04779342]); *Lorence*, D. 1138 (K[K000431104, K000431105]), *DL1858* (MO[MO-2452048], P[P04779346]).

REFERENCES. — Coode (1982: 74); Montero Muñoz *et al.* (2018a: 104) as *A. marginata*.

DESCRIPTION

Shrubs, leaf persistence unknown, to 2.7 m tall, probably dioecious. **Branches** appressed-pubescent, glabrescent when mature. **Axillary buds** naked, hispid. **Stipules** to 5 mm long, linear-



lanceolate, densely pubescent with simple, appressed trichomes, margin papillate. **Petioles** 0.5–0.8 cm long, indumentum similar to that on young branches, glabrescent. **Leaf blades** 4–7(–10) × 1.5–3 cm, elliptic to subobovate, chartaceous; **base** acute to cuneate; **apex** rounded to acute; **margin** crenate to crenate-dentate, slightly revolute, usually reddish or pinkish, teeth rounded; **upper surface** glabrous; **lower surface** sparsely hairy with appressed trichomes on veins; venation pinnate, secondary veins 7–8 per side. **Stipels** absent. **Inflorescences** spiciform (male) or glomerulate (female), unisexual, axillary. **Male inflorescences** to 5 cm long; peduncle to 5 mm long, indumentum similar to that on petioles; flowers glomerate; **bracts** to 1 mm long, triangular, appressed-pubescent. **Female inflorescences** 2–4 mm long; sessile; **bracts** 1–4, not enlarging in fruit, to 0.5 mm long, triangular-lanceolate, appressed-pubescent; margin entire; **bracteoles** absent. **Male flowers**: pedicel to 0.6 mm long, sparsely hairy; buds to 0.5 mm diameter, sparsely hairy. **Female flowers** 1 per bract, subsessile; sepals 3, to 1 mm long, triangular-lanceolate, appressed-pubescent; **ovary** c. 1 mm diameter, 3-lobed, papillose, surface densely hispid; **styles** 3, to 4 mm long, distinct, sparsely hairy on rachis, each divided into 10–11 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, papillose-hispid, papillae ending in a simple, trichome to 1 mm long, surface sparsely hairy with simple, short trichomes, glabrescent. **Seeds** c. 1 × 0.7 mm, pyriform, minutely foveolate.

#### NOTE

*Acalypha crateriana* comb. nov. was treated by Coode (1979) as variety of *A. integrifolia* subsp. *marginata*, treated here as *A. marginata*. We consider *A. crateriana* comb. nov. to be a distinct species distinguished mainly by having petioles 0.5–0.8 cm long and leaf blades 4–7(–10) × 1.5–3 cm, elliptic to subobovate; base acute to cuneate; apex rounded to acute; margin crenate to crenate-dentate, usually reddish or pinkish, slightly revolute, teeth rounded; vs petioles 0.5–3 cm long and leaf blades (4–)6–17–(21) × (2–)2.5–7(–8) cm, usually elliptic to elliptic-lanceolate, sometimes obovate; base rounded to cuneate; apex acute to subacuminate; margin crenate-serrate to serrate, discolorous, teeth rounded to acute, slightly callose-edged in *A. marginata*.

### 13. *Acalypha decaryana* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 284 (Leandri 1942). — Type: Madagascar. Prov. Tôliara, Ambovombe, 20.VIII.1924, R. Decary 2985 (lecto-, designated here: P[P00508553]; isolecto-, W[W1962-0013399]).

**ICONOGRAPHY.** — Leandri (1942: 285); Figs 28F; 35A.

**ETYMOLOGY.** — The epithet honors French botanist Raymond Decary (1891–1973).

**DISTRIBUTION AND HABITAT.** — Endemic to Madagascar (Menabe, Atsimo-Andrefana, Ihorombe, Androy, Anosy, and Atsimo-Atsinanana). Dry deciduous forest and spiny thickets; sometimes in riparian forest. On Mesozoic limestone, basalt, basement rocks, sandstone, and unconsolidated sand. Altitudinal range (10–) 30–900 (–1000) m (Fig. 27).

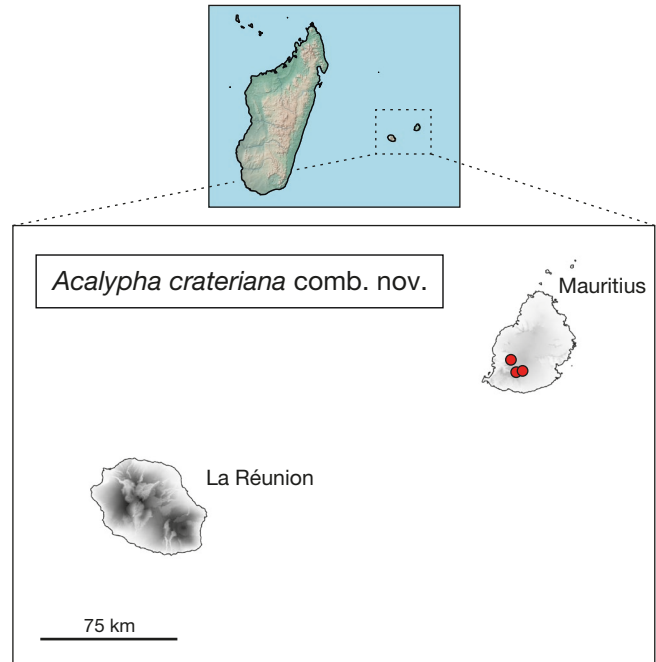


Fig. 26. — Distribution map of *Acalypha crateriana* (Coode) I. Montero & Cardiel, comb. nov. in Mascarene Islands.

**PRELIMINARY CONSERVATION ASSESSMENT.** — The EOO of *Acalypha decaryana* is estimated to be 130 409 km<sup>2</sup> and its AOO 172 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in dry deciduous forest (see assessment of *A. diminuta*) and spiny thickets, one of the most threatened ecosystems in Madagascar (Aronson *et al.* 2018). *Acalypha decaryana* has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires for grazing and crops, logging, mining, etc.). Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha decaryana* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

**MATERIAL EXAMINED.** — 78 collections. **Madagascar.** Allorge, L. 2185 (P[P00122670]); Birkinshaw, C.R. 424 (P[P04779214]); Boiteau, P. 2539 (P[P00508569]); Bosser, M.J. 4022 (P[P04779809]), 4073 (P[P04779789]), 10208 (P[P04779811]), 13994 (P[P04779791]), 17213 (P[P00324548]), 17275 (MO[MO-3025010], P[P00324551], TAN), 17417 (P[P00324550, P05543683]), 17840 (P[P00324555, P05543685]); De Block, P. 2383 (BR[BR0000005518647], K, P[P04786280], TAN); Decary, R. 2964 (P[P00508568]), 2985 (P[P00508553], W[W1962-0013399]), 3115 (P[P00508567]), 3247 (L[L0241288], P[P00508566]), 3433 (P[P00508565]), 3728 (P[P00508564, P04786273], S[S13-13801]), 3789 (G, P[P00508563]), 4264 (G, P[P00508562]), 4278 (P[P00508561]), 4343 (P[P00508560]), 8433 (P[P00508559]), 8526 (P[P00508558]), 8878 (P[P00508557], US[US01287334]), 8910 (P[P00508556]), 8956 (P[P00508555]), 8985 (P[P00508554]), 9030 (P[P00508552]), 9079 (B[B100273581], P[P00508551]), 9206 (P[P04779838]), 9864 (P[P00508550]), 10452 bis (P[P04779825]), s.n. (L[L0241289]); Dequaire, J. 24109 (P[P05547013]); Descoings, B. 3108 (P[P05547016]), 3625 (P[P05547012]), 3626 (P[P05547014]); Eboroke, S. 959 (P[P05547078]); Groeninckx, I. 317 (BR[BR0000005513222]); Homolle, A.M. 1706 (P[P05547015]); Humbert, H. 2997 (G, K, MO, P[P00508547, P00508548]), 2997 bis (P[P00508546], WAG[WAG.1930096]), 5405 (B[B100351094], BR[BR0000005045341], GH[GH01097245],

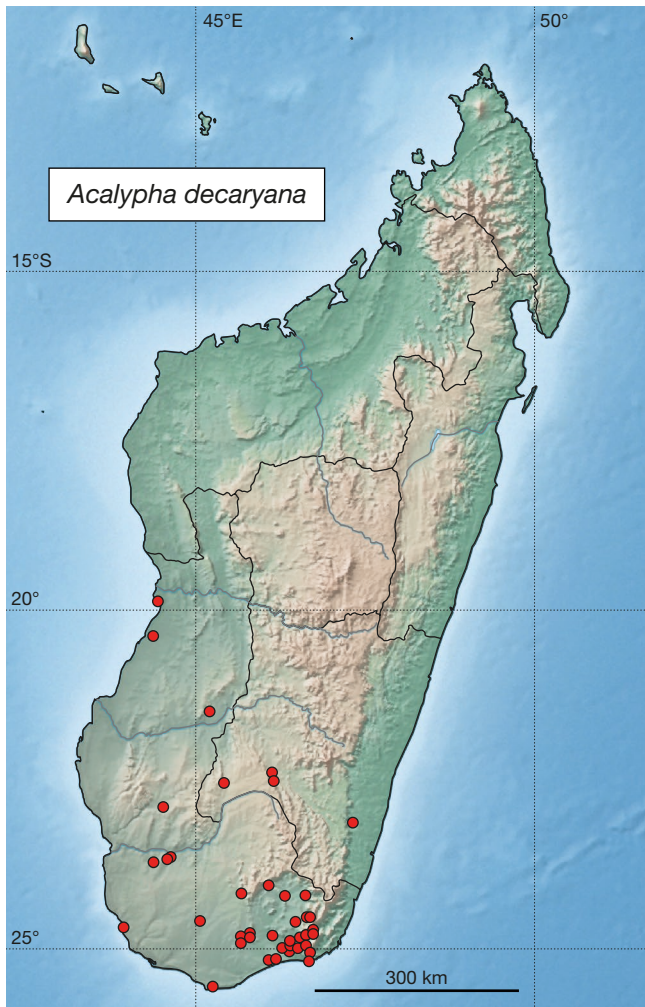


Fig. 27. — Distribution map of *Acalypha decaryana* Leandri in Madagascar.

MA[MA-01-00820754], NY[NY3091182], P[P00508544, P00508545], S, US[US01287332], 5640 (GH[GH01097253], P[P00508542, P00508543], US[US01287333]), 11412 (P[P05547248]), 12423 (L[L3795925], MEXU[MEXU1364277], P[P00508537, P00508538, P00508539, P00508540, P00508541]), 12835 (P[P00508536]), 12902 (P[P00508535]), 13098 (B[B100174358], G, P[P00508532, P00508533, P00508534], WAG[WAG1930098]), 13809 (P[P00508530, P00508531]), 14166 (P[P00508529]), 29130 (P[P05547080]), 29182 (P[P05547251]), 29434 (G, P[P05547252], NY[NY2710390]), 29449 (P[P05547253]), 29450 (G, P[P05547254], WAG[WAG.1930092]); Leandri, J. 3564 (P[P05547079]), 3566 (G, P[P05547247], WAG[WAG.1930091]); Lowry II, P.P. 6930 (MA, MO), 6991 (MA, MO, P[P05481880]); McPherson, G. 14916 (P[P00508528]); Messmer, N. NM 184 (G[G00420832], WAG[WAG.1930097]); O'Connor, S. 38 (K), 53 (K); Peltier, J. 2820 (P[P05547017]); Perrier de la Bâthie, H. 9763 (P[P00508527]), 9780 (P[P00508526]); Phillipson, P.B. 1751 (MO, P[P00508525], WAG[WAG.0133186]); Rakotomalaza, P. 211 (MO[MO-2965752], P[P05547994]), 217 (MAUAM, MO, P[P00460980], TAN), 305 (P[P04779767]); Rakotonasolo, F. 6580-RN (P[P05547077]); Randriatsivery, M.F. 351 (MO); Ravelonarivo, D. 4648 (MO[MO-3086130]); Richard, M. 0128 (K); Schlieben, H.J. 8214 (BR[BR0000014625152], G); Service Forestier Madagascar 8486-SF (P[P00508524]).

REFERENCES. — Govaerts *et al.* (2000: 59); Seebaluck *et al.* (2015: 150); Montero Muñoz *et al.* (2018a: 95).

#### DESCRIPTION

Shrubs, deciduous, to 3 m tall, monoecious. **Branches** reddish, appressed-pubescent and with rounded resinous glands, glabrescent when mature; brachyblasts present. **Axillary buds** ovoid, to 1 × 0.7 mm, perulate, perules 2, imbricate, chartaceous, blackish, sparsely hairy. **Stipules** to 1.5 mm long, triangular-lanceolate, midrib appressed-pubescent with simple trichomes, margin ciliate. **Petioles** 2–5 cm long, pubescent with simple, short trichomes. **Leaf blades** 1.5–2.5(–4)[–7.5] × 0.4–0.6(–2)[–3.5] cm, elliptic to oblong, sometimes obovate, membranous; **base** obtuse to acute; **apex** rounded to obtuse, sometimes acute; **margin** serrate, teeth subacute; **upper and lower surfaces** pubescent with simple, short trichomes; lower surface also with rounded resinous glands; venation pinnate, secondary veins 6–7 per side. **Stipels** absent. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** densely flowered, to 1.5 cm long; subsessile, peduncle to 1 mm long, densely pubescent; flowers glomerate; **bracts** to 0.5 mm long, ovate-lanceolate, ciliate with simple, short, trichomes. **Female inflorescences** laxly flowered, to 3 cm long; peduncle filiform, 6–10 mm long, it and rachis pubescent with simple, short trichomes; **bracts** 1–3, sessile, enlarging in fruit to 4 × 5.5 mm, orbicular-reniform, with two reddish papillae at base, pubescent with simple, short trichomes and rounded resinous glands; margin dentate to crenate-dentate, teeth *c.* 20, rounded to subtriangular, central tooth not prominent; **bracteoles** to 0.3 mm long, triangular, sparsely hairy. **Male flowers**: pedicel to 1 mm long, sparsely hairy; buds to 0.5 mm diameter, sparsely hairy and with some rounded resinous glands. **Female flowers** 1 per bract, sessile; **sepals** 3–4, to 1 mm long, triangular, appressed-pubescent with simple, short trichomes; **ovary** *c.* 1 mm diameter, 3-lobed, smooth, surface pubescent with simple, short, appressed trichomes and rounded resinous glands; **styles** 3, to 4 mm long, distinct, sparsely hairy on rachis, with simple trichomes, each divided into 8–10 slender segments. **Allomorphic flowers** sometimes present at female inflorescence apex; pedicel filiform, to 2 mm long, pubescent with simple, curved, antrorse trichomes; sepals 3, to 0.5 mm long, triangular, pubescent with simple, short trichomes and rounded resinous glands; ovary 1-lobed, to 1 mm diameter, densely pubescent with simple trichomes; style 1, to 4 mm long, glabrous. **Capsules** to 3 mm diameter, smooth, surface pubescent with simple, short, appressed trichomes and rounded resinous glands. **Seeds** *c.* 1.8 × 1.2 mm, pyriform, foveolate.

#### NOTE

Leandri designated *Decary* 2985 as the type, but he did not indicate the herbarium. We located two specimens of this collection. The one at P, where Leandri worked, is the only one that bears the word “type” written by Leandri. We therefore designate this as the lectotype.

#### 14. *Acalypha emirnenis* Baill.

*Adansonia*, *recueil d'observations botaniques* 1: 270 (Baillon 1861). — Type: **Madagascar**. Prov. Antananarivo: Antananarivo “in prov. Emirna, prope Tananarivou”, 1833, W. Bojer s.n. (lecto-, **designated here**: P[P00536723]; isolecto-, GD-C[GDC005713], P[P00536725]).



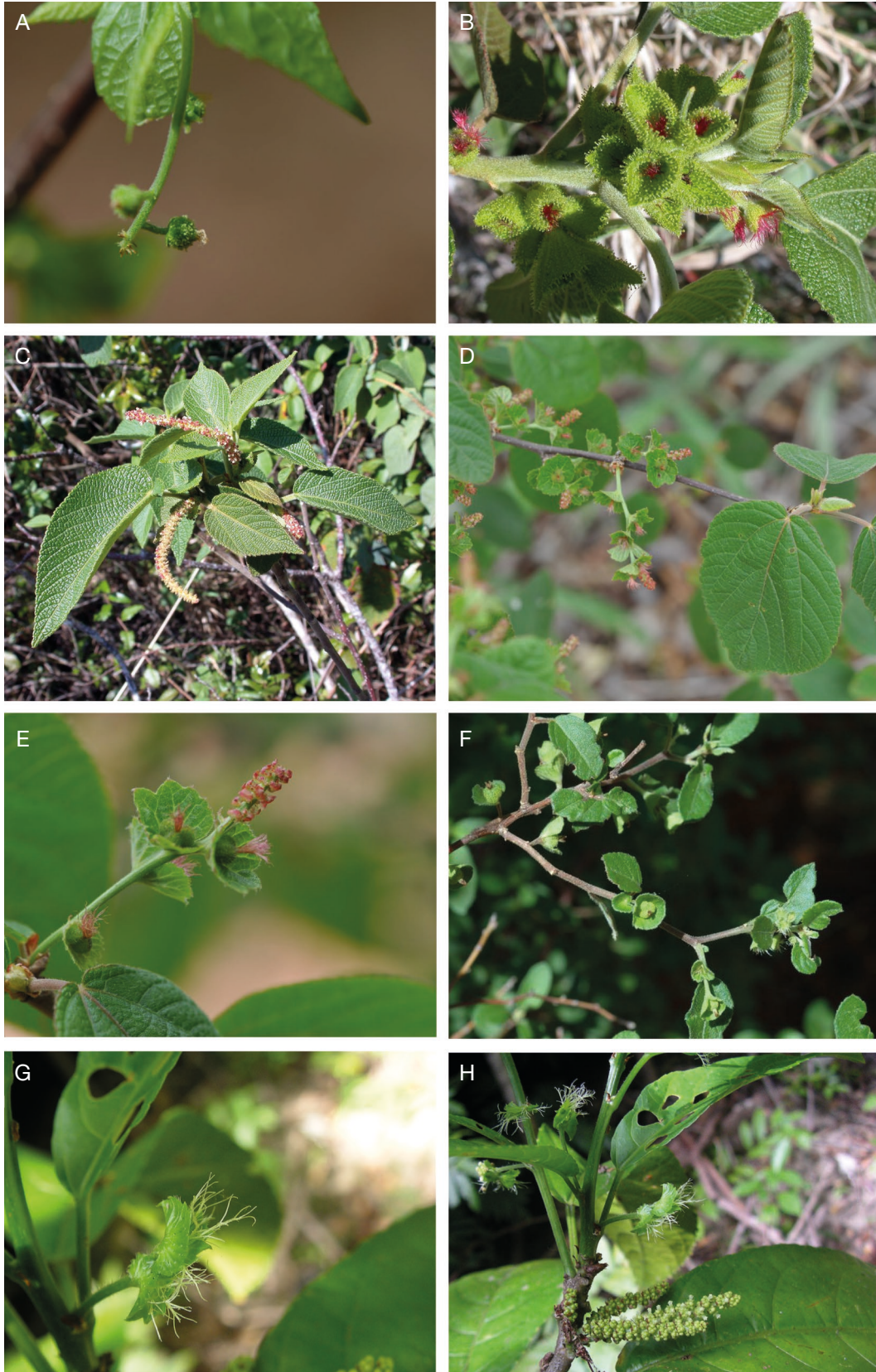


FIG. 28. — **A**, *Acalypha diminuta* Baill. (photo by L. Gillespie, L. Gillespie 10704); **B**, **C**, *A. andringitrensis* Leandri (photo by P. Phillipson, P. Phillipson 5669); **D**, **E**, *A. boinensis* Leandri (photo by L. Gillespie, L. Gillespie 10813); **F**, *A. decaryana* Leandri (photo by P. Lowry II, P. Lowry II 6991); **G**, **H**, *A. emirrensis* Baill. (photo by L. Nusbaumer, P. Ranirison PR994).

*Acalypha fasciculata* Müll.Arg., *Linnaea* 34: 31 (Müller Argoviensis 1865). — Type: Madagascar. s.l., s.d., *L. M. A. Du-Petit Thouars s.n.* (lecto-, designated by Montero Muñoz *et al.* [2018a: 96]: P[P00324476]; isolecto-, P[P00324495, P00508505]), **syn. nov.**

*Acalypha baronii* Baker, *Journal of the Linnean Society. Botany. London* 20: 254 (Baker 1883). — Type: Madagascar. “Central Madagascar”, 1882, *R. Baron 1725* (lecto-, designated here: K[K000186523]; isolecto-, P[P00324467]).

*Acalypha lyallii* Baker, *Journal of the Linnean Society. Botany. London* 20: 255 (Baker 1883). — *Acalypha fasciculata* var. *lyallii* (Baker) Leandri, *Notulae Systematicae. Herbarium de Muséum de Paris. Phanérogamie. Paris* 10: 284 (Leandri 1942). — Type: Madagascar. “Central Madagascar”, s.d., *R. Lyall s.n.* (lecto-, designated here, or possibly holotype: K[K000186529]), **syn. nov.**

*Acalypha hologyna* Baker *Journal of the Linnean Society. Botany. London* 21: 441 (Baker 1884). — Type: Madagascar. s.l., s.d., *R. Baron 2889* (lecto-, designated here: K[K000186526]; isolecto-, P[P00536724]).

*Acalypha madreporica* Baill., *Histoire physique, naturelle et politique de Madagascar, Atlas*, 2, Fasc. 27: t. 186 (Baillon 1891). — Type: Baillon (1891: pl. 186), holotype.

*Acalypha bakeriana* Baill., *Bulletin mensuel de la Société linnéenne de Paris* 2: 1180 (Baillon 1895a). — Type: Madagascar. “Centr. Madag.” *R. Baron 4425* (holo-, P[P00324466]).

*Acalypha madagascariensis* Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 162 (Pax & Hofmann 1924). — Type: Madagascar. Prov. Toliara, Forêt d’Antsianaka, 19.I.1882, *H. Humblot 447* [“449”] (holo-, B, presumably destroyed; lecto-, designated by Montero Muñoz *et al.* [2018a: 96]: P[P00324501]), **syn. nov.**

*Acalypha emirnenis* var. *bara* Leandri, *Notulae Systematicae. Herbarium de Muséum de Paris. Phanérogamie. Paris* 10: 282 (Leandri 1942). — Type: Madagascar. Prov. Toliara, Massif of l’Ivakoany, 1928, *H. Humbert 6986* (lecto-, designated by Montero Muñoz *et al.* [2018a: 96]: P[P00508509]; isolecto-, P[P00508508]). — Former syntypes: Madagascar. Prov. Toliara, bassin supérieur du Mandrare, col et sommet de Marosohy, 1000-1400 m, 14-15.XI.1928, *H. Humbert 6623* (P[P00536758]); Massif de l’Ivakoany, *H. Humbert 12185* (P[P00508506, P00508507]); entre l’Andohahela et l’Elakelaka, *H. Humbert 13941* (P[P00324472]).

*Acalypha emirnenis* var. *jabobaziana* Leandri, *Notulae Systematicae. Herbarium de Muséum de Paris. Phanérogamie. Paris* 10: 283 (Leandri 1942). — Type: Madagascar. Prov. Mahajanga: “Boina, Jabobazo, près du mont Tsitondroina” X.1900, *H. Perrier de la Bâthie 9793* (lecto-, designated here, or possibly holotype: P[P00536722]).

*Acalypha fasciculata* var. *humbertiana* Leandri, *Notulae Systematicae. Herbarium de Muséum de Paris. Phanérogamie. Paris* 10: 284 (Leandri 1942). — Type: Madagascar. Prov. Toliara, haute vallée de Mandrare, 8.XI.1928, *H. Humbert 6514* (lecto-, designated by Montero Muñoz *et al.* [2018a: 96]: P[P00508503]; isolecto-, P[P00324487], US[US00096332]). — Former syntypes: Madagascar. Prov. Toliara, Bassin de la Manampanihy (Sud-Est), col de Fitana, *H. Humbert 6044* (P[P00324486]); Massif du Beampingaratra, du col de Bevava au sommet de Bekoho, *H. Humbert 6478* (P[P00508504]), **syn. nov.**

ICONOGRAPHY. — Baillon (1891: pl. 186); Leandri (1942: 282); Figs 28G, H; 35B.

ETYMOLOGY. — The epithet refers to the type locality, the Emirna [Imerina] Kingdom (1540-1897) that occupied much of the central plateau of Madagascar: its capital was Antananarivo.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana, Sava, Sofia, Analanjirofo, Alaotra-Mangoro, Analamanga, Bongolava, Boeny, Vatovavy-Fitovinany, Atsimo-Atsinanana, Anosy, and Ihorombe). Medium altitude moist evergreen forest, lowland evergreen moist forest, and riparian forest. On basement rocks and sandstone. Altitudinal range (250-) 400-1800 (-2146) m (Fig. 29).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha emirnenis* is estimated to be 332 717 km<sup>2</sup> and its AOO 252 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in moist evergreen forests. These forests have been heavily degraded and fragmented in recent years; deforestation rates are increasing annually, so the remaining original vegetation is still decreasing (Yesuf *et al.* 2019). This species has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires mainly for rice farming, logging, mining, etc.). Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha emirnenis* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 108 collections. Madagascar: *Andrianjafy, N.M. 933* (P[P04779507]); *Anonymous 15* (P[P00324568]); *Antilabimena, P. 4970* (BR[BR0000014628429], P[P05481540]), 5089 (P[P05481542]); *Armand, M.W. 15* (P[P00324483, P00324484]); *Baron, R. 647* (K), 1725 (K[K000186523], P[P00324467]), 2466 (P[P00324482]), 2889 (K[K000186526], P[P00536724]), 3678 (P[P00324561, P00324468]), 4064 (K), 4425 (P[P00324466]), 6121 (K), 6551 (P[P00324478]); *Bernard, R. 961* (MO[MO-3025020], P, TAN), 1477 (MA, MO[MO-2651754], TAN); *Birkinshaw, C.R. 1846* (MO[MO-3025019], TAN), 2120 (MO[MO-3400503]); *Bojer, W.s.n.* (GDC[GDC005713], G[G00324064]), s.n. (P[P00536723]), s.n. (P[P00536725]); *Bosser, M.J. 7160* (P[P00508513, P00324465]); *Cours, G. 343* (P[P00324541]), 2247 (K, MO[MO-3025009], P[P00324543], TAN), 4204 (P[P00508419]); *d’Alleizette, Ch. s.n.* (L[L0241584]), s.n. (L[L0241903]); *Decary, R. 2305* (P[P00324535]), 6145 (P[P00324463]), 6146 (P[P00324464]), 7208 (P[P00324496], US[US01287345]), 10831 (K[K000384471], P[P00324480], US[US01287344]); *du Petit-Thouars, L.M.A. s.n.* (P[P00508505]), s.n. (P[P00324476]), s.n. (P[P00324495]); *Du Puy, B. MB494* (K, P[P00075169]); *Flores, T.C. 81* ([GH01097255]); *Gautier, L. LG 3889* (G[G00034259]), *LG 4119* (G[G00007292]), K, P[P04786261]); *Guillaumet, J.L. 3983* (P[P00324528]); *Hummolle, A.M. 2247* (P[P05547227]), s.n. (P[P04779865]); *Humbert, H. 3050* (P[P00224702]), 3053 (P[P00508500]), 6044 (GH[GH01097247], P[P00324486], US[US01287346], WAG[WAG.1578535]), 6478 (P[P00324488, P00508504]), 6514 (GH[GH01097246], P[P00324487, P00508503], US[US00096332]), 6623 (P[P00536758, P00324475]), 6985 (P[P00324580]), 6986 (P[P00508508, P00508509]), 12185 (P[P00324473, P00508506, P00508507]), 13941 (P[P00324472]), 18624 (K, P[P05547020]), 18658 bis (P[P00324497]), 22080 (B[B100346009], BR[BR0000005045181], P[P00324498]), 22099 (G, K[K001394516], MO, P[P00324499], S[S17-37501], WAG[WAG.1930064]), 24516 (G, MO[MO-3025008], P[P00324589], TAN), 25143 (P[P00324590]), 28784 (P[P05543668]); *Humboldt, L. 445* (K, LD[LD1422500], P[P00536757, P00536726]); 447 (P[P00324501]); *Hure, M. s.n.* (P[P05547047]); *Jard. Bot. Tananarive 3244* (P[P00324470, P00508511]), 3255 (P[P00324469, P00508512]), 3773 (P[P00324509]); *Lam, H.J. 5809* (BR[BR0000014625473], L[L0241330], P[P00324481], WAG[WAG.1578532]); *Lyall, R. (K[K000186529]); Malcomber, S. 1684* (MO), 2118 (P[P04779848]), 2213 (P[P04779847]), 2630 (K, MO); *McPherson, G. 14590* (BR[BR0000021450297], G[G00420834], P[P00508501]); *Messmer, N. NM 073* (G[G343283/1]); *Nek, F.I. van 1898* (BR[BR0000018889543], G, K, M, MO[MO-2965743], TAN,



WAG[WAG.1578694]); Nicoll, M.F. 225 (BR[BR0000021450334], K, P[P00508502], MO); Nusbaumer, L. LN 1672 (G[G00019872], P[P00547269]); Perrier de la Bâthie, H. 9793 (P[P00536722]), 16733 (MA, P[P00324471, P00508510]); Rabenantoandro, J. 1888 (P[P06490048]); Rakoto, R. 15 (BR[BR0000005610778], CAS, G[G00420835], K, MO, P[P05481892]); Rakotomalaza, P. 1455 (MAUAM, MO, TAN), PJ 1982 (G[G00034256], PJ 2047 (G[G00034257], K); Rakotonandrasana, S. 1279 (MO[MO-2965742], P[P01152835], TAN); Rakotonao 12211-RN (P[P04779843]); Rakotovoao, C. 2603 (P[P04779509]), 2677 (P[P04779508]), 4542 (MO[MO-3025016], TAN); Ramandimbimanana, S.D. SDR 195 (G[G00376954]); Ranarivelo, H.S. 12 (CAS[CAS-0064835]), RHS 920 (CAS, MO[MO-3025003], TAN); Randriamanatena, D. 321 (P[P04779840]); Randriambololona, M. 262 (G[G00034254], MO, P[P00324504], UPS[UPS V-153533, UPS V-153534]); Randrianaivo, R. 1274 (P[P05481686]); Randriatafika, F. 699 (P[P06490050]); Ranirison, P. PR 994 (G[G00090427], P[P0547230]); Ravelomanantsoa, D. 129 (K, MO[MO-3025035], TAN); Razakamalala, R. 2436 (P[P06490051]), 2870 (MO[MO-2965745], P[P05481879], TAN), 3296 (MO[MO-2965812], P[P04779506]), 3801 (P[P06490049]), 5498 (MO[MO-3025030], TAN); Razanatsima, A. 1501 (MAUAM, MO[MO-2965813]), 1789 (MO); Réserves Naturelles Madagascar 12263-RN (P[P04786279]); Thulin, M. 11833 (MO[MO-2965751], UPS[UPS V-533590]); Schlieben, H.J.S. 11101 (K).

REFERENCES. — Müller Argoviensis (1866: 804); Müller Argoviensis (1866: 851) as *A. fasciculata*; Baillon (1892: 1003); Baillon (1895a: 1180) as *A. baronii*; Baillon (1895a: 1181) as *A. madreporica* and *A. lyallii*; Baillon (1895b: 1196) as *A. hologyna*; Palacký (1907: 24, 25); Pax & Hoffmann (1924: 94, 171) as *A. fasciculata*; Leandri (1942: 281); Leandri (1942: 283) as *A. fasciculata*; Leandri (1948: 186) as *A. lyallii*; Leandri (1952) as *A. fasciculata* var. *humbertiana*; Govaerts et al. (2000: 50, 61); Govaerts et al. (2000: 67) sub. *A. hologyna*; Govaerts et al. (2000: 73) as *A. lyallii*; Govaerts et al. (2000: 74) as *A. madreporica*; Schatz (2001: 142) as *A. fasciculata* var. *humbertiana*; Sagun et al. (2006: 124); Seebaluck et al. (2015: 152) as *A. lyallii*; Montero Muñoz et al. (2018a: 95); Montero Muñoz et al. (2018a: 96) as *A. fasciculata*.

#### DESCRIPTION

Shrubs, probably deciduous, to 5 m tall, monoecious. **Branches** pubescent with simple, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** spherical, to 1 mm diameter, perulate, perules 2, valvate, membranous, brownish, sparsely hairy, margin ciliate. **Stipules** to 4 mm long, linear-lanceolate to triangular-lanceolate, midrib with simple, appressed trichomes, margin ciliate. **Petioles** (1-)1.5-4(-5.5) cm long, indumentum similar to that on young branches. **Leaf blades** (5-)7-12(-18) [-26.5] × 2-4(-5)[-8.7] cm, elliptic-lanceolate to obovate-lanceolate, membranous; **base** acute to cuneate; **apex** acuminate, acumen to 15 mm long, acute; **margin** crenate-serrate to serrate, teeth rounded to acute, ending in sessile glands; **upper and lower surfaces** laxly pubescent with simple, erect trichomes, and with simple, short, curved, antrorse trichomes on veins, glabrescent; lower surface also with flattened resinous glands; venation pinnate, secondary veins to 12 per side. **Stipels** glandular, to 0.5 mm long, glabrous. **Inflorescences** spiciform, usually unisexual, rarely androgynous, axillary. **Androgynous inflorescences** to 9 cm long, mostly male with 1-2 female bracts; peduncle to 5 mm long, it and rachis laxly pubescent with short, curved, antrorse trichomes. **Female segment** to 2.5 cm long; **bracts** 1-2, sessile, enlarging in fruit to 15 × 18 mm, orbicular-reniform, laxly pubescent with simple,



FIG. 29. — Distribution map of *Acalypha emirrensis* Baill. in Madagascar.

short trichomes and flattened resinous glands, and ciliate with simple, short trichomes; margin dentate, teeth *c.* 41, falcate, ending in sessile gland, central tooth slightly prominent; **bracteoles** to 0.5 mm long, triangular-lanceolate, sparsely hairy. **Male segment** persistent, to 8 cm long; flowers glomerate; **bracts** to 2 mm long, ovate-lanceolate, scarious, translucent, sparsely hairy and ciliate. **Male inflorescences** like androgynous but without female bracts. **Female inflorescences** laxly flowered, to 4.5 cm long; peduncle to 25 mm long, it and rachis pubescent with simple, curved, antrorse trichomes; **bracts** 1-3(-4), they and bracteoles like those on androgynous inflorescences. **Male flowers**: pedicel to 1.5 mm long, glabrous; buds to 1 mm diameter, glabrous. **Female flowers** 2 per bract, sessile; **calyx** urceolate, sepals 3, to 1.2 mm long, triangular-lanceolate, sparsely hairy; **ovary** *c.* 1 mm diameter, 3-lobed, smooth, surface strigose, with thick, simple, appressed trichomes; **styles** 3, to 4 mm long, distinct, glabrous, each divided into *c.* 10 segments. **Allomorphic flowers** sometimes present at apex of the male inflorescence, subsessile and similar to the regular flowers. **Capsules** to 5 mm diameter, smooth, surface laxly pubescent with simple, short, curved trichomes and flattened resinous glands. **Seeds** *c.* 3.3 × 2.8 mm, pyriform, foveolate.

NOTES

1) Baillon designated *W. Bojer s.n.*, at P, as the type of *Acalypha emirnenensis*. We found two specimens of this collection at P, so we designate the better preserved of them as the lectotype; 2) Baker designated the type specimens of *Acalypha baronii*, *A. lyallii*, and *A. hologyna* but did not indicate the herbarium where they were located, so we designate the best preserved specimen of each as the respective lectotype; 3) Leandri designated *H. Perrier de la Bâthie 9793* as the type of *Acalypha emirnenensis* var. *jabohaziana*, but did not indicate the herbarium where the type is located, so we designated the single specimen found as the lectotype; 4) *Acalypha fasciculata* was treated as an accepted species by Montero Muñoz *et al.* (2018a) but, after a careful study of the specimens that supported this name, we conclude that *A. fasciculata* must be treated as a synonym of *A. emirnenensis*; 5) the correct number of the type specimen of *A. madagascariensis* is *Humblot 447*. In the protologue of this name, it was wrongly transcribed as “*Humblot 449*”, which corresponds to a *Psorospermum* Spach (Clusiaceae) specimen; and 6) the collections *Antilahimena & Edmond 4970* (BR0000014628429, P05484540), *Humbert 6986* (P00324474, P00508509) and *25143* (P00324590), and *Rakotonandrasana 1279* (P01152835) have some androgynous inflorescences with 1-2 female bracts. A specimen of *Ranarivelo 12* (CAS-0064835) mostly has male unisexual inflorescences, but one inflorescence is androgynous, with a minute undeveloped female bract.

15. *Acalypha filiformis* Poir.

*Encyclopédie méthodique. Botanique* 6 (1): 205 (Poiret 1804). — Type: **Mauritius**. “Île de France”, s.d., *P. Commerson s.n.* (lecto-, designated by Montero Muñoz *et al.* [2018a: 97]; P[P05604464]; isolecto-, MPU[MPU014933], P[P05604471]).

*Acalypha filiformis* var. *arborea* Poir., *Encyclopédie méthodique. Botanique* 6 (1): 205 (Poiret 1804). — *Acalypha reticulata* var. *arborea* (Poir.) Müll.Arg., *Linnaea* 34: 32 (Müller Argoviensis 1865). — Type: **La Réunion**. “Elle croît à l’île Bourbon”, 1774, *P. Commerson s.n.* (holo-, P[P05604473]; iso-, MPU[MPU014949]).

*Tragia reticulata* Poir., *Encyclopédie méthodique. Botanique* 7: 725 (Poiret 1806). — *Acalypha reticulata* (Poir.) Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 851 (Müller Argoviensis 1866). — Type: **La Réunion**. “l’Île-de-Bourbon”, s.d., *P. Commerson s.n.* (holo-, P-LAM[P00382118]; iso-, P[P05604477]).

*Acalypha arborea* Commers. in Poir., *Encyclopédie méthodique. Botanique* 6: 205 (Poiret 1804) *nom. nud.*

*Acalypha lantanaefolia* Bojer, *Hortus Mauritianus* 286 (Bojer 1837) *nom. nud.*

ICONOGRAPHY. — Fig. 35C.

ETYMOLOGY. — The epithet probably refers to the thin peduncles and rachis of the inflorescences.

DISTRIBUTION AND HABITAT. — Endemic to Mascarene Islands (Mauritius and La Réunion). Lowland evergreen moist forest and secondary forest. Altitudinal range in Mauritius 240-500 m and in La Réunion 100-600 m (Fig. 30).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha filiformis* is known from Mauritius and La Réunion. Its EOO is estimated to be 8 509 km<sup>2</sup> and its AOO 60 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. For the situation of Mauritius forests, see the assessment of *A. crateriana* comb. nov. In La Réunion the situation is somewhat more favorable. This island still has at least 52% of its native forests, but 18% of the remaining native forest is moderately to highly invaded by alien species, causing the habitat quality to decrease (Strasberg *et al.* 2005). Ongoing habitat loss and degradation will cause continued decline of its EOO and AOO. *Acalypha filiformis* is assessed as Near Threatened (NT). It meets the EOO and AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 96 collections. **Mauritius**. *Anonymous s.n.* (G[G00324525]); *Anonymous s.n.* (G[G00324529]); *Anonymous s.n.* (G[G00324530]); *Anonymous s.n.* (P[P05604442]); *Anonymous s.n.* (P[P05604468]); *Anonymous s.n.* (P[P04779380] *pr.p.*); *Anonymous s.n.* (G[G00324520]); *Anonymous s.n.* (G[G00324530]); *Barclay, C.* 15464 (K); *Blackburn, J.* 46 (K); *Boivin, L.H. s.n.* (P[P04779575]), *s.n.* (P[P05604457]), *s.n.* (P[P05604461]); *Bouton, L. s.n.* (G[G00324523]), *s.n.* (G[G00324524]), *s.n.* (G[G00324526]), *s.n.* (G[G00324527]); *Brown, Ab. s.n.* (K); *Commerson, P. s.n.* (P[P04779572]), *s.n.* (P[P04779577]), *s.n.* (P[P05604438]), *s.n.* (P[P05604439]), *s.n.* (P[P05604464], P05604471), MPU[MPU014933]), *s.n.* (P[P05604465]), *s.n.* (P[P05604466]), *s.n.* (P[P05604467]), *s.n.* (P[P05604469]), *s.n.* (P[P05604470]), *s.n.* (P[P05604472]), *s.n.* (P[P00799457]); *Coode M.J.E.* 5062 (P[P05604456]); *Friedmann, F.* 2618 (P[P05604379]); *Gronal s.n.* (S[S17-37513]); *Guébo, J.* 17043 (P[P04779573]), 17048 (P[P05604381]); *Jussieu, A. s.n.* (S[S17-37570]); *Koechlin, B.* 194 (P[P05604424]); *Lorence, D.* M70 (C, MO[MO-2966288], WAG[WAG.1578519, WAG.1578520]), *DL 1221* (K, P[P05604380]), 1226 (MO[MO-2966279]), 2261 (K, P[P05604451]), 2262 (K, US[US01287450]); *Perrotet, M. s.n.* (P[P05604453]), *s.n.* (P[P05604462]); *Richard, M. s.n.* (P[P05604455]), *s.n.* (P[P05604463]); *Royal Botanical Gardens 20* (K); *Sieber, F.W.* 64 (G), 179 (BR[BR0000021450310], G[G00324532], P[P05604454], W[W320333]), 369 (P[P05604460]).

**La Réunion**. *Anonymous* 661 (L[L0240843]); *Barclay, C.* 1306 (K); *Barthe, M. s.n.* (P[P04779568]); *Boivin, L.H.* 1390 (P[P04779574, P05604482, P05604484]), 1391 (P[P04779576, P05604483]), *s.n.* (P[P05604480]), *s.n.* (P[P05604481]), *s.n.* (UPS[UPS V-716418]); *Bory de Saint-Vincent, J.B.G. s.n.* (G[G00324528]); *Bosser, M.J.* 20662 (P[P04779585]), 20940 (MO[MO-2966277], P[P04779586]); *Cadet, Th.* 584 (P[P04779587]), 899 (K, P[P04779588]); *Commerson, s.n.* (P[P00382118]); *P. s.n.* (P[P04779363]), *s.n.* (P[P05604465] *pr.p.*), *s.n.* (P[P05604473]), MPU[MPU014949]), *s.n.* (P[P05604477]), *s.n.* (P[P05604478]), *s.n.* (P[P05604479]), *d’Alleizette, Ch. s.n.* (L[L0242099]); *du Petit-Thouars, L.M.A. s.n.* (P[P04779473]), *s.n.* (P[P05604450]), *s.n.* (P[P05604458]); *Frappier, M.* 6 (P[P05604444]), 8 (P[P05604448]), 9 (GH, P[P05604446]), 10 (P[P05604447]), *s.n.* (P[P05604443]), *s.n.* (P[P05604449]); *Friedmann, F.* 1078 (G, P[P04779584]); *Giraudy, H. s.n.* (P[P00324567]); *Goudot, J. s.n.* (P[P04779373]); *Jussieu, A. s.n.* (P[P04779569]); *Léman, D.S. s.n.* (P[P04779570]); *Monin, M. s.n.* (P[P05604475]); *Perrotet, M. s.n.* (P[P04779567]); *Richard, M.* 191 (P[P04779583]), 203 (P[P04779571]), 204 (P[P04779580]), 416 (P[P04779582]), 762 (P[P04779578, P04779581]), *s.n.* (P[P04779579]); *Rivals, P. s.n.* (P[P04779589]).

**Mauritius or La Réunion**. *Boivin, L.H. s.n.* (P[P00324574]), *Desvieux, A.N. s.n.* (P[P00324572]), *s.n.* (P[P00324573]); *Pervillé, A.* 733 (P[P00324571]).

REFERENCES. — Bojer (1837: 286); Baillon (1858: 443) as *Tragia reticulata*; Baillon (1861: 266) as *A. arborea*; Müller Argoviensis (1866: 851) as *A. reticulata*; Baker (1877: 316) as *A. reticulata*; Müller Argoviensis (1882: 26) as *A. reticulata*; Pax (1890: 61) as *A. re-*



*ticulata*; Pax (1894: 96) as *A. reticulata*; Cordemoy (1895: 342) as *A. reticulata*; Voeltzkow (1917: 447) as *A. arbovea*; Pax & Hoffmann (1924: 102) as *A. reticulata*; Leandri (1942: 258) as *A. reticulata*; Coode (1979: 45) as *A. reticulata*; Coode (1982: 69, 76); Govaerts *et al.* (2000: 62, 99, 105); Seebaluck *et al.* (2015: 150); Montero Muñoz *et al.* (2018a: 97).

#### DESCRIPTION

Shrubs, leaf persistence unknown, to 3 m tall, monoecious. **Branches** pubescent with simple, appressed, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** subspherical, to 0.7 × 0.5 mm, perulate, perules 2, valvate, membranous, brownish, sparsely hairy. **Stipules** to 4 mm long, linear, thick, margin ciliate and with some minute glands. **Petioles** 0.5–2.5 cm long, indumentum similar to that on young branches. **Leaf blades** 2.5–7 × (1.8–)2–2.5(–3) cm, elliptic-lanceolate to ovate-lanceolate, chartaceous; **base** rounded; **apex** rounded to acute; **margin** crenate, slightly revolute, teeth rounded; **upper and lower surfaces** sparsely hairy with some sparse, simple, short trichomes on veins, glabrescent, margin ciliate; venation actinodromous, basal veins 3 or 5, secondary veins 4–5 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, and solitary female bracts, axillary. **Androgynous inflorescences** to 11 cm long, mostly male with 1 female bract; peduncle to 10 mm long, pubescent with simple, short, more or less appressed trichomes. **Female segment: bract** 1, sessile, enlarging in fruit to 10 mm diameter, orbicular, subglabrous, with some simple, short trichomes, glabrescent; margin entire; **bracteoles** absent. **Solitary female bracts:** peduncle to 20 mm long, laxly pubescent with simple, short, appressed trichomes; bract similar to those of androgynous inflorescences. **Male segment** persistent, to 9 cm long; flowers glomerate; **bracts** to 0.5 mm long, triangular, slightly fleshy, pubescent with simple, short trichomes. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, sparsely hairy. **Female flowers** 1–2 per bract, sessile; **sepals** 3, to 1 mm long, triangular-lanceolate, pubescent with simple, short trichomes; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae to 0.8 mm long, ending in hyaline trichome to 0.5 mm long, surface sparsely hairy; **styles** 3, to 6 mm long, slightly connate at base, sparsely hairy on rachis, each divided into 12–14 segments. **Allomorphic flowers** not seen. **Capsules** to 2 mm diameter, papillose-hispid, papillae triangular, ending in hyaline trichome to 0.5 mm long, surface sparsely hairy, glabrescent. **Seeds** *c.* 1.7 × 1 mm, pyriform, minutely foveolate.

#### NOTES

1) *Acalypha reticulata* has been usually considered to be the accepted name of this species. Leandri (1942) stated that *A. filiformis* and *A. reticulata* are conspecific, but he kept *A. reticulata* as the accepted name. Applying the rule of priority, the accepted name must be *A. filiformis*, and *A. reticulata* should be placed in synonymy; 2) *A. filiformis* is monoecious, but it is striking that the female and androgynous inflorescences always appear on different branches; 3) Boivin mixes two species under collector number Boivin 1391 (*A. filiformis* [P04779576, P05604483] and *A. integrifolia* [P04779414,

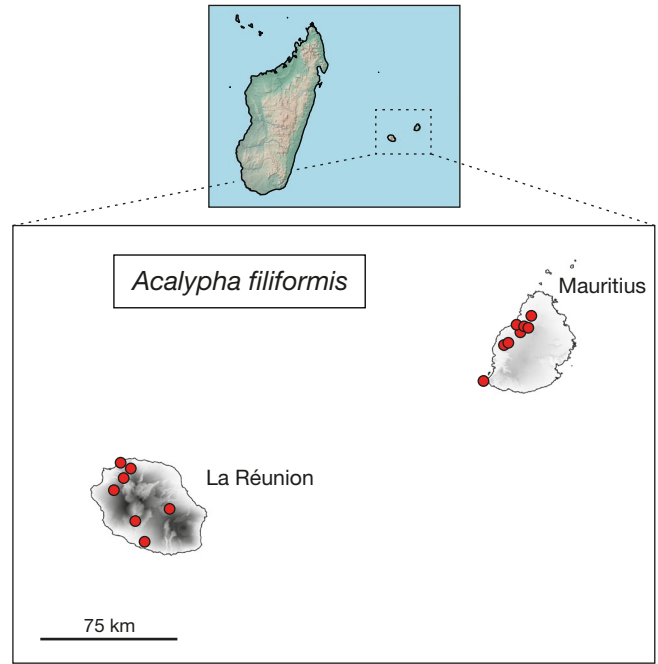


FIG. 30. — Distribution map of *Acalypha filiformis* Poir. in Mascarene Islands.

P04779415, P04779417, P04779329, P04779469]); and 4) the following specimens P00324571, P00324572, P00324573 and P00324574 are labeled as being from Madagascar (without a specific locality), but the labels are not original and *A. filiformis* is endemic to the Mascarene Islands. The location given for these specimens almost certainly is incorrect.

#### 16. *Acalypha fimbriata* Schumach. & Thonn.

*Beskrivelse af Guineiske Planter som ere fundne af dansk Botanikere, især af Etatsraad Thonning* 409 (Schumacher 1827). — Type: Ghana. s.l., s.d., P. Thonning s.n. (holo-, C [C10003279]; iso-, C [C10003278, C10003280], S [S14-42539]).

ICONOGRAPHY. — Oliver (1875: t. 96); Cardiel & Montero Muñoz (2018: 98); Fig. 35D.

ETYMOLOGY. — The epithet probably refers to the fimbriated-looking teeth margin of the female bracts.

DISTRIBUTION AND HABITAT. — Widely distributed in East and West Tropical Africa. Probably naturalized in Madagascar (Analamanga, Atsimo-Andrefana, and Ihorombe). Dry deciduous forest on limestone. 950–1000 m (Fig. 31).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha fimbriata* is widely distributed in continental Africa, has a large EOO, a wide elevational range and occurs in many different ecosystems, and it is likely that its AOO exceeds the threshold of any threat category. Therefore, we assess *A. fimbriata* as Least Concern (LC).

MATERIAL EXAMINED. — 3 collections. Madagascar: Bosser, M.J. 17307 (P [P05547176]); Humbert, H. 14293 (P [P05547177]); Keraudren-Aymonin, M. 378 (P [P04779792]).

REFERENCES. — Montero Muñoz *et al.* (2018a: 98).

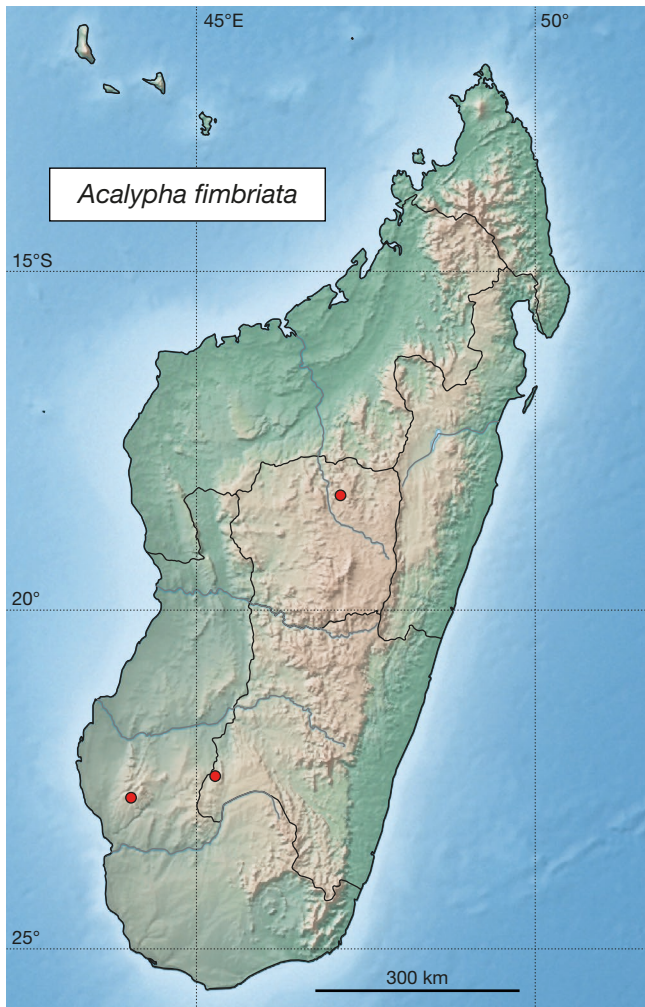


Fig. 31. — Distribution map of *Acalypha fimbriata* Schumach. & Thonn. in Madagascar.

#### DESCRIPTION

Annual herbs, to 0.6 m tall, monoecious. **Branches** pubescent with simple, short, more or less appressed trichomes and sparse, simple, erect trichomes to 0.5 mm long, glabrescent when mature. **Axillary buds** naked, hispid with simple, erect trichomes. **Stipules** to 5 mm long, filiform, sparsely hairy. **Petioles** (2-)3-6 cm long, sparsely hairy with simple, erect trichomes to 1.5 mm long and some simple, short, curved trichomes. **Leaf blades** 3.5-8.5 × 2-4.5 cm, ovate-lanceolate to elliptic-lanceolate, membranous; **base** acute to rounded, sometimes slightly cordate; **apex** acuminate, acumen to 15 mm long, acute, slightly callose; **margin** serrate, teeth subacute, slightly callose-edged, with a sessile gland at apex; **upper and lower surfaces** subglabrous, with simple, trichomes to 1 mm long; venation actinodromous, basal veins 3 or 5, secondary veins 5-7 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 3.5 cm long, mostly female with short male segment; peduncle to 5 mm long, pubescent with simple, curved, retrorse trichomes. **Male segment** persistent, to 0.7 cm long; flowers glomerate; **bracts** to 1 mm long, lanceolate, ciliate. **Female segment** to 2 cm long; **bracts** 8-15, sessile,

enlarging in fruit to 8 × 11 mm, reniform, veins prominent, hirsute with slender, hyaline trichomes to 3 mm long and glandular trichomes to 0.5 mm long; margin dentate, teeth *c.* 23, falcate-lanceolate, central tooth not prominent; **bracteoles** absent. **Male flowers**: pedicel to 0.3 mm long, glabrous; buds to 0.5 mm diameter, glabrous, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, ovate-lanceolate, ciliate; **ovary** *c.* 1 mm diameter, 3-lobed, smooth, surface densely pubescent with simple, short trichomes; **styles** 3, to 4 mm long, distinct, glabrous, each divided into 2-3 segments. **Allomorphic flowers** sometimes present at inflorescence apex; pedicel filiform, to 5 mm long, pubescent with simple, curved trichomes and long hyaline trichomes to 3 mm long; **sepals** 3, to 0.5 mm long, triangular, ciliate; **ovary** 1-lobed, to 2 × 2.5 mm, pubescent with simple, short, flattened trichomes, distally fimbriate; **style** 1, to 2 mm long, glabrous. **Capsules** to 3 mm diameter, smooth, surface sparsely hairy. **Seeds** *c.* 2 × 1.2 mm, pyriform, minutely foveolate.

#### NOTE

*Acalypha fimbriata* was first reported for the WIOR by Montero Muñoz *et al.* (2018a).

#### 17. *Acalypha gillespieae* G.A.Levin & I.Montero

*PhytoKeys* 140: 59 (Montero Muñoz *et al.* 2020b). — Type: **Madagascar**. Reg. Diana [Prov. Antsiranana], Montagne des Français, E of Antsiranana (Diego Suarez), 12°19'26.4"S, 49°20'16.6"E, 258 m, 31.X.2012, L. J. Gillespie, G. A. Levin, J. Andriatiana & W. M. Cardinal-McTeague 10692 (holo-, MO; iso-, CAN, K, P, TAN). — Paratypes: **Madagascar**. Reg. Diana [Prov. Antsiranana], Montagne des Français, E of Antsiranana (Diego Suarez), 12°19'26.4"S, 49°20'16.6"E, 258 m, 31.X.2012, L. J. Gillespie, G. A. Levin, J. Andriatiana & W. M. Cardinal-McTeague 10693 (CAN, MO, P, TAN); 12°19'S, 49°20'E, 200-300 m, 2.XII.1990, L. J. Gillespie 4097 (K, ILLS, MO, P[P00324524], TAN).

**ICONOGRAPHY**. — Montero Muñoz *et al.* (2020b); Fig. 35E.

**ETYMOLOGY**. — The epithet honors Dr. Lynn J. Gillespie, research scientist at the Canadian Museum of Nature. In addition to studying Arctic plants and Poaceae, she has worked on the systematics of Euphorbiaceae worldwide, including in Madagascar. She collected all known specimens of this species, either alone or as leader of a team of botanists.

**DISTRIBUTION AND HABITAT**. — Endemic to Madagascar (Diana). Dry deciduous forest. On sandstone. Altitudinal range 200-300 m (Fig. 32).

**PRELIMINARY CONSERVATION ASSESSMENT**. — *Acalypha gillespieae* is known from three collections from the same locality and appears to be a narrow endemic known only from Montagne des Français. Montagne des Français has been relatively well collected (P. Lowry *pers. comm.*), so the dearth of collections suggests this species is rare, even there. Its apparent rarity could also, at least in part, reflect it being quite inconspicuous and thus easily overlooked. The EOO could not be calculated, and its AOO is estimated to be 8 km<sup>2</sup>. Montagne des Français is a category V protected area (Dudley 2008), but the habitat is somewhat threatened by wood-cutting, primarily for charcoal, but mainly on its lower slopes, below the altitude where *A. gillespieae* is found. *Acalypha gillespieae* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii,iv).



MATERIAL EXAMINED. — 3 collections. **Madagascar:** *Gillespie*, L. 4097 (ILLS, MO, P[P00324524], TAN), 10692 (CAN, MO, P, TAN), 10693 (CAN, K, MO, P, TAN).

#### DESCRIPTION

Shrubs, deciduous, to 3 m tall, intricately branched, monoecious. **Branches** densely pubescent with simple, short, straight, antrorsely appressed trichomes proximally and antrorsely curved trichomes distally, glabrescent when mature. **Axillary buds** spherical, c. 2 mm diameter, perulate, perules 2, imbricate, chartaceous, brownish, glabrous. **Stipules** to 2-3.5 mm long, subulate, densely pubescent with simple, short, spreading-ascending trichomes. **Petioles** slender, 2-5 mm long, densely pubescent with simple, curved, antrorse trichomes. **Leaf blades** 1.5-4 × 1-3 cm, elliptic to obovate, membranous, unlobed or (2-)3-lobed; **base** rounded to broadly obtuse; **apex** obtuse; **margin** crenate, teeth rounded; **upper surface** sparsely pubescent with simple, straight, erect to antrorse trichomes; **lower surface** indumentum similar to that on upper surface but denser; venation somewhat prominent on both surfaces, actinodromous, basal veins 3, secondary veins 2-3 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, c. 1 cm long, mostly male with 1 female bract at base; peduncle thin, 2-3 mm long, it and rachis densely pubescent with curved, antrorse trichomes. **Female segment: bract** 1, sessile, enlarging in fruit to 5 × 9 mm, subreniform, sparsely pubescent with simple, straight, antrorse trichomes; margin entire; **bracteoles** absent. **Male segment** persistent, to 3.5 mm long; flowers glomerate; bracts to 0.3 mm long, triangular, densely pubescent with simple, slender, flexuous trichomes. **Male flowers:** pedicel to 0.4 mm, glabrous; buds not seen. **Female flowers** 1 per bract, sessile; **sepals** 3, c. 0.75 mm long, rounded-deltate, ciliate with simple, slender, flexuous trichomes to 0.5 mm long; **ovary** not seen; **styles** 3, c. 2 mm long, slightly connate at base, rachis stout, pubescent with simple, short, straight, antrorse trichomes, each style divided into 5-8 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, echinate, projections conical, to 0.75 mm long, surface hispid with simple, straight, erect to antrorse trichomes to 0.5 mm long. **Seeds** 2 × 1.5 mm, pyriform, smooth.

#### 18. *Acalypha gracilipes* Baill.

*Adansonia*, *recueil d'observations botaniques* 1: 273 (Baillon 1861). — *Acalypha commersoniana* var. *gracilipes* (Baill.) Müll.Arg., *Prodrromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — *Acalypha integrifolia* var. *gracilipes* (Baill.) Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 106 (Pax & Hoffmann 1924). — Type: **Madagascar**. s.l., s.d., *P. Commerson s.n.* (holo-, P[P04022747]).

*Acalypha reticulata* var. *cloiselana* Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 266 (Leandri 1942). — Type: **Madagascar**. s.l., s.d., *P. Commerson s.n.* (lecto-, designated by Montero Muñoz *et al.* [2018a: 98]: P[P00513166]). — Former syntypes: **Madagascar**. Prov. Toamasina, Fénériver, *H. Perrier de la Bathie* 9707 (P[P00513169]); Prov. Toliara, Fort Dauphin, *J. Cloisel* 156 (P[P00513165]); Forêt de Manantantely,



FIG. 32. — Distribution map of *Acalypha gillespieae* G.A.Levin & I.Montero in Madagascar.

*H. Humbert* 5835 (P[P00513167, P00513168]); Fort Dauphin, *G. F. Scott-Elliot* 2493 (P[P00513171]); s.l., s.d., *R. Baron* 5980 (P[P00513164]); *R. Baron* 6420 (P[P00324562]).

*Acalypha cloiselana* Denis ex Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 266 (Leandri 1942) *nom. nud.* as synonym of *A. reticulata* var. *cloiselana* Leandri.

*Acalypha commersonii* Baill. ex Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 266 (Leandri 1942) *nom. nud.* as synonym of *A. reticulata* var. *cloiselana* Leandri.

ICONOGRAPHY. — Leandri (1942: 267); Fig. 35F.

ETYMOLOGY. — The epithet is taken from the Latin words ‘*gracilis*’, slender or delicate; and ‘*pes*’, foot. It probably refers to the slender and flexuous branches of this species.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Analajirofo, Alaotra-Mangoro, Atsinanana, Vatovavy-Fitovinany, Atsimo-Atsinanana, and Anosy). Littoral forest. On sandstone and unconsolidated sand. Altitudinal range (3-) 10-400 m (Fig. 33).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha gracilipes* is estimated to be 33 167 km<sup>2</sup>, close to the threshold of the B1 subcriterion of the Vulnerable category, and its AOO 64 km<sup>2</sup>,



FIG. 33. — Distribution map of *Acalypha gracilipes* Baill. in Madagascar.

which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in littoral forests on sand. Due to their low elevation and subsequent easy accessibility, littoral forests are under constant pressure and are regarded as the most threatened vegetation zone in Madagascar (Bollen & Donati 2006; Andriamandimbarisoa *et al.* 2015). This species has been collected in some protected areas, but it is also known from several unprotected forests subject to constant pressure. We predict that ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha gracilipes* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

**MATERIAL EXAMINED.** — 29 collections. **Madagascar:** *Baron*, R. 1391 (K), 5980 (P[P00513164]), 6420 (P[P00324562]); *Commerson*, P. s.n. (P[P00513166]), s.n. (P[P04022747]), s.n. (P[P05604465]); *Dorr*, L.J. 4463 (K, MO, P[P00508455]); *Dumetz*, N. 764 (MO[MO-2965758], P[P04779867]); *Faliniaina*, L. 9 (K, MO); *Hoffmann*, P. 279 (K); *Humbert*, H. 5835 (P[P00513167, P00513168]); *Jussieu*, A. s.n. (P[P04804753]); *Leandri*, J. 4296 (P[P04804743]); *McPherson*, G. 14325 (MO[MO-2965762]), s.n. (P[P04804702]); *Miller*, J.S. 10464 (K, MO[MO-2966182], P[P05547263]); *Perrier de la Bâthie*, H. 9707 (P[P00513169]); *Rabenantoandro*, J. 1553 (P[P05481907]), 1580 (MO[MO-3025022], P[P05481889]); *Rabevohitra*, R. 2054 (MO[MO-2965759]); *Raha-*

*rimampionona*, J. 38 (P[P05481876]); *Rajeriarison*, Ch. EUPH-26 (P[P04804488]); *Ratovoson*, F. 1752 (MAUAM, MO[MO-2966280], P, TAN), 1941 (MAUAM, MO[MO-2966287], TAN); *Razakamalala*, R. 6897 (MO[MO-2965737], TAN); *Rogers*, Z.S. 901 (MO[MO-2965730], P, TAN); *Schatz*, G.E. 2745 (K, P[P00508422]), 3436 (K, MO[MO-2966191], P[P00508420]); *Scott-Elliot*, G.F. 2493 (K, P[P00513171]).

**REFERENCES.** — Müller Argoviensis (1866: 850) as *A. commersoniana* var. *gracilipes*; Baillon (1892: 1004); Palacký (1907: 25); Pax & Hoffmann (1924: 106) as *A. integrifolia* var. *gracilipes*; Govaerts *et al.* (2000: 69, 100); Montero Muñoz *et al.* (2018a: 98).

#### DESCRIPTION

Sprawling shrubs, leaf persistence unknown, to 4 m tall, monoecious. **Branches** flexuous, glabrous. **Axillary buds** spherical, to 0.5 mm diameter, perulate, perules 2, valvate, membranous, glabrous, light brown, margin with some sessile glands. **Stipules** to 1.2 mm long, triangular, slightly fleshy, sparsely hairy, margin papillate. **Petioles** canaliculate, (0.4-)0.7-1.4(-1.7) cm long, glabrous. **Leaf blades** (4-)5-7(-7.5) × 1.5-2 cm, elliptic-lanceolate, chartaceous; **base** acute to cuneate; **apex** acuminate, acumen to 1.3 mm long, rounded to subacute, mucronate; **margin** crenate-serrate to subentire, slightly revolute, sometimes reddish, teeth obtuse; **upper and lower surfaces** glabrous; venation pinnate, secondary veins 5-7 per side. **Stipels** absent. **Inflorescences** spiciform, axillary, androgynous and male. **Androgynous inflorescences** to 5 cm long, mostly male with 1 female bract; sessile; rachis glabrous. **Female segment:** **bract** 1, sessile, enlarging in fruit to 3 × 4 mm, reniform, glabrous; margin dentate, slightly thickened, teeth *c.* 10, rounded, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 4.5 cm long; flowers glomerate; **bracts** to 0.7 mm long, triangular-lanceolate, sparsely hairy with some simple, short trichomes at apex. **Male inflorescences** filiform, to 10 cm long; peduncle to 7 mm long, glabrous; bracts and bracteoles like those on androgynous inflorescences. **Male flowers:** pedicel to 0.5 mm long, glabrous; buds to 0.5 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, glabrous; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae to 0.5 mm long, ending in simple, short trichome, surface glabrous; **styles** 3, to 5 mm long, slightly connate at base, rachis thick, glabrous, each divided into *c.* 15 segments. **Allomorphic flowers** not seen. **Capsules** to 2 mm diameter (immature), papillose-hispid, papillae to 0.5 mm long ending in simple, short trichome, surface glabrous. **Seeds** too young to describe.

#### NOTES

1) *Acalypha gracilipes* has been usually treated as a variety of *A. integrifolia* (or its synonym, *A. commersoniana* Baill. ex Müll. Arg.) or as a variety of *A. reticulata* (for which the correct name is *A. filiformis*), both of which are endemics of Mascarene Islands, but *A. gracilipes* can be clearly distinguished from these species by its denticulate female bracts and glabrous ovary and capsule surfaces, vs entire female bracts and hairy ovary and capsule surfaces in *A. filiformis* and *A. integrifolia*; 2) *Acalypha gracilipes* can be distinguished from both *A. urophylla* and



*A. pervilleana* mainly by its glabrous leaves with crenate to subdentate margins and obtuse to subacute apices, glabrous female bracts, and papillose-hispid and glabrous ovaries vs pubescent leaves with serrate margins and acuminate (*A. urophylla*) or usually caudate (*A. pervilleana*) apex, pubescent female bracts, and hispidulous ovaries with long papillae. In addition, the female bracts of *A. pervilleana* have a prominent central tooth, which is absent in both *A. gracilipes* and *A. urophylla*; and 3) Leandri (1942) included the collection *H. Perrier de la Bâthie* 9746 as *Acalypha reticulata* var. *cloiselana* Leandri, which we treat as a synonym of *A. gracilipes*; however, the specimen of this collection in P (P00513170) corresponds to *A. urophylla*.

### 19. *Acalypha hispida* Burm.f.

*Flora Indica* 303, pl. 61, f. 1 (Burman 1768). — *Ricinocarpus hispidus* (Burm.f.) Kuntze, *Revisio Generum Plantarum* 2: 618 (Kuntze 1891). — Type: **Habitat in India**. Burman 1768: 302, table 61.

ICONOGRAPHY. — André (1898: 227); Hooker (1899: t. 7632).

ETYMOLOGY. — The epithet refers to the long and lacinate styles of the pistillate inflorescence according Sagun *et al.* (2010), or perhaps to the hispid surface of the ovary.

DISTRIBUTION AND HABITAT. — Cultivated species in Madagascar (Anosy) and Seychelles (Mahé) (Fig. 34).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha hispida* is widely cultivated in warm areas worldwide and not known in the wild; it sometimes escapes and is found along forest edges and roads. We assess *A. hispida* as Least Concern (LC).

MATERIAL EXAMINED. — 3 collections. **Madagascar**. *Seligson, D.* 652 (GH[GH01097235]). **Seychelles**. *Hein, G.* 10 (GH[GH01097236]); *Jeffrey, C.* 599 (K).

REFERENCES. — Bojer (1837: 25); Baillon (1861: 274); Palacký (1907: 25); Robertson (1989: 199); Montero Muñoz *et al.* (2018a: 99).

#### DESCRIPTION

Shrubs or subshrubs, probably evergreen, to 4 m tall, possibly dioecious, only female plants known. **Branches** tomentose and short-hispid, glabrescent when mature. **Axillary buds** naked, densely pubescent with simple, short trichomes. **Stipules** to 1 cm long, triangular-lanceolate, appressed-pubescent. **Petioles** (2-)4-11 cm long, indumentum similar to that on young branches, glabrescent. **Leaf blades** not variegated, (8-)10-17(-19) × (5.5-)7-10(-13) cm, usually ovate to elliptic-lanceolate, sometimes subrhombic, membranous; **base** usually rounded, sometimes subcuneate to subcordate; **apex** acute to subacuminate, acumen to 5 mm long, obtuse, mucronate; **margin** serrate to crenate-serrate, teeth acute or obtuse, sometimes slightly callose-edged; **upper and lower surfaces** subglabrous, with some sparse, simple trichomes on veins; venation actinodromous, basal veins 5 or 7, secondary veins 7-9 per side. **Stipels** absent. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** unknown. **Female inflorescences** pendulous, densely flowered, to 40 cm long; peduncle to 30 mm long, pubescent with simple, curved trichomes; **bracts** numerous, sessile, not enlarging in fruit,

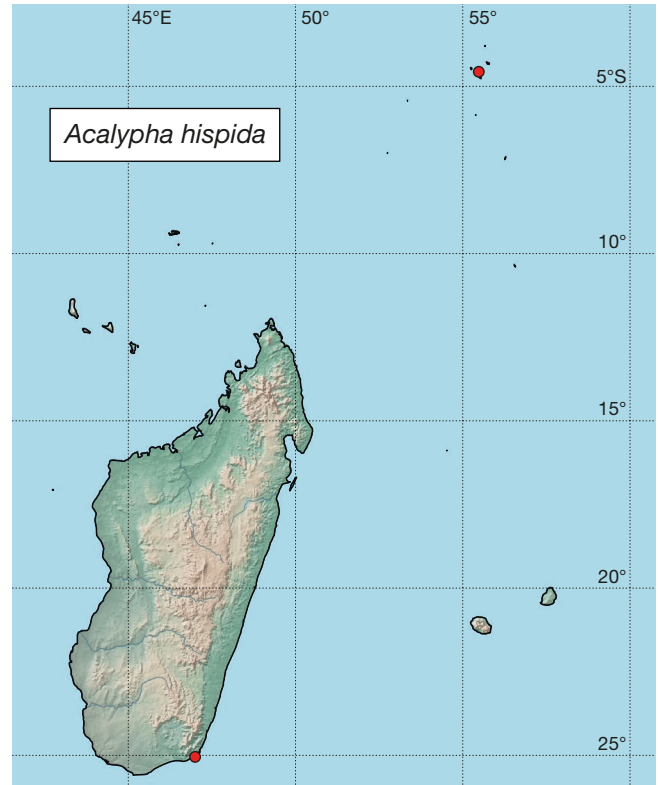


FIG. 34. — Distribution map of *Acalypha hispida* Burm.f. in Madagascar and Seychelles.

to 1 mm long, elliptic-lanceolate, sparsely hairy and ciliate; margin entire; **bracteoles** absent. **Male flowers** unknown. **Female flowers** 4-6 per bract, sessile; **sepals** 3-4, to 1 mm long, triangular-lanceolate, ciliate; **ovary** *c.* 1 mm diameter, 3-lobed, smooth, surface densely hispid; **styles** 3, to 8 mm long, distinct, glabrous, each divided into 6-16 segments. **Allomorphic flowers** not seen. **Capsules** and **seeds** not seen.

#### NOTE

This shrub, native to Melanesia or Malesia (Sagun *et al.* 2010), is frequent in gardens throughout the tropics and rarely appears naturalized. As all plants are pistillate, it can only reproduce clonally. We found collections from Madagascar and Seychelles where it is cultivated. It has been reported from Madagascar (Palacký 1907), Mauritius (Bojer 1837; Baillon 1861), La Réunion (Baillon 1861: 274) and the Seychelles (Robertson 1989).

### 20. *Acalypha humbertii* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 274 (Leandri 1942). — Type: **Madagascar**. Prov. Toliara, vallées du Mangoky et de l'Isahaina, aux environs de Beroroha, 200 m, X.1933, *H. Humbert* 11289 (lecto-, designated by Montero Muñoz *et al.* [2018a: 99]: P[P00508400]; isolecto-, P[P00508399]). — Former syntypes: **Madagascar**. Prov. Toliara, Bassin supérieur de Mandrare du Sud-Est, entre le col de Vavara et la vallée de la Manambolo, 700-1200 m, 20-22.XII.1928, *H. Humbert* 6758 (P[P00508401, P00508402, P00508403, P00508404]).

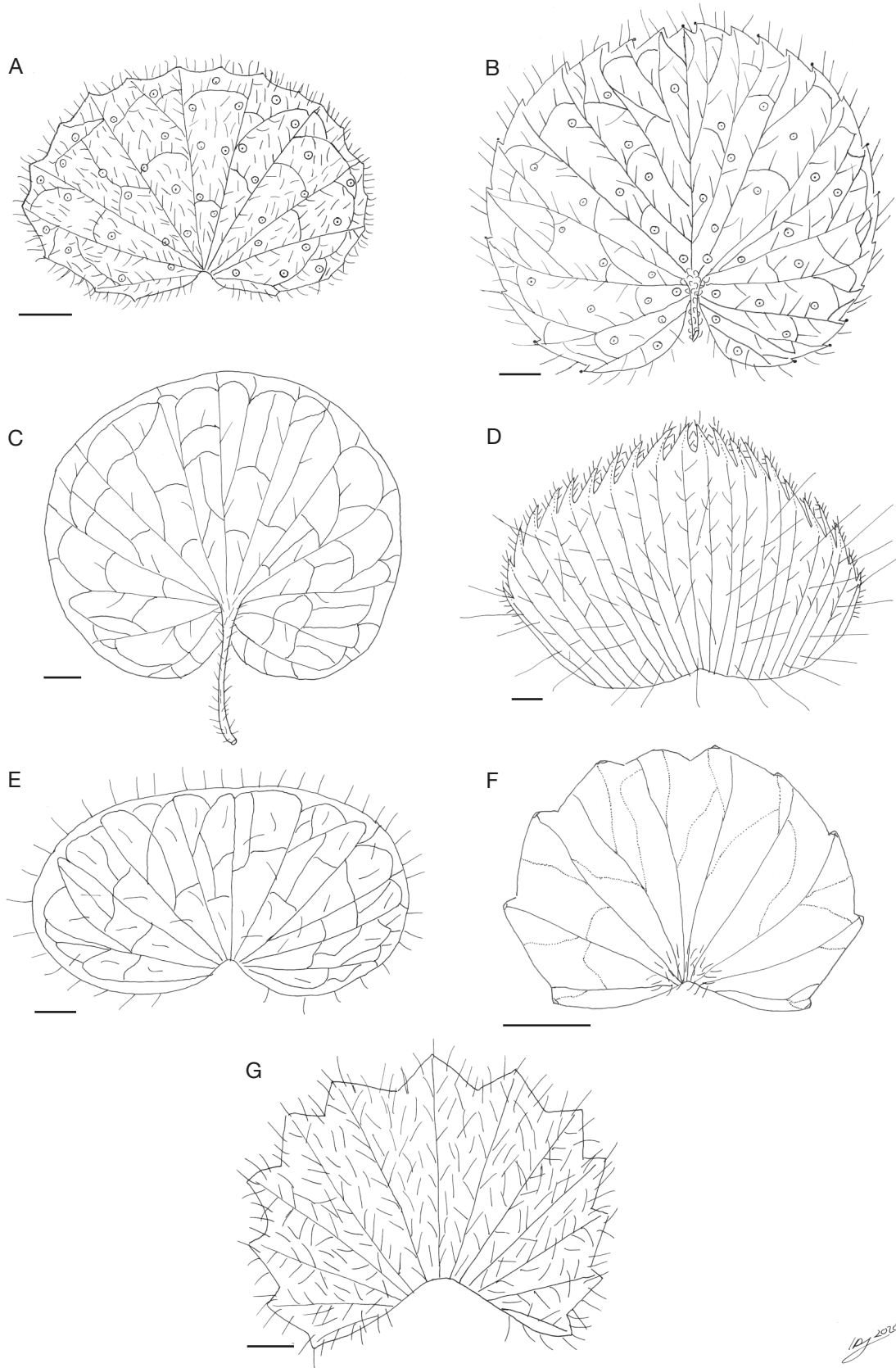


FIG. 35. — Mature female bracts: **A**, *Acalypha decaryana* Leandri (R. Decary 2985); **B**, *A. emirimensis* Baill. (G. McPherson 14590); **C**, *A. filiformis* Poir. (P. Com-merson s.n.); **D**, *A. fimbriata* Schumach. & Thonn. (J. Audru 40466); **E**, *A. gillespieae* G.A.Levin & I.Montero (L. Gillespie et al. 10692); **F**, *A. gracilipes* Baill. (R. Rabevohitra 2054); **G**, *A. humbertii* Leandri (W. Kaudern 222). Illustration by Iris Montero Muñoz. Scale bars: A, C-G, 1 mm; B, 2 mm.



ICONOGRAPHY. — Fig. 35G.

ETYMOLOGY. — The epithet honors French botanist Henri [Jean-Henri] Humbert (1887-1967).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Menabe, Atsimo-Andrefana, Androy, and Anosy). Dry deciduous forest and dry spiny thickets. On basement rocks and sandstone. Altitudinal range (50-) 200-800 (-1000) m (Fig. 36).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha humbertii* is estimated to be 37 244 km<sup>2</sup> and its AOO 20 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in dry deciduous forest and spiny thickets (see assessment in *A. decaryana*). The remaining original vegetation is still decreasing. Due to its small AOO, the small number of locations (5), and ongoing habitat loss, *Acalypha humbertii* is assessed as Endangered: EN B2ab(ii,iii,iv).

MATERIAL EXAMINED. — 11 collections. **Madagascar:** *Bosser, M.J.* 10234 (P[P00324559]); *Decary, R.* 15637 (P[P00324536, P05510104]); *Humbert, H.* 6758 (P[P00508401, P00508402, P00508403, P00508404]), 11289 (P[P00508399, P00508400]); *Jongkind, C.C.H.* 3708 (MO, TAN, WAG[WAG.1578689]); *Kaudern, W.* 222 (S[S17-37631]), 289 (S[S17-37632]); *Leandri, J.* 3532 (P[P00324507, P05543682]), 3535 (P[P05547075]), 3882 (P[P00324510]), 3900 (P[P00324511, P05543681]).

REFERENCES. — Govaerts *et al.* (2000: 67); Montero Muñoz *et al.* (2018a: 99).

#### DESCRIPTION

Shrubs, deciduous, to 1.5 m tall, highly divaricately branched, monoecious. **Branches** densely pubescent to subvelutinous, glabrescent when mature. **Axillary buds** subfusiform, to 4 × 2 mm, perulate, perules 2, imbricate, chartaceous, dark brown, glabrous. **Stipules** to 3 mm long, linear, densely pubescent. **Petioles** 0.5-1.5 long, indumentum similar to that on young branches. **Leaf blades** 2.4-3.7 × 1.4-2.6 cm, ovate-lanceolate to elliptic-lanceolate, subchartaceous; **base** rounded to subacute; **apex** rounded to subacuminate, acumen to 2 mm long, rounded; **margin** crenate-serrate, teeth rounded, callose-edged; **upper and lower surfaces** velutinous with simple, short trichomes; venation actinodromous, basal veins 3, secondary veins 4-5 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 3 cm long, mostly male with 1 female bract at base; peduncle to 5 mm long, it and rachis pubescent with simple, short trichomes. **Female segment: bract** 1, sessile, enlarging in fruit to 6 × 8 mm, reniform, pubescent with simple, short trichomes; margin subentire to irregularly dentate, teeth *c.* 13, triangular, central tooth not prominent; **bracteoles** to 0.8 mm long, oblong-lanceolate, sparsely hairy. **Male segment** persistent, to 1.8 cm long; flowers glomerate; **bracts** to 0.5 mm long, triangular, sparsely hairy. **Male flowers:** pedicel to 0.6 mm long, sparsely hairy; buds not seen. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.7 mm long, ovate-lanceolate, ciliate; **ovary** *c.* 1 mm diameter, 3-lobed, echinate, projections linear, to 1.5 mm long, surface hispid with simple, rigid trichomes; **styles** 3, to 3.5 mm long, connate at base, sparsely hairy with simple, long, appressed trichomes at rachis, each divided into *c.* 8 segments. **Allomorphic flowers** not seen. **Capsules** to 2.5 mm diameter, echinate, projections linear, to 1.5 mm long, surface hispid with simple, rigid trichomes. **Seeds** *c.* 1.5 × 1.2 mm, pyriform, minutely foveolate.



FIG. 36. — Distribution map of *Acalypha humbertii* Leandri in Madagascar.

#### 21. *Acalypha indica* L.

*Species Plantarum* 2: 1003 (Linnaeus 1753). — Type: **India**. s.l., s.d., *Herb. Hermann* 3: 2, 434. (lecto-, designated by Radcliffe-Smith [1986: 65]; BM[BM000621782]; isolecto-, BM[BM000621236]).

ICONOGRAPHY. — Rheede tot Drakestein (1692: t. 81); Anonymous (1694-1718: t. 215); Kirtikar & Basu (1918: t. 874); Fig. 46A.

ETYMOLOGY. — The epithet refers to India, the locality of the type collection.

DISTRIBUTION AND HABITAT. — *Acalypha indica* is widely distributed in the Paleotropics and introduced in the Americas (Cardiel *et al.* 2023 in press); it probably is introduced in Madagascar (Diana, Analamanga, and Ihorombe), the Comoros Archipelago (Anjouan, Moheli and Mayotte), the Mascarene Islands (Mauritius and La Réunion), the Seychelles (Inner and Outer islands), and the Scattered Islands (Glorioso Islands). It is a weedy species associated with cultivated areas, paths, and beaches. Altitudinal range sea level to 450 m (Fig. 37).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha indica* is widely distributed in the Paleotropics; it has a large EOO and AOO, exceeding the threshold of any threat category. Therefore, we assess *A. indica* as Least Concern (LC).

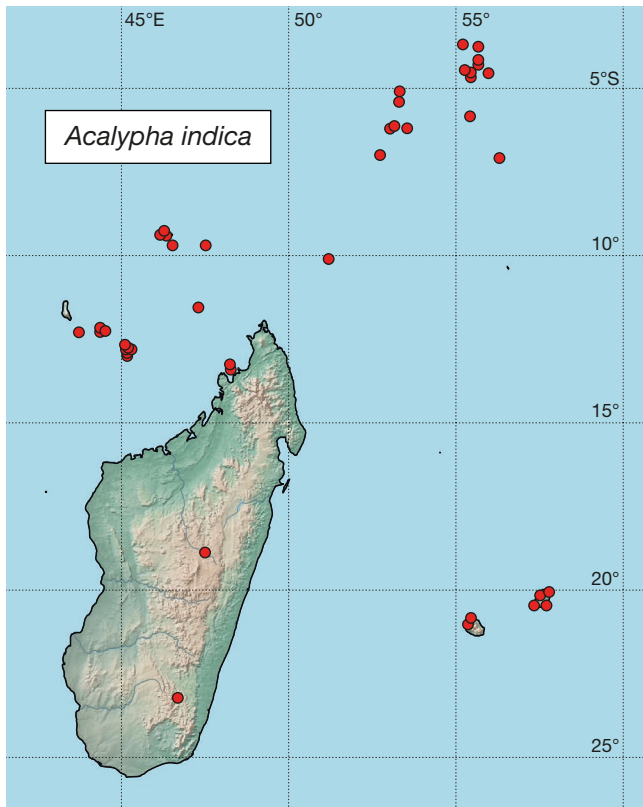


Fig. 37. — Distribution map of *Acalypha indica* L. in the whole WIOR region.

**MATERIAL EXAMINED.** — 94 collections. **Comoros Archipelago:** *Barthelat*, F. 113 (K, G, MAO, MO[MO-2966222], P[P00229090]), 170 (G, K, MAO, MO[MO-2966225], P[P00229156]); *Boivin*, L.H. s.n. (P[P00196285]), s.n. (P[P00196286]), s.n. (P[P00196287]); *D'Arcy*, W.G. 17553 (MO[MO-2966220]); *Floret*, J.J. 1196 (P[P00184951]), 1197 (P[P00184952]); *Hildebrandt*, J.M. 1660 (P[P00196289]); *Hoffmann*, P. 413 (K, MAO, MO[MO-2966227], P[P00538301], TAN); *Labat*, J.-N. 3314 (P[P00209769]); *Lartigau*, C. 19 (P[P00246081]); *Pignal*, M. 1075 (P[P00157183]); *Pobéguin*, C.H.O. 14 (P[P00196234, P00196235]); *Rakotozafy*, A. 1194 (P[P05547071]); *Rouhan*, G. 33 (P[P00205950]); *Waterlot*, M. 884 (P[P00196290]). **Madagascar.** *Bosser*, M.J. 13231 (P[P04779813]); *d'Alleizette*, Ch. 1240 M (P[P00508397]); *Debray*, M.M. 1584-D (P[P04779834, P04779835]); *Hildebrandt*, J.M. 2915 (BREM[BREM\_0001791], G, L[L0241703], P[P00508393, P00508394, P00508395, P00508396]); *Humblot*, L. 18 (P[P00508392]); *Perrier de la Bâthie*, H. 9592 (P[P00508391]); *Pervillé*, A. 729 (P[P00508390]); *Rotereau*, L. s.n. (P[P05510099]); *Viguié*, R. 104 (P[P00508389, P05481896]). **Mauritius.** *Anonymous* s.n. (G[G00324726]); *Ayres*, P. 62 (K); *Bonnay*, M. s.n. (P[P04779496]); *Bouton*, L. 22 (P[P04779493]); s.n. (G[G00324716]), s.n. (G[G00324720]); *Commerson*, P. 649 (L[L0241705]), 651 (P[P04779489]); *Coode*, M.J.E. 4423 (K); *Cowper*, S.G. 59 (K); *Guého*, J. 17350 (K); *Hering?* s.n. (P[P04779502]); *Jussieu*, A. s.n. (P[P04779495]); *Lorence*, D. 1339 (MO[MO-2966226]). **La Réunion.** *Anonymous* s.n. (P[P04779504]); *Boivin*, L.H. 1389 (P[P04779494]); *Bosser*, M.J. 9389 (P[P04779491, P04779492]); *Commerson*, P. s.n. (P[P04779488]); *Desvaux*, A.N. 10 (P[P04779503]); *du Petit-Thouars*, L.M.A. s.n. (P[P04779499]), s.n. (P[P04779500]); *Friedmann*, F. 1585 (P[P04779501]); *Richard*, M. 667 (GH, P[P04779498]), s.n. (P[P04779490]), s.n. (P[P04779497]). **Scattered Islands.** *Frazier*, J. 105 (US[US01287375]). **Seychelles.** *Alluaud*, R. s.n. (GH, P[P04779487]); *Anonymous* s.n. (P[P04779486]); *Blackmore*, S.B. 77407 (K); *Brunet* 035 (K); *Cherbon-*

*nier* s.n. (P[P04779829]); *Fosberg*, F.R. 48688 (GH[GH01097240], MO[MO-2966229], NY[NY3091187], US[US01287383]), 49844 (MO[MO-2966224]), 52070 (MO[MO-2966230], US[US01287382]); *Frazier*, J. 30 (K), 513 (US[US01287374]), 802 (US[US01287373]); *Friedmann*, F. 3545 (P[P00887492]), 4673 (P[P00887491]); *Gardiner*, J.S. 9 (K), 27 (K), 143 (K); *Gwynne* 874 (K); *Hebert*, H. I. 103 (GH[GH01097241]); *Horne*, J. 312 (K); *Jeffrey*, C. 709 (L[L0241693], NY, P[P00887490]); *Lombard*, M. 408 (K); *Procter*, J. 4045 (K), 4224 (K), 4322 (K), 4347 (K); *Renvoize*, S. A. 721 (BR[BR0000014627996], L[L0241691], P[P05481874]), 1151 (BR[BR0000014628009], P[P05481873]), 1155 (BR[BR0000014624612], L[L0241251, L0241252]); *Robertson*, S.A. 2443 (MO[MO-2966228], PRE, US[US01287372], WAG[WAG.1931643]), 2494 (K), 2716 (K), 3044 (K); 3146 (K); *Rotereau*, L. s.n. (P[P05510098]); *Stodd*, D.R. 1382 (K), 1459 (K); *Stoddart*, D.R. 7082 (MO[MO-2966221], NY[NY3091188]); *Wood*, D. 1452 (K), 1469 (K); *Wright*, P.A. 16 (K), 25 (K).

**REFERENCES.** — Bojer (1837: 285); Baillon (1861: 274); Müller Argoviensis (1865: 42; 1866: 868); Baker (1877: 314); Müller Argoviensis (1882: 27); Baillon (1895b: 1197); Cordemoy (1895: 342); Palacký (1907: 25); Voeltzkow (1917: 447); Hemsley (1919: 148); Pax & Hoffmann (1924: 33); Leandri (1935: 43); Leandri (1942: 256); Renvoize (1975: 152); Coode (1982: 69, 78); Robertson (1989: 200); Govaerts *et al.* (2000: 68); Sagun *et al.* (2006: 124); Montero Muñoz *et al.* (2018a: 99).

**DESCRIPTION**

Annual herbs, to 0.6(-0.8) m tall, monoecious. **Branches** tomentose to laxly pubescent with simple, curved trichomes, sometimes also with sparse short, subsessile, glandular trichomes, glabrescent when mature. **Axillary buds** naked, pubescent with simple, short, appressed trichomes. **Stipules** to 1 mm long, triangular-lanceolate, margin hispidulous-ciliate and with some sessile glands. **Petioles** slender, (1.5-)2.5-6.5 cm long, indumentum similar to that on young branches. **Leaf blades** (1.5-)2-4(-6) × (1-)1.5-3(-3.5) cm, usually broadly ovate-lanceolate, sometimes spatulate or subrhombic, membranous; **base** cuneate; **apex** acute to subacuminate; **margin** entire toward base, serrate above, teeth subacute, callose-edged; **upper surface** subglabrous, with simple, short, appressed trichomes on veins; **lower surface** laxly pubescent to subglabrous; venation actinodromous, basal veins 3 or 5, secondary veins 4-5 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 9 cm long, mostly female with short male segment; peduncle to 10 mm long, pubescent with simple trichomes, sometimes also with some subsessile glandular trichomes. **Female segment** laxly flowered, to 8 cm long; **bracts** 7-9, sessile, enlarging in fruit to 8 × 12 mm, reniform, sparsely hairy with simple, curved trichomes; margin crenate-denticulate, teeth 8-9, broadly triangular, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 1.5 cm long; flowers glomerate; **bracts** to 0.8 mm long, elliptic-lanceolate, sparsely hairy. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds 0.5 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular-lanceolate, ciliate; **ovary** c. 0.5 mm diameter, 3-lobed, smooth, surface pubescent; **styles** 3, to 4 mm long, distinct, glabrous, each divided into 1-2 segments. **Allomorphic flowers** sometimes present at inflorescence apex; pedicel filiform, to 5 mm long, sparsely hairy; sepals 3, to 0.5 mm long, lanceolate, ciliate; ovary 1-lobed, to



2 × 3 mm, pubescent, distally fimbriate; style 1, to 1.5 mm long, glabrous. **Capsules** to 2 mm diameter, smooth, surface pubescent. **Seeds** c. 1.5 × 1 mm, pyriform, minutely foveolate.

## 22. *Acalypha integrifolia* Willd.

*Species Plantarum* 4 (1): 530 (Willdenow 1805). — Type: **Mauritius**. s.l., s.d., *Anonymous*, s.n. (lecto-, designated by Coode [1978: 39]: B[B-W17834-020]).

*Tragia colorata* Poir., *Encyclopédie méthodique. Botanique* 7: 725 (Poirét 1806). — *Acalypha colorata* (Poir.) Spreng., *Systema vegetabilium* 3: 879 (Sprengel 1826). — *Acalypha commersoniana* var. *obtusifolia* f. *colorata* (Poir.) Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — *Acalypha integrifolia* var. *colorata* (Poir.) Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 106 (Pax & Hoffmann 1924). — Type: **Mauritius**. “Cette plante croît dans les indes orientales & à l’Île de France”, s.l. s.d., *P. Commerson s.n.* (holo-, P-LAM[P00382140]).

*Acalypha reticulata* var. *longifolia* Müll.Arg., *Linnaea* 34: 32 (Müller Argoviensis 1865). — *Acalypha integrifolia* var. *longifolia* (Müll.Arg.) Coode, *Kew Bulletin* 34: 41 (Coode 1979). — Type: **Mauritius**. s.l., s.d., *L. Bouton s.n.* (holo-, GDC[G00324522]).

*Acalypha reticulata* var. *longifolia* f. *aberrans* Müll.Arg., *Linnaea* 34: 32 (Müller Argoviensis 1865). — Type: **Mauritius**. “In sylvis Mauritiis”, 1833, *W. Bojer s.n.* (holo-, GDC[G00324521]).

*Acalypha commersoniana* Baill. ex Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 849 (Müller Argoviensis 1866). — *Acalypha commersoniana* var. *brevifolia* Baill. ex Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — Type: **Mauritius**. “Cum var. praecedentibus”, s.d., *Anonymous*, s.n. (*Hb. Willd. fol. 17834 page 1*) (lecto-, designated by Montero Muñoz *et al.* [2018a: 100]: B[B-W17834-010]). — Former syntypes: **Mauritius**. s.l., s.d., *L. Bouton s.n.* GDC[G00324543].

*Acalypha commersoniana* var. *acutifolia* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 849 (Müller Argoviensis 1866). — *Acalypha commersoniana* var. *acutifolia* f. *purpurea* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 849 (Müller Argoviensis 1866). — Type: **Mauritius**. s.l., s.d., *F. W. Sieber 181 pr. p.* (lecto-, designated by Montero Muñoz *et al.* [2018a: 100]: GDC[G00324550]). — Former syntype: **Mauritius**. s.l., s.d., *L. Bouton s.n.* GDC[G00324559].

*Acalypha commersoniana* var. *acutifolia* f. *purpureo-marginata* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 849 (Müller Argoviensis 1866). — Type: **Mauritius**. s.l., s.d., *Hb. Boiss. s.n.* (holo-, GDC[G00324557]); iso-, K[K000431097].

*Acalypha commersoniana* var. *acutifolia* f. *concolor* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 849 (Müller Argoviensis 1866). — *Acalypha integrifolia* var. *concolor* (Müll.Arg.) Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 106 (Pax & Hoffmann 1924). — Type: **Mauritius**. “Cum form. praecedentibus”, s.d., *J. B. G. M. Bory s.n.* (lecto-, designated by Montero Muñoz *et al.* [2018a: 100]: GDC[G00324554]). — Former syntype: **Mauritius**. s.l., s.d., *F. W. Sieber 182* GDC[G00324556].

*Acalypha commersoniana* var. *longifolia* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — Type: **Mauritius**. s.l., s.d., *L. Bouton s.n.* (lecto-, designated by Montero Muñoz *et al.* [2018a: 101]: GDC[G00324553]; isolecto-, GDC[G00324551, G00324552], K[K000431101]).

*Acalypha commersoniana* var. *parvifolia* Baill. ex Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — *Acalypha integrifolia* var. *parvifolia* (Baill. ex Müll.Arg.) Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 106 (Pax & Hoffmann 1924). — Type: **Mauritius**. “Cum var. praecedentibus”, s.d., *F. W. Sieber 369 pr.p.* (holo-, GDC[G00324538]).

*Acalypha commersoniana* var. *obtusifolia* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — *Acalypha commersoniana* var. *obtusifolia* f. *discolor* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — Type: **Mauritius**. “Cum praecedentibus”, s.d., *F. W. Sieber 181 pr. p.* (holo-, GDC[G00324558]).

*Acalypha commersoniana* var. *obtusifolia* f. *unicolor* Müll.Arg., *Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 850 (Müller Argoviensis 1866). — Type: **Mauritius**. s.l., s.d., *F. W. Sieber 178* (holo-, GDC[G00324539]); iso-, P[P04779345, P04780015].

*Acalypha discolor* Bojer, *Hortus Mauritianus* 286 (Bojer 1837) *nom. nud.*

*Tragia macrophylla* Wall., *A Numerical List of dried specimens of plants in the East India Company’s Museum* n. 7796 (Wallich 1847) *nom. nud.*

*Tragia lobata* Wall., *A Numerical List of dried specimens of plants in the East India Company’s Museum* n. 7796 (Wallich 1847) *nom. nud.*

*Acalypha commersoniana* Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

*Acalypha commersoniana* var. *concolor* Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

*Acalypha commersoniana* var. *discolor* Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

*Acalypha commersoniana* var. *parvifolia* Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

*Caturus sessilis* Thouars ex Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

*Tragia fruticosa* Commers. ex Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

*Tragia obtusata* Vahl. ex Baill., *Adansonia, recueil d’observations botaniques* 1: 267 (Baillon 1861) *nom. nud.*

ICONOGRAPHY. — Figs 38; 46B; 54A, B.

ETYMOLOGY. — The epithet refers to the entire leaf margins.

DISTRIBUTION AND HABITAT. — Endemic to Mascarene Islands (Mauritius and La Réunion). In Mauritius, in lowland evergreen moist forest, dry forest, and grasslands. In La Réunion in lowland evergreen moist forest. Altitudinal range in Mauritius (150-) 200-700 m and in La Réunion (150-) 380-1300 m (Fig. 39).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha integrifolia* is known from Mauritius and La Réunion. Its EOO is estimated to be 9 004.818 km<sup>2</sup> and its AOO 80.000 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. For the status of forests on Mauritius forests, see the assessment of *A. crateriana* comb. nov., for those on La Réunion, see the assessment of *A. filiformis*. Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha integrifolia* is assessed as Near Threatened (NT). It meets the EOO and AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

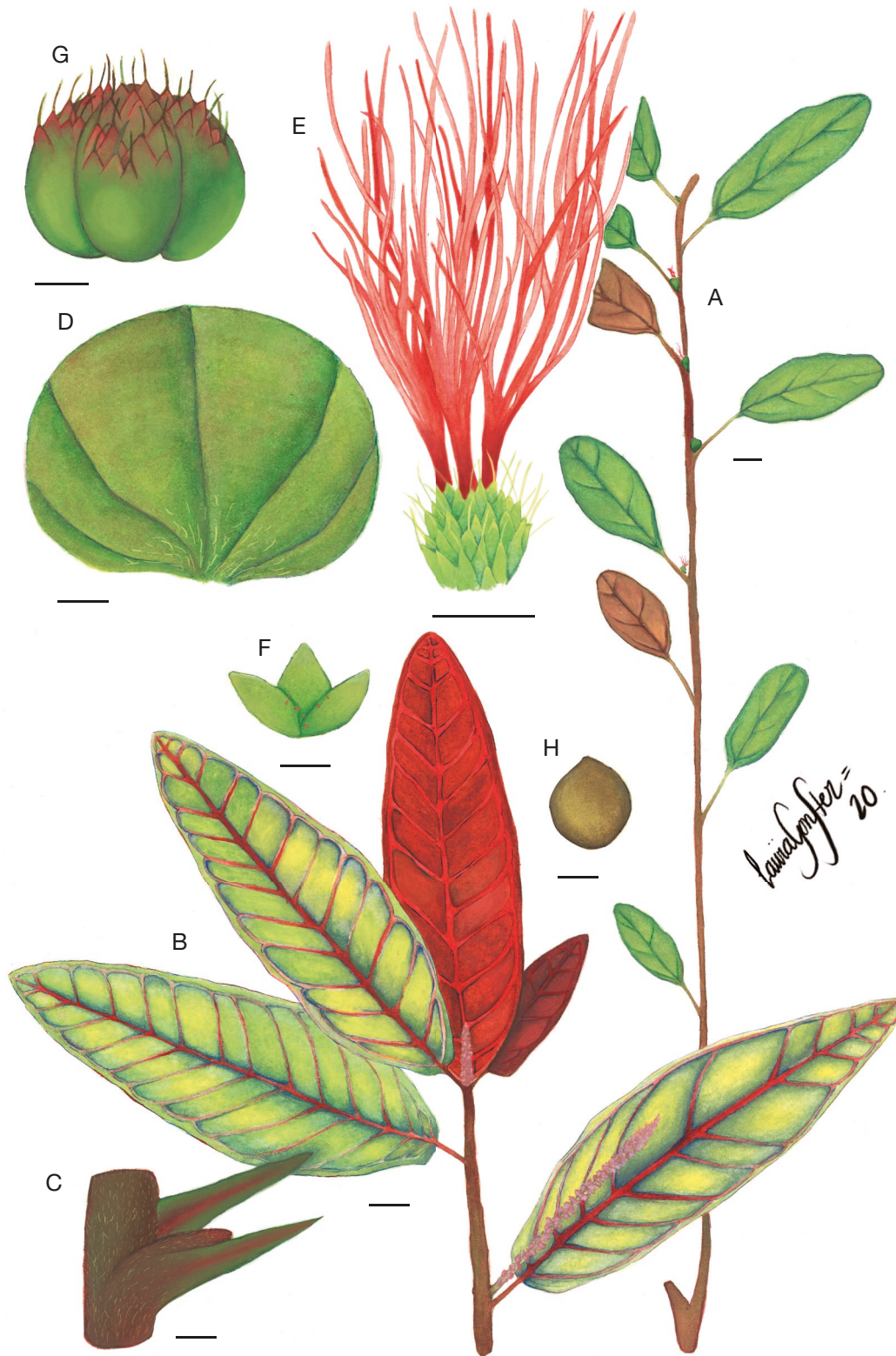


FIG. 38. — *Acalypha integrifolia* Willd.: **A**, flowering branch with young leaves; **B**, flowering branch with mature leaves; **C**, detail of node, stipules, and petiole base; **D**, mature female bract; **E**, ovary and styles; **F**, calyx of the female flower; **G**, capsule; **H**, seed. Based on *P. commerson* s.n. (**A**, **D-G**), *W. Bojer* s.n. (**B**), *F. R. Fosberg* 52683 (**C**), *L. Bernardi* 14866-bis (**H**). Illustration by Laura González Hernández. Scale bars: A, B, 1 cm; C, 2 mm; D-H, 1 mm.

MATERIAL EXAMINED. — 152 collections. **Mauritius**: *Allan*, *D.* s.n. (G[G00324541]); *Anonymous* s.n. (G[G00324542]); *Anonymous* s.n. (K); *Anonymous* s.n. (B[B-W17834-020]); *Anonymous* s.n. (B[B-W17834-010]); *Anonymous* s.n. (G[G00324520]); *Anonymous* s.n. (G[G00324547]); *Anonymous* s.n. (B[B-W17834-020]); *Anonymous* s.n. (P[P04779337]); *Anonymous* s.n. (P[P04779383]); *Anonymous*



s.n. (P[P04779384]); *Anonymous* s.n. (P[P04779399]); *Ayres*, P.B. s.n. (P[P04779484]); *Barlay*, C. 2804 (K); *Bélanger*, M. s.n. (G); *Bernardi*, L. 14719 (C, G, K, L[L0438912], MO[MO-2965780], P[P04779456]), 14754 (C, G, K, MO[MO-2452044], P[P04779459]), 14866 (C, G, K, P[P04779471]), 14868 (C, K, MO[MO-2452043], P[P04779461]); *Blackburn*, J. s.n. (P[P04779482]); *Boivin*, L.H. 1558 (P[P04779408]), s.n. (P[P04779323]), s.n. (P[P04779410]), s.n. (P[P04779411]), s.n. (P[P04779455]), s.n. (P[P04779458]); *Bojer*, W. s.n. (G[G00324521]), s.n. (P[P04779478]), s.n. (P[P04779479]); *Bory de Saint-Vincent*, J.B.G. s.n. (G[G00324531]), s.n. (G[G0032454]), *Bouton*, L. 24 (P[P04779437]), s.n. (G[G00324522]), s.n. (G[G00324543]), s.n. (G[G00324545]), s.n. (G[G00324548]), s.n. (G[G00324549]), s.n. (G[G00324551], G00324552, G00324553), K[K000431101]), s.n. (G[G00324555]), s.n. (G[G00324559]); *Brown*, Ab. s.n. (P[P04779418]); *Commer-son*, P. 655 (L[L0160752], P[P04779325]), 656 (L[L0160754], P[P04779339]), s.n. (P[P00382140]), s.n. (P[P04779327]), s.n. (P[P04779457]), s.n. (P[P04779466]), s.n. (P[P04779467]); *Coode*, M.J.E. 4836 (K, P[P04779409]), 4843 (K, P[P04779407]), 4845 (P[P04779406]), 4846 (K); *Desvaux*, A.N. 184 (P[P04779412]); *D'Urville*, D. s.n. (P[P04779385]), s.n. (P[P04779386]), s.n. (P[P04779387]), s.n. (P[P04779388]), s.n. (P[P04779389]), s.n. (P[P04779390]); *Fosberg*, F.R. 52683 (US[US01287368]), 52685 (K, MO[MO-2965776], US[US01287369]); *Guébo*, J. 15166 (P[P04779336]); *Hb. Boiss.* s.n. (G[G00324557], K[K000431097]); *Herb. de Tristan* s.n. (P[P04786006]); *Herb. Parker* s.n. (P[P04779419]); *Hooker*, W.J. s.n. (BR[BR0000014628047]); *Hugenie*, M? s.n. (G); *Jussieu*, A. s.n. (P[P04779404]); *Lahaie* 28 (P[P04779392]); *Lor-ence*, D. 133 (MO[MO-2965778]), 134 (MO[MO-2965777]), 1599 (MO[MO-2965779]), 1838 (G, MO[MO-2452047], P[P04779462]), 1960 (K, MO[MO-2452049], P[P04779448]), 4525 (MO[MO-2452050]); *Martin* 589 (G); *Néraud* s.n. (G); *Perrotet*, M. s.n. (P[P04779340]), s.n. (P[P05481894]); *Pierre*, L. 5338 (P[P04779483]); *Richard*, M. 178 (P[P04779344]), s.n. (P[P04779405]), s.n. (P[P04779441]); *Schleiden*, M.J. s.n. (P[P04779481]); *Sieber*, F.W. 65 (G), 66 (G), 178 (G[G00324539, G00324540], L[L0241390, L0241391, L0241392], P[P04780015, P04779345]), 181 (BR[BR0000014628054], G[G00324550, G00324558]), L[L0241755, L0241756, L0241757, L0241758], P[P04779364, P04779396, P04779398]), 182 (G[G00324556], L[L0160809, L0160810], P[P04779391, P04779400, P04779401]), 182 pr. p. (G[G00324546]), 369 (G[G00324538]), 2042 (P[P04779397]); *Splitgerber*, F.L. s.n. (L[L0241754]); *Thonin* s.n. (G); *Vesco*, M. s.n. (P[P04779324]), s.n. (P[P04779326]), s.n. (P[P04779334]), s.n. (P[P04779393]), s.n. (P[P04779394]), s.n. (P[P04779468]), s.n. (P[P04779470]).

**La Réunion.** *Anonymous* 492 (P[P04779378]); *Anonymous* s.n. (G[G00324544]); *Badré*, F. 794 (BR[BR0000014628078], K, P[P04779445, P04779447]); *Balfour*, I.B. s.n. (K); *Bernier*, M. M21 (P[P04779416]), *Boivin*, L.H. 655 (G), 1391 (P[P04779469, P04779414, P04779415]); *Bosser*, M.J. 21468 (K, P[P04779449, P04779464]), 22576 (P[P04779453]); *Bouton*, L. s.n. (P[P04779480]); *Breón*, M. s.n. (P[P04779827]); *Cadet*, Th. 647 (K), 742 (K, P[P04779452]), 3917 (K, P[P04779460]), 4474 (K); *Commer-son*, P. s.n. (BR[BR0000021450174]), s.n. (P[P04779357]); *Coode*, M.J.E. 5221 (K); *d'Alleizette*, Ch. 902 (L[L0241753]); *Delessert*, A. s.n. (G); *Desvaux*, A.N. 181 (P[P04779372]), 186 (P[P04779413]), s.n. (P[P04779374]); *du Petit-Thouars*, L.M.A. s.n. (P[P04779395]), s.n. (P[P04779402]), s.n. (P[P04779403]), s.n. (P[P04779472]); *Frappier*, M. 2 (GH, P[P04779477]), 12 (P[P04779474]), s.n. (P[P04779475]), s.n. (P[P04779476]); *Friedmann*, F. 1007 (BR[BR0000014628061]), G, P[P04779446, P04779463]), 1026 (P[P04779443]), 1027 (P[P04779444]), 1947 (K, P[P04779442]); *Giraudy*, H. 18107 (P[P04780018]); *Léman*, D.S. s.n. (P[P04779341]), s.n. (P[P04779373] pr.p.); *Monin*, M. s.n. (P[P04779365]); *Richard*, M. 192 (P[P04779376]), 193 (P[P04779450]), 201 (P[P04779379, P04779381, P04779436, P04779440]), 202 (P[P04779382, P04779439]), 490 (P[P04779465]), 658 (L[L0242527]), s.n.

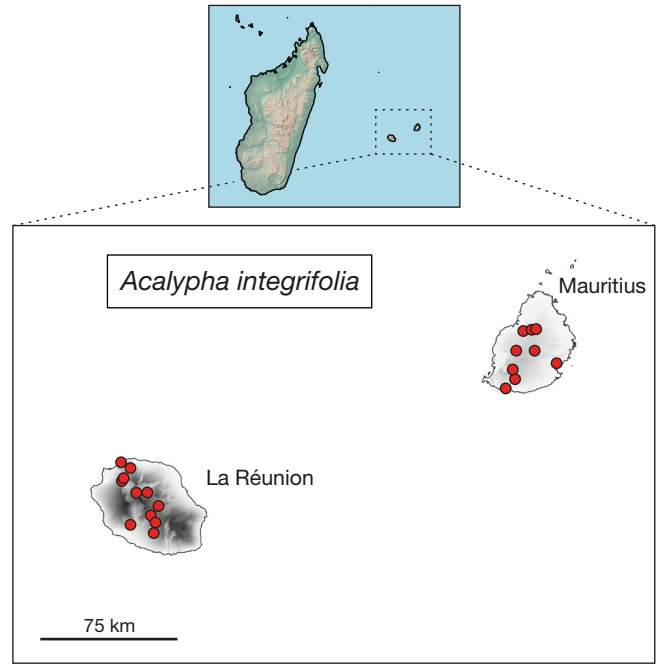


FIG. 39. — Distribution map of *Acalypha integrifolia* Willd. in the Mascarene Islands.

(P[P04779367]), s.n. (P[P04779377]), s.n. (P[P04779380]), s.n. (P[P04779438]), s.n. (P[P04779579] pr.p.), s.n. (P[P05604455] pr.p.); *Rivals*, P. s.n. (P[P04779451]).

REFERENCES. — Bojer (1837: 286); Baillon (1858: 443) as *A. colorata*; Müller Argoviensis (1866: 850); Baker (1877: 315) as *A. colorata*; Cordemoy (1895: 342) as *A. colorata*; Palacký (1907: 24) as *A. commersoniana*; Palacký (1907: 25); Pax & Hoffmann (1924: 105); Coode (1982: 69); Robertson (1989: 200); Govaerts *et al.* (2000: 69); Montero Muñoz *et al.* (2018a: 100).

DESCRIPTION

Shrubs, leaf persistence unknown, to 2 m tall, monoecious. **Branches** densely appressed-pubescent, rugose and glabrescent when mature. **Axillary buds** ovoid, to 1.2 × 0.7 mm, perulate, perules 2, valvate, membranous, brownish, appressed-pubescent. **Stipules** to 8 mm long, triangular-lanceolate, with reddish midrib and two greenish wings, subglabrous, with some simple, minute, appressed trichomes on midrib. **Petioles** thick, 0.5-2.2 cm long, indumentum similar to that on young branches, glabrescent. **Leaf blades** (5-)9-15.5 × (1.5-)3.5-6.5 cm, usually elliptic-lanceolate to oblong-lanceolate, sometimes slightly panduriform, chartaceous to coriaceous; **base** truncate to subcordate; **apex** rounded, mucronate; **margin** entire to denticulate, revolute, sometimes reddish or pinkish, teeth, if present, minute, subacute; **upper and lower surfaces** glabrous; venation prominent on lower surface, sometimes reddish, pinnate, secondary veins 15-18 per side, straight, parallel. **Stipels** absent. **Inflorescences** spiciform, male, and solitary female bracts, axillary. **Male inflorescences** to 9 cm long; subsessile, peduncle to 2 mm long, indumentum similar to that on petioles; flowers glomerate; **bracts** to 0.7 mm long, triangular-rhombic, appressed-pubescent. **Solitary female bracts** sessile, enlarging in fruit to 6 × 6.5 mm, suborbicular, becoming coriaceous, glabrous; margin entire; **bracteoles** absent. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to

0.5 mm diameter, sparsely hairy. **Female flowers** 2–3 per bract, sessile; **sepals** 3, to 1.5 mm long, ovate-lanceolate, pubescent with simple, appressed trichomes, especially at margin; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae to 1 mm long, ending in a simple trichome to 0.5 mm long, with appressed trichomes, surface appressed-pubescent; **styles** 3, to 5 mm long, distinct, sparsely hairy with simple, appressed trichomes on rachis, each divided into *c.* 12 segments. **Allomorphic flowers** sometimes present, axillary; pedicel filiform, to 19 mm long, glabrous; sepals to 2 mm long, ovate-lanceolate, subglabrous, with some simple appressed trichomes, margin with sessile glands; ovary not seen. **Capsules** to 4 mm diameter, papillose-hispid, papillae triangular, to 1 mm long, with simple, appressed trichomes, surface appressed-pubescent. **Seeds** *c.* 2 mm diameter, subglobose, foveolate.

#### NOTES

1) Coode (1979, 1982) accepted three subspecies and six varieties within *Acalypha integrifolia*, but we find the varieties he placed within subsp. *integrifolia* overlap too much to accept them as distinct taxa. See notes for *A. marginata* for our treatment of what Coode treated within *A. integrifolia* subsp. *marginata* and subsp. *panduriformis*; 2) Boivin mixes two species under collection *Boivin 1391* (*A. filiformis* [P04779576, P05604483] and *A. integrifolia* [P04779414, P04779415, P04779417, P04779329, P04779469]); and 3) the following specimens P00324571, P00324572, P00324573 and P00324574 are labeled as being from Madagascar (without a specific locality), but the labels are not original and *A. filiformis* is endemic to the Mascarene Islands. The location given for these specimens almost certainly is incorrect.

### 23. *Acalypha isaloensis* I.Montero & Cardiel

*Systematic Botany* 45 (1): 122 (Montero Muñoz *et al.* 2020a). — Type: Madagascar. Ihorombe (Fianarantsoa prov.), Massif de l'Isalo, à l'est de Ranohira, Andohakandrareza, au SE de la Piscine, 810 m, 22°33'S, 45°21'E, 14.II.1990, J. N. Labat 2119 (holo-, P[P00513133]; iso-, ILLS, K). — Paratypes: Madagascar. Ihorombe (Fianarantsoa prov.), Isalo, canyon des Singes, 746 m, 22°29'12.239"S, 45°22'43.381"E, 15.IV.1967, H. Jacquemin H278J (P[P04804757, P04804758]); Isalo, canyon des Rats, pied des falaises le long du ruisseau, 899 m, 22°28'47.759"S, 45°22'39.601"E, III.1960, M. Keraudren-Aymonin 402 (P[P04804755]); Ranohira, Isalo-Gebirge, 900 m, 22°33'20.307"S, 45°25'09.167"E, 22.XII.1959, H.-J. Schlieben 8236 (B, BR[BR0000021450358], G, K).

ICONOGRAPHY. — Montero Muñoz *et al.* (2020a); Fig. 46C.

ETYMOLOGY. — The epithet refers to type locality, the Isalo massif (Madagascar), to which this species appears to be endemic.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Ihorombe). Dry deciduous forest. On sandstone. Altitudinal range 746–900 m (Fig. 40).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO and AOO of *A. isaloensis* are estimated to be 8 km<sup>2</sup>. This species appears to be a narrow endemic known only from the Isalo massif. All collections are from the Isalo National Park, which has been a category II protected area (Dudley 2008) since 1962. This protected area is threatened by burning to improve grazing, which is a cultural heritage of the Bara people, as well as logging and the impact of introduced species (Kull 2004; Swierkosz 2007; Andreone *et al.* 2013). In recognition of its

restricted geographic range (a single known location) and the cited threats, *A. isaloensis* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(i,iii,iv).

MATERIAL EXAMINED. — 3 collections. Madagascar: Jacquemin, H. H278J (P[P04804757, P04804758]); Keraudren-Aymonin, M. 402 (P[P04804755]); Labat, J.-N. 2119 (K, P[P00513133]).

#### DESCRIPTION

Shrubs or subshrubs, leaf persistence unknown, to 0.8 m tall, monoecious. **Branches** puberulent with sparse simple, short, trichomes, glabrescent when mature. **Axillary buds** ovoid, to 1 × 0.7 mm, perulate, perules 2, valvate, membranous, brownish, densely pubescent with simple, short, appressed trichomes. **Stipules** to 1.2(–2) mm long on young branches, sometimes reduced to 0.5 mm long on older branches, triangular-lanceolate, apex acute, with appressed trichomes, margin with sessile glands. **Petioles** (2–)3–4.5 cm long, indumentum similar to that on young branches. **Leaf blades** (5–)6–10(–11.5) × 2–3.5(–4) cm, elliptic to oblong-lanceolate, membranous; **base** rounded to subcuneate; **apex** subacuminate, acumen to 10 mm long, rounded, mucronate; **margin** sparsely serrulate, teeth minute, obtuse, callose-edged; **upper surface** laxly pubescent with simple, short trichomes; **lower surface** indumentum similar to that on upper surface but denser; axils of the secondary veins with pocket-shaped domatia; venation prominent on upper surface, pinnate, secondary veins 5–10 per side. **Stipels** absent. **Inflorescences** spiciform, male, and solitary female bracts, axillary. **Male inflorescences** to 8.5 cm long, filiform; peduncle to 7 mm long, rachis clearly visible, both with indumentum similar to that on young branches; flowers glomerate; **bracts** to 0.3 mm long, ovate, sparsely hairy with simple, short trichomes, and with some sessile glands at base. **Solitary female bracts** sessile, enlarging in fruit to 3.5 × 5 mm, subreniform, appressed puberulent, with sparse resinous drops, margin crenate to subentire; **sterile bracts** sometimes present, solitary, similar to the female bracts but longer, to 1 × 1.2 cm, suborbicular; **bracteoles** absent. **Male flowers** subsessile; buds to 0.5 mm diameter, puberulent. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.3 mm long, triangular, puberulent; **ovary** *c.* 1 mm diameter, 3-lobed, papillose, papillae acute, ending in hyaline trichome to 0.5 mm long, surface hispidulous; **styles** to 8 mm long, connate at base, sparsely hairy, each divided into 5–6 slender segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, papillose-hispid, papillae acute, ending in hyaline trichome to 0.8 mm long, surface puberulent. **Seeds** too young to describe.

### 24. *Acalypha lamiana* (Leandri) I.Montero & Cardiel

*PhytoKeys* 108: 101 (Montero Muñoz *et al.* 2018a). — *Acalypha reticulata* var. *urophylla* f. *lamiana* Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 263 (Leandri 1942). — Type: Madagascar. Prov. Mahajanga, Réserve de Marohogo, 28.XII.1938, H. J. Lam & A. D. J. Meeuse 6127 (lecto-, designated by Montero Muñoz *et al.* [2018a: 102]; P[P05604417]; isolecto-, L[L0242109]). — Former syntypes: Madagascar. Prov. Antananarivo, Tsarasaotra, II.1898, H. Perrier de la Bâthie 457 (P [P05604408, P05604409, P05604410, P05604413]); Prov. Fianarantsoa, Ankiri-



hitra près du mont Tsilondroina, III.1902, *H. Perrier de la Bâthie* 9817 (P[P05604403]), 9817 bis (P[P05604404, P05604405]); Prov. Mahajanga, NW of Ankazobe, Vallée de l'Ikopa, 14.III.1930, *R. Decary* 7535 (P[P05604421]); Massif de l'Ankarafantsika, 11.I.1938, *R. Decary* 12876 (P[P05604420]); Bekodoka, 17.IX.1930, *R. Decary* 8109 (P[P05604422]); Région d'Antsalova, 1932-1933, *J. Leandri* 998 (P[P05604411]); Tsingy du Bemaraha, 3-6.X.1932, *J. Leandri* 176 (P[P05604415]); Dokolahy, II-IV.1933, *J. Leandri* 602 (P[P05604414]); Prov. Toliara, Soahazo Forest, 100 m, 22.X.1932, *J. Leandri* 414 (P[P05604416]).

ICONOGRAPHY. — Leandri (1942: 263); Figs 41; 46D.

ETYMOLOGY. — The epithet honors Dutch botanist Herman Johannes Lam (1892-1977).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Boeny, Melaky, Bongolava, Menabe, Atsimo-Andrefana, and Anosy). Dry deciduous forest, secondary grasslands, and pastures (savanna). Frequently on Mesozoic limestone. Altitudinal range (25-) 100-800 (-1200) m (Fig. 42).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha lamiana* is estimated to be 376 831 km<sup>2</sup> and its AOO 120 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in the western dry deciduous forests (see comments in *A. diminuta*). It has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires for grazing and crops, logging, mining, etc.). Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha lamiana* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 50 collections. **Madagascar.** *Afzelius*, *K.* 81 (P[P00508497]); *Baron*, *R.* 6808 (K); *Boivin*, *L.H.* s.n. (K[K000186503]); *Bolliger*, *R.F.* RFB 083 (G[G00340310]); *Capuron*, *R.* 1935 (P[P04804747]), 1953 (P[P04779856, P04779858, P04779859]); *Decary*, *R.* 8109 (P[P05604422]), 8161 (K, P[P00324533]), 12876 (P[P05604420]), 15198 (P[P00508466]), 15725 (G, MA, P[P05547224]), 17069 (P[P05510110, P00324526]); *Gillespie*, *L.* 4141 (K, MO, P[P00513154]), US[US01287449], 10691 (MO), 10701 (CAN), 10702 (CAN), 10703 (CAN), 10832 (CAN); *Harmelin* 10247 (P[P04804764]); *Humbert*, *H.* 5102 (P[P04779863]), 12638 (P[P00508441, P00508442]), 12644 (P[P04804526, P04804527]), 19738 (P[P00508432]), 19990 (P[P00508431]), 20005 (P[P04779862]); *Lam*, *H.J.* 6127 (L[L0242109], P[P05604417]), bis 27 (P[P05604418]); *Leandri*, *J.* 176 (P[P05604415]), 414 (P[P05604416]), US[US01287453], 602 (P[P05604414]), 998 (P[P05604411]), 2060 (P[P04804746]), 2652 (P[P05543667, P00324505]), 2711 (G, K, P[P04804745]), 2856 (G, K, MO[MO-2965757], P[P04779857]), 2921 (P[P04779855]), 3018 (P[P04804744]), 4252 (P[P04804750]), s.n. (P[P05604419]); *Nicoll*, *M.F.* 377 (K, MO, P[P05604412]); *Nusbaumer*, *L.* LN 875 (K), LN 3084 (BR[BR0000015215604V], G[G00376211], MO[MO-2965725]); *Perrier de la Bâthie*, *H.* 457 (P[P05604408, P05604409, P05604410, P05604413]), 9817 (P[P05604403]), 9817 bis (P[P05604404, P05604405]); *Rakotomalaza*, *P.J.* 280 (P[P05516018]); *Rakotovo*, *C.* 4638 (P[P04804767]), 6237 (G, MO[MO-2965731], TAN); *Ravelonarivo*, *D.* 4528 (MO); *Thunberg* s.n. (S[S17-37572]).

REFERENCES. — Montero Muñoz *et al.* (2018a: 101).

#### DESCRIPTION

Shrubs, probably deciduous, to 3 m tall, monoecious. **Branches** laxly pubescent with curved, antrorse trichomes, glabrous



FIG. 40. — Distribution map of *Acalypha isaloensis* I.Montero & Cardiel in Madagascar.

when mature. **Axillary buds** ovoid, to 1 × 0.5 mm, perulate, perules 2, valvate, membranous, blackish, glabrous. **Stipules** to 6 mm long, triangular, subglabrous, with some hyaline trichomes to 1 mm long, margin papillate. **Petioles** filiform, 1-2.5(-4) cm long, indumentum similar to that on young branches. **Leaf blades** 5-7 × 2-2.5(-3.5) cm, ovate-lanceolate to elliptic-lanceolate, membranous; **base** rounded to obtuse, rarely subcuneate; **apex** acuminate, acumens to 10 mm long, acute; **margin** serrulate, reddish, teeth minute, sometimes with simple trichome at apex; **upper surface** subglabrous, with some simple, appressed trichomes at base of midrib; **lower surface** subglabrous, with some sparse, simple trichomes; margins sparsely ciliate; venation actinodromous, basal veins 3, secondary veins 4-5 per side. **Stipels** glandular, to 0.5 mm diameter, glabrous. **Inflorescences** spiciform, androgynous, and solitary female bracts, axillary. **Androgynous inflorescences** to 4 cm long, mostly male with short female segment; sessile, rachis filiform, subglabrous, with some curved trichomes at base. **Female segment:** bracts 1-(4), sessile, enlarging in fruit to 7 × 6 mm, subrounded, glabrous; margin slightly crenate-dentate, revolute, reddish, teeth rounded, central tooth some-

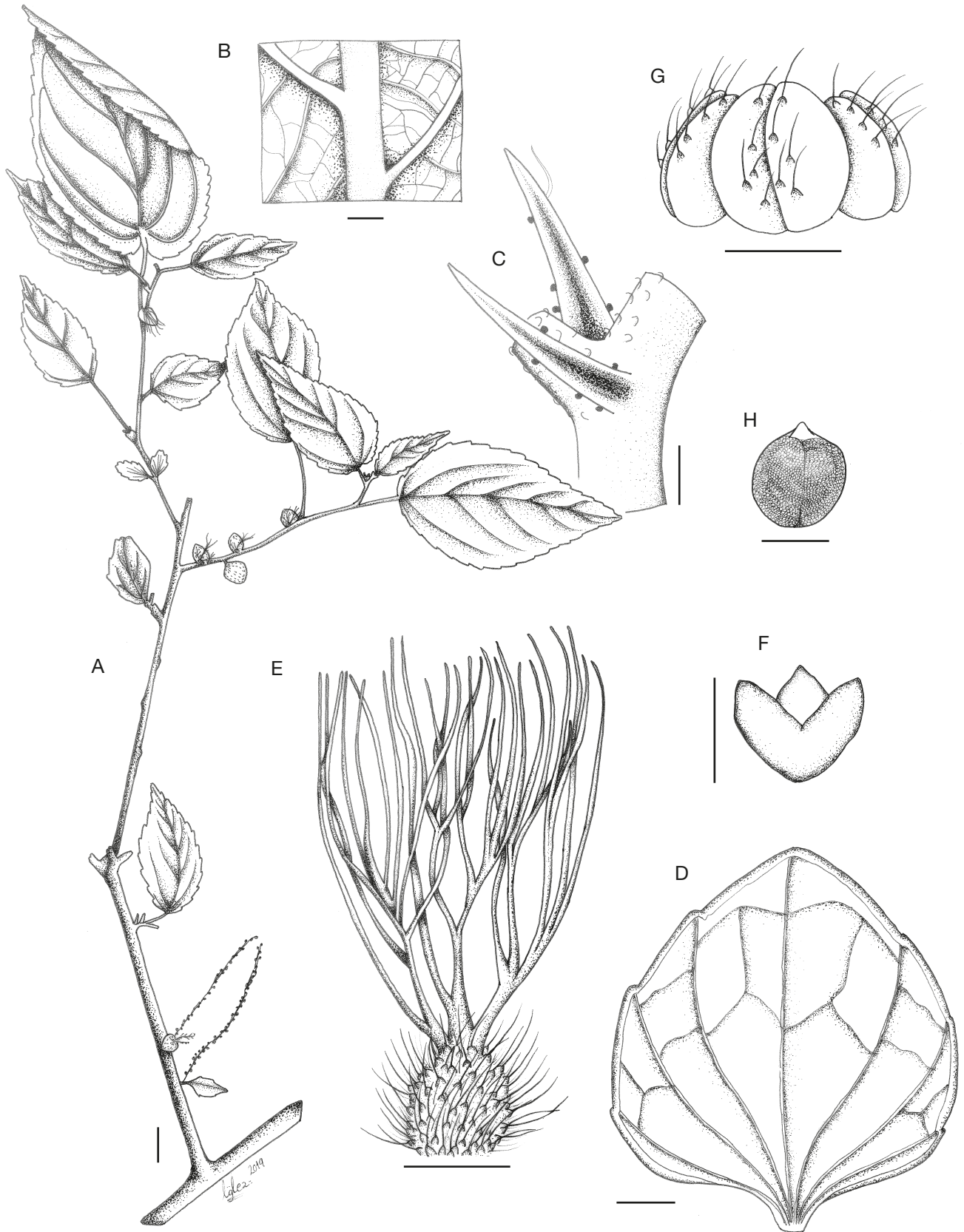


FIG. 41. — *Acalypha lamiana* (Leandri) I. Montero & Cardiel: **A**, flowering branch; **B**, detail of lower leaf surface; **C**, detail of node, stipules, and petiole base; **D**, mature female bract; **E**, ovary and styles; **F**, calyx of the female flower; **G**, capsule; **H**, seed. Based on L. N. Nusbaumer LN875 (K). Illustration by Laura González Hernández. Scale bars: A, 1 cm; B, D, E, G, H, 1 mm; C, 2 mm; F, 0.5 mm.



times prominent; **sterile bracts** sometimes present, similar to regular female bracts, to 11 × 9 mm; **bracteoles** absent. **Male segment** persistent, to 3 cm long; flowers glomerate; **bracts** to 0.3 mm long, triangular, sparsely hairy. **Solitary female bracts** sessile, similar to those on androgynous inflorescences. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds to 0.7 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, glabrous; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae on middle of each carpel, ending in simple trichome to 0.6 mm long, surface glabrous; **styles** 3, to 3 mm long, distinct, sparsely hairy, each divided into *c.* 10 segments. **Allomorphic flowers** sometimes present, axillary; pedicel filiform, to 19 mm long, glabrous; sepals to 0.5 mm long, triangular, glabrous; ovary 1-lobed, to 1.5 mm diameter, densely pubescent, distally fimbriate; style 1, to 4 mm long, glabrous. **Capsules** to 3 mm diameter, papillose-hispid, papillae similar to that on ovary, surface glabrous. **Seeds** *c.* 1.5 × 1.2 mm, pyriform, foveolate.

#### NOTES

1) *Acalypha lamiana* was treated by Leandri (1942) as a form of *A. reticulata* var. *urophylla* (treated here as *A. urophylla*). After studying the type collections, it seems clear to us that *A. lamiana* must be considered a distinct species (Montero Muñoz *et al.* (2018a)). *Acalypha lamiana* differs from *A. urophylla* mainly by the leaves that are rounded at the base and reddish at the margins, and its subentire, eglandular female bracts vs leaves that are usually rounded to subcordate, sometimes acute, at the base and not reddish at the margins, and dentate female bracts with small sessile glands at the margins in *A. urophylla*; 2) one of the former syntypes, *H. Perrier de la Bâthie* 9817, was wrongly transcribed by Leandri (1942: 263) as “8917”; and 3) many specimens bear malformed leaves, apparently due to insect damage or galls.

#### 25. *Acalypha lanceolata* Willd. var. *glandulosa* (Müll.Arg.) Radcl.-Sm.

*Kew Bulletin* 44 (3): 444 (Radcliffe-Smith 1989). — *Acalypha crenata* var. *glandulosa* Müll.Arg., *Linnaea* 34: 43 (Müller Argoviensis 1865). — Type: **Tanzania**. Zanzibar, 1847-1852, *L. H. Boivin* s.n. (lecto-, designated by Montero Muñoz *et al.* [2018a: 102]; P[P05511211]; isolecto-, P[P05510174, P05511212, P05511225]).

ICONOGRAPHY. — Fig. 46E.

ETYMOLOGY. — The specific epithet probably refers to the lanceolate shape of the leaf blades. The infraspecific epithet probably refers to the glandular trichomes present on the female bracts.

DISTRIBUTION AND HABITAT. — *Acalypha lanceolata* is widely distributed in the Paleotropics; var. *glandulosa* occurs in East Tropical Africa and South Tropical Africa. Probably introduced in Madagascar (Diana), Comoros Archipelago (Mayotte), and Mascarene Islands (La Réunion). In Madagascar in low altitude moist evergreen forest on sandstone; altitude *c.* 744 m. Collected in a garden in La Réunion; altitude *c.* 153 m (Fig. 43).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha lanceolata* var. *glandulosa* is preliminarily assessed as Data Deficient (DD) be-

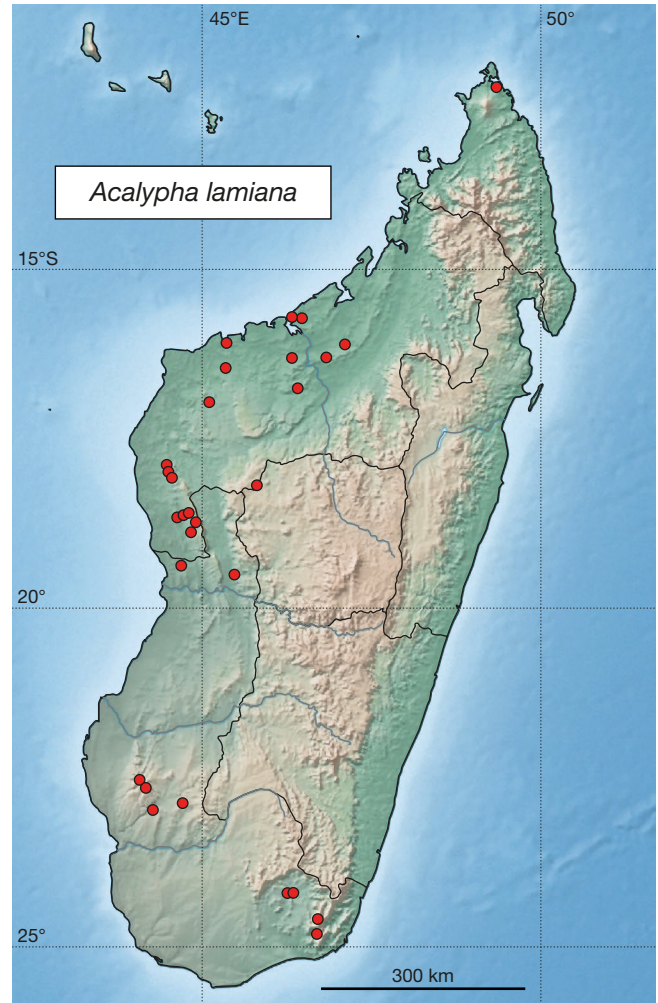


FIG. 42. — Distribution map of *Acalypha lamiana* (Leandri) I. Montero & Cardiel in Madagascar.

cause the material from continental Africa of this species needs to be revised, and therefore we cannot assess the conservation status of this species.

MATERIAL EXAMINED. — 4 collections. **Comoros Archipelago**. *d'Alleizette*, *Ch. s.n.* (L[L0242227]).

**Madagascar**. *Perrier de la Bâthie*, *H.* 9929 (P[P05547067]), 15471 (P[P05547068, P05547073, P05547074]).

**La Réunion**. *Cadet*, *Th.* 1087 (P[P04779322]).

REFERENCES. — Müller Argoviensis (1866: 872); Coode (1982: 69, 79); Govaerts *et al.* (2000: 71); Seebaluck *et al.* (2015: 152); Montero Muñoz *et al.* (2018a: 102).

#### DESCRIPTION

Annual herbs, to 0.5 m tall, monoecious. **Branches** puberulent with simple, short, curved, retrorse trichomes and glandular trichomes to 1 mm long, glabrescent when mature. **Axillary buds** naked, pubescent with simple, short trichomes. **Stipules** to 2 mm long, triangular-lanceolate, sparsely hairy with simple, short trichomes. **Petioles** (2.5-)3-4.6 cm long, indumentum similar to that on young branches. **Leaf blades** 4.5-6(-6.5) × 2.5-3.7 cm, ovate to elliptic, membranous; **base** obtuse to acute; **apex** acute; **margin** serrate, teeth obtuse; **upper and lower surfaces** subglabrous,



FIG. 43. — Distribution map of *Acalypha lanceolata* Willd. var. *glandulosa* (Müll. Arg.) Radcl.-Sm. in Comoros Archipelago, Madagascar and Mascarene Islands.

with some sparse, simple trichomes, mainly on veins; venation actinodromous, basal veins 3, secondary veins 3-5 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 2.5 cm long, mostly female with short male segment; peduncle to 2 mm long, puberulent with simple, short, curved, retrorse trichomes. **Female segment** densely flowered, to 2 cm long; **bracts** 12-15, sessile, enlarging in fruit to 2 × 4 mm, reniform, sparsely hairy with simple trichomes and glandular trichomes to 1 mm long; margin dentate, teeth 9-11, broadly triangular, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 0.2 cm long; flowers glomerate; **bracts** to 0.5 mm long, oblong-lanceolate, ciliate with simple, erect trichomes to 0.5 mm long. **Male flowers:** pedicel to 0.5 mm long, glabrous; buds to 0.5 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, ovate, ciliate with simple trichomes to 0.5 mm long; **ovary** c. 1 mm diameter, 3-lobed, smooth, surface densely hispid; **styles** 3, to 2 mm long, slightly connate at base, glabrous, each divided into 2-3 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, smooth, sparsely hairy with simple trichomes to 0.5 mm long. **Seeds** c. 1.5 × 1 mm, pyriform, minutely foveolate.

NOTE

*Acalypha lanceolata* var. *lanceolata* occurs in Asia. The main difference between the African var. *glandulosa* and the Asian var. *lanceolata* is the presence or absence of stipitate glands. Additional studies are needed to clarify the taxonomic status of these entities.

26. *Acalypha leandrii* I.Montero & Cardiel

*PhytoKeys* 140: 61 (Montero Muñoz *et al.* 2020b). — Type: **Madagascar**. Reg. Melaky [Prov. Mahajanga], Antsalova, vers Ambodiriana (E. d'Antsalova), 18°40'0.12"S, 44°43'59.879"E, 100-150 m, 06.XII.1952, J. Leandri, R. Capuron & A. Razafindrakoto 2037 (holo-, P[P05547059]). — Paratypes: **Madagascar**. Reg. Melaky [Prov. Mahajanga], calcaires de l'Antsingy, vers Andobo (E. d'Antsalova), en remontant vers Tsiandro, 18°40'0.12"S, 44°43'59.879"E, 5-8. II.1960, 300 m, J. Leandri & P. Saboureau 2996 (K, MO[MO-3025001], P[P00324506, P05543680], TAN); J. Leandri & P. Saboureau 3016 (G!, MO[MO-2966304], P[P05547274]).

ICONOGRAPHY. — Montero Muñoz *et al.* (2020b); Fig. 46F.

ETYMOLOGY. — The epithet honors French botanist Jacques Désiré Leandri (1903-1982).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Melaky). Dry deciduous forest. On Mesozoic limestone. Altitudinal range 100-400 m (Fig. 44).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha leandrii* is known from four collections from the Tsingy de Bemaraha. Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup> (see assessment of *A. cardielii*). No specimens of this species have been collected for 60 years, so we cannot rule out that this species has become extinct. Due to habitat loss, the restricted geographic range, and the absence of recent collections, *A. leandrii* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii), probably extinct (EX).

MATERIAL EXAMINED. — 4 collections. **Madagascar**. *Leandri*, J. 2037 (P[P05547059]), 2996 (K, MO[MO-3025001], P[P00324506, P05543680], TAN), 3016 (G, MO[MO-2966304], P[P05547274]); *Keraudren-Aymonin*, M. 511 (P[P04779527]).

DESCRIPTION

Herbs or sprawling subshrubs, probably evergreen, height unknown, probably dioecious. **Branches** densely pubescent with simple, short, curved, antrorse trichomes, glabrous when mature. **Axillary buds** ovoid, to 2 × 1 mm, perulate, perules 2, valvate, membranous, light brown, pubescent with simple, short trichomes. **Stipules** to 7 mm long, oblong-lanceolate, midrib prominent, margins scarious, midrib appressed-pubescent, margin ciliate with thin simple trichomes mixed with minute glands. **Petioles** 2-8 cm long, indumentum similar to that on young branches, glabrescent. **Leaf blades** 8-12 × (3.5-)4.5-9 cm, broadly ovate-lanceolate, membranous; **base** rounded to cordate; **apex** acuminate to caudate, acumen to 25 mm long, acute, mucronate; **margins** serrate, teeth acute, slightly callose-edged; **upper and lower surfaces** laxly pubescent with simple, erect trichomes, and with short, curved, antrorse trichomes on veins; venation prominent in both surfaces, actinodromous, basal veins 3 or 5, secondary veins 7-9 per side. **Stipels** triangular, to 0.7 mm long, margin ciliate and with glandular trichomes. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** to 8 cm long; peduncle to 20 mm long, indumentum similar to that on young branches; flowers glomerate; **bracts** to 1 mm long, lanceolate, margin ciliate and with sessile glands. **Female inflorescences** to 8.5 cm long; peduncle to 25 mm long, indumentum similar to that on young branches; **bracts** to



18, sessile, enlarging in fruit to 6 × 12 mm, subreniform, with prominent veins on upper surface, laxly pubescent with simple, erect trichomes and thick glandular trichomes to 1 mm long, margin entire; **bracteoles** absent. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds to 0.7 mm diameter, glabrous, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, oblong-lanceolate, ciliate with simple, erect trichomes to 0.5 mm long; **ovary** *c.* 1 mm diameter, 3-lobed, apparently smooth, surface densely hispid; **styles** 3, to 5 mm long, slightly connate at base, glabrous, each divided into 5 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, papillose-hispid, papillae to 0.5 mm long, ending in simple, erect trichome to 1 mm long, surface glabrous. **Seeds** pyriform 2 × 1.6 mm, minutely foveolate.

### 27. *Acalypha leonii* Baill.

*Bulletin Mensuel de la Société linnéenne de Paris* II: 1197 (Baillon 1895b). — Type: Madagascar. Prov. Toamasina, Forêt d'Antsianaka, 14.XII.1882, *L. Humblot 514* (lecto-, designated by Montero Muñoz *et al.* [2018a: 103]: P[P00513056]; isolecto-, K[K000186528], P[P00513055, P00513057, P00513058]).

*Acalypha leonii* var. *perrierana* Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 271 (Leandri 1942). — Type: Madagascar. Prov. Mahajanga, bassin du Bemarivo, versant NE, 100 m, 1912, *H. Perrier de la Bâthie 9719* (lecto-, designated by Montero Muñoz *et al.* [2018a: 103]: P[P00513061]; isolecto-, P[P00513059, P00513060]).

ICONOGRAPHY. — Fig. 46G.

ETYMOLOGY. — The epithet honors French naturalist Léon Humbolt (1852-1914).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Sava, Alaotra-Mangoro). Lowland evergreen moist forest and moist semi-deciduous forest. On basement rocks. Altitudinal range 100-550 m (Fig. 45).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha leonii* is estimated to be 13516 km<sup>2</sup> and its AOO 24 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in moist evergreen forests (see assessment of *A. emirnensis*). All specimens of *Acalypha leonii* were collected in unprotected areas, and it occurs only in four locations. Due to its small AOO, the small number of locations, and ongoing habitat loss, *A. leonii* is assessed as Endangered (EN): EN B2ab(ii,iii,iv).

MATERIAL EXAMINED. — 8 collections. Madagascar. *Decary, R. 5554* (P[P00513172]); *Gautier, L. LG 4003* (G[G00007294], K, P[P04786268]); *Humbert, H. 24048* (P[P00513125], WAG[WAG.1578742]), 24208 (B[B100017325], G, K, MA[MA-01-00583961], NY, P[P00513123], WAG[WAG.1578531]); *Humblot, L. 514* (K[K000186528], LD[LD1422440], P[P00513055, P00513056, P00513057, P00513058]); *Perrier de la Bâthie, H. 9719* (P[P00513059, P00513060, P00513061]); *Service Forestier Madagascar 27269-SF* (P[P00324566]); *Razakamalala, R. 5536* (MO[MO-3025029], P, TAN).

REFERENCES. — Palacký (1907: 25); Pax & Hoffmann (1924: 112); Leandri (1942: 271); Leandri (1952); Govaerts *et al.* (2000: 72); Schatz (2001: 142); Montero Muñoz *et al.* (2018a: 103).



FIG. 44. — Distribution map of *Acalypha leandrii* l. Montero & Cardiel in Madagascar.

### DESCRIPTION

Shrubs, evergreen, to 2 m tall, monoecious. **Branches** subglabrous, with some simple, appressed trichomes, glabrous when mature. **Axillary buds** subspherical, to 1 × 1.2 mm, perulate, perules 2, imbricate, chartaceous, blackish, glabrous. **Stipules** to 3 mm long, triangular-lanceolate, rigid, fleshy, midrib thick, margin ciliate. **Petioles** thick, canaliculate, 0.5-2.5(-3) cm long, glabrous. **Leaf blades** 7-10(-12.5) × 2-4(-6.5) cm, elliptic-lanceolate to subovate, chartaceous; **base** obtuse to cuneate; **apex** acuminate, acumen to 20 mm long, rounded; **margin** crenate-serrate to subentire, slightly thickened, teeth rounded; **upper and lower surfaces** glabrous; venation pinnate, secondary veins 8-10 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous and male, axillary. **Androgynous inflorescences** to 10 cm long, mostly male with short female segment; peduncle to 11 mm long, glabrous; rachis puberulent with short, curved, antrorse trichomes. **Female segment** to 3 cm long; **bracts** 1-4, sessile, enlarging in fruit to 5 × 6 mm, reniform, chartaceous, glabrous; margin deeply dentate, teeth *c.* 9, broadly triangular, rounded, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 8 cm long; flowers glomerate; **bracts** to 0.5 mm diameter, orbicular, slightly



Fig. 45. — Distribution map of *Acalypha leonii* Baill. in Madagascar.

fleshy, glabrous. **Male inflorescences** to 8 cm long; peduncle to 10 mm long, glabrous; rachis and bracts similar to those of androgynous inflorescences. **Male flowers:** pedicel to 1 mm long, sparsely hairy; buds to 0.8 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, ovate-triangular, ciliate and sparsely hairy; **ovary** *c.* 1 mm diameter, 3-lobed, papillose, papillae to 1 mm long, ending in sessile gland, surface sparsely hairy with simple, short trichomes; **styles** 3, to 3 mm long, connate at base, glabrous, each divided into *c.* 10 segments. **Allomorphic flowers** not seen. **Capsules** to 2.5 mm diameter, papillose, papillae to 1 mm long, surface sparsely hairy. **Seeds** too young to describe.

## 28. *Acalypha lepidopagensis* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 280 (Leandri 1942). — Type: Madagascar. Prov. Antsirana, Massif du Tsaratanana, 1000 m, XII.1912, *H. Perrier de la Bâthie* 9726 (lecto-, designated by Montero Muñoz *et al.* [2018a: 103]: P[P00513062]; isolecto-, P[P00513063]).

ICONOGRAPHY. — Fig. 46H.

ETYMOLOGY. — The etymology is uncertain.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana). Medium altitude evergreen moist forest. On basement rocks, *c.* 1000 m altitude (Fig. 47).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha lepidopagensis* is only known from the type collection made in the Tsaratanana massif. Its EOO could not be calculated; its AOO is estimated to be 4 km<sup>2</sup>. The Tsaratanana massif has been a protected area since 1927 (Réserve Naturelle Intégrale, category I; Dudley 2008). The forests in Tsaratanana have lost 6.3% of the area in the last years. This loss is due to a several pressures, mainly slash-and-burn agriculture and fires related to *Cannabis sativa* cultivation. The boundaries of the reserve are already lacking natural vegetation (Goodman *et al.* 2018). In addition, the fires have increased since 2011, and some of them occur inside the protected area, so the habitat in this reserve continues to be threatened (Goodman *et al.* 2018). Moreover, no specimens of this species have been collected for 108 years, so we cannot rule out that this species has become extinct. Due to habitat loss, the restricted geographic range, and the absence of recent collections, *A. lepidopagensis* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii), probably extinct (EX).

MATERIAL EXAMINED. — 1 collection. Madagascar. *Perrier de la Bâthie, H. 9726* (P[P00513062, P00513063]).

REFERENCES. — Leandri (1952); Govaerts *et al.* (2000: 72); Schatz (2001: 142); Montero Muñoz *et al.* (2018a: 103).

## DESCRIPTION

Shrubs, deciduous, to 5 m tall, monoecious. **Branches** reddish, pubescent with simple trichomes, glabrescent when mature. **Axillary buds** ovoid, to 2 × 1.5 mm, perulate, perules 2, imbricate, chartaceous, brownish, pubescent, glabrescent. **Stipules** to 3 mm long, triangular, midrib blackish, margins scarios, pubescent with simple trichomes. **Petioles** 2–4.7 cm long, indumentum similar to that on young branches. **Leaf blades** 7.3–11.5 × 4.5–6.5 cm, ovate-lanceolate, membranous; **base** rounded to subcordate; **apex** acute to acuminate, acumen to 10 mm long, rounded; **margin** serrate, teeth acute; **upper surface** laxly pubescent with simple, short trichomes, and with curved trichomes on veins; **lower surface** pubescent with simple, short trichomes and flattened resinous glands; venation actinodromous, basal veins 3 or 5, secondary veins to 5–7 per side. **Stipules** absent. **Inflorescences** spiciform, probably unisexual, axillary. **Male inflorescences** not seen. **Female inflorescences** laxly flowered, to 3.5 cm long; peduncle to 15 mm long, indumentum similar to that on young branches; **bracts** 2–3, sessile, enlarging in fruit to 9 × 10 mm, suborbicular, pubescent with simple, short trichomes and some flattened resinous glands at tooth apices; margin dentate, teeth *c.* 38, triangular, slightly falcate, central tooth slightly prominent; **bracteoles** to 1 mm long, linear, sparsely pubescent. **Male flowers** not seen. **Female flowers** 2 per bract, sessile; **sepals** 3, to 1 mm long, ovate-lanceolate, sparsely hairy; **ovary** *c.* 1 mm diameter, 3-lobed, smooth, surface pubescent with simple trichomes and some flattened resinous glands; **styles** 3, to 3 mm long, distinct or slightly connate at base, with some simple trichomes. **Allomorphic flowers** not seen. **Capsules** not seen. **Seeds** not seen.



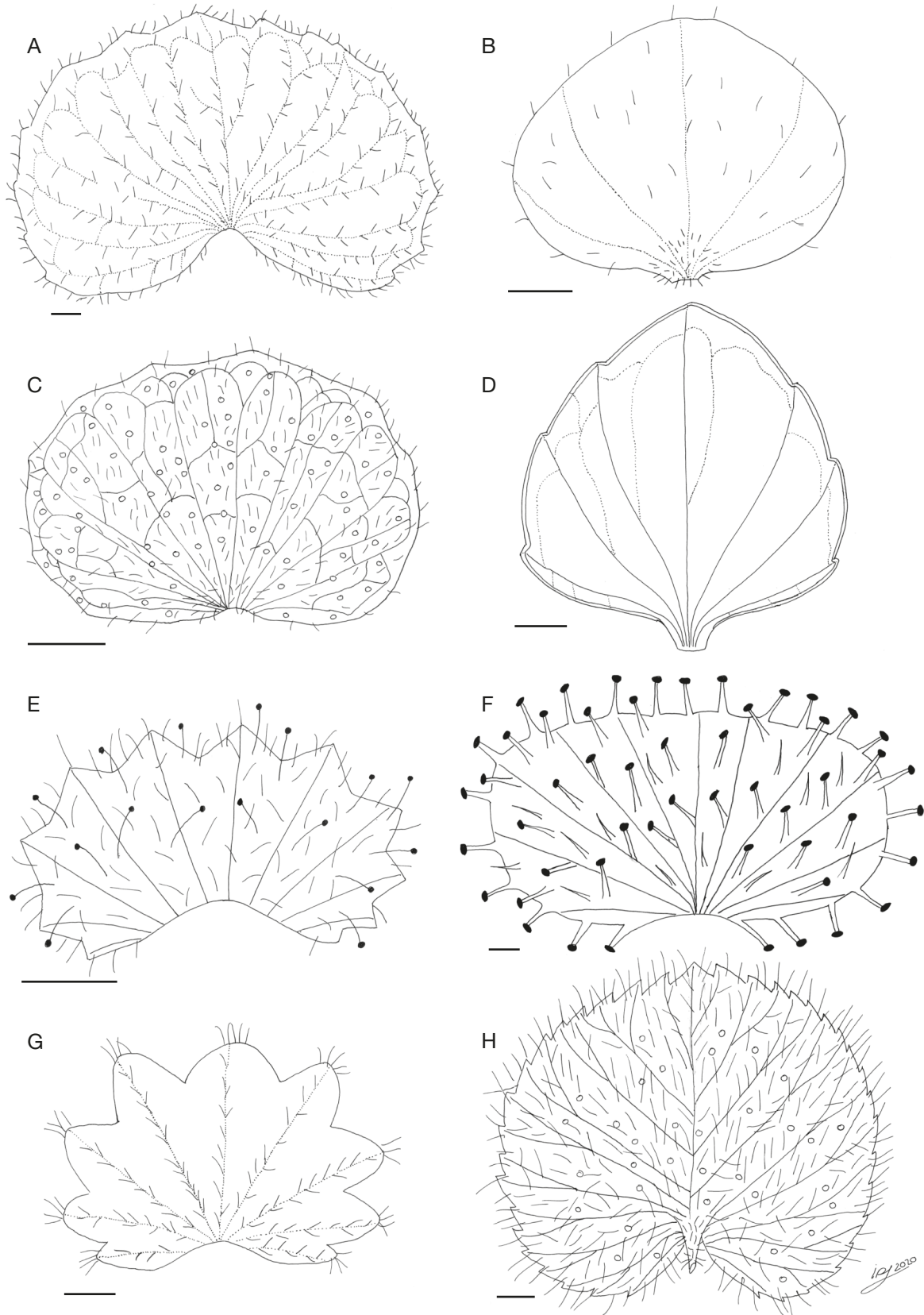


FIG. 46. — Mature female bracts: **A**, *Acalypha indica* L. (Sagun et al., 2010, Sagun & Risna SR58); **B**, *A. integrifolia* Willd. (P. Commerson 655); **C**, *A. isaloensis* I.Montero & Cardiel (J.-N. Labat 2119); **D**, *A. lamiana* (Leandri) I.Montero & Cardiel (H. J. Lam & A. Meeuse 6727); **E**, *A. lanceolata* Willd. var. *glandulosa* (Müll.Arg.) Radcl.-Sm. (H. Perrier de la Bâthie 9929); **F**, *A. leandrii* I.Montero & Cardiel (J. Leandri 2037); **G**, *A. leonii* Baill. (L. Gautier LG4003); **H**, *A. lepidopagensis* Leandri (H. Perrier de la Bâthie 9726). Illustration by Iris Montero Muñoz. Scale bars: 1 mm.



Fig. 47. — Distribution map of *Acalypha lepidopagensis* Leandri in Madagascar.

## 29. *Acalypha leptomyura* Baill.

*Histoire physique, naturelle et politique de Madagascar* Atlas, 2, Fasc. 27: t. 191 (Baillon 1891). — Type: Madagascar. Baillon 1891: pl. 191, holotype.

ICONOGRAPHY. — Baillon (1891: t. 191); Figs 54C, D; 57A.

ETYMOLOGY. — The epithet is taken from the Greek '*leptos*', fine or delicate, '*myos*', mouse, and '*oura*', tail. It possibly refers to the thin rachis of the inflorescences.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana, Sofia, Betsiboka, Alaotra-Mangoro, Analamanga, Bongolava, Melaky, Menabe, Atsimo-Andrefana, Androy, Anosy, Atsimo-Atsinanana, and Ihorombe). Lowland evergreen moist forest, dry deciduous forest, and sclerophyllous woodland. On sandstone, unconsolidated sand, and Mesozoic limestone. Altitudinal range (15-) 100-1000 (-1400) m (Fig. 48).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha leptomyura* is estimated to be 385 705 km<sup>2</sup> and its AOO 120 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows in a variety of forests: dry deciduous forests, (see assessment of *A. diminuta*), lowland evergreen moist forests (see assessment of *A. emirrensis*), and sclerophyllous woodlands, which mostly have been converted to sec-

ondary grasslands by human activities such as fires for agriculture or cattle grazing (Kull 2003; Gautier *et al.* 2018). This species has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats. Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha leptomyura* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 42 collections. Madagascar. *Andriamihajirivo*, T. 1108 (MO-3025023), P[P01104326], TAN); *Baron*, R. 4576 (P[P04779799]), 4685 (P[P05547007, P05547009]); *Bosser*, M.J. 9078 (P[P04779786]), 9089 (P[P04779785]), 10256 (P[P00324462]); *Capuron*, R. 2020 (P[P05547053, P05547054]); *d'Alleizette*, Ch. s.n. (L[L0241867]); *Decary*, R. 1128 (P[P05547011]), 7312 (C, P[P00513075]), 7535 (G, P[P05604421], S), 15818 (P[P05510105, P00324523]), 15823 (P[P05547221]), 17043 (P[P05547217]), 18845 (P[P05547220]); *Dequaire*, J. 27125 (P[P05547219]); *Grevé*, H. 109 (K, P[P00513081, P00513082, P00513083]); *Humbert*, H. 3533 (G, K, P[P00513076, P00513077, P00513078]), 4089 (P[P00513079, P00513080]), 7089 (P[P05547223]), 13829 (P[P00513074]), 18819 (P[P00513067, P00513068]), 19671 (K, P[P05547222]); *Labat*, J.-N. 2320 (P[P023912], WAG[WAG.1578522]); *Leandri*, J. 150 (P[P05547050]), 154 (P[P05547051]), 167 (P[P00324570]), 600 (P[P00513065, P00513066]), 930 (P[P05547052]), 2121 (G, P[P05547225]); *Morat*, P. 4714 (P[P05547008, P05547010]), 4736 (P[P05546999, P05547000, P05547001, P05547002, P05547003]); *Nicoll*, M.F. 162 (K, MO, P[P00513064]); *Perrier de la Bâthie*, H. 9812 (P[P00513069, P00513070, P00513071, P00513072]); *Rakotonao* 11308 (P[P05547005]); *Randrianarivony*, T. 749 (P[P01084145]); *Randrianasolo*, A. 6866 (P[P05547006]); *Rasamison* 12296 (P[P05547049]), 12314 (P[P05547218]); *Service Forestier Madagascar* 54 (G, P[P00513073]), 166-SF (P[P00513163]); *Waterlot*, M. 624 (P[P05547004]).

REFERENCES. — Baillon (1892: 1004); Koehne (1892: 131); Palacký (1907: 25); Pax & Hoffmann (1924: 112); Leandri (1942: 271); Govaerts *et al.* (2000: 72); Montero Muñoz *et al.* (2018a: 103).

## DESCRIPTION

Shrubs, deciduous, to 1.5 m tall, divaricately branched, monoecious. **Branches** pubescent with simple, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** spherical, to 0.5 mm diameter, perulate, perules 2, imbricate, chartaceous, brownish, ciliate. **Stipules** to 1.5 mm long, linear-lanceolate, glabrous except margin with some sessile glands and apex with some hyaline trichomes to 1 mm long. **Petioles** filiform, 0.3-0.7(-1.5) cm long, indumentum similar to that on young branches, base also with hyaline trichomes to 1 mm long. **Leaf blades** (1.5-)2.5-3.5(-4.5) × 1-2(-2.5) cm, ovate-lanceolate to subtriangular, membranous; **base** obtuse to truncate; **apex** subacuminate, acumen to 8 mm long, rounded to subacute; **margin** crenate to serrate, teeth rounded to subacute, sometimes with gland at apex; **upper surface** laxly pubescent with sparse, simple, long, erect trichomes, and with simple, short, curved trichomes on veins; **lower surface** indumentum similar to that on upper surface but denser; venation actinodromous, basal veins 3, secondary veins 4-5 per side. **Stipels** slightly fleshy, linear-lanceolate, to 0.5 mm long, glabrous. **Inflorescences** spiciform, androgynous, and solitary female bracts, axillary. **Androgynous inflorescences** to 4 cm long, mostly male with 1 female bract; sessile; rachis filiform, pubescent. **Female segment: bract** 1, sessile, enlarging in fruit to 5 mm diameter,



suborbicular, subglabrous, with some sparse, simple, erect trichomes; margin entire to crenate, teeth 5-7, rounded, central tooth sometimes prominent; **sterile female bracts** sometimes present, similar to regular female bracts, to 1 mm diameter; **bracteoles** absent. **Male segment** persistent, to 3.5 cm long; flowers glomerate; **bracts** to 0.3 mm long, triangular-lanceolate, sparsely hairy with sparse trichomes, margin with some sessile glands. **Solitary female bracts** sessile, similar to those of androgynous inflorescence. **Male flowers**: pedicel to 0.3 mm long, sparsely hairy; buds to 0.5 mm diameter, subglabrous, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, ciliate; **ovary** c. 0.6 mm diameter, 3-lobed, papillose-hispid, papillae minute, rounded, ending in simple trichome to 1 mm long, surface pubescent with simple, short trichomes; **styles** 3, to 3 mm long, distinct, subglabrous, with some long, hyaline trichomes, each divided into c. 10 segments. **Allomorphic flowers** not seen. **Capsules** to 2 mm diameter, papillose-hispid, papillae rounded, ending in hyaline trichome to 1 mm long, surface pubescent with simple, short trichomes. **Seeds** c. 1.5 × 1.2 mm, pyriform, minutely foveolate.

### 30. *Acalypha levinii* I.Montero & Cardiel

*South African Journal of Botany* 146: 638 (Montero Muñoz *et al.* 2022). — Type: **Madagascar**. Haute Matsiatra region (Fianarantsoa prov.), Parc d'Anja Community Reserve, E of RN7, c. 9.5 km of Ambalavao, 990 m, 21°51'7.5"S, 46°50'43.1"E, 29.XI.2012, L. J. Gillespie, G. A. Levin & J. Razanatsoa 19809 (holo-, CAN). — Paratypes: **Madagascar**. Haute Matsiatra region (Fianarantsoa prov.), Haute Matsiatra, Parc d'Anja Community Reserve, E of RN7, c. 9.5 km of Ambalavao, 990 m, 21°51'6.1"S, 46°50'43.7"E, 29.XI.2012, L. J. Gillespie, G. A. Levin & J. Razanatsoa 19808 (CAN); Atsimo-Andrefana region (Toliara prov.), Beza Mahafaly Reserve, near Betioky, parcelle 1, Along the Sakamena river bank, 140 m, 23°38'60"S, 44°32'60"E, 2.XI.1987, P.B. Phillipson 2503 (K, MO, US, WAG); Plateau calcaire au N de la basse vallée du Fiherenana, 200-300 m, I.1947, H. Humbert 19866 (P[P00324585]).

ICONOGRAPHY. — Montero Muñoz *et al.* (2022); Fig. 57B.

ETYMOLOGY. — The epithet honors Dr. Geoffrey A. Levin, co-director of the first author's PhD dissertation. He has published many articles about *Acalypha* and contributed to the knowledge of this genus worldwide.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Atsimo-Andrefana and Haute Matsiatra). Degraded sclerophyllous woodland. On basement rocks and sandstone. Altitudinal range 140-990 m (Fig. 49).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha levinii* is known from four collections from different localities. Its EOO is estimated to be 12 578 km<sup>2</sup> and its AOO 16 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows in sclerophyllous woodlands in the highlands (see assessment of *A. leptomyura*). This species was collected in degraded forests and in both protected (community reserve and national reserve) and unprotected areas. Even in the reserves, the habitat of this species is subject to various threats (uncontrolled fires for grazing and crops), so ongoing habitat loss and degradation will cause continued decline of its EOO and AOO. *Acalypha levinii* is assessed as Endangered (EN): EN B2ab(ii,iii,iv).

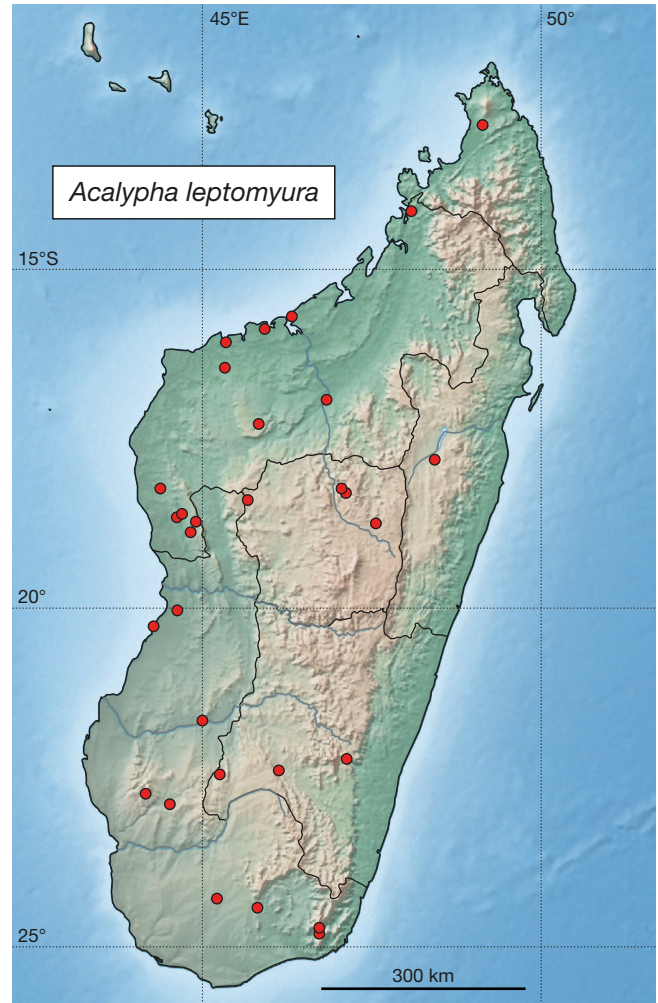


Fig. 48. — Distribution map of *Acalypha leptomyura* Baill. in Madagascar.

MATERIAL EXAMINED. — 4 collections. **Madagascar**: Gillespie, L. 10808 (CAN), 10809 (CAN); Humbert, H. 19866 (P[P00324585]); Phillipson, P.B. 2503 (K, MO, US[US01287331], WAG[WAG.1578523]).

#### DESCRIPTION

Shrubs, deciduous, to 2 m tall, divaricately branched, monoecious. **Branches** red-tinged, densely pubescent with simple, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** spherical, to 1 mm diameter, perulate, perules 2, overlapping (superposed), membranous, brownish, sparsely hairy. **Stipules** to 4 mm long, lanceolate, apex acute, pubescent with simple, appressed trichomes. **Petioles** 1.5-3(-4) cm long, indumentum similar to that on young branches. **Leaf blades** (3.5-)4-6.5 × 2-3.3 cm, ovate-lanceolate to elliptic-lanceolate, membranous; **base** rounded to subcordate; **apex** slightly acuminate, acumen 10 mm long, rounded to subacute, mucronate; **margin** serrate to crenate, teeth subrounded, slightly reddish, callose-edged; **upper surface** laxly pubescent with simple, erect trichomes and subsessile reddish glandular trichomes; **lower surface** indumentum similar to that on upper surface but denser, axils of secondary veins with hair-tuft domatia; venation actinodromous, basal veins 3, secondary veins 5-6 per side. **Stipels**



FIG. 49. — Distribution map of *Acalypha levinii* I. Montero & Cardiel in Madagascar.

filiform, to 0.3 mm long, glabrous. **Inflorescences** spiciform, androgynous, and solitary female bracts, mainly axillary, some androgynous inflorescences terminal. **Androgynous inflorescences** to 4 cm long, mostly male with short female segment; subsessile, peduncle to 0.3 mm long; rachis indumentum similar to that on petiole. **Female segment** to 2.5 cm long; **bracts** 1–4, sessile to slightly petiolate, enlarging in fruit to 10 × 12 mm, oblate to suborbicular, indumentum similar to that on leaves and ciliate, glabrescent; margin dentate, teeth *c.* 15, rounded, callose-edged, slightly reddish, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 2 cm long; flowers glomerate; **bracts** to 0.5 mm long, lanceolate, sparsely hairy. **Solitary female bracts** sessile, similar to those of androgynous inflorescences. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds to 0.8 mm diameter, sparsely hairy, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, sparsely hairy; **ovary** *c.* 1 mm diameter, 3-lobed, apparently smooth, surface hispid with simple, erect trichomes to 1 mm long; **styles** 3, to 4 mm long, slightly connate at base, sparsely hairy, each divided into *c.* 12 segments. **Allomorphic flowers** sometimes present at inflorescence apex; pedicel filiform, to 12 mm long, sparsely hairy; sepals 3, similar to those of normal

flowers; ovary 1-lobed, to 1 mm diameter, hispid with simple, erect trichomes to 1 mm long; style 1, to 6 mm long, sparsely hairy. **Capsules** to 2.5 mm diameter, papillose-hispid, papillae rounded, surface densely pubescent with simple trichomes. **Seeds** *c.* 1.8 × 1.5 mm, subglobose, foveolate.

### 31. *Acalypha linearifolia* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 275 (Leandri 1942). — Type: **Madagascar**. Prov. Toliara, Ambovombe, Kotoala, 21.I.1931, *R. Decary* 8423 (lecto-, designated by Montero Muñoz *et al.* [2018a: 103]: P[P00513090]; isolecto-, S[S07-14664], TAN[TAN000510], US[US01014148]). — Former syntype: **Madagascar**. Prov. Toliara, delta de la Linta, 17–24.VIII.1928, *H. Humbert & C. F. Swingle* 5385 (P[P00513086, P00513087, P00513088, P00513089], US[US00096361]).

ICONOGRAPHY. — Leandri (1942: 276); Fig. 57C.

ETYMOLOGY. — The specific epithet refers to the linear leaf blades characteristic of this species.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Atsimo-Andrefana, Androy, and Atsinanana [one known collection]). Littoral forest and littoral thicket. On unconsolidated sand and Tertiary limestone. Altitudinal range sea level to 10 m (Fig. 50).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha linearifolia* is known from five collections. Its EOO is estimated to be 84 834 km<sup>2</sup> and its AOO 16 km<sup>2</sup>. The large EOO is due to one collection presumably made in Toamasina by G. Cours. The other collections are from southern Madagascar. This species grows mainly in littoral forests (see assessment of *A. gracilipes*). There are no collections made in protected areas. In addition, no specimens of this species have been collected for 70 years, so we cannot rule out that this species has become extinct. Due to habitat loss and the absence of recent collections, *A. linearifolia* is assigned a preliminary conservation status of Endangered: EN B2ab(ii,iii,iv); although it meets the values needed for a threatened category based on the B2 subcriterion, this species could probably be assessed as extinct (EX).

MATERIAL EXAMINED. — 4 collections. **Madagascar**: *Cours, G.* 4637 (P[P00324458, P00513085]), 4638 (G, P[P00513084]); *Decary, R.* 8423 (P[P00513090], S[S07-14664], TAN[TAN000510], US[US01014148]); *Humbert, H.* 5385 (P[P00513086, P00513087, P00513088, P00513089], US[US00096361]).

REFERENCES. — Govaerts *et al.* (2000: 72); Montero Muñoz *et al.* (2018a: 103).

#### DESCRIPTION

Shrubs, probably evergreen, to 1.5 m tall, monoecious. **Branches** densely pubescent with stellate trichomes, glabrescent when mature. **Axillary buds** ovoid, to 1 × 0.7 mm, perulate, perules 2, valvate, membranous, brownish, pubescent with stellate trichomes; **Stipules** to 1 mm long, lanceolate, pubescent with stellate trichomes, margin with some sessile glands. **Petioles** to 0.2 cm long, indumentum similar to that on young branches. **Leaf blades** ericoid, 3.5–4.7 × 0.1–0.2 cm, linear, coriaceous; **base** acute; **apex** obtuse to rounded; **margin** entire, revolute; **upper and lower surfaces** densely pubescent with stellate trichomes; venation prominent on lower surface, pinnate, secondary veins to 15 per side. **Stipels** absent. **Inflorescences** spiciform, male, and solitary female bracts,



axillary. **Male inflorescences** to 1.4 cm long, with glossy exudate; subsessile, peduncle to 2 mm long, pubescent with stellate trichomes; flowers glomerate; **bracts** orbicular, to 0.5 mm diameter, pubescent with stellate trichomes. **Solitary female bracts** subsessile, peduncle to 2 mm long, pubescent with stellate trichomes; **bract** short-petiolate, enlarging in fruit to 4 × 5 mm, suborbicular, densely pubescent with stellate trichomes; margin entire to denticulate, central tooth not prominent; **bracteoles** absent. **Male flowers**: pedicel to 0.5 mm long, glabrous; buds to 0.5 mm diameter, pubescent with stellate trichomes. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, ovate-lanceolate, pubescent with stellate trichomes; **ovary** c. 1 mm diameter, 3-lobed, papillose, surface pubescent with stellate trichomes; **styles** not seen. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, papillose, surface pubescent with stellate trichomes. **Seeds** c. 2 × 1.8 mm, subglobose, minutely foveolate.

### 32. *Acalypha magistri* I. Montero & Cardiel

*South African Journal of Botany* 146: 640 (Montero Muñoz *et al.* 2022). — Type: **Madagascar**. Sava region (Antsiranana prov.), au nord d'Andapa, dans la Réserve naturelle intégrale de Marojejy, aux environs du sommet d'Ambatosoratra, 1583 m, 14°32'S, 49°42'E, 17-24.VI.1994, D. Ravelonarivo 273 (holo-, MO; iso-, ILLS, MAUAM, P, TAN).

ICONOGRAPHY. — Montero Muñoz *et al.* (2022); Fig. 57D.

ETYMOLOGY. — The epithet honors teachers at the Alonso de Ercilla High School (Ocaña, Toledo, Spain), where the first author studied. The epithet *magistri* is a nominative plural noun.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Sava). Medium altitude evergreen moist forest. On basement rocks, 1583 m altitude (Fig. 51).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha magistri* is known only from one collection from Marojejy. Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup>. Marojejy has been a protected area since 1952, and a National Park since 1998 (Category II; Dudley 2008). The main threats that affect the Marojejy forests are illegal logging of precious wood, uncontrolled fires, and mining for topaz and beryl, mainly at the boundaries of the National Park. However, at the high elevations where this species occurs (it was collected near the top of Ambatosoratra peak), habitat disturbance from ecotourism likely is the only threat (Patel 2007; Almeda & Ranarivelo 2019). In view of its limited AOO, *Acalypha magistri* is assigned a preliminary conservation status of Vulnerable: VU D2.

MATERIAL EXAMINED. — 1 collection. **Madagascar**: *Ravelonarivo*, D. 273 (MAUAM, MO).

#### DESCRIPTION

Small trees, leaf persistence unknown, to 6 m tall, monoecious. **Branches** pubescent with simple, short, erect trichomes, glabrescent when mature. **Axillary buds** ovoid, to 1.5 × 0.7 mm, perulate, perules 2, imbricate, chartaceous, dark brown, glabrous. **Stipules** to 2 mm long, triangular-lanceolate, apex acute, base with some sparse, simple trichomes, margin ciliate with simple, short trichomes. **Petioles** 1.2-3.5 cm long, indumentum similar to that on young branches. **Leaf blades** 7.5-12 ×



Fig. 50. — Distribution map of *Acalypha linearifolia* Leandri in Madagascar.

2-5.5 cm, elliptic-lanceolate to ovate-lanceolate, subchartaceous; **base** rounded; **apex** acuminate, acumen to 13 mm long, acute; **margin** serrate, teeth acute; **upper surface** subglabrous, with simple, short, erect, simple trichomes, especially on veins; **lower surface** indumentum similar to that on upper surface but denser; margin ciliate; venation pinnate, secondary veins 6-8 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 9.5 cm long, mostly male with a female segment; peduncle to 22 mm long, it and rachis pubescent with simple, curved, antrorse trichomes. **Female segment** to 3.7 cm long; **bracts** 4, sessile, enlarging in fruit to 5 mm diameter, orbicular, pubescent with simple, erect trichomes to 0.5 mm long; margin subentire to crenate, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 3.8 cm long; flowers glomerate; **bracts** to 0.7 mm long, triangular, sparsely hairy. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds not seen. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1.5 mm long, triangular-lanceolate, sparsely hairy; **ovary** not seen; **styles** 3, to 3 mm long, distinct, sparsely hairy. **Allomorphic flowers** not seen. **Capsules** to 5 mm diameter, echinate, projections conical, to 2 mm long, surface pubescent with simple, short, erect trichomes. **Seeds** c. 4 × 3 mm, pyriform, minutely foveolate.



Fig. 51. — Distribution map of *Acalypha magistri* I. Montero & Cardiel in Madagascar.

### 33. *Acalypha marginata* (Poir.) Spreng.

*Systema vegetabilium* 3: 879 (Sprengel 1826). — *Tragia marginata* Poir., *Encyclopédie méthodique. Botanique* 7: 725 (Poirlet 1806). — *Acalypha integrifolia* subsp. *marginata* (Poir.) Coode, *Kew Bulletin* 34: 42 (Coode 1979). — Type: Mauritius. “Les Indes Orientales”, s.d. *Anonymous* (probably *P. Commerson*) s.n. (holo-, P-LAM[P00382145]).

*Acalypha integrifolia* subsp. *panduriformis* Coode, *Kew Bulletin* 34: 42 (Coode 1979). — Type: La Réunion. Cliff between St Philippe and St Joseph near Basse vallée, c. 100 m, 26.II.1975, M. J. E. Coode & T. H. Cadet 4968 (holo-, K[K000431108]; iso-, K[K000431107]).

*Acalypha integrifolia* subsp. *marginata* var. *saluum* Coode, *Kew Bulletin* 34: 43 (Coode 1979). — Type: Mauritius. Macabé, 650 m, 15.II.1975, M. J. E. Coode *et al.* 4874 (holo-, K[K000431106]; iso-, P[P04779351], MAU[n.v.]).

ICONOGRAPHY. — Fig. 54E.

ETYMOLOGY. — The epithet probably refers to the discoloured margin of the leaf blades.

DISTRIBUTION AND HABITAT. — Endemic to Mascarene Islands (Mauritius and La Réunion). Lowland evergreen moist forest and

secondary forest. Altitudinal range in Mauritius 420–650 m, in La Réunion 100–1200 m (Fig. 52).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha marginata* is known from Mauritius and La Réunion. Its EOO is estimated to be 8916 km<sup>2</sup> and its AOO 44 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. For the status of forests on Mauritius, see the assessment of *A. crateriana* comb. nov.; for those on La Réunion, see the assessment of *A. filiformis*. Ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha marginata* is assessed as Near Threatened (NT) under criterion B. It meets the EOO and AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 38 collections. **Mauritius.** *Anonymous* 490 (P[P04779328]); *Anonymous* s.n. (G[G00324533]); *Anonymous* s.n. (G[G00324534]); *Anonymous* s.n. (G[G00324537]); *Anonymous* s.n. (P[P04779363] *pr.p.*); Ayres, P.B. s.n. (P[P04779841]); Bouton, L. 23 (P[P04779354]), s.n. (G[G00324535]); Commerson, P. s.n. (P[P00382145]), s.n. (P[P04779358]), s.n. (P[P04779360]); Coode, M.J.E. 4370 (K, P[P04779362]), 4778 (K, MO[MO-2452040]), 4867 (K, P[P04779348]), 4868 (K, P[P04779350]), 4869 (K), 4870 (K), 4874 (K[K000431106]), P[P04779351]), 4876 (K); Lorence, D. 1954 (K, MO[MO-2452046]), P[P04779347]).

**La Réunion.** Billiet, F. 585 (BR[BR0000014628085]), K, WAG[WAG.1578518]); Boivin, L.H. s.n. (P[P04779331]), s.n. (P[P04779352]); Bosser, M.J. 21043 (P[P04779330]); Brown, Ab. s.n. (P[P04779375]); Cadet, Th. 4925 (K); Commerson, P. s.n. (P[P04779356]), s.n. (P[P04779357] *pr.p.*), s.n. (P[P04779359]); Coode, M.J.E. 4967 (K), 4968 (K[K000431107, K000431108]), 5006 (K); d’Alleizette, Ch. s.n. (L[L0241920]); Friedmann, F. 847 (P[P04779333]), 919 (K, P[P04779335, P04779353]); Léman, D.S. s.n. (P[P04779332]), s.n. (P[P04779355]); Richard, M. s.n. (P[P04779361]).

REFERENCES. — Bojer (1837: 286); Baillon (1858: 443); Baillon (1861: 267); Baker (1877: 315); Cordemoy (1895: 343); Palacý (1907: 25); Pax & Hoffmann (1924: 106); Coode (1982: 73) as *A. integrifolia* subsp. *panduriformis*, *A. integrifolia* subsp. *marginata*; Coode (1982: 74) as *A. integrifolia* var. *saluum*; Govaerts *et al.* (2000: 69) as *A. integrifolia* subsp. *marginata*; Seebaluck *et al.* (2015: 152); Montero Muñoz *et al.* (2018a: 104).

#### DESCRIPTION

Shrubs, leaf persistence unknown, to 3 m tall, monoecious. **Branches** velutinous, glabrescent when mature. **Axillary buds** naked, hispid. **Stipules** to 10 mm long, linear-lanceolate, densely pubescent with simple, appressed trichomes, margin papillate. **Petioles** thick, 0.5–3 cm long, indumentum similar to that on young branches, glabrescent. **Leaf blades** (4–)6–17–(21) × (2–)2.5–7(–8) cm, usually elliptic to elliptic-lanceolate, sometimes obovate, chartaceous; **base** rounded to cuneate; **apex** acute to subacuminate; **margin** crenate-serrate to serrate, discoloured, teeth rounded to acute, slightly callose-edged; **upper and lower surfaces** pubescent with simple, short, appressed trichomes, glabrescent; venation pinnate, secondary veins 13–14 per side. **Stipels** absent. **Inflorescences** spiciform (male) or glomerulate (female), unisexual, axillary. **Male inflorescences** to 11 cm long; peduncle to 2 mm long, pubescent with simple, short, erect trichomes; flowers glomerate; **bracts** to 1 mm long, triangular, densely appressed-pubescent. **Female inflorescences** 0.2–0.4 cm long; sessile; **bracts** 3–4, sessile, not enlarging in fruit, to 0.5 mm long, triangular, appressed-pubescent; margin entire; **bracteoles** absent. **Male flowers**: pedicel to 0.6 mm long, sparsely hairy; buds



to 0.8 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; sepals 3, to 1.2 mm long, elliptic, appressed-pubescent; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae acute, ending in a simple trichome to 1 mm long, surface pubescent with simple, short trichomes; **styles** 3, to 2.5 mm long, distinct, rachis thick, sparsely hairy with simple, short, appressed trichomes, each divided into *c.* 10 segments. **Allomorphic flowers** not seen. **Capsules** to 3.5 mm diameter, papillose, papillae to 0.5 mm long, ending in a simple trichome to 1 mm long, surface sparsely hairy with simple, erect trichomes to 0.5 mm long. **Seeds** *c.* 3 × 2.2 mm, pyriform, minutely foveolate.

## NOTE

*Acalypha marginata* was treated by Coode (1979) as *A. integrifolia* subsp. *marginata*. We consider *A. marginata* to be a distinct species differentiated mainly by its variegated leaf blades and minute female bracts that are not accrescent in fruit, vs uniformly colored leaf blades and conspicuous female bracts that are accrescent in fruit in *A. integrifolia*. We include as synonyms *A. integrifolia* subsp. *panduriformis* and *Acalypha integrifolia* subsp. *marginata* var. *saltuum* because the morphology of these taxa overlap too much with those of *A. marginata* to accept them as distinct.

34. *Acalypha mayottensis* I. Montero & Cardiel

*PhytoKeys* 140: 65 (Montero Muñoz *et al.* 2020b). — Type: **Mayotte**. Mamoudzou commune, îlot M'bouzi, 12°48'50"S, 45°14'08"E, 10–50 m, 22.XI.2000, *J.-N. Labat, F. Barthelat, C.M. Hladik & A.B. Sifary* 3268 (holo-, G[G00034240]; iso-, K, MAO, MO[MO-2965774], P[P00209719]). — Paratypes: **Mayotte**. Mamoudzou commune, îlot M'Bouzi, 12°48'57"S, 45°14'06"E, 90 m, 22.XI.2000, *J.-N. Labat, F. Barthelat, C.M. Hladik & A.B. Sifary* 3272 (G[G00034255], K, MAO, MO[MO-2966248], P[P00209724, P00209725]); îlot M'bouzi, 12°48'39"S, 45°14'06"E, 26.XII.2002, *F. Barthelat, A. de Vanssay & G. Rembert* 1112 (MAO, P[P00339165]). — Precise location unknown, probably from M'Bouzi islet, 01.I.2010, *G. Viscardi* 310 (HKM, P[P02439826]).

ICONOGRAPHY. — Montero Muñoz *et al.* (2020b); Figs 54F; 57E.

ETYMOLOGY. — The epithet refers to Mayotte island, to which the small M'bouzi islet belongs, and to which this species appears to be endemic.

DISTRIBUTION AND HABITAT. — Endemic to Comoros Archipelago (Mayotte). Dry forest and secondary forest. Altitudinal range 10–90 m (Fig. 53).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha mayottensis* is only known from M'bouzi islet. Its EOO and AOO are estimated to be 8 km<sup>2</sup>. M'bouzi islet was declared a "Réserve Naturelle Nationale" in 2007, a category IV protected area (Dudley 2008). In the 1990s the islet had lost 70% of its original forests to agriculture. M'bouzi now conserves 10% of its natural and secondary forest. Currently, the most serious threat are invasive species, both animals, such as *Eulemur fulvus*, and plants, such as *Antigonon leptopus*, *Lantana strigocamara*, *Leucaena leucocephala*, *Litsea glutinosa*, *Spathodea campanulata* and *Furcraea foetida* (Boulet & Traclat 2018; Quintard *et al.* 2019). Due to its restricted geographic range and the threats from alien species, *A. mayottensis* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii).

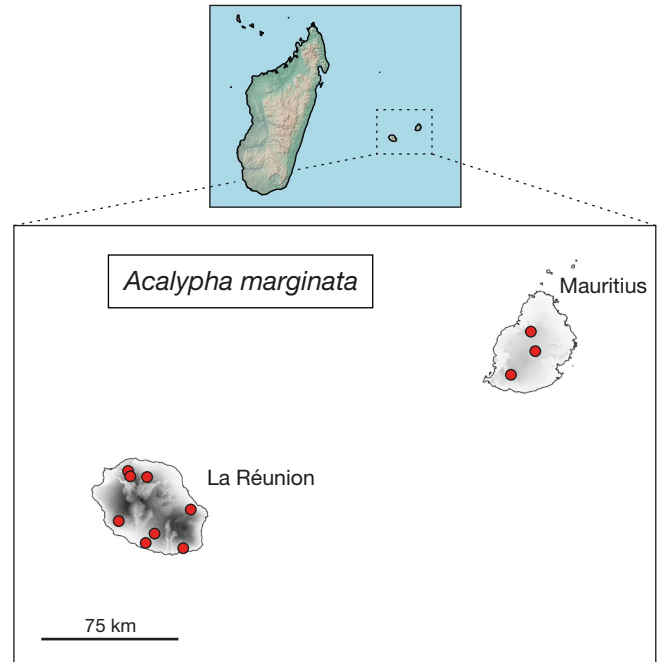


FIG. 52. — Distribution map of *Acalypha marginata* (Poir.) Spreng. in the Mascarene Islands.

MATERIAL EXAMINED. — 4 collections. **Mayotte**. *Barthelat, F.* 1112 (MAO, P[P00339165]); *Labat, J.-N.* 3268 (G[G00034240], K, MAO, MO[MO-2965774], P[P00209719]), 3272 (G[G00034255], K, MAO, MO[MO-2966248], P[P00209724, P00209725]); *Viscardi, G.* 310 (P[P02439826]).

## DESCRIPTION

Shrubs, deciduous, to 5 m tall, monoecious. **Branches** laxly pubescent with simple, erect trichomes to 1 mm long, glabrous when mature. **Axillary buds** ovoid, to 3 × 2.3 mm, perulate, perules 2, imbricate, chartaceous, blackish, glabrous. **Stipules** to 6 mm long, linear to triangular-lanceolate, becoming filiform when mature, margins scarious, sparsely hairy, glabrescent, and with some glands. **Petioles** slender, (2-)3-5(-6) cm long, pubescent with simple, curved, antrorse trichomes. **Leaf blades** 5–10 × 3–6 cm, ovate-lanceolate to elliptic-lanceolate, membranous; **base** rounded to subcordate; **apex** subacuminate to acuminate, acumen to 15 mm long, rounded; **margin** crenulate-serrulate to subentire, slightly revolute, teeth rounded; **upper surface** pubescent with simple, thin, erect trichomes, glabrescent; **lower surface** indumentum similar to that on upper surface but denser; axils of secondary veins with minute, sparsely hairy, pocket-shaped domatia, sometimes with hair-tuft domatia; margins ciliate in sinuses; venation actinodromous, basal veins 3, secondary veins 4–6 per side. **Stipels** absent. **Inflorescences** spiciform androgynous, axillary, to 6 cm long, mostly male with short female segment; peduncle thick, to 15 mm long, laxly pubescent with trichomes similar to those on young branches, glabrescent. **Female segment** to 2.5 cm long; **bracts** 1–2, sessile, enlarging in fruit to 19 × 21 mm, subreniform, veins and margin sparsely hairy with simple, erect trichomes to 1.5 mm long, glabrescent; margin crenate to subentire, sometimes dentate in young bracts, central tooth

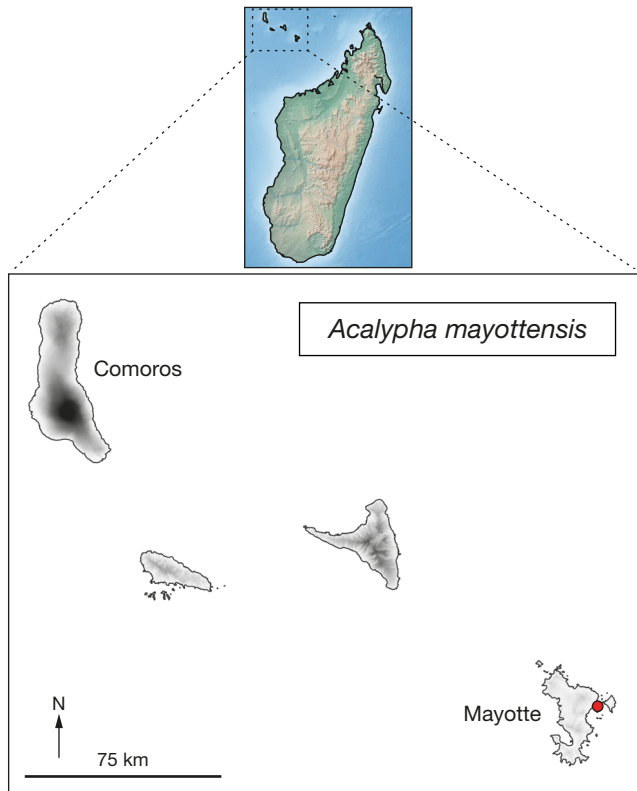


FIG. 53. — Distribution map of *Acalypha mayottensis* I. Montero & Cardiel in Comoros Archipelago.

not prominent; **bracteoles** absent. **Male segment** persistent, to 4 cm long; flowers glomerate; **bracts** to 0.5 mm long, triangular, sparsely hairy. **Male flowers**: pedicel to 1 mm long, glabrous; buds to 0.7 mm diameter, sparsely hairy with simple, arachnoid trichomes. **Female flowers** 1 per bract, sessile; **sepals** 3[4], to 0.7 mm long, ovate-triangular, sparsely hairy with simple, arachnoid trichomes; **ovary** *c.* 1 mm diameter, 3-lobed, echinate, projections and surface hispid; **styles** 3, to 3 mm long, distinct, rachis thick, appressed-pubescent, each divided into 8-10 segments. **Allomorphic flowers** not seen. **Capsules** to 4 mm diameter, erinaceous projections conical, subacute, to 1 mm long, they and surface hispid with simple, erect trichomes to 1 mm long. **Seeds** 2.5 × 2 mm, pyriform, minutely foveolate.

### 35. *Acalypha medibracteata* Radcl.-Sm. & Govaerts

*Kew Bulletin* 52 (2): 477 (Radcliffe-Smith & Govaerts 1997). — *Acalypha gagnepainii* Leandri *Notulae Systematicae. Herbarium de Paris. Phanérogamie. Paris* 10: 274 (Leandri 1942) *nom. illeg.*, non *A. gagnepainii* Merr. (Merrill 1938). — Type: Madagascar. Prov. Toliara, Massif du Vohitsiombe (Fort-Dauphin), 31.VII.1926, *R. Decary* 4664 (lecto-, designated by Montero Muñoz *et al.* [2018a: 104]: P[P00508417]; isolecto-, S[S07-14667]). — Former syntypes: Madagascar. Prov. Toliara, Vallée du Mandrare, s.d., *R. Decary* 2620 (P[P00508418]); Vallée de l'Ikonda, au N d'Ambovombe, *R. Decary* 8913 (P[P00887487]); Imangory, s.d., *R. Decary* 8948 (P[P00508416]); Beteny (limite Nord-Est de l'Androy), 22.XI.1931, *R. Decary* 9355 (P[P00508415], G[G00034242], GB[GB0047682]).

*Acalypha medibracteata* var. *calcicola* (Leandri) Radcl.-Sm. & Govaerts, *Kew Bulletin* 52 (2): 477 (Radcliffe-Smith & Govaerts 1997). — *Acalypha gagnepainii* var. *calcicola* Leandri, *Notulae Systematicae. Herbarium de Paris. Phanérogamie. Paris* 10: 275 (Leandri 1942). — Type: Madagascar. Prov. Toliara, vallée moyenne du Mandrare près d'Anadabolava, X.1933, *H. Humbert* 12422 (lecto-, designated by Montero Muñoz *et al.* [2018a: 104]: P[P00508409]; isolecto-, P[P00508405, P00508406, P00508407, P00508408]). — Former syntypes: Madagascar. Prov. Toliara, Fort-Dauphin, *J. Cloisel* 18 (P[P00508410, P00508411]); Basse vallée du Fiherenana, s.d., *H. Humbert* 11573 (P[P00508412, P00508413]).

ICONOGRAPHY. — Leandri (1942: 269); Figs 54 G, H; 57F.

ETYMOLOGY. — The epithet refers to the position of the female bracts near the middle of the bisexual inflorescences (Radcliffe-Smith & Govaerts 1997).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Menabe, Atsimo-Andrefana, Androy, and Anosy). Dry deciduous forest, dry spiny thickets, and sometimes in riparian forest. On basement rocks, Tertiary limestone, sandstone, and unconsolidated sand. Altitudinal range 100-800 m (Fig. 55).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha medibracteata* is estimated to be 85 039 km<sup>2</sup> and its AOO 92 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcategory of the Endangered category. This species grows mainly in dry deciduous forests and spiny thickets (see assessment of *A. decaryana*). The remaining original vegetation is still decreasing (Moat & Smith 2007, Gautier *et al.* 2018). *A. medibracteata* has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires for grazing and crops, logging, mining, etc.). We predict that ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha medibracteata* is assessed as Near Threatened (NT) because its AOO meets the threshold needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 41 collections. Madagascar. *Afzelius*, K. s.n. (P[P05547249]); *Baron*, R. 646 (K, P[P04779782]); *Bernardi*, L. 11576 (BR[BR0000021450181], G, P[P04779802]); *Bosser*, M.J. 3700 (P[P04779804]), 3726 (P[P04779807]), 3756 (P[P04779806]), 13871 (P[P04779812, P04779815]), 13950 (P[P04779817, P04779818]); *Cloisel*, J. 18 (P[P00508410, P00508411]); *Decary*, R. 2620 (P[P00508418]), 4664 (P[P00508417], S[S07-14667]), 8913 (L[L0241358], P[P00887487]), 8948 (NY, P[P00508416]), 9355 (G[G00034242], GB[GB-0047682], P[P00508415]), 15956 (P[P05547255]), 15963 (P[P05547041]), 15970 (P[P05547232]), 16029 (P[P00324525, P05510102]), 16103 (P[P05547231]), 16123 (P[P05547233]), s.n. (L[L0241301]); *Gillespie*, L. 10828 (MO); *Goudot*, J. 192 (G[G00420838]); *Homolle*, A.M. 1503 (P[P05547178]), 1504 (P[P05547226]); *Humbert*, H. 11573 (P[P00508412, P00508413]), 12422 (P[P00508405, P00508406, P00508407, P00508408, P00508409]), 19885 (P[P05547275, P05547276]), 29015 (P[P05547048]), 29467 (P[P04779860]); *Lam*, H.J. 5455 (L[L0241359], P[P00508414], WAG[WAG.1578538]); *O'Connor*, S. 22 (K); *Phillipson*, P.B. 1750 (P[P04779820]), 2368 (MO, P[P04779820], WAG[WAG.1578536]), 2447 (MO, P[P04779819], WAG[WAG.1578537]), 2701 (BR[BR0000016205871], P[P05547045]); *Randrianasolo*, A. 152 (P[P05547042]); *Ravelonahary* 2770-RN (P[P05547046]), 4762-RN (P[P05547043, P05547044]); *Ravelonarivo*, D. 4643 (MO[MO-3029388]); *Sauther*, M. 33 (P[P04779822]).

REFERENCES. — Govaerts *et al.* (2000: 75, 100); Montero Muñoz *et al.* (2018a: 105).





FIG. 54. — **A, B**, *Acalypha integrifolia* Willd. (photo by J. M. Sarrailh); **C, D**, *A. leptomyura* Baill. (photo by T. Randrianarivony, T. Randrianarivony 749); **E**, *A. marginata* (Poir.) Spreng. (photo by F. Duban); **F**, *A. mayottensis* I.Montero & Cardiel (photo by J.-N. Labat, J.-N. Labat 3268); **G, H**, *A. medibracteata* Radcl.-Sm. & Govaerts (photo by L. Gillespie, L. Gillespie 10828).





FIG. 55. — Distribution map of *Acalypha medibracteata* Radcl.-Sm. & Govaerts in Madagascar.

#### DESCRIPTION

Shrubs, deciduous, to 2 m tall, monoecious. **Branches** cinereous, nodose, pubescent with curved, antrorse trichomes, glabrescent when mature. **Axillary buds** ovoid, to 2 × 1.5 mm, perulate, perules 2, imbricate, chartaceous, light brown, woolly with simple, arachnoid trichomes. **Stipules** to 1.5 mm long, lanceolate, woolly with simple, arachnoid trichomes, base with some sessile glands. **Petioles** 0.5-1(-3.5) cm long, indumentum similar to that on young branches. **Leaf blades** 3.5-5(-7) × (0.5-)1-1.5(-2.5) cm, usually linear-lanceolate to oblong-lanceolate, sometimes ovate-lanceolate, membranous; **base** rounded; **apex** acute to subacuminate, acumen to 6 mm long, acute, mucronate; **margin** crenulate-serrulate, teeth with gland at apex; **upper and lower surfaces** laxly pubescent with simple, erect trichomes, and with simple, curved trichomes on veins, glabrescent; venation pinnate, secondary veins to 7-8 per side. **Stipels** glandular, to 0.2 mm diameter, glabrous. **Inflorescences** spiciform, androgynous, axillary, to 7.5 cm long; peduncle to 20 mm long, pubescent with simple, arachnoid trichomes. **Female segment** to 3.5 cm long; **bracts** 1-2(-3), sessile, enlarging in fruit to 12 × 10 mm, reniform, pubescent with short, simple trichomes and flattened,

resinous glands, glabrescent; margin denticulate to subentire, central tooth not prominent; **bracteoles** absent. **Male segment** deciduous, to 2 cm long; flowers glomerate; **bracts** to 1.2 mm diameter, orbicular, woolly with simple, arachnoid trichomes, glabrescent; flowers glomerate, with stalked, flattened, resinous glands between pedicels. **Male flowers:** pedicel to 0.6 mm long, sparsely hairy; buds to 0.6 mm diameter, sparsely hairy. **Female flowers** 2 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, sparsely hairy; **ovary** c. 1 mm diameter, 3-lobed, smooth, surface densely pubescent with simple, erect trichomes and flattened resinous glands; **styles** 3, to 5 mm long, distinct, sparsely hairy, each divided into c. 8 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, smooth, laxly pubescent with simple, short, curved trichomes and flattened resinous glands. **Seeds** c. 1.9 × 1.5 mm, pyriform, minutely foveolate.

#### 36. *Acalypha menavody* (Leandri) I. Montero & Cardiel

*PhytoKeys* 108: 105 (Montero Muñoz *et al.* 2018a). — *Acalypha spiciflora* var. *menavody* Leandri, *Notulae Systematicae. Herbarium de Muséum de Paris. Phanérogamie. Paris* 10: 270 (Leandri 1942). — Type: **Madagascar**. Prov. Antsiranana, collines et plateaux calcaires de l'Analamera, I.1938, *H. Humbert 19149* (lecto-, designated by Montero Muñoz *et al.* [2018a: 105]: P[P00536737]; isolecto-, P[P00536736, P00536738]).

ICONOGRAPHY. — Leandri (1942: 269); Fig. 57G.

ETYMOLOGY. — The epithet refers to the vernacular name of this plant, known as *Menavody* [cul rouge] (Leandri 1942).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana and Sava). Dry deciduous forest. On Mesozoic limestone. Altitudinal range 40-315 m (Fig. 56).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha menavody* is estimated to be 2994 km<sup>2</sup> and its AOO 28 km<sup>2</sup>. This species has been collected from several protected areas: Montagne des Français, which has been a protected area since 2006 (Category V; Dudley 2008), but most parts of the forest have been degraded by agriculture, grazing, and charcoal extraction (Sabel *et al.* 2009; De Block 2018); Ankarana Special Reserve (see assessment of *A. ankaranensis*); and Loky-Manambato, which has been a protected area since 2005 (Category V; Dudley, 2008), but the forest of which has been extensively degraded and continues to be threatened by subsistence farming, fires to clear land for grazing, logging, and gold extraction. The most serious threat in this last site is the illegal cutting of precious woods (Rambelison 1999; Vargas *et al.* 2002; Rakotondravony 2009; Goodman *et al.* 2018). This species has also been collected in unprotected areas. Habitat loss and continued degradation of forests in these areas lead us to assess *A. menavody* as Endangered: EN B1ab(i,iii,iv) + B2ab(ii,iii,iv).

MATERIAL EXAMINED. — 8 collections. **Madagascar:** *Bardot-Vau-coulon*, M. 1016 (K, MO, P[P00309589, P00309590], TAN); *Be*, J. 325 (K, MO); *d'Alleizette*, Ch. s.n. (L[L0241933]); *De Block*, P. 1123 (BR[BR0000009728301, BR0000009728400], G, K, MO, P[P04779776], TAN); *Humbert*, H. 19149 (P[P00324461, P00536736, P00536737, P00536738]); *Nusbaumer*, L. LN 2178 (G[G00074391]); *Ranaivojaona*, R. 1659 (CNARP, MO[MO-2965747], P, TAN); *Razafimandimbison*, S. 1771 (S[S17-48170]).

REFERENCES. — Leandri (1942: 270); Montero Muñoz *et al.* (2018a: 105).



## DESCRIPTION

Shrubs, probably deciduous, to 3 m tall, monoecious. **Branches** glabrous (youngest with some hyaline trichomes at base). **Axillary buds** ovoid, to 3 × 2 mm, perulate, perules 2, imbricate, chartaceous, blackish, glabrous; **Stipules** to 8 mm long, linear-lanceolate, ciliate with simple, arachnoid trichomes. **Petioles** slender, canaliculate, 1-2.5(-3) cm long, subglabrous, with some simple, arachnoid trichomes. **Leaf blades** 6-8(-9.5) × 4-6(-7.5) cm, broadly ovate-lanceolate, thin-membranous; **base** usually cordate, sometimes rounded to acute; **apex** acuminate, acumen to 10 mm long, rounded, mucronate; **margin** denticulate, teeth rounded to obtuse, slightly callose-edged; **upper and lower surfaces** subglabrous, with some simple, appressed trichomes on veins; venation actinodromous, basal veins 5, secondary veins 5-6 per side. **Stipels** glandular, to 0.2 mm long, sparsely hairy with some arachnoid trichomes. **Inflorescences** spiciform, androgynous, axillary, filiform, laxly flowered, to 10 cm long, mostly male with short female segment; peduncle to 45 mm long, glabrous. **Female segment** to 3.8 cm long; **bracts** (1-)2-3, sessile, enlarging in fruit to 13 mm diameter, suborbicular, glabrous; margin entire; **bracteoles** absent. **Male segment** persistent, to 5 cm long; flowers glomerate; **bracts** to 0.3 mm diameter, orbicular, sparsely hairy with some simple, arachnoid trichomes. **Male flowers**: pedicel to 0.5 mm long, glabrous; buds not seen. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, sparsely hairy with simple, arachnoid trichomes; **ovary** c. 1 mm diameter, 3-lobed, papillose, papillae acute, to 1 mm long, ending in gland, surface glabrous; **styles** 3, to 4 mm long, connate at base, rachis thick, glabrous, each divided into c. 12 segments. **Allomorphic flowers** not seen. **Capsules** to 4 mm diameter, papillose, papillae to 2 mm long, surface subglabrous, with some, sparse, simple trichomes. **Seeds** c. 3 × 2 mm, pyriform, minutely foveolate.

37. *Acalypha nusbaumeri* I.Montero & Cardiel

*PhytoKeys* 140: 69 (Montero Muñoz *et al.* 2020b). — Type: **Madagascar**. Reg. Sava [Prov. Antsiranana], sous-préfecture de Vohemar, commune rurale de Daraina, forêt de Bekaraoka, partie nord, 13°06'S, 49°42'E, 177 m, 13.II.2004, L. Nusbaumer & P. Ranirison LN1169 (holo-, G[G00028080]; iso-, K, MO, P[P01152829, P05547228]).

ICONOGRAPHY. — Montero Muñoz *et al.* (2020b); Figs 57H; 69A.

ETYMOLOGY. — The epithet honors Louis Nusbaumer, researcher and curator at the Conservatoire et Jardin botaniques de la Ville de Genève, Switzerland. Nusbaumer works on the systematics, phylogeny, biogeography, and conservation of Malagasy plants and is also the collector, with Patrick Ranirison, of the type specimen of this species.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Sava). Mainly in dry deciduous forest. On basement rocks. Altitudinal range 200-351 m (Fig. 58).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha nusbaumeri* is only known from one collection from Loky-Manambato site (see assessment of *A. menavody*). Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup>. *Acalypha nusbaumeri* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii).



FIG. 56. — Distribution map of *Acalypha menavody* (Leandri) I.Montero & Cardiel in Madagascar.

MATERIAL EXAMINED. — 1 collection. **Madagascar**: Nusbaumer, L. LN 1169 (G[G00028080], K, MO, P[P05547228, P01152829]).

## DESCRIPTION

Shrubs, probably deciduous, to 0.8 m tall, divaricately branched, monoecious. **Branches** blackish, pubescent with simple, curved, antrorse trichomes, glabrous when mature. **Axillary buds** spherical, to 1 mm diameter, perulate, perules 2, imbricate, membranous, brownish, external perule dentate, sparsely hairy. **Stipules** to 2 mm long, triangular-lanceolate, midrib prominent, sparsely hairy with simple, short, erect trichomes. **Petioles** slender, 2-3.5(-4.5) cm long, indumentum similar to that on young branches. **Leaf blades** 5-8.5 × 2.5-5 cm, ovate-lanceolate to elliptic-lanceolate, thin-membranous; **base** obtuse to rounded; **apex** subacuminate, acumen to 0.5 mm long, rounded, mucronate; **margin** crenate-serrate, teeth rounded; **upper and lower surfaces** subglabrous, with some simple, short, curved, antrorse trichomes on veins; axils of secondary veins with sparsely hairy, pocket-shaped domatia; venation actinodromous, basal veins 3 or 5, secondary veins 3-4 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to

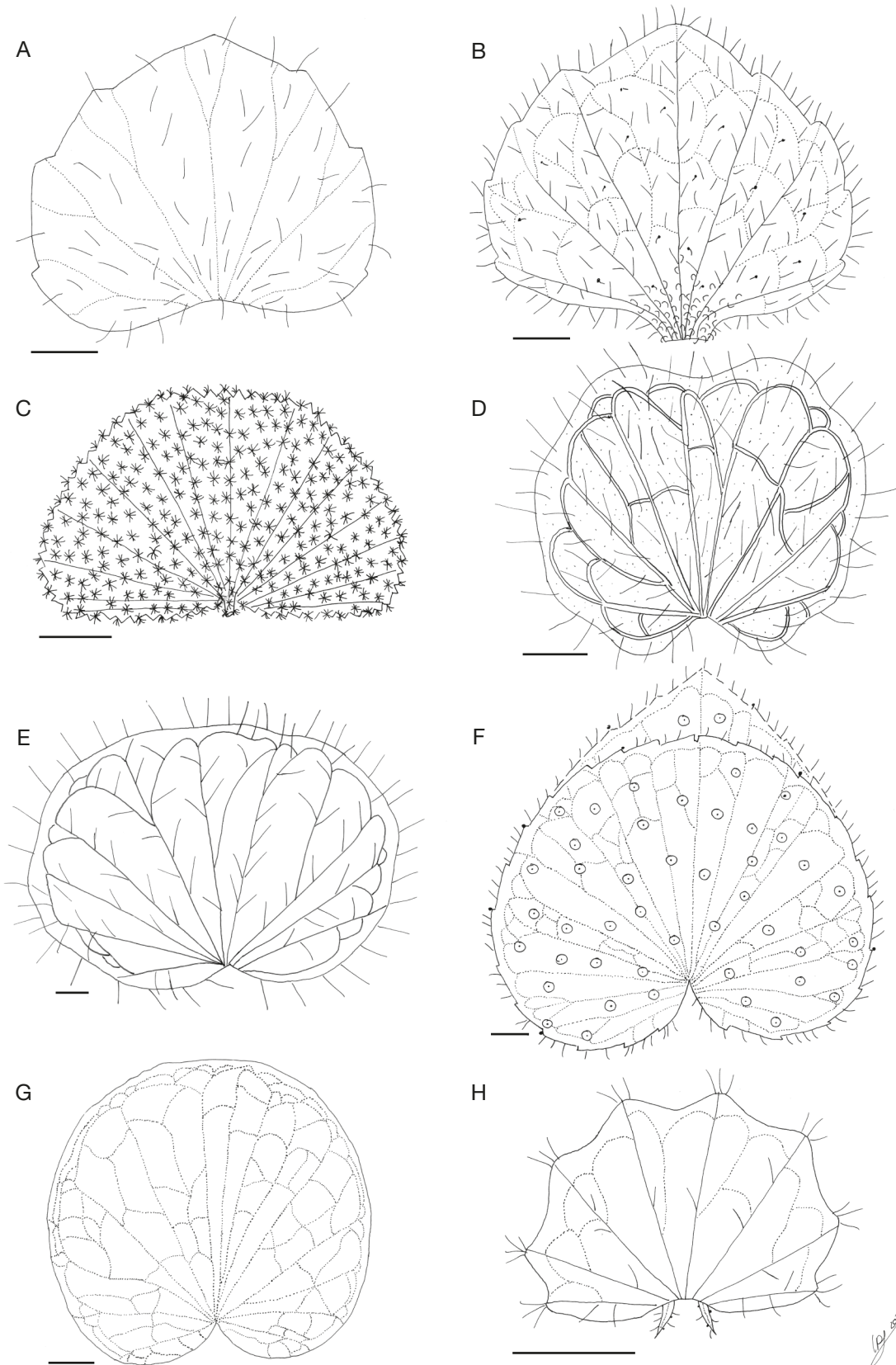


FIG. 57. — Mature female bracts: **A**, *Acalypha leptomyra* Baill. (J.-N. Labat & T. Deroin 2320); **B**, *A. levinii* I.Montero & Cardiel (L. Gillespie 10809); **C**, *A. linearifolia* Leandri (G. Cours 4638); **D**, *A. magistri* I.Montero & Cardiel (D. Ravelonarivo 273); **E**, *A. mayottensis* I.Montero & Cardiel (J.-N. Labat, F. Barthelat, C.M. Hladik & A.B. Sifary 3272); **F**, *A. medibracteata* Radcl.-Sm. & Govaerts (R. Decary 16103); **G**, *A. menavody* (Leandri) I.Montero & Cardiel (M. Bardot-Vaucoulon 1016); **H**, *A. nusbaumeri* I.Montero & Cardiel (L. Nusbaumer LN1169). Illustration by Iris Montero Muñoz. Scale bars: A, C, D, F, H, 1 mm; B, E, G, 2 mm.



1.7 cm long, mostly male with 1 female bract at base; peduncle thick, to 5 mm long, indumentum similar to that on young branches. **Female segment: bract** 1, sessile, enlarging in fruit to 2 × 2.5 mm, orbicular-reniform, translucent, subglabrous, with simple, short trichomes on teeth and veins; margin crenate, central tooth not prominent; **bracteoles** to 0.5 mm long, linear-lanceolate, sparsely hairy with simple, short trichomes, margin with some sessile glands. **Male segment** persistent, to 0.7 cm long; **bracts** to 0.5 mm long, triangular, ciliate. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds *c.* to 0.8 mm diameter, glabrous, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, lanceolate, ciliate with simple, short trichomes; **ovary** to 1 mm diameter, 3-lobed, densely papillose, papillae minute, surface hispid; **styles** 3, to 3.5 mm long, distinct, sparsely hairy, each divided into 8-10 slender segments. **Allomorphic flowers** not seen. **Capsules** (immature) to 2 mm diameter, echinate, projections to 1 mm long, surface sparsely hairy with simple, short erect trichomes *c.* 0.5 mm long. **Seeds** too young to describe.

### 38. *Acalypha perrieri* Leandri

*Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 273 (Leandri 1942). — Type: Madagascar. Prov. Mahajanga, Belambo, près de Maevatanana, VIII.1901, H. Perrier de la Bâthie 9813 (lecto-, designated by Montero Muñoz *et al.* [2018a: 107]: P[P00513095]). — Former syntypes: Madagascar. Prov. Mahajanga, Menabé, Tsiampihy, J. Leandri 275 (P[P00513092, P00513093], TAN[TAN000511]); *ibid. loc., s.d.*, J. Leandri 294 (P[P00513091]); Forêt de Tsimembo, *s.d.*, J. Leandri 420 (P[P00513094]).

ICONOGRAPHY. — Leandri (1942: 273); Figs 65A, 69C.

ETYMOLOGY. — The epithet honors French botanist Eugène Henri Perrier de La Bâthie (1873-1958).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Sofia, Boeny, Betsiboka, Melaky, Menabe, and Atsimo-Andrefana). Dry deciduous forest and dry spiny thickets. On Mesozoic limestone and sandstone. Altitudinal range (30-) 100-830 m (Fig. 59).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha perrieri* is estimated to be 160733 km<sup>2</sup> and its AOO 68 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows mainly in dry deciduous forest and spiny thickets (see assessment of *A. decaryana*). The remaining original vegetation is still decreasing (Moat & Smith, 2007, Gautier *et al.* 2018). *Acalypha perrieri* has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires for grazing and crops, logging, mining, etc.). We predict that ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha perrieri* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 23 collections. **Madagascar:** Appert, O.P. 132 (P[P00324519]); Decary, R. 15685 (P[P00324537, P05510112]), 15732 (P[P05510107]), 15792 (P[P00324588]), 15839 (P[P05547229]); Gautier, L. LG 5615 (G[G00376050]), LG 5626 (G[G00376039]); Gillespie, L. 4123 (K, MO), 10814 (CAN), 10835 (MO); Humbert, H. 19441 (P[P00324582]), 19629 (B[B100480024]), G, MA, P[P05547179]); Leandri, J.



FIG. 58. — Distribution map of *Acalypha nusbaumeri* 1. Montero & Cardiel in Madagascar.

275 (P[P00513092, P00513093], TAN[TAN000511]), 294 (P[P00513091]), 420 (P[P00513094]), 3887 (P[P05543669]); Nicoll, M.F. 159 (MO, WAG[WAG.1578521]); Perrier de la Bâthie, H. 9813 (P[P00513095]); Rakotovo, C. 5692 (P[P05547018]); Ranaivoson, N. T. RNT 255 (P[P00780183]); Razakamalala, R. 1733 (MO[MO-2965750], P[P00886877], TEF); Réserves Naturelles Madagascar 5692 (P[P00324513]).

REFERENCES. — Govaerts *et al.* (2000: 81); Montero Muñoz *et al.* (2018a: 107).

#### DESCRIPTION

Shrubs, deciduous, to 2 m tall, divaricately branched, monoecious. **Branches** angled, laxly pubescent with simple, short, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** spherical, to 2 mm diameter, perulate, perules 2, imbricate, chartaceous, brownish, glabrous; **Stipules** to 4 mm long, linear, pubescent with simple, short trichomes, margin with some short, glandular trichomes. **Petioles** very slender, 1-2 cm long, indumentum similar to that on young branches. **Leaf blades** 3.5-6[-8.5] × 1.5-2(-2.4) cm, usually elliptic-lanceolate to ovate-lanceolate, sometimes obovate-lanceolate, membranous; **base** rounded to acute; apex abruptly acuminate.

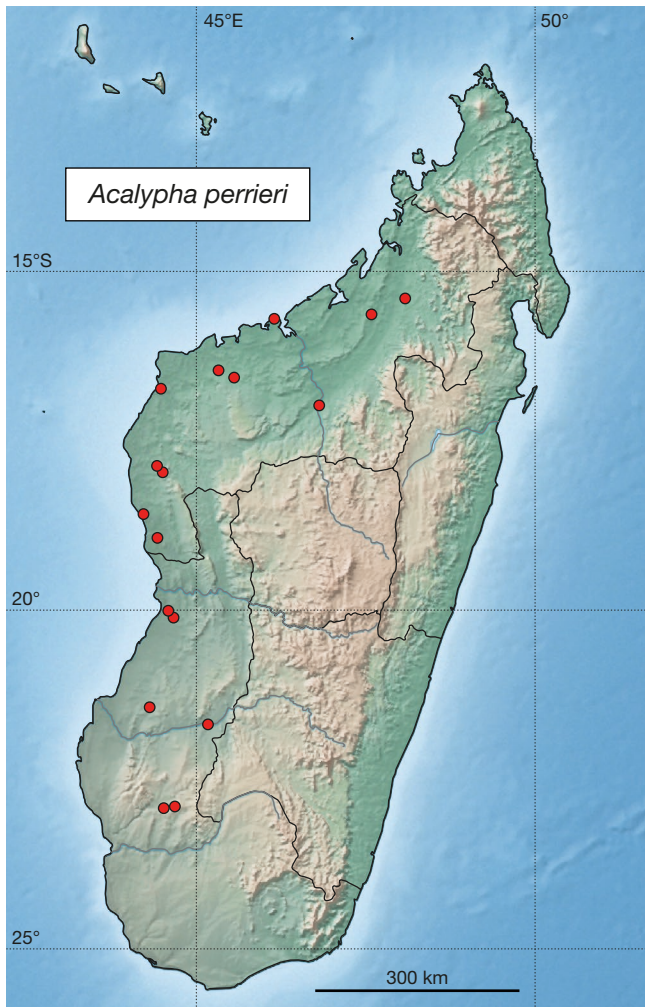


Fig. 59. — Distribution map of *Acalypha perrieri* Leandri in Madagascar.

nate, acumen to 13 mm long, rounded, mucronate; **margin** serrate, sometimes discolorous, teeth acute, sometimes with gland at apex; **upper and lower surfaces** subglabrous, with some sparse, simple, short, appressed trichomes, especially on veins; margin ciliate in sinuses; venation actinodromous, basal veins 3, secondary veins 4-5 per side. **Stipels** glandular, 0.2 mm long, glabrous. **Inflorescences** spiciform, androgynous, axillary, to 3 cm long, mostly male with 1 female bract at base; peduncle to 14 mm long, indumentum similar to that on petioles. **Female segment: bract** 1, sessile, enlarging in fruit to 7 × 12 mm, reniform, subglabrous, with some sparse, simple, short trichomes; margin entire; **bracteoles** absent. **Male segment** persistent, to 1.5 cm long; flowers glomerate; **bracts** to 0.5 mm long, triangular, sparsely hairy with simple, short arachnoid trichomes. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds not seen. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, triangular-lanceolate, sparsely hairy with short, simple trichomes; **ovary** *c.* 1 mm diameter, 3-lobed, papillose, surface sparsely hairy with simple, short trichomes; **styles** 3, to 3 mm long, slightly connate at base, densely pubescent with simple, hyaline trichomes, each divided into *c.* 16 segments. **Allomorphic flowers** not

seen. **Capsules** to 4 mm diameter, papillose, papillae acute, to 1 mm long, surface pubescent with simple, short trichomes. **Seeds** *c.* 1.5 × 1 mm, pyriform, minutely foveolate.

### 39. *Acalypha pervilleana* Baill.

*Adansonia, recueil d'observations botaniques* 1: 273 (Baillon 1861). — *Acalypha reticulata* var. *pervilleana* (Baill.) Müll.Arg., *Linnaea* 34: 32 (Müller Argoviensis 1865). — *Acalypha filiformis* var. *pervilleana* (Baill.) Govaerts, *World Checklist and Bibliography of Euphorbiaceae (and Pandaceae)* 62 (Govaerts *et al.* 2000). — Type: Madagascar. Prov. Antsiranana, Nossibé, 1840, *M. Richard* 384 (lecto-, designated by Montero Muñoz *et al.* [2018a: 106]: P[P00536745]; isolecto-, P[P05604474]). — Former syntypes: Madagascar. Prov. Antsiranana, Nossibé, *M. Pervillé* 368 (P[P00536746, P00536747]).

*Acalypha humblotiana* Baill., *Histoire physique, naturelle et politique de Madagascar, Atlas*, 2, fasc. 27: t. 196 (Baillon 1891). — *Acalypha reticulata* var. *urophylla* f. *humblotiana* (Baill.) Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 262 (Leandri 1942). — Type: Comoros. Grande Comore, 14.XI.1885, *L. Humblot* 1461 (lecto-, designated by Montero Muñoz *et al.* [2018a: 106]: P[P00196295]; isolecto-, P[P02712292, P00196296]).

*Acalypha paxii* Aug.D.C., *Bulletin de l'Herbier Boissier* 2, 1: 567 (De Candolle 1901). — *Acalypha urophylla* Pax, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie. Leipzig* 19: 96 (Pax 1894) *nom. illeg.*, non *A. urophylla* Boivin ex Baill. (Baillon 1861). — *Acalypha reticulata* var. *urophyloides* Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 105 (Pax & Hoffmann 1924). — *Acalypha filiformis* var. *urophyloides* (Pax & K.Hoffm.) Govaerts, *World Checklist and Bibliography of Euphorbiaceae (and Pandaceae)* 63 (Govaerts *et al.* 2000). — Type: Madagascar. Prov. Antsiranana, Nossibé, nordwest, II.1880, *J. M. Hildebrandt* 3356 (holo-, B or WRSL, presumably destroyed; lecto-, designated by Montero Muñoz *et al.* [2018a: 105]: BREM[BREM0001784]; isolecto-, JE[JE00004293, JE00004294], K[K000186531], M[M0110600], P[P00536741, P00536742, P00536743]), **syn. nov.**

ICONOGRAPHY. — Baillon (1891: t. 190); Figs 65B, C; 69B.

ETYMOLOGY. — The epithet honors French botanist Auguste Pervillé (*c.* 1868), who collected in WIOR in 1837-1841.

DISTRIBUTION AND HABITAT. — Madagascar (Diana, Sava and Analanjirofo) and the Comoros Archipelago (Grande Comore, Anjouan, Moheli, and Mayotte). In Madagascar: medium altitude moist evergreen forest, lowland evergreen moist forest, and riparian forest; on basalt and basement rocks; altitudinal range (10-) 95-1250(-1600) m. In the Comoros Archipelago: medium and lowland altitude moist evergreen forest and secondary forest. Altitudinal range 400-1700 m (Fig. 60).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha pervilleana* is known from Madagascar and the Comoros. In the Comoros, its EOO is estimated to be 9851 km<sup>2</sup> and its AOO 80 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category (see assessment of *A. chibomboia* in Comoros). In Madagascar, its EOO is estimated to be 29 562.918 km<sup>2</sup> and its AOO 52 km<sup>2</sup>. This species grows mainly in moist evergreen forests (see assessment of *A. emirnnensis*). It has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats (uncontrolled fires mainly for rice crops, logging, mining, etc.). We predict that ongoing habitat loss will cause continued decline of its EOO and AOO. Throughout its range,



*A. pervilleana* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

**MATERIAL EXAMINED.** — 50 collections. **Comoros Archipelago.** *Barthelot*, F. 678 (B, G, K, MAO, MO[MO-2965832], P[P00273172]), 940 (P[P00290397]), 1363 (G, K, MAO, MO[MO-2966196], P[P00631026]), 1364 (MO[MO-2966199], P[P00631027]), 1438 (MAO, MO[MO-2966198], P[P00631098]); *Bernardi*, L. 11643 (G, L[L0160780], P[P00196502], US[US01295513]); *Bidault*, E. 105 (G, MAO, MO, P[P00852605]); *Boiteau*, P. 2576 (P[P04804506]); *Charahabil*, M. 43 (P[P00577880]); *D'Arcy*, W.G. 17576 (G, MO[MO-2965852], P[P05510100]); *Doutrellepont*, H. 1238 (BR[BR0000016205239]); *Ducatillion*, C. 425 (P[P00196230], P00196231); *Floret*, J.J. 682 (P[P00196232], P00196233), 1251 (P[P00196126], P00196127]); *Hoffmann*, P. 417 (MO[MO-2965874], P[P00538303]); *Humblot*, L. 243 (K), 1243 (P[P00196292], P00196293, P00196294), 1461 (P[P00196296], P00196295, P02712292); *Jacquemin*, H. 854-J (P[P04804493], P04804494); *Kirk* 12178 (K); *Labat*, J.-N. 3156 (CNDRS, G, K, MO[MO-2965823], P[P00184026]), 3259 (G[G00034244], K, MAO, MO[MO-2966218], P[P00209710]), 3260 (G, K, MAO, MO[MO-2965833], P[P00209711]), 3793 (CNDRS, K, MO[MO-2966275], P[P00527421]); *Loup*, C. 441 (P[P00852810]); *Malaisse*, F. 419 (BR[BR0000014293498]); *Pascal*, O. 682 (K, MO[MO-2965837], P[P00144573], WAG[WAG.1196540]); *Pignat*, M. 3387 (CNDRS, K, P[P00684806]); *Rakotozafy*, A. 1130 (P[P00334971]); *Service Forestier Madagascar* 16656-SF (P[P00334972]), 21723-SF (P[P00334974]).

**Madagascar.** *Acevedo-Rodriguez*, P. 14549 (US[US01111531]); *Adamainty*, J.F. 3 (MAUAM, MO, TAN); *Ammann*, M.Y. MYA 186 (G, K, P[P04786269]); *Baron*, R. 6223 (K, P[P04804516]); *Desvaux*, A.N. 599 (P[P04804509]); *Gillespie*, L. 10647 (MO), 10649 (MO); 10722 (CAN); *Hildebrandt*, J.M. 3356 (BREM[BREM\_0001784], G[G00034249], JE[JE00004293, JE00004294], K[K000186531], L[L0242107], M[M0110600], P[P00536741, P00536742, P00536743]); *Malcomber*, S. 2463 (P[P04804705]); *Mocquerys*, A. 159 (G[G00034248]); *Pervillé*, A. 368 (P[P00536746, P00536747]); *Ravelonarivo*, D. 2113 (MAUAM, MO[MO-2966285], P[P05604427]); *Razafimandimbison*, S. 2605 (S[S19-24955]); *Razafitsalama*, L. J. 1063 (G[G00420833], K, P[P05482500]); *Razakamalala*, R. 3033 (G, MO[MO-3025024], P[P05604425]); *Richard*, M. 282 (P[P04804510]), 384 (P[P00536745, P05604474]).

**REFERENCES.** — Müller Argoviensis (1866: 852) as *A. reticulata* var. *pervilleana*; Müller Argoviensis (1866: 852) as *A. reticulata* var. *pervilleana*; Müller Argoviensis (1882: 26) as *A. reticulata* var. *urophylla*; Baillon (1892: 1004) as *A. pervilleana*; Baillon (1895: 1197) as *A. humblotiana*; Palacký (1907: 25, 26); Pax & Hoffmann (1924: 105, 112) as *Acalypha reticulata* var. *urophyloides* and *A. reticulata* var. *pervilleana*; Leandri (1942: 258, 260) as *A. reticulata* var. *pervilleana*; Govaerts *et al.* (2000: 62, 63, 75, 104 105, 107); Montero Muñoz *et al.* (2018a: 105).

#### DESCRIPTION

Shrubs, leaf persistence unknown, to 4 m tall, monoecious. **Branches** pubescent with simple, erect trichomes to 1 mm long and simple, short, curved trichomes, glabrescent when mature. **Axillary buds** ovoid, to 1 × 0.7 mm, perulate, perules 2, valvate, membranous, dark brown, sparsely hairy, margin with some sessile glands. **Stipules** to 10 mm long, linear-lanceolate, hispid with simple, erect trichomes to 1 mm long. **Petioles** (1-)1.5-5.5 cm long, indumentum similar to that on young branches, glabrescent. **Leaf blades** 7-16(-22) × (1-)2-3(-5.5) cm, ovate-lanceolate to elliptic-lanceolate, subchartaceous;

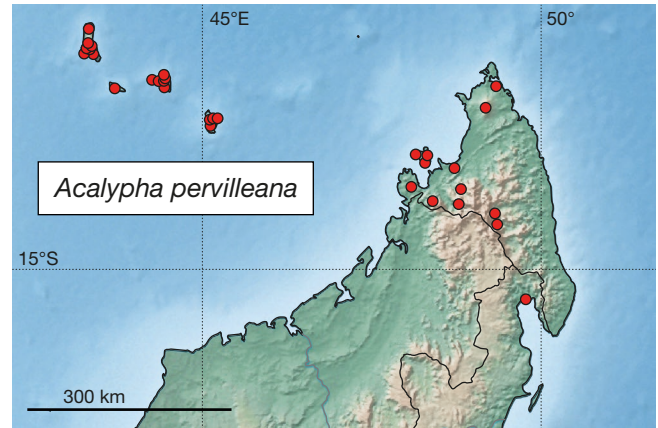


Fig. 60. — Distribution map of *Acalypha pervilleana* Baill. in Comoros Archipelago and Northern Madagascar.

**base** rounded to obtuse; **apex** acuminate to caudate, acumen to 40 mm long, acute, mucronate; **margin** serrate, teeth obtuse to apiculate, slightly callose-edged; **upper surface** laxly pubescent with simple, erect trichomes, and with simple, short, curved trichomes on veins, glabrescent; **lower surface** indumentum similar to that on upper surface but denser; venation actinodromous, basal veins 3, secondary veins 6-10 per side. **Stipules** absent. **Inflorescences** spiciform, androgynous, male, and solitary female bracts, mainly axillary, some androgynous inflorescences terminal. **Androgynous inflorescences** to 10 cm long, mostly male with short female segment; sessile; rachis indumentum similar to that on petioles. **Female segment** to 2 cm long; **bracts** 1-5 sessile, enlarging in fruit to (6-)10 × (8-)12 mm (sometimes 20 × 22 mm), triangular to elliptic, chartaceous, appressed-pubescent with simple, short, appressed trichomes mainly on veins and some simple trichomes to 1 mm long, sometimes with minute glandular trichomes that are deciduous when bract matures; margin dentate, teeth 7-9, triangular, central tooth usually prominent; **bracteoles** absent. **Male segment** persistent, to 8 cm long; flowers glomerate; **bracts** to 1.2 mm long, ovate-triangular, ciliate, with rigid trichomes to 0.5 mm long. **Male inflorescences** to 7.5 cm long; peduncle to 1 mm long, pubescent with simple, short, erect trichomes. **Solitary female bracts** sessile, similar to those of androgynous inflorescences. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, sparsely hairy, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.8 mm long, triangular, ciliate with simple, erect trichomes; **ovary** c. 1 mm diameter, 3-lobed, papillose, papillae minute, surface hispid with simple, erect trichomes to 2 mm long; **styles** 3, to 7 mm long, distinct, sparsely hairy, each divided into 10-14 segments. **Allomorphic flowers** sometimes present, axillary; pedicel filiform, to 20 mm long, sparsely hairy; sepals 3, similar to those of normal flowers; ovary 1-lobed, to 4 mm diameter, pubescent with simple, short trichomes, distally fimbriate; style 1, to 5 mm long, sparsely hairy. **Capsules** to 3.5 mm diameter, papillose-hispid, papillae acute, to 0.8 mm, ending in erect trichome to 1 mm long, surface sparsely hairy with simple, short trichomes. **Seeds** c. 1 × 0.7 mm, pyriform, foveolate.

NOTES

1) We previously proposed *Acalypha paxii* Aug.D.C. as the accepted name for this species (Montero Muñoz *et al.* 2018a), but applying the rule of priority, the accepted name must be *A. pervilleana* Baill., with *A. paxii* placed in synonymy. We consider *A. pervilleana* to be a distinct species, despite having been considered a synonym of *A. reticulata* (treated here as *A. filiformis*). *Acalypha pervilleana* can be differentiated from *A. filiformis* by its sessile, dentate female bracts with a prominent central tooth vs pedicellate, crenate to subentire female bracts in *A. filiformis* (see notes in *A. filiformis*). *Acalypha pervilleana* can be distinguished from *A. urophylla*, which has also been placed within *A. reticulata*, mainly by its leaves with usually caudate apices and its dentate female bracts with a prominent central tooth and eglandular margins, vs leaves with usually acuminate apices and dentate female bracts without a prominent central tooth and with small sessile glands at the margins. See notes under *A. gracilipes* Baill. for the differences between *A. pervilleana* and that species; 2) *Acalypha humblotiana* was first illustrated, without description, in Baillon (1891), but this illustration is inconsistent with his (Baillon 1895b) later description and with the specimen on which the description presumably was based (*L. Humblot* 1461); and 3) although *Richard* 384 [P00536745] and 385 [P04779454] have labels giving the locality as “Bourbon”, now La Réunion, these are not Richard’s original labels and the species is otherwise unknown from the Mascarene Islands. We have no evidence that it occurs there.

40. *Acalypha poiretii* Spreng.

*Systema vegetabilium* 3: 879 (Sprengel 1826). *Ricinocarpus poiretii* (Spreng.) Kuntze, *Revisio Generum Plantarum* 2: 618 (Kuntze 1891). — Type: “Amer. trop.” s.loc., s.d., *Anonymous s.n.* (holo-, P-LAM[P00382110]).

ICONOGRAPHY. — Instituto de Botánica Darwinion (2022); Fig. 65D.

ETYMOLOGY. — The epithet honors French naturalist Jean Poiret (1755-1834).

DISTRIBUTION AND HABITAT. — Native to the Americas. It has been reported from continental Africa (Radcliffe-Smith 1978; Cardiel & Montero Muñoz 2018). Introduced in the Mascarene Islands (Mauritius, La Réunion and Rodríguez) (Fig. 61).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha poiretii* is widely distributed in the Americas, has a large EOO and AOO, a wide elevational range, and occurs in many different ecosystems. Therefore, we assess *A. poiretii* as Least Concern (LC).

MATERIAL EXAMINED. — 23 collections. **Mauritius.** *Anonymous s.n.* (G[G00324866]); *Anonymous s.n.* (P[P04779771]); *Ayres, P.B. s.n.* (BR[BR0000014627545]), *s.n.* (BR[BR0000014628016]); *Boivin, L.H. s.n.* (P[P04779760]); *Bouton, L. s.n.* (G[G00324860]); *Cadet, Th. 2532* (P[P04779763]); *Commerson, P. s.n.* (P[P00678929]), *s.n.* (P[P04779769]), *s.n.* (P[P04779770]); *Council of King’s College s.n.* (K); *Grey, D. s.n.* (K); *Herb. Richard s.n.* (P[P04779773]); *Jussieu, A. s.n.* (P[P04779772]); *Lahaie s.n.* (P[P04779764]); *Richard, M. 4* (P[P04779762]); *Royal Botanical Gardens 164* (K); *Vesco, M. s.n.* (P[P04779765]); *Webb, M. s.n.* (G).

**La Réunion.** *Barthe, M. s.n.* (P[P04779768]); *Boivin, L.H. s.n.* (P[P04779774]); *du Petit-Thouars, L.M.A. s.n.* (P[P04779761]);

*Richard, M. 15* (P[P04779766]).

REFERENCES. — Baker (1877: 315); Cordemoy (1895: 312); Coode (1982: 79); Sagun *et al.* (2006: 124); Montero Muñoz *et al.* (2018a: 107).

DESCRIPTION

Annual herbs, to 0.5(-0.7) m tall, monoecious. **Branches** pubescent with simple, short, curved trichomes, long, erect trichomes, and glandular trichomes, glabrescent when mature. **Axillary buds** naked, pubescent with simple, short trichomes. **Stipules** to 2 mm long, triangular-lanceolate to subulate, sparsely hairy. **Petioles** slender, (0.5-)2-4(-5) cm long, indumentum similar to that on young branches. **Leaf blades** (2-)3-6(-8) × (1-)1.5-4 cm, usually ovate-lanceolate, sometimes subrhombic, membranous; **base** rounded to subacute; **apex** acute to acuminate, acumen 4 mm long; **margin** serrate to crenate-serrate, teeth obtuse, sometimes callose-edged; **upper and lower surfaces** laxly pubescent with simple, short, appressed trichomes on veins and sometimes with some glandular trichomes; **margin** ciliate; venation actinodromous, basal veins 5, secondary veins 4-5 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 3 cm long, mostly female with short male segment; peduncle to 1 mm long, pubescent with simple, curved, antrorse trichomes. **Female segment** densely flowered, to 2 cm long; **bracts** 16-20, sessile, enlarging in fruit to 5 × 6 mm, pubescent with simple trichomes to 1 mm long and some glandular trichomes; **margin** deeply dentate, teeth 7-8, to 1/3 bract length, narrowly triangular, central tooth not prominent; **bracteoles** absent. **Male segment** persistent, to 1 cm long; flowers glomerate; **bracts** to 0.5 mm long, oblong, ciliate. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, glabrous, papillose. **Female flowers** 1 per bract, sessile; **sepals** 3-4, to 0.5 mm long, ovate-lanceolate to oblong-lanceolate, ciliate; **ovary** c. 0.5 mm diameter, 3-lobed, smooth, surface pubescent with hyaline trichomes; **styles** 3, to 5 mm long, distinct, glabrous, each divided into 1-2 segments. **Allomorphic flowers** sometimes present at inflorescence apex; pedicel filiform, to 3 mm long, pubescent with simple, hyaline trichomes to 1 mm long; **sepals** 3, to 0.5 mm long, ovate-lanceolate, ciliate with simple, short trichomes; **ovary** 1-lobed, to 2.5 × 2 mm, densely pubescent with simple, flattened, hyaline trichomes to 0.5 mm long, distally fimbriate; **style** 1, to 2 mm long, glabrous. **Capsules** to 2 mm diameter, smooth, surface pubescent with simple, short, hyaline trichomes and some simple, erect trichomes to 1 mm long. **Seeds** c. 2 × 1 mm, pyriform, minutely foveolate.

41. *Acalypha rabesabalana* I.Montero & Cardiel

*Systematic Botany* 45 (1): 123 (Montero Muñoz *et al.* 2020a). — Type: **Madagascar.** Diana [Antsiranana], collines et plateaux calcaires de l’Ankarana au Nord (prov. Diego-Suarez), c. 200 m, 12°54’1.27”S, 49°7’58.8”E, *H. Humbert* 32455 (holo-, P[P05543679]; iso-, P[P00324596], TAN). — Paratypes: **Madagascar.** Diana region (Antsiranana prov.), collines et plateaux de l’Ankarana du nord (Province de Diego-Suarez), c. 200 m, 12°54’1.27”S, 49°7’58.8”E, 24-29.II.1960, *H. Humbert & G. Cours* 32480 (G[G00420853], MO, P[P00324454], TAN, WAG[WAG.1810617]).



ICONOGRAPHY. — Montero Muñoz *et al.* (2020a); Fig. 65E.

ETYMOLOGY. — The epithet honors Gisèle Rabesahala (1929–2011), Malagasy politician and activist, who was the first woman to hold a ministerial position in the government of Madagascar. She fought for her country's independence and human rights (Altius & Raveloharimisy 2016).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana). Dry deciduous forest. On Mesozoic limestone. Altitudinal range 200–350 m (Fig. 62).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha rabesahalana* is known only from two collections. Its EOO could not be calculated; its AOO is estimated to be 8 km<sup>2</sup>. This species appears to be a narrow endemic known only from the Ankarana massif (see assessment of *A. ankaranensis*). No specimens of this species have been collected for 60 years, so we cannot rule out that this species has become extinct. In recognition of its restricted geographic range (a single known location), the cited threats, and the absence of recent collections, *Acalypha rabesahalana* is assigned a preliminary conservation status of Critically Endangered: CR B2ab(ii,iii), probably extinct (EX).

MATERIAL EXAMINED. — 2 collections. **Madagascar.** *Humbert, H.* 32455 (P[P00324596, P05543679]), 32480 (G[G00420853], MO, P[P00324454], TAN, WAG[WAG.1810617]).

#### DESCRIPTION

Perennial herbs or rhizomatous subshrubs, to 0.5 m tall, monoecious. **Branches** puberulent with simple, curved, antrorse trichomes, glabrescent when mature. **Axillary buds** spherical, to 0.5 mm diameter, perulate, perules 2, valvate, membranous, brownish, puberulent with simple, short, appressed trichomes. **Stipules** to 3 mm long, narrowly triangular-lanceolate, acute, appressed puberulent, margin ciliate with hyaline trichomes to 1 mm long. **Petioles** slender, (6-)7-11 cm long, indumentum similar to that on young branches, and with slender, erect trichomes to 1 mm long. **Leaf blades** (5-)7-9 × (4-)6-8 cm, ovate to ovate-lanceolate, membranous; **base** subcordate; **apex** acuminate, acumen to 7 mm long, callose-edged; **margins** crenate-dentate, teeth rounded, callose-edged; **upper surface** laxly pubescent with some sparse, simple trichomes to 1 mm long, and with simple, minute, curved trichomes on veins; **lower surface** indumentum similar to that on upper surface but denser, curved trichomes on veins absent; venation actinodromous, basal veins 3 or 5, secondary veins 4-6 per side. **Stipels** absent. **Inflorescences** spiciform, unisexual, axillary (male) or subterminal (female). **Male inflorescences** to 6.5 cm long; peduncle to 20 mm long, it and rachis with indumentum similar to that on young branches; flowers densely glomerate; **bracts** to 0.5 mm long, triangular, sparsely hairy. **Female inflorescences** laxly flowered, to 3 cm long; peduncle to 15 mm long, indumentum similar to that on young branches; **bracts** to 5-10, sessile, enlarging in fruit to 3 × 5 mm, with hyaline trichomes to 1 mm long and simple, short trichomes; margin dentate, teeth 7-8, to 1/3 bract length, triangular-ovate, central tooth not prominent; **bracteoles** to 0.4 mm long, lanceolate, sparsely hairy. **Male flowers:** pedicel to 1 mm long, hispidulous; buds to 1 mm diameter, puberulent. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular-lanceolate, ciliate; **ovary** c. 0.8 mm

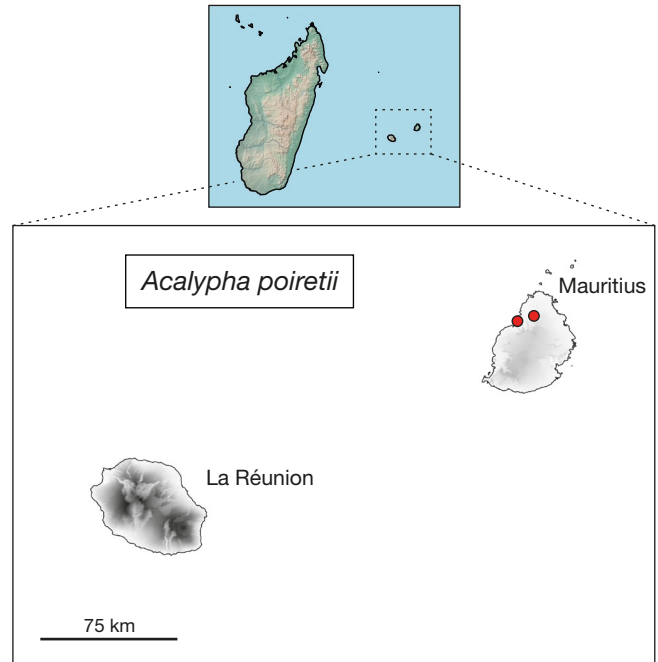


FIG. 61. — Distribution map of *Acalypha poiretii* Spreng. in Mascarene Islands.

diameter, 3-lobed, apparently smooth, surface densely hispid; **styles** 3, to 4 mm long, connate at base, papillose and hispidulous at base, each divided into 5-6 slender segments. **Allomorphic flowers** sometimes present at female inflorescence apex; pedicel filiform, to 5 mm long, puberulent with simple, short, curved, antrorse trichomes; sepals 3, similar to those of normal flowers; ovary not seen. **Capsules** to 2 mm diameter, papillose, papillae obtuse, surface pubescent with simple, short trichomes. **Seeds** too young to describe.

#### 42. *Acalypha radula* Baker

*Journal of the Linnean Society. Botany. London* 20: 254 (Baker 1883). — Type: **Madagascar**: “Central Madagascar”, 1882, *R. Baron 1818* (lecto-, designated here: K[K000186509]; isolecto-, P[P00513119, P00513120]).

*Acalypha hildebrandtii* Baill., *Bulletin mensuel de la Société linéenne de Paris* 2: 1005, 1180 (Baillon 1892). — Type: **Madagascar**. Prov. Fianarantsoa, “Betsileo, Nandahizana”, *J. M. Hildebrandt 3900* (lecto-, designated here: P[P00513121]; isolecto-, BREM[BREM\_0001783], G[G00074184, G00190630], JE[JE00000288, JE00000289], K[K000186507], M[M0110604], P[P00513122]).

*Acalypha salviifolia* Baill., *Étude générale du Groupe de Euphorbiacées* 443 (Baillon 1858), *nom. nud.*

*Tragia salviaefolia* Boj. ex Baill., *Étude générale du Groupe de Euphorbiacées* 443 (Baillon 1858), *nom. nud.*

ICONOGRAPHY. — Baillon (1891: pl. 193); Figs 65F; 69D.

ETYMOLOGY. — The epithet is taken from the Latin word ‘*radula*’, scraper, probably in reference to the rough appearance of the leaf surface.



FIG. 62. — Distribution map of *Acalypha rabesahalana* I.Montero & Cardiel in Madagascar.

**DISTRIBUTION AND HABITAT.** — Endemic to Madagascar (Alaotra-Mangoro, Analamanga, Itasy, Vakinankaratra, Amoron'i Mania, and Haute Matsiatra). Sclerophyllous woodlands and secondary forest. On basement rocks. Altitudinal range (800-) 1500-2000 m (Fig. 63).

**PRELIMINARY CONSERVATION ASSESSMENT.** — The EOO of *Acalypha radula* is estimated to be 33 908 km<sup>2</sup> and its AOO 60 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows in the sclerophyllous woodlands in the highlands (see assessment of *A. leptomyura*). This species has been collected in degraded forests and in unprotected areas, and in many localities. Its habitat is subject to various threats (uncontrolled fires for grazing and crops, charcoal production), so we predict that ongoing habitat loss and degradation will cause continued decline of its EOO and AOO. *Acalypha radula* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

**MATERIAL EXAMINED.** — 28 collections. **Madagascar.** *Anonymous* 9628 (P[P00513109]); *Anonymous s.n.* (P[P00513097]); *Baron, R.* 272 (P[P00513096]), 1818 (K[K000186509], P[P00513119, P00513120]), 4068 (K[K000384473]); *Benoist, M.R.* 244 (P[P00513098]); *Bojer, W. s.n.* (P[P00724168]); *Bosser, M.J.* 15133 (P[P04779790, P04779793]), 19481 (P[P04779797]); *Catat,*

*L.D.M.* 413 (P[P00513099]); *d'Alleizette, Ch. s.n.* (L[L0242131]); *Decary, R.* 13008 (P[P00513100]); *Gillespie, L.* 10757 (MO), 10758 (MO); *Hildebrandt, J.M.* 3865 (BREM[BREM\_0001787], G[G00034245], P[P00513101, P00513102, P00513103]), 3900 (BREM[BREM\_0001783], G[G00074184, G00190630], JE[JE00000288, JE00000289], K[K000186507], M[M0110604], P[P00513121, P00513122]); *Humbert, H.* 4575 (P[P00513107]), 29970 (G, P[P05547266]); *Jard. Bot. Tananarive* 2528 (P[P00513106]), 4537 (P[P00513104, P00513105]); *Le Myre de Villers, M. s.n.* (P[P00513108]); *Perrier de la Bâthie, H.* 9672 (P[P00513110, P00513111]), 9862 (P[P00513116]), 13357 (P[P00513114, P00513115]); *Razafimandimbison, S.* 1359 (S[S16-50647]); *Service Forestier Madagascar 45-SF* (P[P00513112]), *s.n.* (P[P00513113]); *Viguier, R.* 1836 (P[P00513118]).

**REFERENCES.** — Baillon (1861: 268) as *A. salviifolia*; Müller Argoviensis (1866: 889) as *A. salviifolia*; Baillon (1891: 193); Baillon (1892: 1004) as *A. salviifolia*; Baillon (1895a: 1180) as *A. hildebrandtii*; Palacký (1907: 25) as *A. hildebrandtii*; Palacký (1907: 26); Palacký (1907: 26) as *A. salviifolia*; Pax & Hoffmann (1924: 102) as *A. salviifolia*; Pax & Hoffmann (1924: 156) as *A. hildebrandtii*; Leandri (1942: 278); Leandri (1952); Jenkins (1987: 347); Jenkins (1990: 408, 433); Govaerts et al. (2000: 67) as *A. hildebrandtii*; Govaerts et al. (2000: 85, 86, 105) as *A. salviifolia*; Schatz (2001: 142); Sagun et al. (2006: 124); Seebaluck et al. (2015: 149, 153); Montero Muñoz et al. (2018a: 108).

**DESCRIPTION**

Shrubs, evergreen, to 2.5 m tall, monoecious or dioecious. **Branches** densely pubescent with simple, short, more or less appressed trichomes and hyaline trichomes to 0.8 mm long, glabrescent when mature. **Axillary buds** ovoid, to 2 × 1.5 mm, perulate, perules 2, imbricate, chartaceous, blackish, pubescent with simple, short trichomes. **Stipules** to 8 mm long, triangular-lanceolate, midrib thick, margin scarios, appressed-pubescent, especially on midrib. **Petioles** 0.5-2.2(-3) cm long, indumentum similar to that on young branches and with scattered short, glandular trichomes. **Leaf blades** conspicuously bullate, 6-10 × (1.5-)2-3(-3.5) cm, narrowly triangular-lanceolate to linear-lanceolate, subchartaceous; **base** rounded to truncate, sometimes subcordate; **apex** rounded to acute; **margin** serrate, teeth subacute, irregular; **upper surface** pubescent with simple, short, erect, trichomes on top of blisters and on main veins and scattered, short, glandular trichomes, denser on veins near base, and sometimes stellate or fasciculate trichomes; **lower surface** pubescent with simple, thin trichomes, denser on veins, and sometimes stellate or fasciculate trichomes; venation actinodromous, basal veins 5, secondary veins 6-10 per side. **Stipels** absent. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** densely flowered, to 5 cm long; peduncle to 8 mm long, indumentum similar to that on young branches; flowers glomerate; **bracts** to 0.5 mm long, narrowly spatulate, sparsely hairy and ciliate with simple trichomes, and with short, glandular trichomes. **Female inflorescences** densely flowered, to 6 cm long; peduncle to 8 mm long, indumentum similar to that on young branches; **bracts** 4-9, sessile, enlarging in fruit to 12 × 14 mm, subtriangular-reniform, pubescent with simple, thin, erect, trichomes and thick, glandular trichomes to 1 mm long, ciliate; margin subentire to shallowly dentate; teeth *c.* 39, triangular, with glandular trichomes, central tooth not prominent;



**bracteoles** to 1.5 mm long, triangular, pubescent with simple, short trichomes and ciliate. **Male flowers:** pedicel to 0.8 mm long, sparsely hairy; buds to 1 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.8 mm long, oblong-lanceolate, sparsely hairy and ciliate; **ovary** c. 1 mm diameter, 3-lobed, smooth, surface hispid with simple, short, erect trichomes, and with glandular trichomes; **styles** 3, to 5 mm long, slightly connate at base, sparsely hairy on rachis, each divided into 9-10 segments. **Allomorphic flowers** sometimes present at female inflorescence apex, occasionally at male inflorescence apex; pedicel filiform, to 20 mm long, sparsely hairy; ovary 1-lobed, to 3 mm diameter, puberulent with simple, short trichomes, distally fimbriate; style 1, to 1 mm long, glabrous. **Capsules** to 5 mm diameter, smooth, surface sparsely hairy with simple, short, erect trichomes and glandular trichomes to 1.3 mm long. **Seeds** c. 3 × 2 mm, pyriform, minutely foveolate.

## NOTES

1) Baker designated *R. Baron 1818* as the type specimen of *Acalypha radula* but did not indicate the herbarium. We found three specimens of this collection, designating the best preserved of them as the lectotype; and 2) Baillon designated *J. M. Hildebrandt 3900* as the type of *Acalypha hildebrandtii* but did not indicate the herbarium. We found nine specimens of this collection, designating the best preserved of them as the lectotype.

43. *Acalypha richardiana* Baill.

*Adansonia, recueil d'observations botaniques* 1: 268 (Baillon 1861). — Type: **Comoros**. Mohéli, “Île Mohilla”, s.d., *M. Richard 287* (lecto-, designated by Montero Muñoz *et al.* [2018a: 108]: P[P04779566]; isolecto-, P[P04779562, P04779564, P04779565]). — Former syntypes: **Madagascar**. s.l., s.d., *M. Richard 544* (P[P04779563]). — **Mayotte**. s.l., s.d., *L. H. Boivin 3373* (GDC[G00324505], P[P00196299, P00196300], W[WRChb. 1889-0166704]).

*Acalypha ovalifolia* Baill., *Adansonia, recueil d'observations botaniques* 1: 269 (Baillon 1861). — *Acalypha reticulata* var. *ovalifolia* (Baill.) Müll.Arg., *Linnaea* 34: 32 (Müller Argoviensis 1865). — *Acalypha filiformis* var. *ovalifolia* (Baill.) Govaerts, *World Checklist and Bibliography of Euphorbiaceae (and Pandaceae)* 62 (Govaerts *et al.* 2000). — Type: **Mayotte**. XI.1848, *L. H. Boivin 3372* (holo-, P[P00196298]).

ICONOGRAPHY. — Fig. 65G.

ETYMOLOGY. — The epithet honors French botanist Jean Michel Claude Richard (1787-1868).

DISTRIBUTION AND HABITAT. — Endemic to the Comoros Archipelago (Anjouan, Mohéli and Mayotte). Dry forest and secondary forest. Altitudinal range 20-680 m (Fig. 64).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha richardiana* is only known from the Comoros. Its EOO is estimated to be 4395 km<sup>2</sup> and its AOO 36 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category (see assessment of *A. chibomboia* from Comoros). We predict that ongoing habitat loss and the impact of alien species in this archipelago will cause continued decline of its EOO and AOO, so *A. richardiana* is assessed as Endangered (EN): EN B1ab(i,iii,iv) + B2ab(ii,iii,iv).

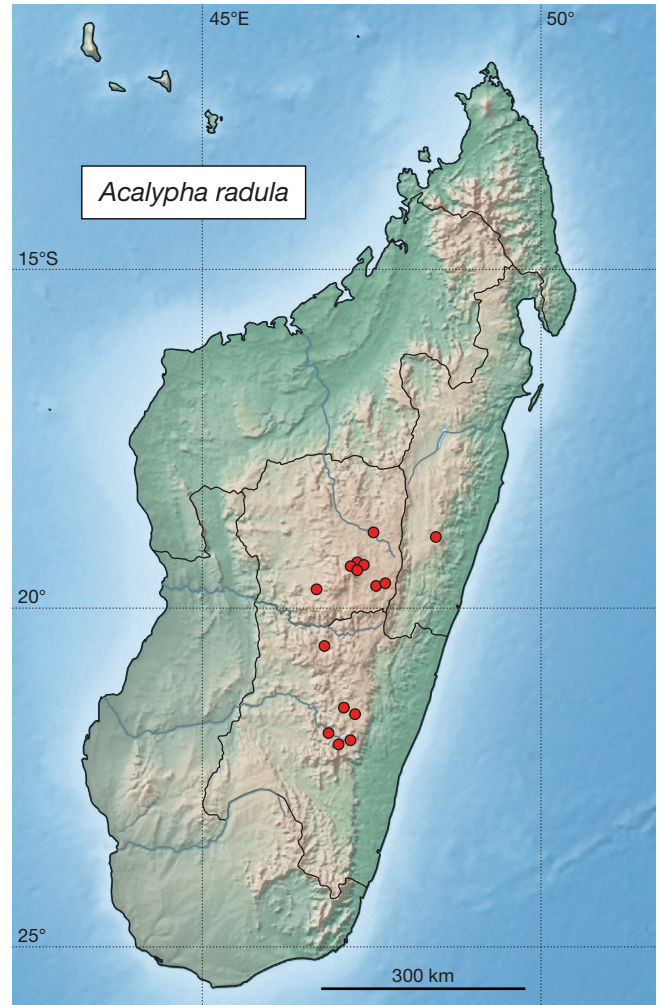


Fig. 63. — Distribution map of *Acalypha radula* Baker in Madagascar.

MATERIAL EXAMINED. — 15 collections. **Comoros Archipelago**. *Barthelat, F. 680* (P[P00273174, P00273175]), *1163* (P[P00437836]); *Boivin, L.H. 3372* (P[P00196298]), *3373* (G[G00034250, G00324505], P[P00196299, P00196300, P02712256, P02712257], W[WRChb. 1889-0166704]), *s.n.* (P[P00196291]); *d'Alleizette, Ch. s.n.* (L[L0242103]); *Hildebrandt, J.M. 1661* (BREM[BREM\_0001789], L[L0242104], P[P00635340]); *Labat, J.-N. 2908* (P[P00078905]); *Pascal, O. 954* (P[P00144572]); *Richard, M. 224* (P[P04779560, P04779561]), *287* (P[P04779562, P04779564, P04779565, P04779566]), *544* (P[P04779563]), *s.n.* (P[P00196297]); *Rouhan, G. 845* (P[P00684849]); *Tinguy, H. 1001* (P[P00144571]).

REFERENCES. — Müller Argoviensis (1866: 852 as *A. reticulata* var. *ovalifolia*, 855); Baillon (1892: 1004); Palacký (1907: 25 as *A. ovalifolia*, 26); Voeltzkow (1917: 447); Pax & Hoffmann (1924: 127); Leandri (1942: 272); Govaerts *et al.* (2000: 62, 85, 105); Montero Muñoz *et al.* (2018a: 109).

## DESCRIPTION

Shrubs, leaf persistence unknown, to 2 m tall, monoecious. **Branches** densely pubescent with simple, short, curved trichomes, glabrous when mature. **Axillary buds** spherical, to 1 mm diameter, perulate, perules 2, valvate, membranous, brownish, pubescent with simple, short trichomes. **Stipules** to 6 mm long, linear, sparsely hairy. **Petioles** 2-6(-9) cm

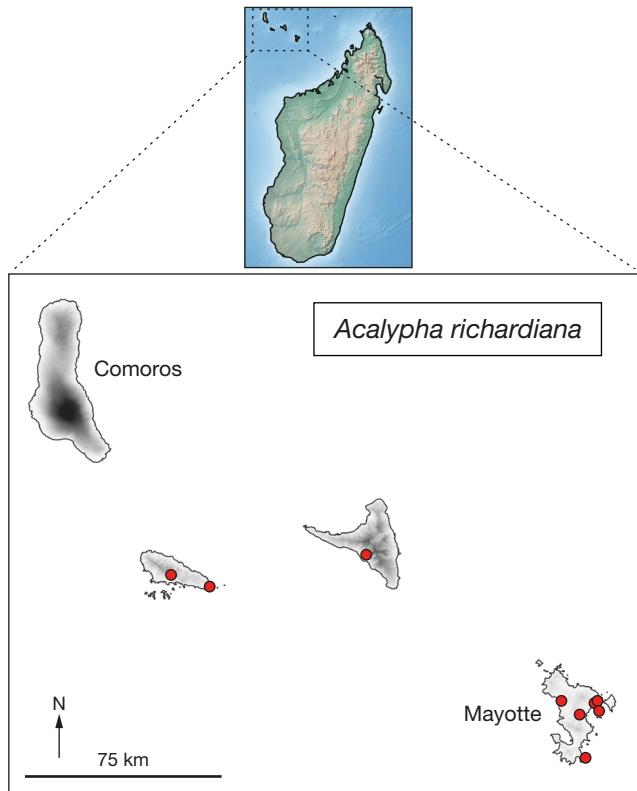


FIG. 64. — Distribution map of *Acalypha richardiana* Baill. in Comoros Archipelago.

long, indumentum similar to that on young branches. **Leaf blades** 7–13.5 × 2–7.5 cm, ovate-lanceolate, membranous; **base** rounded to truncate; **apex** acute to acuminate, acumen to 15 mm long, rounded, mucronate; **margin** crenate to crenate-dentate, slightly revolute, teeth rounded; **upper surface** laxly pubescent with simple, short, trichomes, denser on veins, glabrescent; **lower surface** subvelutinous, glabrescent; venation actinodromous, basal veins 3 or 5, secondary veins 5–8 per side. **Stipels** glandular, to 0.2 mm long, sparsely hairy. **Inflorescences** spiciform, androgynous, and sometimes solitary female bracts, axillary. **Androgynous inflorescences** to 6 cm long, mostly male with 1 female bract; peduncle to 2.5 mm long, it and rachis sparsely hairy. **Female segment: bract** 1, sessile, enlarging in fruit to 7 × 6 mm, suborbicular, pubescent; margin usually subentire, sometimes slightly crenate, with some sessile glands; **bracteoles** absent. **Male segment** persistent, filiform, laxly flowered, to 5.5 cm long; flowers glomerate; **bracts** to 0.8 mm long, triangular, sparsely hairy and ciliate. **Solitary female bracts** sessile, similar to those of androgynous inflorescences. **Male flowers:** pedicel to 0.5 mm long, sparsely hairy; buds to 0.5 mm diameter, sparsely hairy. **Female flowers** 1–2 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, glabrous, margin with some sessile glands; **ovary** c. 1 mm diameter, 3-lobed, apparently smooth, surface densely hispid with hyaline trichomes to 1 mm long; **styles** 3, to 4 mm long, distinct, sparsely hairy, each divided into 10–12 segments. **Allomorphic flowers** sometimes present, axillary; pedicel filiform, to 19 mm long, pubescent with

simple, short, curved trichomes; sepals 3, to 0.5 mm long, triangular, ciliate and with some sessile glands; ovary 1-lobed, to 1 mm diameter, echinate, pubescent with simple, flattened trichomes; style 1, to 3 mm long, sparsely hairy. **Capsules** to 2 mm diameter, papillose-hispid, papillae acute, to 0.5 mm long, surface pubescent with simple, short trichomes. **Seeds** c. 1.5 mm diameter, subglobose, minutely foveolate.

NOTE

The specimens indicated as isolectotypes do not have Richard’s original labels. They instead have labels with Baillon’s handwriting giving the location as “Madagascar”. We believe that the correct location is the one indicated on the selected lectotype, “Île Mohilla” (currently named Mohéli), in the Comoros Archipelago. A search of specimens at P showed that Richard’s collections numbered 284–286, 288, 290, 291 and 293 are also from Mohéli (289 has no locality and 292 is not listed). *Richard 544* has an apparently original label showing the locality only as “Madagascar.” Collections at P with nearby numbers are labelled as being from either “Nord de Madagascar” or “Île Nos-bé” (now Nossi-bé), so this collection could be from northern Madagascar, although we have seen no other specimens from outside the Comoros Archipelago.

44. *Acalypha rottleroides* Baill.

*Adansonia, recueil d’observations botaniques* 1: 270 (Baillon 1861). — Type: Madagascar. Prov. Antsiranana: Nossibé, 1837, *M. Richard 215* (holo-, P[P00536728]).

*Acalypha polynema* Baill., *Histoire physique, naturelle et politique de Madagascar* Atlas, 2, fasc. 27: t. 187 (Baillon 1891). — Type: Madagascar. Baillon 1891: pl. 187, holotype.

*Acalypha juliflora* Pax, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie*. Leipzig 19: 95 (Pax 1894). — Type: Madagascar. Prov. Antsiranana: Nossibé, “Urwald von Loko-bé”, XII.1879, *J. M. Hildebrandt 3279* (lecto-, designated here: W[W1889-0089773]; isolecto-, JE[E00004291], K[K000186527], P[P00536729, P00536730, P00536731]).

ICONOGRAPHY. — Baillon (1891: t. 185, t. 187); Figs 65H; 69E.

ETYMOLOGY. — The epithet likely refers to a resemblance to the genus *Rottlera* Roxb. (now treated as a synonym of *Mallotus* Lour.; Euphorbiaceae).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana and Sava). Degraded lowland evergreen moist forest and dry deciduous forest. On Mesozoic limestone and on basement rocks. Altitudinal range 200–370 m (Fig. 66).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha rottleroides* is estimated to be 5 643 km<sup>2</sup>, which is near to the threshold of the Endangered category, and its AOO 32 km<sup>2</sup>. It is known from only four locations. *Acalypha rottleroides* grows mainly in dry deciduous forest, but in Nosy Bé this species grows in lowland evergreen moist forest. The collections found in Nosy Bé were made in 1879 and this island has been largely deforested for conversion into coffee plantations, rice fields, ylang-ylang (*Cananga odorata* Hook.) orchards, and sugar cane fields (Andreone *et al.* 2013). Currently, the area where these specimens were collected is the National Park of Lokobé (Category II;



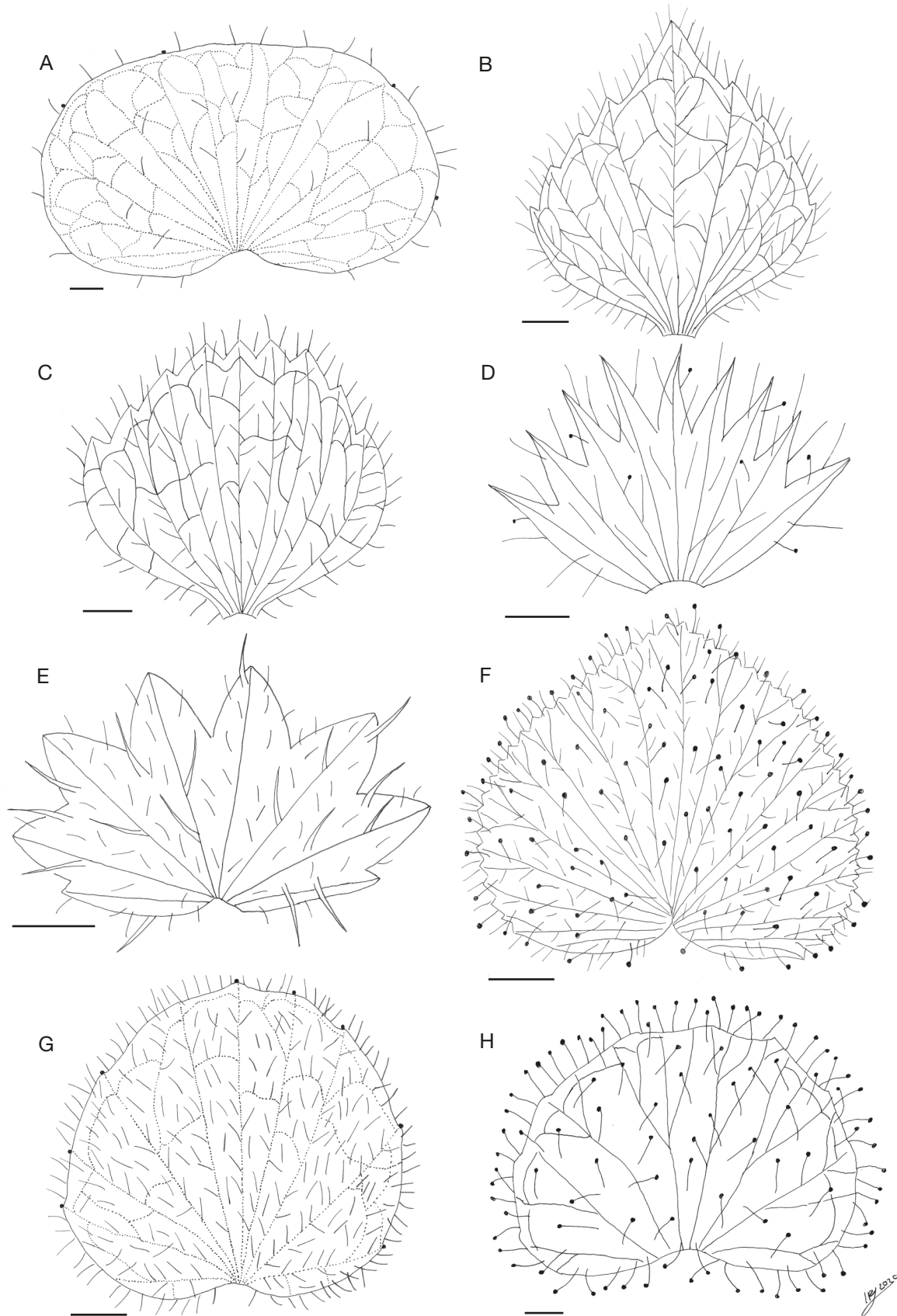


FIG. 65. — Mature female bracts: **A**, *Acalypha perrieri* Leandri (R. Decary 15792); **B**, *A. pervilleana* Baill. (J. J. Floret 682); **C**, *A. pervilleana* (J. M. Hildebrandt 3356); **D**, *A. poiretii* Spreng. (L. Boivin s.n.); **E**, *A. rabesahalana* I. Montero & Cardiel (H. Humbert 32480); **F**, *A. radula* Baker (Service Forestier Madagascar 45-SF); **G**, *A. richardiana* Baill. (M. Richard 224); **H**, *A. rottleroides* Baill. (L. Nusbaumer LN2629). Illustration by Iris Montero Muñoz. Scale bars: A, D, E, G, H, 1 mm; B, C, F, 2 mm.



FIG. 66. — Distribution map of *Acalypha rottleroides* Baill. in Madagascar.

Dudley 2008). The remaining collections of *A. rottleroides* were made in Ankarana Special Reserve, Loky-Manambato, and in the unprotected forests of Ambilanivy and Rangoty (Ampasindava). These areas are threatened by mining (sapphire and gold), illegal cutting of precious woods, and fires to improve grazing and agriculture (Kull 2000; Rakotondravony 2009; Goodman *et al.* 2018). Continued habitat loss leads us to assess *A. rottleroides* as Endangered: EN B2ab(ii,iii,iv).

**SPECIMEN EXAMINED.** — 8 collections. **Madagascar.** *Cours*, G. 5626 (P[P00324530]); *Hildebrandt*, J.M. 3279 (G, JE[E00004291], K[K000186527], L[L0241761], P[P00536729, P00536730, P00536731], W[W1889-0089773]); *Humbert*, H. 19065 (P[P00324502]); *Nusbaumer*, L. LN 1933 (G[G00090298], P[P05547268]); *LN* 2629 (G[G00180763], P[P04786259]); *Ranirison*, P. PR 1085 (G[G00090513], P[P05547267]); *Richard*, M. 181 (P[P04779559]), 215 (P[P00536728]).

**REFERENCES.** — Müller Argoviensis (1866: 854); Baillon (1891: 182); Baillon (1895b: 1197); Baillon (1895b: 1197) as *A. polynema*; Palacký (1907: 25) as *A. juliflora*; Palacký (1907: 26) as *A. polynema*; Palacký (1907: 26); Nitschke (1923: 280) as *A. juliflora*; Pax & Hoffmann (1924: 127); Leandri (1942: 277); Govaerts *et al.* (2000: 70, 105) as *A. juliflora*; Govaerts *et al.* (2000: 86); Montero Muñoz *et al.* (2018a: 109).

#### DESCRIPTION

Shrubs, deciduous, to 2 m tall, monoecious. **Branches** whitish, hispid with simple, hyaline trichomes to 2 mm long, and with glandular trichomes to 1.5 mm long, glabrescent when mature but glandular trichomes persistent. **Axillary buds** spherical, to 1 mm diameter, perulate, perules 4, overlapping (superposed), membranous, scarious, margin irregular, glabrous. **Stipules** to 7 mm long, ovate-lanceolate to oblong-lanceolate; margin scarious, glabrous except margin ciliate with some short, glandular trichomes. **Petioles** (3-)3.5-7.5(-8) cm long, indumentum similar to that on young branches, hyaline trichomes deciduous. **Leaf blades** 7-13 × 5-7.5 cm, ovate-lanceolate, thin-membranous; **base** cordate; **apex** acute to acuminate, acumen to 10 mm long; **margin** crenate to denticulate, teeth rounded to acute; **upper and lower surfaces** subglabrous, with some thin, glandular trichomes to 1.5 mm long; margin ciliate with simple, short trichomes, and with glandular trichomes to 1 mm long, venation actinodromous, basal veins 5, secondary veins 4-6 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous, axillary, to 9 cm long, mostly female with short male segment (sometimes appearing female due to male segment falling); peduncle to 10 mm long, with glandular trichomes to 1 mm long. **Female segment** laxly flowered, to 8 cm long; **bracts** 6-9, sessile, enlarging in fruit to 6 × 9 mm, reniform, with glandular trichomes to 1.5 mm long; margin subentire to crenate, teeth triangular, central tooth not prominent; **bracteoles** absent. **Male segment** deciduous, to 1 cm long; flowers glomerate; **bracts** to 1.5 mm diameter, suborbicular, scarious, glabrous; margin irregular, papillose. **Male flowers:** pedicel to 0.5 mm long, glabrous; buds to 0.5 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; sepals 3, to 1.2 mm long, triangular-lanceolate, reddish, margin irregular, with sparse glandular trichomes; **ovary** c. 1 mm diameter, 3-lobed, smooth, surface with some glandular trichomes to 0.5 mm long; **styles** 3, to 6 mm long, slightly connate at base, glabrous, each divided into 9-10 segments. **Allomorphic flowers** not seen. **Capsules** to 2.5 mm diameter, smooth, surface with sparse glandular trichomes. **Seeds** c. 1.5 × 1.2 mm, pyriform, minutely foveolate.

#### NOTE

Baillon designated *J. M. Hildebrandt 3279* as the type of *Acalypha juliflora* but did not indicate the herbarium. We found six specimens of this collection, designating the best preserved of them as the lectotype.

#### 45. *Acalypha spachiana* Baill.

*Adansonia*, *recueil d'observations botaniques* 1: 272 (Baillon 1861). — *Acalypha spachiana* var. *latifolia* Baill., *Adansonia*, *recueil d'observations botaniques* 1: 272 (Baillon 1861). — Type: **Madagascar**. Prov. Antsiranana, Baies de Rigny et de Diego-Suarès, 1848, *L. H. Boivin 2654* (lecto-, designated by Montero Muñoz *et al.* [2018a: 109]; P[P00536733]; isolecto-, G[G00034251], GDC[G00324359], P[P00536734]).



*Acalypha spachiana* var. *acutifolia* Baill., *Adansonia, recueil d'observations botaniques* 1: 272 (Baillon 1861). — Type: Madagascar. Prov. Antananarivo, Antananarivo, 12.II.1840, J. P. Goudot s.n. (holo-, G[G00383582]).

*Acalypha spachiana* var. *minor* Baill., *Adansonia, recueil d'observations botaniques* 1: 272 (Baillon 1861). — Type: Madagascar. s.l., s.d., W. Bojer s.n. (holo-, P[P00536735]); iso-, TUB[TUB002081, TUB002082]).

*Acalypha buchenavii* Müll.Arg., *Abhandlungen herausgegeben vom Naturwissenschaftlichen Vereins zu Bremen. Bremen* 7: 27 (Müller Argoviensis 1882). — Type: Madagascar. Prov. Antananarivo, Antananarivo, 18.XII.1877, D.C. Rutenberg s.n. (lecto- [probably holotype], designated by Montero Muñoz *et al.* [2018a: 110]: BRNU[BRNU347926]).

*Acalypha squarrosa* Pax, *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie. Leipzig* 19: 97 (Pax 1894). — Type: Madagascar. Prov. Antananarivo, Antsirabe, “Sirabé”, VIII.1880, J. M. Hildebrandt 3560 (holo-, B or WRS, presumably destroyed; lecto-, designated by Montero Muñoz *et al.* [2018a: 110]: JE[JE00004308]); isolecto-, JE[JE00004309], K[K000186510], P[P00536732]).

*Tragia saxatilis* Bojer ex Pax & K.Hoffm., *Das Pflanzenreich (Engler)* 147, 16 (Heft 85): 33 (Pax & Hoffmann 1924), *nom. nud.*

ICONOGRAPHY. — Leandri (1942: 257, 276); Figs 69F; 73A.

ETYMOLOGY. — The epithet honors French botanist Édouard Spach (1801-1879).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana, Sava, Sofia, Alaotra-Mangoro, Analamanga, Vakinankaratra, Haute Matsiatra, and Anosy). Lowland evergreen moist forest, moist semi-deciduous forest, dry deciduous forest, riparian forest, and secondary forest. On Mesozoic limestone, sandstone, and basement rocks. Altitudinal range (30-) 100-1600 (-1900) m (Fig. 67).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha spachiana* is estimated to be 298 644 km<sup>2</sup> and its AOO 172 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. This species grows in evergreen moist forests (see assessment of *A. emirnensis*) and dry deciduous forests (see assessment of *A. diminuta*). *Acalypha spachiana* has been collected in some protected areas, but it is also known from several unprotected forests subject to various threats. We predict ongoing habitat loss will cause continued decline of its EOO and AOO. *Acalypha spachiana* is assessed as Near Threatened (NT) under criterion B. It meets the AOO values needed for a threatened category, but the number of locations is too high to meet the conditions required for a listing under the Endangered category.

MATERIAL EXAMINED. — 85 collections. Madagascar. *Anonymous* 1240 (P[P05547038]); *Anonymous* 1274 (P[P05547030]); *Anonymous* 3891 (P[P04779550]); *Anonymous* 3911 (P[P04779547]); *Anonymous* 3927 (P[P04779548]); *Anonymous* 5455 (P[P05547040]); *Anonymous* 5731 (P[P05547028]); *Anonymous* s.n. (P[P04779552]); *Anonymous* s.n. (P[P04779555]); *Baron*, R. 574 (P[P04779833]), 4067 (K[K000384479]), 4426 (P[P04779542, P04779543]), 5103 (K[K000384478], P[P04779801]); *Be*, J. 168 (P[P05481878]); *Benoist*, M.R. 177 (P[P04779544]), 196 (P[P04779800]); *Blackburn*, J. 106 (46?) (K[K000384482]); *Boivin*, L.H. 2654 (G[G00034251, G00324359], P[P00536733, P00536734]); *Bojer*, W. s.n. (P[P00536735], TUB[TUB002081, TUB002082]); *Bosser*, M.J. 235 (P[P04779810]), 2792 (P[P04779805]), 9895 (P[P05547256]); *Campanon*, R.P. s.n. (P[P04779796]); *Cours*, G. 399 (P[P04779541]), 428 (P[P04779540]), 478 (P[P05547261]), 1820 (P[P00324542]), 1968 (P[P05547183]); *Croat*, T.B. 28526 (P[P04779836]); *d'Alleizette*,

*Ch. s.n.* (L[L0242170]); *Decary*, R. 553 (P[P04779837]), 5972 (P[P04779538]), 6032 (P[P04779839]), 6055 (P[P04779534]), 6197 (P[P05547185]); *Foury*, C. s.n. (P[P05481886]); *Gautier*, L. LG 4904 (G[G369044/1], P[P05547021]), LG 5076 (G[G00170072], P[P05543673]), LG 5214 (G[G00170081], P[P05543675]); *Gillespie*, L. 10856 (MO); *Goudot*, J. s.n. (G[G00383582]); *Herb. d'Alleizette* 324 (P[P04779828]); *Hildebrandt*, J.M. 3560 (JE[JE00004308, JE00004309], K[K000186510], P[P00536732]); *Homolle*, A.M. 179 (P[P05547029]), 1968 (P[P04779866]); *Humbert*, H. 2180 (P[P05481895]), 11698 (P[P04779532, P04779535]), 18593 (P[P04779553]), 18954 (P[P04779556, P04779557, P04779558]), 19741 (P[P05547258]), 19791 (P[P05547257]), 32613 (P[P05547058]), 32721 (G, P[P05547273]); *Jacquemin*, H. s.n. (P[P04779554]); *Jard. Bot. Tananarive* 5739 (P[P00324569]); *Jongkind*, C.C.H. 3309 (BR[BR00000555499], K, TAN, WAG[WAG.1578524, WAG.1578525]); *Le Myre de Villers*, M. s.n. (P[P04779798]), s.n. (P[P04779830]), s.n. (P[P05547180]); *Leandri*, J. 3482 (P[P05547262]), 3582 (P[P05547037]), 3890 (P[P05547036]); *Maitre* 83 (P[P05547024]); *Manjato*, N. 67 (P[P05510106]); *Morat*, P. 1431 (P[P05547023, P05547025, P05547026, P05547027]); *Nusbaumer*, L. LN 1817 (G[G00090193], P[P05547260]), LN 1843 (G[G00090216], P[P05547259]); *Parker*, W.G. s.n. (K[K000384483]); *Peltier*, J. 1645 (P[P05547032]); *Perrier de la Bâthie*, H. 9599 (P[P00324503]), 9859 (P[P05547182]); *Rakotondranony* 5 (K[K000384476]); *Ramandimbimanana*, S.D. SDR 150 (G[G00376942]), 328 (G[G00377119]); *Razafindrakoto* 12569-RN (P[P04779533]); *Razafitsalama*, L. J. 776 (G[G00382426], P[P04779545]); *Rotureau*, L. s.n. (P[P05510095]); *Rutenberg*, C. s.n. (G[G00190632]), s.n. (BRNU[BRNU347926]); *Schlieben*, H.J. 8156 (B, G[G00420848]); *Scott-Elliot*, G.F. 2042 (P[P04779530, P04779531]); *Seyrig*, A. 52 (P[P05547033]); *Waterlot*, M. s.n. (P[P05547031]).

REFERENCES. — Müller Argoviensis (1866: 827); Müller Argoviensis (1882: 27) as *A. buchenavii*; Baillon (1892: 1003); Baillon (1895b: 1199) as *A. buchenavii*; Palacký (1907: 26); Pax & Hoffmann (1924: 33); Pax & Hoffmann (1924: 33) as *A. squarrosa*; Leandri (1942: 255, 257); Jenkins (1987: 347); Jenkins (1990: 408, 433); Govaerts *et al.* (2000: 89, 96); Govaerts *et al.* (2000: 89) as *A. squarrosa*; Sagun *et al.* (2006: 124); Seebaluck *et al.* (2015: 153); Montero Muñoz *et al.* (2018a: 109).

#### DESCRIPTION

Shrubs, deciduous, to 3 m tall, monoecious. **Branches** pubescent with simple, curved, retrorse trichomes, glabrescent when mature. **Axillary buds** ovoid, to 3 × 2 mm, perulate, perules 4, overlapping (superposed), membranous, brownish, glabrous. **Stipules** to 5 mm long, linear-lanceolate, midrib prominent, sparsely hairy with simple, appressed trichomes on midrib. **Petioles** (0.5-)1.5-2(-4) cm long, indumentum similar to that on young branches. **Leaf blades** 2-6(-13) × 1.3-4(-7) cm, usually ovate-lanceolate, sometimes elliptic-lanceolate to obovate-lanceolate, membranous; **base** rounded to subcordate; **apex** acute to acuminate, acumen to 10 mm long, rounded to subacute, mucronate; **margin** serrate, teeth rounded to acute, callose-edged; **upper and lower surfaces** sparsely hairy with simple, short, erect trichomes, and with simple, curved trichomes on veins; venation actinodromous, basal veins 5, secondary veins 4-5 per side. **Stipels** glandular, to 0.5 mm long, sparsely hairy. **Inflorescences** spiciform, androgynous, terminal, to 6 cm long, mostly female with short male segment (sometimes appearing female due to male segment falling); peduncle to 10 mm long, indumentum similar to that on young



Fig. 67. — Distribution map of *Acalypha spachiana* Baill. in Madagascar.

branches. **Male segment** deciduous, to 1.5 cm long; flowers glomerate; **bracts** to 1 mm long, triangular, ciliate. **Female segment** to 4.5 cm long; **bracts** c. 18, sessile, enlarging in fruit to 6 × 9 mm, reniform, pubescent with simple, short trichomes and glandular trichomes to 1 mm long; margin dentate, teeth 11-14, usually triangular, sometimes rounded, central tooth not prominent; **bracteoles** absent. **Male flowers**: pedicel to 1 mm long, sparsely hairy; buds to 1 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 0.5 mm long, triangular, sparsely hairy; **ovary** c. 1 mm diameter, 3-lobed, muricate, surface hispid with simple trichomes to 1.5 mm long; **styles** 3, to 3 mm long, distinct, sparsely hairy on rachis, each divided into 8-10 segments. **Allomorphic flowers** sometimes present, axillary; pedicel filiform, to 3 mm long, puberulent with simple, short, curved, antrorse trichomes; sepals 3, to 0.5 mm long, lanceolate, sparsely hairy; ovary 2-lobed, to 1 mm diameter, papillose-hispid; styles 2, to 2 mm long, glabrous. **Capsules** to 2.3 mm diameter, papillose, papillae rounded, minute, surface pubescent with appressed, hyaline trichomes. **Seeds** c. 1.8 × 1.2 mm, pyriform, foveolate.

NOTE

The holotype of *Acalypha buchenavii* should be at BREM, but Rutenberg's specimens arrived at BRNU herbarium after World War II. Originally in the Überseemuseum in Bremen (BREM), they were transferred to northern Moravia (Czechia was at that time a Protectorate of Nazi Germany) to save them from potential destruction by bombardment. After the collapse of the Nazi regime, these collections were confiscated as "German property" and sent to BRNU.

46. *Acalypha tremula* I.Montero & Cardiel

*Systematic Botany* 45 (1): 127 (Montero Muñoz et al. 2020a). — Type: **Madagascar**. Sava [Antsiranana], Province de Diego-Suarez, Vohemar, commune rurale de Daraina, forêt d'Ankaramy, 181 m, 13°17.1'S, 49°40.91'E, 26.II.2004, L. Nusbaumer & P. Ranirison 1227 (holo-, G[G00006790], iso-, K, P[P04786267, P05547264], TAN). — Paratypes: **Madagascar**. Sava region (Antsiranana prov.), Fivondronana, Diego II, commune Mahavanona, Montagne des Français, forêt d'Ampitiliantsambo, à 3 heures de marche à pied, à l'Est d'Andranomanitra, 205 m, 12°23'13"S, 49°23'04"E, 14.I.2005, R. Randrianaivo et al. 1160 (BR[BR0000005242887], CNARP, MO [MO2965736], P, TAN); Ambilobe, Mahamasina, Réserve Spéciale d'Ankarana, chemin d'Ambohimalaza, sous-bois sur basalte, 110 m, 12°58'1.20"S, 49°6'5.11"E, 08.II.2003, M. Bardot-Vaucoulon 1400 (P[P00455711], K, MO [MO-2966207], TAN); Vohemar, commune rurale de Daraina, forêt de Solaniampilana-Maroadabo, 422 m, 13°06.50'S, 49°33.97'E, 03.II.2006, L. Nusbaumer & P. Ranirison LN 2181 (G[G00074394]).

ICONOGRAPHY. — Montero Muñoz et al. (2020a); Figs 69G; 73B.

ETYMOLOGY. — The epithet refers to the resemblance of the long petiolate leaves of this species to those of the Eurosiberian tree *Populus tremula* L. (Salicaceae).

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana and Sava). Dry deciduous forest. On clay soil on basement rocks. Altitudinal range 110-420 m (Fig. 68).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha tremula* is estimated to be 2 609 km<sup>2</sup> and its AOO 16 km<sup>2</sup>. It has been collected from three protected areas: Montagne des Français (see assessment of *A. gillespieae*), Ankarana Special Reserve (see assessment of *A. ankaranensis*), and Loky-Manambato (see assessment of *A. menavody*). The small number of locations, together with continuing habitat loss and degradation in these areas, lead us to assess *A. tremula* as Endangered: EN B1ab(i,iii) + B2ab(ii,iii).

MATERIAL EXAMINED. — 4 collections. **Madagascar**: Bardot-Vaucoulon, M. 1400 (K, MO[MO-2966207], P[P00455711], TAN); Nusbaumer, L. LN 1227 (G[G00006790], K, P[P05547264, P04786267]), LN 2181 (G[G00074394]); Randrianaivo, R. 1160 (BR[BR0000005242887], CNARP, MO[MO-2965736], TAN).

DESCRIPTION

Shrubs, probably deciduous, to 4 m tall, divaricately branched, monoecious. **Branches** slightly angular, dark brown, rugose, pubescent with simple, antrorsely curved trichomes, glabrescent when mature. **Axillary buds**, spherical, to 1 mm diameter, perulate, perules 2, imbricate, chartaceous, scarious, glabrous. **Stipules** to 3 mm long, triangular-lanceolate, apex acute, midrib prominent, scarious toward margins, glabrous. **Petioles** slender, (3-)4-6 cm long, glabrous. **Leaf blades** (4-)5-7.5 × (3.5-)4-6.5 cm, broadly



ovate to subtriangular, subchartaceous; **base** rounded to truncate; **apex** acuminate, acumen 0.5–1 mm long, acute; **margin** crenate to serrate, teeth rounded to subacute; **upper surface** subglabrous, with some sparse, simple, erect trichomes; **lower surface** subglabrous, with some simple trichomes on veins; axils of secondary veins with hair-tuft domatia; margin ciliate in sinuses (except on older leaves); venation actinodromous, basal veins 3, secondary veins 3–5 per side. **Stipels** absent. **Inflorescences** spiciform, androgynous and male, axillary, sometimes bearing erinaceous galls. **Androgynous inflorescences** to 7 cm long, mostly male with 1 female bract; sessile. **Female segment: bract** 1, sessile, enlarging in fruit to 3 × 4 mm, reniform, glabrous; margin subentire, with minute blackish papillae; **bracteoles** absent. **Male segment** persistent, to 6.5 cm long; flowers glomerate; **bracts** to 0.5 mm long, ovate-lanceolate, sparsely hairy with some simple trichomes at apex. **Male inflorescences** to 7 cm long, filiform; sessile; rachis thin, glabrous; bracts like those on androgynous inflorescences. **Male flowers:** pedicel to 0.5 mm long, glabrous; buds to 0.5 mm diameter, glabrous. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, triangular-lanceolate, ciliate; **ovary** c. 1.5 mm diameter, 3-lobed, echinate with linear projections to 2 mm, hispidulous and ending in simple trichome(s) or gland, surface hispidulous; **styles** 3, to 5 mm long, distinct or slightly connate at base, sparsely hairy with simple, short trichomes, each divided into 5–7 slender segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, erinaceous, projections linear, to 3.5 mm long, acute, hispidulous, ending in trichome(s) or gland, surface sparsely hispidulous. **Seeds** c. 1.3 × 1 mm, pyriform, smooth.

47. *Acalypha urophylla* Boivin ex Baill.

*Adansonia*, *recueil d'observations botaniques* 1: 273 (Baillon 1861). — *Acalypha reticulata* var. *urophylla* (Boivin ex Baill.) Müll.Arg. *Linnaea* 34: 32 (Müller Argoviensis 1865). — *Acalypha filiformis* var. *urophylla* (Boivin ex Baill.) Govaerts, *World Checklist and Bibliography of Euphorbiaceae (and Pandaceae)* 63 (Govaerts et al. 2000). — Type: **Madagascar**. Prov. Antsiranana, Nossibé, plateau de Hell-Ville, VI.1847, L. H. Boivin 2178 (lecto-, designated by Montero Muñoz et al. [2018a: 110]: P[P00536752]; isolecto-, G[G00034246], GDC[G00324519], P[P00536751, P00536753]). — Former syntypes: **Madagascar**. s.l., s.d., L. M. A. Du Petit-Thouars s.n. (P[P00536748]); Prov. Antsiranana, Nossibé, XII.1840, A. Pervillé 364 (P[P00536749]); M. Richard 385 (P[P00536750]).

*Acalypha goudotiana* Baill., *Adansonia*, *recueil d'observations botaniques* 1: 268 (Baillon 1861). — *Acalypha reticulata* var. *goudotiana* (Baill.) Müll.Arg., *Linnaea* 34: 32 (Müller Argoviensis 1865). — *Acalypha filiformis* var. *goudotiana* (Baill.) Govaerts, *World Checklist and Bibliography of Euphorbiaceae (and Pandaceae)* 62 (Govaerts et al. 2000). — Type: **Madagascar**. s.l., 1830, J. P. Goudot s.n. (holo-, G; iso-, P[P00536727] fragment).

*Acalypha meiodonta* Baill., *Bulletin mensuel de la Société linnéenne de Paris* 2: 1197 (Baillon 1895b). — *Acalypha reticulata* var. *meiodonta* (Baill.) Leandri, *Notulae Systematicae. Herbarium de Paris. Phanérogamie. Paris* 10: 267 (Leandri 1942). — Type: **Madagascar**. “Centr. Madag.”, XII.1883, R. Baron 2826 (lecto-, designated by Montero Muñoz et al. [2018a: 106]: P[P05604378]; isolecto-, K[K000186508]). — Former syntype: **Madagascar**. “Centr. Madag.”, s.d., R. Baron 6581 (K[n.v.]), *syn. nov.*



Fig. 68. — Distribution map of *Acalypha tremula* l. Montero & Cardiel in Madagascar.

*Acalypha reticulata* var. *urophylla* f. *meeusei* Leandri, *Notulae Systematicae. Herbarium de Paris. Phanérogamie. Paris* 10: 264 (Leandri 1942). — Type: **Madagascar**. Prov. Toamasina, Analamazaotra forest, 1912, H. Perrier de la Bâthie 9741 (lecto-, designated by Montero Muñoz et al. [2018a: 111]: P05604377). — Former syntypes: **Madagascar**. Prov. Fianarantsoa, base Est du Pic d'Ivohibe, 19.IX.1926, R. Decary 5352 (P[P00224690]); Prov. Toamasina, Analamazaotra, 1000 m, 10.XI.1938, H. J. Lam & A. D. J. Meeuse 5290 (L[L0242106]); Moramanga, 900 m, 11.XI.1938, H. J. Lam & A. D. J. Meeuse 5363 (L[L0242105]); Soanierana, Andasibé, 9.XII.1938, H. J. Lam & A. D. J. Meeuse 5814 (WAG[WAG0133229], L[L0242110]).

*Acalypha reticulata* var. *urophylla* f. *longa* Leandri, *Notulae Systematicae. Herbarium de Paris. Phanérogamie. Paris* 10: 265 (Leandri 1942). — Type: **Madagascar**. Prov. Toliara, bassin de la Manampanihy, Col de Fitana, 700 m, 15.X.1928, H. Humbert 6015 (lecto-, designated by Montero Muñoz et al. [2018a: 111]: P[P05604383]). — Former syntypes: **Madagascar**. Prov. Toliara, Col d'Ivolo (District de Fort-Dauphin), 500 m, 5.IX.1932, R. Decary 10558 (P[P05604384]); Fort-Dauphin, col de Tsitongabarika, 600 m, 9.IX.1932, R. Decary 10595 (P[P05604399]).

*Acalypha reticulata* var. *urophylla* f. *vohitrae* Leandri, *Notulae Systematicae. Herbarium de Paris. Phanérogamie. Paris* 10: 265 (Leandri 1942). — Type: **Madagascar**. Prov. Toamasina, Andevorante, rive droite de la Vohitra près de Lohariandava,





FIG. 69. — **A**, *Acalypha nusbaumeri* I.Montero & Cardiel (photo by L. Nusbaumer, *L. Nusbaumer LN1169*); **B**, *A. pervilleana* Baill. (photo by L. Gillespie, *L. Gillespie 10649*); **C**, *A. perrieri* Leandri (photo by L. Gillespie, *L. Gillespie 10835*); **D**, *A. radula* Baker (photo by L. Gillespie, *L. Gillespie 10758*); **E**, *A. rottleroides* Baill. (photo by L. Nusbaumer, *L. Nusbaumer 1933*); **F**, *A. spachiana* Baill. (photo by L. Gillespie, *L. Gillespie 10856*); **G**, *A. tremula* I.Montero & Cardiel (photo by R. Randrianaivo, *R. Randrianaivo 1160*); **H**, *A. urophylla* Boivin ex Baill. (photo by L. Nusbaumer, *L. Nusbaumer LN1663*).



200-250 m, 10.X.1912, *R. Viguier & H. Humbert* 661 (lecto-, designated by Montero Muñoz *et al.* [2018a: 111]: P[P05604437]; isolecto-, P[P05604440, P05604441]).

*Acalypha reticulata* var. *uropphylla* f. *glabrescens* Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 266 (Leandri 1942). — Type: Madagascar. Prov. Antsiranana, Massif du Tsaratanana, 2200 m, *H. Perrier de la Bâthie* 16180 (lecto-, designated by Montero Muñoz *et al.* [2018a: 111]: P[P05604386]). — Former syntypes: Madagascar. Prov. Antsiranana, Sambirano, XI-XII.1937, *H. Humbert* 18659 (P[P05604397, P05604400]); Massif du Tsaratanana, 1600 m, *H. Perrier de la Bâthie* 15371 (P[P05604385]); IX.1912, *H. Perrier de la Bâthie* 18614 (P[P05604382]); Prov. Fianarantsoa, Ranohira, Isalo, 30.VII.1928, *H. Humbert* 5014 (P[P05604401, P05604402]); Prov. Mahajanga, Beritsoka, *H. Perrier de la Bâthie* 413 (P[P05604390, P05604392]); Beritsoka, XII.1897, *H. Perrier de la Bâthie* 422 (P[P05604387, P05604388, P05604391]); Beritsoka, *H. Perrier de la Bâthie* 9822 (P[P05604389]); without exact location: s.l., *R. Baron* 5987 (P[P05604407]); s.l., *L. Humblot* 335 (P[P05604393, P05604394, P05604395, P05604396]).

*Acalypha reticulata* var. *meiodonta* f. *androna* Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 268 (Leandri 1942). — Type: Madagascar. Prov. Mahajanga, Bemarivo (Boïna), XII.1906, *H. Perrier de la Bâthie* 9561 (lecto-, designated by Montero Muñoz *et al.* [2018a: 106]: P[P00513143]; isolecto-, P[P00513144]). — Former syntypes: Madagascar. Prov. Mahajanga, Manongarivo (Ambongo), X.1904, *H. Perrier de la Bâthie* 1677 (P[P00513146, P00513147]); bord du massif du Manongarivo, versant du Sambirano, 1909, *H. Perrier de la Bâthie* 9934 (P[P00513149]); haut Bemarivo (Andranofosy), Boïna, I.1907, *H. Perrier de la Bâthie* 9635 (P[P00513145]); Massif du Manongarivo, Sambirano, IV.1909, *H. Perrier de la Bâthie* 9928 (P[P00513142]); Massif du Manongarivo, versant du Sambirano, IX.1909, *H. Perrier de la Bâthie* 9939 (P[P00513150]), **syn. nov.**

*Acalypha reticulata* var. *uropphylla* f. *typique* Leandri, *Notulae Systematicae. Herbarium du Muséum de Paris. Phanérogamie. Paris* 10: 262 (Leandri 1942) *nom. inval.*

ICONOGRAPHY. — Baillon (1891: t. 189); Figs 69H; 73C-F.

ETYMOLOGY. — The epithet is taken from the Greek words ‘*uro*’, tail, and ‘*phyllus*’, leaf. It probably refers to the acuminate apex of the leaf blades.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Diana, Sava, Sofia, Analanjirofo, Boeny, Betsiboka, Alaotra-Mangoro, Melaky, Bongolava, Analamanga, Vakinankaratra, Amoron'i Mania, Haute Matsiatra, Vatovavy-Fitovinany, Atsimo-Atsinanana, Ihorombe, Menabe, Atsimo-Andrefana, Androy and Anosy). Medium altitude moist evergreen forest, lowland altitude moist evergreen forest, moist semi-deciduous forest, sclerophyllous woodland, dry deciduous forest, and riparian forest. On basement rocks, sandstone, and unconsolidated sand. Altitudinal range 100-2000 (-2280) m (Fig. 70).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha uropphylla* is estimated to be 552 176 km<sup>2</sup> and its AOO 812 km<sup>2</sup>, which is less than the 2 000 km<sup>2</sup> threshold of the B2 subcriterion of the Vulnerable category. However, *A. uropphylla* has a large EOO, a wide elevational range, and occurs in many different ecosystems, so it is likely that its AOO actually exceeds the threshold of any threat category. Therefore, we assess *A. uropphylla* as Least Concern (LC).

MATERIAL EXAMINED. — 361 collections. Madagascar. *Académie Malgache* s.n. (P[P00508499]); *Adamainty*, *J.F.* 3 (G, MAUAM, MO); *Afzelius*, *K.* s.n. (P[P00508498]); *Almeda*, *F.* 7914 (CAS[CAS-0064833], G, MO[MO-2965739]), 8100 (CAS[CAS-0064830]); *Ammann*, *M.Y.* MYA 026 (G[G00180173]),

MYA 106 (G, K, P[P04786263]), MYA 322 (G, P[P04786264]), MYA 410 (G[G00180542]); *Andriamihajarivo*, *T.* 1979 (MO[MO-3037278], P[P01200027]); *Andrianjafy*, *N.M.* 337 (K, MO[MO-2966179], P[P05604406]), 494 (P[P05604423]), 668 (P[P05604373]), 1466 (MO[MO-2965754], TAN); *Anonymous* 1677 (P[P05604376]); *Anonymous* 169820 (P[P04804779]); *Anonymous* 2727 (P[P04804528]); *Anonymous* 3774 (P[P04804536]); *Anonymous* 5756 (P[P04804537]); *Anonymous* 9891 (P[P04804512]); *Anonymous* s.n. (P[P04804507]); *Anonymous* s.n. (P[P04804534]); *Antilahimena*, *P.* 307 (P[P04779788]), 3220 (G[G00420842], MO[MO-2965863], TAN), 4195 (K, MO[MO-2965842], P[P05572501]), 4271 (MO[MO-3025014], P[P05481539]), 4905 (G, MO[MO-2966260], P[P05481544]), 4990 (G, MO[MO-3025017], P[P05481457]), 5260 (MO[MO-3025013], P[P05481541]), 5378 (MO[MO-3025015], P[P01152830], TAN), 8161 (MAUAM, MO[MO-2965746], P[P01152832], TAN); *Baron*, *R.* 2309 (P[P04779832]), 2826 (P[P05604378]), 2874 (P[P04804725]), 3048 (K), 3086 (K), 3107 (P[P04804722]), 3701 (K), 3786 (K), 3874 (K), 4066 (K), 4403 (P[P04779783]), 4619 (P[P04779780]), 4793 (P[P04804728]), 4848 (K), 4991 (K), 4992 (K), 4993 (K), 4994 (K), 5560 (P[P04804726]), 5581 (P[P05604375]), 5671 (P[P04804729]), 5823 (P[P04804730]), 5987 (P[P05604407]), s.n. (P[P04804727]); *Benoist*, *M.R.* 1135 (P[P04804720]), 1484 (G, K, P[P04804719]), 1512 (MA[MA-01-00730257], P[P04804724]), 1519 (P[P04804723]), s.n. (P[P04779781]); *Bernard*, *R.* 1295 (G, P[P04786265]); *Bernardi*, *L.* 11139 (G[G00034253], L[L0242525], P[P04779803]), 11825 (G[G60429]), s.n. (P[P04779775]); *Birkinshaw*, *C.R.* 521 (P[P00513131]), 759 (BR[BR0000009679566]), 872 (G, ILL, MAUAM, MO[MO-2967237], P[P00513132], TAN), 1464 (P[P05481883]); *Boivin*, *L.H.* 52 (P[P00513160]), 2178 (G[G00324519, G00034246], P[P04804721, P00536751, P00536752, P00536753]), s.n. (P[P00324574]), s.n. (P[P04804508]), s.n. (P[P04804511]), s.n. (K[K000186501]), s.n. (K[K000186502]); *Bosser*, *M.J.* 1201 (P[P04779808]), 2191 (P[P04804716]), 2374 (P[P00508489]), 2690 (P[P00508490]), 5952 (P[P04804715]), 6985 (P[P04804718]), 8508 (P[P00508491, P00508492]), 16709 (P[P04804717]), 17510 (P[P00508493, P00508494]), 18256 (P[P00508495]); *Buerki*, *S.* 83 (G, MO[MO-2966262], P[P05604433], TAN); *Burivalova*, *Z.* ZB 021 (G[G00304003]); *Casimir*, *Z.* 597 (P[P00872737]); *Catat*, *L.D.M.* 459 (P[P04804712]); *Ceplitis*, *A.* AA957 (UPS[UPS V-095281]); *Cloisel*, *J.* 136 (P[P00513165]); *Cours*, *G.* 810 (P[P04804711]), 928 (P[P04804714]), 1007 (G, P[P04804710]), 1606 (B[B10013897]), G, MA[MA-01-00730255], P[P04804713]), 2074 (G, P[P00508486]), 2078 (B[B100120929], MA[MA-01-00730258], P[P00508488]), 3240 (B, MA[MA-01-00730259], P[P00508487], WAG[WAG.1930071]); *Croat*, *T.B.* 29479 (P[P00508483]), 29487 (P[P00508485]), 30146 (P[P00508481]), 30697 (P[P00508482]), 32280 (P[P00508484]), 32284 (WAG[WAG.1578691]); *Cynthia*, *F.* 177 (P[P05510094]); *d'Alleizette*, *Ch.* 846 (P[P00513161]), s.n. (L[L0242102]), s.n. (L[L0242179]); *Decary*, *R.* 90 (C), 1306 (P[P00513159]), 1317 (P[P00513158]), 1334 (P[P00513157]), 1524 f (G[G00420845]), 1966 (P[P04804515]), 5069 (B[B100273583], P[P00508480]), 5352 (P[P00224690]), 5431 (P[P04804498]), 5711 (C, G, P[P00508479]), 6969 (P[P00508478]), 7057 (K, P[P00508477]), US[US01287452]), 7113 (P[P00508476, P04786260], S[S13-13803]), 7232 (P[P00508475]), 7418 (P[P00508474]), 7567 (P[P00508473]), 7956 (P[P00508472]), 8134 (B[B100120931], P[P00508471]), 9432 (P[P04804538]), 10558 (P[P05604384]), 10595 (P[P05604399]), 13772 (P[P00508470]), 14692 (K, P[P00508469]), 14865 (P[P00508468]), 15186 (K, P[P00508467]), 15247 (P[P00508465], WAG[WAG.1930072]), 15596 (P[P04779778]), 17457 (G, K, P[P00508464]), 17508 (B[B100346702], BR[BR0000005095049]), P[P00513156]), 17730 (BR[BR0000009311879], G, P[P00508463]), 17821 (BR[BR0000009311978], P[P00508462]), 17829 (P[P00508461]), 18246 (G, K, P[P00508460]), 18406

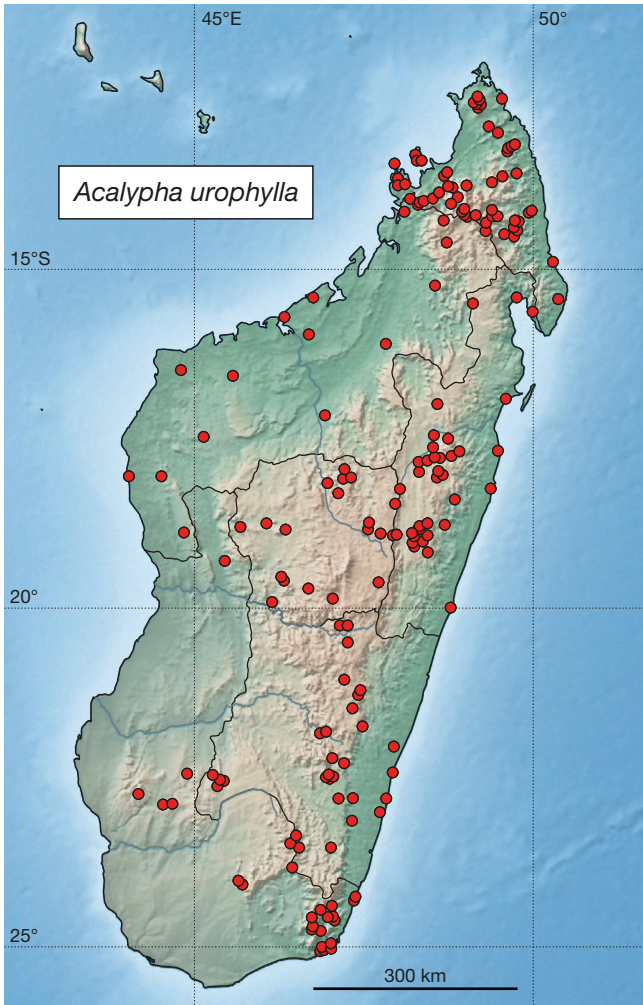


FIG. 70. — Distribution map of *Acalypha urophylla* Boivin ex Baill. in Madagascar.

(P[P00508459]), 18952 (P[P00508458]), 19319 (BR[BR0000009312074], P[P00508457]), s.n. (L[L0242101]); Dequaire, J. 27910 (P[P00508456]); Derleth, P. 42 (G[G3414371], K, P[P00513152]); Desvaux, A.N. 532 (P[P04804499]); du Petit-Thouars, L.M.A. s.n. (P[P00536748]), s.n. (P[P05604459]); Dumetz, N. 636 (BR[BR0000021450303], MO[MO-2966272], P[P04804500], WAG[WAG.1578693]); Gautier, L. LG 3064 (G[G3374371], K, P[P00513153]), LG 3999 (G[G00007293], K, P[P04786266]), LG 4950 (G[G3690421], P[P05547076]), LG 5064 (G[G00170071], P[P05543674]), LG 5199 (G[G00170079], K, P[P05547996]), LG 5259 (G[G00181845], K, P[P04786270]); Gereau, R.E. 3221 (P[P00513155]); Gillespie, L. 4104 (US[US01287342]), 10709 (CAN), 10772 (MO); Goudot, J. s.n. (P[P00536727]), s.n. (holotype, G); Grandidier, M. s.n. (P[P04804535]); Harder, D.K. 1598 (P[P00508454]); Hildebrandt, J.M. 2914 (BREM[BREM\_0001786], G[G00034247], L[L0242108], P[P04804496, P04804501, P04804502, P04804503]); Homolle, A.M. 2074 (P[P04804529]), 2075 (P[P04804532]), 7460 (P[P04804530]), s.n. (P[P04804531]), s.n. (P[P04804533]); Humbert, H. 2827 (G, P[P04804522, P04804523, P04804524]), 3448 (G, P[P00508452]), 5014 (P[P05604401, P05604402]), 6015 (GH[GH01097252], P[P05604383]), 6067 (GH[GH01097251], P[P00508450, P00508451], US[US01287454]), 6242 (GH[GH01097249], P[P00508448, P00508449], US[US01287457]), 6296 (GH[GH01097248], P[P04804497], US[US01287456]), 6476 (GH[GH01097250],

P[P04804490, P04804491], US[US01287455]), 6995 (MO[MO-3025006], P[P00324581, P05543671], TAN), 11232 (P[P04779864]), 11235 (P[P00324547, P04779549, P04779551]), 11906 (P[P00508447]), 12096 (P[P00508446]), 12153 (P[P00508444, P00508445]), 12215 (P[P00508443]), 13810 (P[P00508438, P00508439, P00508440]), 17701 (P[P00508436, P00508437]), 18176 (P[P00508434, P00508435]), 18659 (P[P05604397, P05604400]), 19557 (G, K, MO[MO-2966209], P[P00508433], TAN, WAG[WAG.1930073]), 19730 (P[P05543678]), 20476 (B[B100120930], G, P[P00508430]), 22155 (P[P00508429, P04804492]), 23968 (P[P00508428]), 24008 (P[P00513148]), 24225 (P[P00508427]), 24261 (G, P[P00513126], WAG[WAG.1578634]), 25819 (G, MO[MO-3025007], P[P00508426]), 28635 (P[P00508425]), s.n. (P[P00508453]); Humblot, L. 335 (P[P05604393, P05604394, P05604395, P05604396]), s.n. (P[P04779787]); Keraudren-Aymonin M. 25265 (P[P04804754]); Jacquemin, H. 80-J (P[P04804759]), H451J (P[P00513151]), H285J (P[P04804760]), H666J (P[P04804756]); Jard. Bot. Tananarive 5630 (P[P00513162]); Kotozafi, A. 360 (P[P00513128]); Lam, H.J. 5014 (K, P[P04804495]), 5290 (L[L0242106]), 5363 (L[L0242105]), 5385 (P[P00513174]), 5386 (L[L0242100], P[P04804525]), 5814 (BR[BR0000014625480], L[L0242110], WAG[WAG.1578692]); Le Myre de Villers, M. s.n. (P[P04779853]), s.n. (P[P04779854]); Leandri, J. 606 (P[P04804742]), 731 (P[P04804741]), 1796 (P[P04804751, P04804752]), 4333 (P[P04804749]), 4434 (P[P04804748]); Leeuwenberg, A.J.M. 14301 (BR[BR0000014293221], C, CAS, E, FR, G[G00380499], K, LMU, MA[MA-01-00850542], MO, P[P04804738], PRE, TAN, WAG[WAG.1578738, WAG.1578739]); Lowry II, P.P. 4165 (K, MO, P[P00513134]), 5446 (K, MO[MO-2966187], P[P04779849, P04779852]), 6237 (K, MO[MO-2966185]); Ludovic, R. 304 (MO[MO-3025021]); Malcomber, S. 941 (K, MO[MO-2965840], P[P04804701]), 1729 (MO[MO-2966195], P[P04804706]), 1746 (K, MO[MO-2966188], P[P04804707]), 1774 (K, MO[MO-2965850], P[P04804708]), 1954 (G[G00420836], MO[MO-2966189], P[P04804740], TAN), 1985 (G[G00420849], K, MO[MO-2966190], P[P05510101], TAN), 2351 (P[P04804709]); Manjato, N. 412 (G[G3860534], P[P01059778]); McPherson, G. 14478 (P[P04804703]), 16478 (P[P05543676]), 16481 (K, MO[MO-3025036], P[P05543677]); Messmer, N. NM 129 (G[G3433391], K); Miller, J.S. 3337 (K, MO, P[P04804704], WAG[WAG.1578741]); Mocquerys, A. 268 (G); Nek, F.I. van 1788 (BR[BR0000021450327], G, GH[GH01097254], K, M, MO[MO-2965735], TAN, WAG[WAG.1578529]), 1820 (BR[BR0000018883374], MO[MO-2965734], WAG[WAG.1810548, WAG.1810547]), 1833 (MO[MO-2965738], WAG[WAG.1578528]), 1886 (BR[BR0000018889482], K, M, MO[MO-2965744], WAG[WAG.1578527]), 2122 (BR[BR0000021450273], G[G00406686], K, M, MO[MO-2965741], WAG[WAG.1578740]); Nicoll, M.F. 223 (K, MO, P[P00513135]); Nusbaumer, L. LN 1663 (G[G00019863], P[P05481891]), LN 1688 (G[G00090078]), LN 1978 (G[G00090335], P[P05481877]), LN 2182 (G[G00074395]), LN 2784 (G[G00181614]); Parker, G.W. s.n. (K); Perrier de la Bâthie, H. 413 (P[P05604390, P05604392]), 422 (P[P05604387, P05604388, P05604391]), 1677 (P[P00513146, P00513147]), 9561 (P[P00513143, P00513144]), 9635 (P[P00513145]), 9741 (P[P05604377]), 9746 (P[P00513170]), 9815 (P[P04804772]), 9820 (P[P04804778]), 9822 (P[P05604389]), 9875 (P[P04804776]), 9891 (P[P04804521]), 9928 (P[P00513142]), 9934 (P[P00513149]), 9939 (P[P00513150]), 15337 (P[P00536744], US[US01287451]), 15371 (K, P[P05604385]), 16180 (P[P05604386]), 18609 (P[P04804777]), 18614 (P[P05604382]), s.n. (P[P04779846]); Pervillé, A. 364 (P[P00536749]); Phillipson, P.B. 1615 (BR[BR0000021450341], K, MO, P[P00513136], WAG[WAG.1578690]), 2969 (K, MO, P[P00508424]); Rabenantandro, J. 620 (P[P05604372]); Rajeriarison, Ch. EUPH-6 (P[P04804517]), EUPH-10 (P[P04804487]); Rakoto, R. 4334



(P[P04804761]); *Rakotonasolo*, F. RNF 2493 (BR, K[K001036395], MO, TAN); *Rakotonondrajaona*, R. 243 (BR[BR0000005042425], K, MO[MO-343419], P[P04779591]); *Rakotonirina*, C.Z. 597 (MAUAM, MO[MO-2965860]), 362 (MAUAM, MO[MO-2965855], P[P01152833], TAN); *Rakotovao*, C. 140 (P[P00508423]), 840 (G, MO, TAN), 2409 (P[P05604429]), 2499 (MO[MO-2966259, MO-2966265], P[P05604436]), 2585 (P[P05604432]), 2718 (P[P05604431]), 2791 (P[P05604374]), 3187 (P[P05604434]), 3216 (G, MO[MO-2966257], P[P05604435]), 4212 (G[G00181237], MO[MO-2965858]), 9680 (P[P04804765]), 10601 (P[P04804771]), 10884 (P[P04804770]), 11300 (P[P04804769]), 11813 (P[P04804768]); *Rakotovao* 4688-RN (K); *Rakotozary*, O. 357 (P[P04804774]); *Ralimanana*, H. RLI 1396 (G, K, MO[MO-2966282], P[P00886878], TAN); *Ramarokoto* 7724 (P[P04804766]); *Ranaivojaona*, R. 1038 (MO[MO-3025034], P[P05572502]); *Ranarivelo*, H.S. RHS 414 (CAS, MO[MO-2965732], P[P00887486]); *Randriambololomanjy*, O. 272 (MO[MO-2966264], P[P05510090]); *Randrianaivo*, R. 41 (MAUAM, MO[MO-2967239], P[P00513129], TAN), 2096 (MO, P[P01061044]); *Randrianarivelo*, C. 433 (P[P05604430]); *Randrianasolo*, A. 1574 (MAUAM, MO[MO-2965829], P[P01199974], TAN); *Randriatsivery*, M.F. 423 (G[G386484/4], P[P01059876]); *Rasamison* 12688 (P[P04804763]); *Rasoafaranaivo*, M.H. 53 (MO[MO-3025037], TAN); *Rasoanaivo* 121 (G[G386602/3], P[P01059890]); *Ravelonarivo*, D. 2092 (P[P05604428]), 2278 (MO[MO-3025032], P[P05510093]); *Ravololomanana*, N. 331 (MO, P[P01060800]); *Razafimandimbison*, S. 1900 (S[S17-49213]); *Razafindrabaja*, V. 233 (MAUAM, MO[MO-2965859], P[P01152831], TAN); *Razafitsalama*, L. J. 202 (G, MO[MO-2966258], P[P04779321]); *Razakamalala*, R. 2411 (P[P06490052]), 2859 (P[P04804775]), 3261 (P[P05604426]), 3442 (P[P05510220]), 4454 (MO[MO-2965753], P[P00722363], TAN), 4843 (MAUAM, MO[MO-2967238], TAN), 6132 (MO[MO-3025028], P[P01152837], TAN), 6986 (MO, P[P01197645]); *Razanajatovo*, M.H. MHR 064 (G[G00170089]); *Razanatsoa*, J. 260 (K, MO[MO-2965851], P[P01152839]); *Réserves Naturelles Madagascar* 1279 RN (P[P00513137, P00513138, P00513139]), 3384 (P[P04804762]); *Richard*, M. 186 (P[P04804486]), 222 (P[P04804504, P04804505]), 281 (P[P04804489]), 385 (P[P00536750, P04779454]); *Schatz*, G.E. 3421 (P[P00508421]); *Schlieben*, H.J. 8236 (B, BR[BR0000021450358], G, K); *Seigler*, D.S. DS-12899 (P[P04804735]); *Service Forestier* 2403-SP (P[P04804731]); *Service Forestier* 2409 (P[P04804737]); *Service Forestier* 25166 (P[P04804736]); *Seyrig*, A. 81 (P[P05547035]), 358 (P[P04804732]); *Tabinarivony*, A.J. TAJ 115 (G[G00180802], P[P04786271]); *Trigui*, S.M. SMT 147 (G[G00170101]), SMT 150 (G[G00170102]), SMT 258 (G[G00170105], P[P05547997]); *van der Werff*, H. 13671 (K, MO[MO-2965819], P[P05510109]); *Viguiet*, R. 611 (P[P05604437, P05604440, P05604441]), 793 (P[P04804518, P04804519, P04804520]), 986 (P[P00513175, P00513176, P00513177]), 1135 (P[P00513173, P04804513, P04804514]), 1349 (G, P[P04804733]), 1847 (P[P00513140, P00513141]); *Waterlot*, M. 632 (P[P04804734]); *Wen*, J. 9502 (MO[MO-2965755], P[P05547184], US[US00945400]); *Wohlhauser*, S. SW 60032 (P[P00513124]), SW60031 (G[G336516/1]).

REFERENCES. — Müller Argoviensis (1866: 260, 852) as *A. reticulata* var. *goudotiana* and *A. reticulata* var. *uropophylla*; Baron (1889: 262); Baillon (1891: 189); Baillon (1892: 1004); De Candolle (1901: 567); Palacký (1907: 25 as *A. goudotiana*, 26); Pax & Hoffmann (1924: 105, 260) as *A. reticulata* var. *goudotiana* and *A. reticulata* var. *uropophylla*; Leandri (1942: 258, 260, 262) as *A. reticulata* var. *goudotiana* and *A. reticulata* var. *uropophylla*; Leandri (1942: 267) as *A. reticulata* var. *meiodonta*; Leandri (1942: 281) as *A. emirnenis*; Leandri (1948: 186) as *A. reticulata* var. *goudotiana*; Govaerts et al. (2000: 62, 63, 100, 105, 108); Montero Muñoz et al. (2018a: 110).

## DESCRIPTION

Sprawling shrubs, leaf persistence unknown, to 4(-6) m tall, sparsely branched, monoecious. **Branches** more or less flexuous, puberulent with simple, short, appressed, curved, antrorse trichomes, sometimes also with erect trichomes to 0.7 mm long, glabrescent when mature. **Axillary buds** ovoid, to 0.5 × 1 mm, perulate, perules 2, valvate, membranous, dark brown, glabrous. **Stipules** to 3 mm long, linear-lanceolate, sparsely hairy, margin with minute, glandular trichomes. **Petioles** 1-1.5(-3) cm long, indumentum similar to that on young branches. **Leaf blades** (4-)5-7.5(-10)[-11] × (1.5-)2-3.5 cm, usually ovate-lanceolate to elliptic-lanceolate, sometimes oblong-lanceolate, membranous to subchartaceous; **base** rounded to subcordate, sometimes acute; **apex** usually acuminate, sometimes acute, acumen to 25 mm long, acute, mucronate; **margin** usually crenulate to crenulate-denticulate, sometimes serrulate, teeth obtuse, slightly callose-edged; **upper and lower surfaces** laxly pubescent with sparse, simple, erect trichomes, especially on veins, glabrescent; venation pinnate, secondary veins *c.* 14 per side. **Stipels** glandular, to 0.3 mm long, glabrous. **Inflorescences** spiciform, androgynous, male, and solitary female bracts, axillary. **Androgynous inflorescences** to 6 cm long, mostly male with 1 female bract, sessile; rachis sparsely hairy with simple, short trichomes. **Male segment** persistent, to 5.5 cm long; flowers glomerate; **bracts** to 0.6 mm long, ovate-triangular, sparsely hairy. **Female segment: bract** 1, sessile, enlarging in fruit to 4 × 5.5 mm (sometimes 4 × 7 mm or 6 × 5 mm), triangular to elliptic, sparsely hairy, glabrescent, ciliate; margin crenate to dentate, teeth 7-10, central tooth sometimes slightly prominent; **bracteoles** absent. **Male inflorescences** to 6.5(-12 or very rarely 18) cm long; peduncle to 3 mm long, sparsely hairy with simple, short trichomes. **Solitary female bracts** sessile, similar to those of androgynous inflorescences. **Male flowers: pedicel** to 0.7 mm long, sparsely hairy; buds to 0.7 mm diameter, sparsely hairy, papillose. **Female flowers** 1 per bract, sessile; sepals 3, to 0.3 mm long, triangular-lanceolate, sparsely hairy; **ovary** *c.* 1 mm diameter, 3-lobed, papillose, papillae minute, surface hispid with simple trichomes to 1 mm long; **styles** 3, to 7 mm long, distinct, sparsely hairy with simple, long trichomes to 1 mm long, each divided into *c.* 15 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, papillose, papillae slender, to 0.8 mm long, surface pubescent with simple trichomes to 1 mm long. **Seeds** not seen.

## NOTE

*Acalypha uropophylla* has been considered to be a variety of *A. reticulata* (the correct name for which is *A. filiformis*), but *A. uropophylla* can be distinguished by its sessile female bracts with dentate margins vs pedicellate female bracts with crenate to subentire margins in *A. filiformis* (see notes in *A. filiformis*). See notes under *A. gracilipes*, *A. lamiana* and *A. pervilleana* for the differences between those species and *A. uropophylla*.

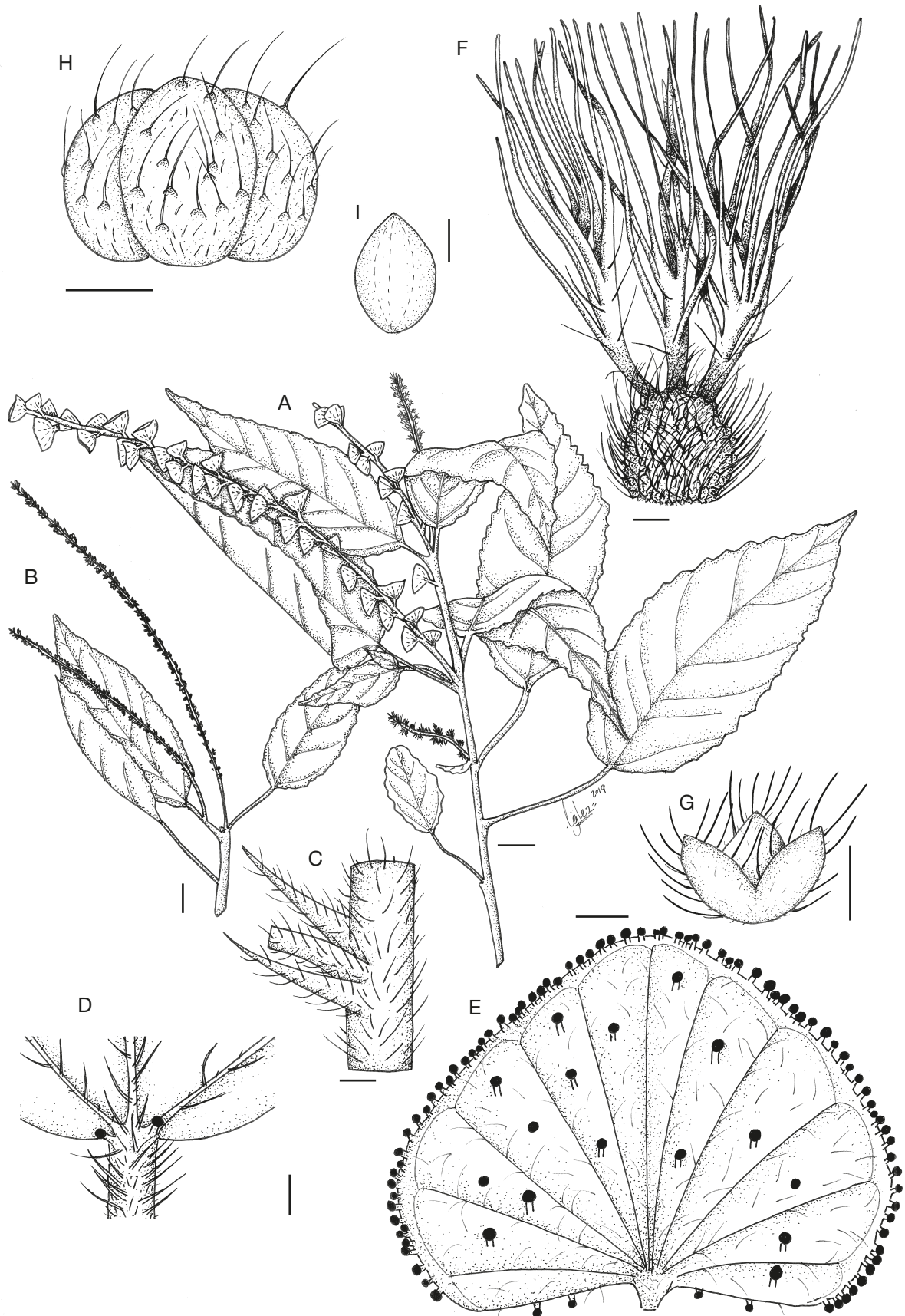


FIG. 71. — *Acalypha vulneraria* Baill.: A, flowering female branch; B, flowering male branch; C, detail of node, stipules, and petiole base; D, detail of the leaf base and stipels; E, mature female bract; F, ovary and styles; G, calyx of the female flower; H, capsule; I, seed. Based on *F. Randriatafika* 812 (A, C-I) and *H. Humbert* 20779 (B). Illustration by Laura González Hernández. Scale bars: A, B, 1 cm; C-E, G, 1 mm; F, 0.5 mm.



48. *Acalypha vulneraria* Baill.

*Bulletin mensuel de la Société linnéenne de Paris* 2: 1180 (Baillon 1895a). — Type: Madagascar. Prov. Toliara, Fort-Dauphin, s.d., *G. F. Scott-Elliot 3010* (lecto-, designated by Montero Muñoz *et al.* [2018a: 112]; P[P00536740]; isolecto-, K[K000186511], P[P00536739]). — Former syntype: Madagascar. Prov. Toliara, Fort-Dauphin, *M. Cloisel 51* (wrongly transcribed as “Cloisel 50” in the protologue; P[P04779526]).

ICONOGRAPHY. — Figs 71; 73G.

ETYMOLOGY. — The specific epithet *vulneraria* means ‘healer of wounds’. Baillon (1895a) reported this use for the flowers of this species.

DISTRIBUTION AND HABITAT. — Endemic to Madagascar (Androy and Anosy). Sclerophyllous woodland, littoral forest, and dry spiny thickets. On basement rocks, Tertiary limestone, and unconsolidated sand. Altitudinal range sea level to 1200 (–1400) m (Fig. 72).

PRELIMINARY CONSERVATION ASSESSMENT. — The EOO of *Acalypha vulneraria* is estimated to be 6813 km<sup>2</sup> and its AOO 36 km<sup>2</sup>, which is less than the 500 km<sup>2</sup> threshold of the B2 subcriterion of the Endangered category. Moreover, this species is mainly recorded from littoral forests and dry spiny thickets (see assessment of *A. decaryana*). Due to its restricted geographical range and the continued degradation of forests in these areas, we assess *A. vulneraria* as Vulnerable: VU B1ab(i,iii,iv), but due to likely continued habitat degradation, future re-evaluation of this species probably will move it to Endangered under subcriteria B1 and B2.

MATERIAL EXAMINED. — 20 collections. Madagascar. *Cloisel, J. 51* (P[P04779526]); *d’Alleizette, Ch. s.n.* (L[L0242226]); *Decary, R. 9978* (P[P00324563]); *Dumetz, N. 1119* (P[P04779516]); *Humbert, H. 13170* (P[P04779512, P04779513, P04779515]), *13171* (P[P04779522, P04779523, P04779524, P04779525]), *13355* (P[P04779518, P04779519, P04779521]), *20779* (G, K, MO[MO-3025005], P[P00324586, P00324587, P04786278], TAN, WAG[WAG.1196748]), *29129* (P[P05547271]), *29155* (P[P05547270]), *29317* (P[P05547057]); *McPherson, G. 14688* (P[P04779514]), *14766* (P[P04779517]); *McWhirter, J.H. 195* (P[P05547056]); *Rabevohitra, R. 1844* (MO, P[P04804485]), *2110* (P[P04779520]); *Rakotovao 11059-RN* (P[P05547272]); *Randriatafika, F. 460* (MO[MO-3025038], P[P01198034], TEF), *812* (MO[MO-3025039], P[P06490053]); *Scott-Elliot, G.F. 3010* (K[K000186511], P[P00536739, P00536740]).

REFERENCES. — Palacký (1907: 26); Nitschke (1923: 281); Pax & Hoffmann (1924: 128); Leandri (1935: 46); Leandri (1942: 279); Govaerts *et al.* (2000: 93); Montero Muñoz *et al.* (2018a: 112).

## DESCRIPTION

Shrubs, probably evergreen, to 1.5 m tall, monoecious. **Branches** pubescent with simple, erect trichomes to 1 mm long, glabrescent when mature. **Axillary buds** ovoid, to 1 × 0.7 mm, perulate, perules 2, valvate, membranous, dark brown, hispid with simple, erect trichomes to 1 mm long; **Stipules** to 5 mm long, linear, with simple, erect trichomes to 1 mm long. **Petioles** (1-)2-3 cm long, indumentum similar to that on young branches. **Leaf blades** (3.5-)5-17 × (1.5)2-3.5(-7.5) cm, ovate to oblong-lanceolate, subchartaceous; **base** rounded to truncate; **apex** acuminate, acuminate to 15 mm long, acute, mucronate; **margin** crenate to dentate, teeth rounded to subacute; **upper surface** laxly pubescent with simple, erect trichomes to 1 mm long, and with simple, appressed, basally thickened trichomes

on veins; **lower surface** indumentum similar to that on upper surface but denser; venation actinodromous, basal veins 3 or 5, secondary veins 6-9 per side. **Stipels** glandular, to 0.5 mm long, glabrous. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** laxly flowered, to 10 cm long; peduncle to 15 mm long, indumentum similar to that on young branches; flowers glomerate; **bracts** to 0.6 mm long, triangular, with short, glandular trichomes. **Female inflorescences** densely flowered, to 13 cm long; peduncle to 10 mm long, indumentum similar to that on young branches; **bracts** *c.* 37, subsessile, petiole to 0.5 mm long, indumentum similar to that on young branches, enlarging in fruit to 7 × 10 mm, subtriangular-reniform, pubescent with simple trichomes to 1 mm long and thick glandular trichomes especially on margin; margin entire; **bracteoles** to 0.5 mm long, linear-lanceolate, hispid with simple, erect trichomes to 1 mm long. **Male flowers**: pedicel to 0.5 mm long, sparsely hairy; buds to 0.7 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, ovate-triangular, sparsely hairy with simple, hyaline trichomes to 1 mm long; **ovary** *c.* 1 mm diameter, 3-lobed, papillose-hispid, papillae ending in a simple trichome to 1 mm long, surface apparently hispid; **styles** 3, to 4 mm long, distinct, sparsely hairy on rachis and papillate, each divided into *c.* 10 segments. **Allomorphic flowers** not seen. **Capsules** to 3 mm diameter, papillose-hispid, papillae rounded, to 0.3 mm long, ending in simple trichome to 1 mm long, surface sparsely hairy with simple, short, appressed trichomes. **Seeds** 2 × 1.5 mm, pyriform, minutely foveolate.

49. *Acalypha wilkesiana* Müll.Arg.

*Prodromus Systematis Naturalis Regni Vegetabilis* 15 (2): 817 (Müller Argoviensis 1866), *nom. cons. prop. Ricinocarpus wilkesianus* (Müll. Arg.) Kuntze, *Revisio Generum Plantarum* 2: 618 (Kuntze 1891). — *Acalypha amentacea* Roxb. subsp. *wilkesiana* (Müll.Arg.) Fosberg & Sachet, *Smithsonian Contributions to Botany* 45: 10 (Fosberg & Sachet 1980). — Type: Fiji. “in insulis Fidji”, s.d., Wilkes Expedition s.n. (U.S. Expl. Exped. under Capt. Wilkes) (lecto-, designated in Cardiel *et al.* 2022a: G-DC [one specimen over two sheets: G00324021 and G00324022]; isolecto-, GH[GH00045512], K[K000959008], US[US00096423, US00096424]).

ICONOGRAPHY. — André & Bois (1907: 358); Fig. 73H.

ETYMOLOGY. — The epithet honors American naval officer and explorer Charles Wilkes (1798-1877).

DISTRIBUTION AND HABITAT. — Native to Melanesia. Widely cultivated as ornamental plant throughout the tropics. Cultivated species in Madagascar (Analamanga and Vakinankaratra), Mascarene Islands (La Réunion) and Seychelles (Mahé) (Fig. 74).

PRELIMINARY CONSERVATION ASSESSMENT. — *Acalypha wilkesiana* is a widespread cultivated ornamental but is not known in the wild. Is considered native of Melanesia but of unknown origin (Sagun *et al.* 2010). It sometimes is found along forest edges and roads. We assess this species as Least Concern (LC).

MATERIAL EXAMINED. — 8 collections. Madagascar. *Anonymous 11* (P[P05546985]); *Anonymous s.n.* (P[P05546986]); *d’Alleizette, Ch. 705* (P[P04779510]); *Rotereau, L. s.n.* (P[P05510219]). La Réunion. *Séverin 68* (P[P04779511]). Seychelles. *Jeffrey, C. 606* (K); *Thomasset, H.P. s.n.* (K).



Fig. 72. — Distribution map of *Acalypha vulneraria* Baill. in Madagascar.

REFERENCES. — Robertson (1989: 200); Montero Muñoz *et al.* (2018a: 112).

#### DESCRIPTION

Shrubs or small trees, probably evergreen, to 4 m tall, monoecious. **Branches** usually tomentose to substrigose, sometimes also hispid, glabrescent when mature. **Axillary buds** naked, hispid with simple, erect trichomes. **Stipules** to 7(-10) mm long, linear-lanceolate or filiform, sometimes broadened at base, appressed-pubescent. **Petioles** 1-4(-8) cm long, tomentose. **Leaf blades** usually variegated green, red, yellow, purple, or copper, 8-20 × 3-10(-13) cm, usually broadly ovate-lanceolate, sometimes elliptic or obovate-lanceolate, membranous; **base** broadly cuneate, obtuse, or rounded, sometimes decurrent; **apex** acuminate, sometimes abruptly so, acumen to 40 mm long, obtuse, mucronate; **margin** serrate to crenate-serrate, teeth obtuse, irregular; **upper and lower surfaces** subglabrous, appressed-pubescent on veins; venation actinodromous, basal veins 3 or 5, secondary veins 7-9 per side. **Stipels** absent. **Inflorescences** spiciform, unisexual, axillary. **Male inflorescences** to 25 cm long; peduncle to 15 mm long, velutinous; flowers glomerate; **bracts** to 1 mm long,

elliptic, sparsely hairy. **Female inflorescences** to 10 cm long, densely flowered; peduncle to 40 mm long, pubescent with simple, curved trichomes; **bracts** to 16, sessile, enlarging in fruit to 9 × 11 mm, sparsely hairy; margin deeply dentate, teeth *c.* 15, to 1/2 bract length, triangular-lanceolate, central tooth prominent; **bracteoles** absent. **Male flowers**: pedicel to 1 mm long, sparsely hairy; buds to 1 mm diameter, sparsely hairy. **Female flowers** 1 per bract, sessile; **sepals** 3, to 1 mm long, elliptic-lanceolate, puberulent; **ovary** *c.* 1.3 mm diameter, 3-lobed, smooth, surface densely pubescent; **styles** 3, to 7 mm long, distinct, glabrous, each divided into 8-10 segments. **Allomorphic flowers** not seen. **Capsules** to 5 mm diameter, verrucose, surface densely pubescent. **Seeds** *c.* 2 mm diameter, globose, minutely foveolate.

#### EXCLUDED SPECIES

##### *Acalypha neptunica* Müll.Arg.

*Abhandlungen herausgegeben vom Naturwissenschaftlichen Vereins zu Bremen. Bremen* 7: 26 (Müller Argoviensis 1882). — Type: **Tanzania**. Zanzibar, Kidosi, X.1873, *J. M. Hildebrandt 1146* (lecto-, designated by Cardiel & Montero Muñoz [2018]: K[K000431078]; isolecto-, G[G00007675]).

#### REMARKS

This species occurs in West Tropical Africa, West Central Tropical Africa, Northeast Tropical Africa, and East Tropical Africa (Montero Muñoz *et al.* 2018a). Although there are two references of *Acalypha neptunica* from Madagascar (Baillon 1895b; Palacký 1907), we have not yet confirmed its presence in the study area.

##### *Acalypha spiciflora* Burm.f.

*Flora Indica* 203: pl. 61-2 (Burman 1768). — *Claoxylon spiciflorum* (Burm.f.) A.Juss., *De Euphorbiacearum generibus medicisque earundem viribus tentamen* 43 (Jussieu 1824). — *Cleidion spiciflorum* (Burm.f.) Merr., *An Interpretation of Rumphius's Herbarium Amboinense* 322 (Merrill 1917).

#### REMARKS

*Acalypha spiciflora* Burm.f. was described and illustrated in Burman's *Flora Indica*, but the plate and the description are very imprecise. Subsequently, Poiret (1804) cited under this name a specimen in the Lamarck herbarium (P00382113) from La Réunion. That specimen is morphologically close to Burman's plate, but it is not an *Acalypha* species. Later, Jussieu (1824) combined *A. spiciflora* under the genus *Claoxylon*, as *Claoxylon spiciflorum*, and Merrill (1917) combined it under *Cleidion*, as *Cleidion spiciflorum*, the name that is currently accepted. Müller Argoviensis (1866) wrongly placed *Acalypha spiciflora* as a synonym of *A. acuminata* Vahl ex Baill. Pax & Hoffmann (1924) and Leandri (1942) followed Müller's treatment but, applying the rule of priority, chose *A. spiciflora* as the accepted name. This is the origin of the confusion in the use of this name.



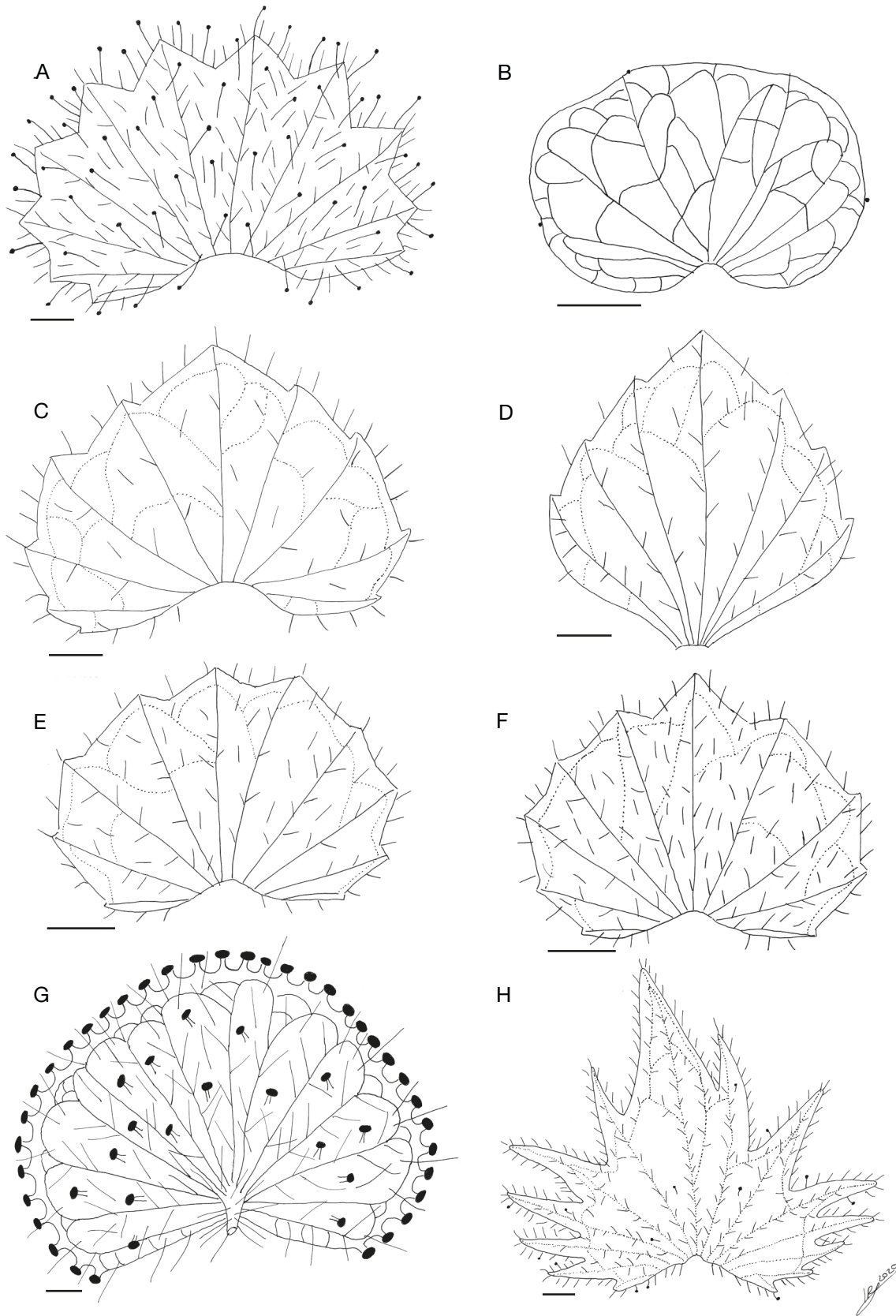


FIG. 73. — Mature female bracts: **A**, *Acalypha spachiana* Baill. (*H. Humbert* 19791); **B**, *A. tremula* I.Montero & Cardiel (*R. Randrianaivo et al.* 1160); **C**, *A. urophylla* Boivin ex Baill. (*J. Goudot s.n.*); **D**, *A. urophylla* (*J. M. Hildebrandt* 2914); **E**, **F**, *A. urophylla* (*S. Malcomber* 1746); **G**, *A. vulneraria* Baill. (*F. Randriatafika* 812); **H**, *A. wilkesiana* Müll.Arg. (*Sagun et al.* 2010; *Sagun & Risna* SR50). Illustration by Iris Montero Muñoz. Scale bars: 1 mm.

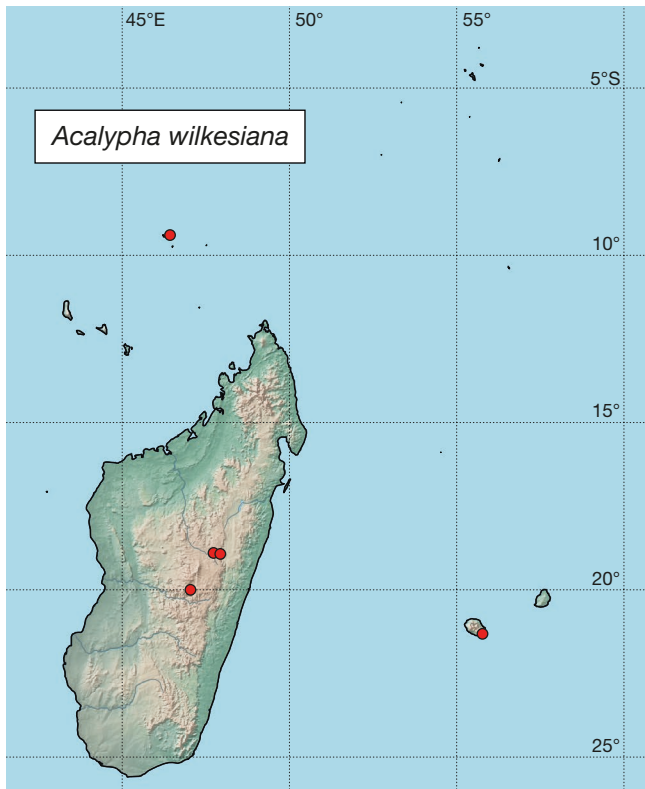


FIG. 74. — Distribution map of *Acalypha wilkesiana* Müll.Arg. in Madagascar and Mascarene Islands.

### *Acalypha venosa* Poir.

*Encyclopédie méthodique. Botanique* 6: 204 (Poiret 1804). — Type: *Commerson s.n.*

#### REMARKS

The type specimen of *Acalypha venosa* (*Commerson s.n.*, from Madagascar) corresponds to *Leptonema venosum* (Poir.) A.Juss. (Phyllanthaceae), as pointed out by Steudel (1841: 31).

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APPENDIX 1. — List of the species and specimens of *Acalypha* included in the micromorphological studies.

Taxon	Country	Specimens (Herbarium)
<i>A. andringitrensis</i> Leandri	Madagascar	<i>J. Perrier de la Bâthie</i> 9671 (P)
<i>A. ankaranensis</i> I.Montero & Cardiel	Madagascar	<i>A. Leeuwenberg</i> 14374 (G)
<i>A. baretiae</i> I.Montero & Cardiel	Madagascar	<i>R. Razakamalala</i> 6064 (MO)
<i>A. chibomboia</i> Baill.	Comoros	<i>F. Barthelat</i> 1436 (P)
<i>A. claoxyloides</i> Hutch.	Seychelles	<i>F.R. Fosberg</i> 49627 (MO)
<i>A. crateriana</i> (Coode) I.Montero & Cardiel, comb. nov.	Mauritius	<i>D. Lorence</i> 1858 (K)
<i>A. decaryana</i> Leandri	Madagascar	<i>P.J. Rakotomalaza</i> 211 (P)
<i>A. diminuta</i> Baill.	Madagascar	<i>H. Grevé</i> 223 (P), <i>L.P.G. Nusbaumer</i> LN928 (G), <i>H. Ralimanana</i> 239 (G)
<i>A. emirnenis</i> Baill.	Madagascar	<i>H. Humbert</i> 6514 (GH), <i>S. Malcomber</i> 2118 (P), <i>R. Rakoto</i> 15 (G), <i>L. Gautier</i> LG 3889 (G), <i>C. Rakotovao</i> 2677 (P)
<i>A. filiformis</i> Poir.	Mauritius	<i>M.J.E. Coode</i> 5062 (P)
	La Réunion	<i>Th. Cadet</i> 899 (P)
<i>A. fimbriata</i> Schumach. & Thonn.	Ghana	<i>C.C.H. Jongkind</i> 2277 (P)
<i>A. hispida</i> Burm. f.	Colombia	<i>H. Garcia-Barriga</i> 6477 (COL)
	Ecuador	<i>C.H. Dodson</i> 11285 (SEL)
	United States	<i>J.R. Abbott</i> 10611 (SEL)
<i>A. indica</i> L.	French Guiana	<i>R.M. Harley</i> 24801 (U)
	Russian Federation	<i>V. Vasak</i> s.n. (W)
<i>A. lamiana</i> (Leandri) I.Montero & Cardiel	Madagascar	<i>H.J. Lam</i> 6127 (P)
<i>A. leandrii</i> I.Montero & Cardiel	Madagascar	<i>J. P. Leandri</i> 2996 (P)
<i>A. leptomyra</i> Baill.	Madagascar	<i>P. Morat</i> 4736 (P)
<i>A. linearifolia</i> Leandri	Madagascar	<i>G. Cours</i> 4638 (P)
<i>A. marginata</i> (Poir.) Spreng.	La Réunion	<i>P. Commerson</i> s.n. (G)
<i>A. mayottensis</i> I.Montero & Cardiel	Mayotte	<i>J.-N. Labat</i> 3268 (G), <i>J.-N. Labat</i> 3272 (G), <i>G. Viscardi</i> 310 (P)
<i>A. menavody</i> (Leandri) I.Montero & Cardiel	Madagascar	<i>R. Ranaivojaona</i> 1659 (MO)
<i>A. nusbaumeri</i> I.Montero & Cardiel	Madagascar	<i>L. Nusbaumer</i> LN 1169 (P)
<i>A. perrieri</i> Leandri	Madagascar	<i>L. Gautier</i> LG 5615 (G)
<i>A. perrieri</i> aff. Leandri	Madagascar	<i>P. De Block</i> 1082 (G)
<i>A. pervilleana</i> Baill.	Madagascar	<i>L. Razafitsalama</i> 1063 (G), <i>A. Mocquerys</i> 159 (G)
<i>A. poiretii</i> Spreng.	Argentina	<i>C.A. O'Donnell</i> 890 (GH)
<i>A. rabesahalana</i> I.Montero & Cardiel	Madagascar	<i>H. Humbert</i> 32480 (G)
<i>A. radula</i> Baker	Madagascar	<i>Service Forestier Madagascar</i> 45-SF (P), <i>Service Forestier Madagascar</i> s.n. (P), <i>J.M. Hildebrandt</i> 3865 (BREM)
<i>A. richardiana</i> Baill.	Comoros	<i>J.M. Hildebrandt</i> 1661 (BREM)
<i>A. rottleroides</i> Baill.	Madagascar	<i>P. Ranirison</i> PR 1085 (G)
<i>A. indet. 1</i>	Madagascar	<i>A. Mocquerys</i> 405 (G)
<i>A. indet. 2</i>	Madagascar	<i>F. Ratovoson</i> 1347 (G)
<i>A. tremula</i> I.Montero & Cardiel	Madagascar	<i>L. Nusbaumer</i> LN 1227 (G)
<i>A. urophylla</i> Boivin ex Baill.	Madagascar	<i>S. Malcomber</i> 1954 (G), <i>J.M. Hildebrandt</i> 2914 (BREM)
<i>A. vulneraria</i> Baill.	Madagascar	<i>F. Randriatafika</i> 812 (MO)
<i>A. wilkesiana</i> Müll.Arg.	Peru	<i>J. Schunke</i> 1941 (COL)
	United States	<i>T. Walters</i> 2694 (SEL)

Published names	Accepted names
<i>A. acuminata</i> Vahl ex Baill. <i>nom. illeg.</i>	<b><i>A. burmanii</i></b> I.Montero & Cardiel
<i>A. aldabrica</i> Pax & K.Hoffm.	<b><i>A. claoxyloides</i></b> Hutch.
<i>A. amentacea</i> Roxb. subsp. <i>wilkesiana</i> (Müll.Arg.) Fosberg	<b><i>A. wilkesiana</i></b> Müll.Arg.
<b><i>A. andringitrensis</i></b> Leandri	
<b><i>A. ankaranensis</i></b> I.Montero & Cardiel	
<i>A. arborea</i> Comm. in Poir. <i>nom. nud.</i>	<i>A. filiformis</i> Poir.
<i>A. aspretorum</i> Leandri <i>nom. nud.</i>	<b><i>A. medibracteata</i></b> Radcl.-Sm. & Govaerts
<b><i>A. bailloniana</i></b> Müll.Arg.	
<i>A. bakeriana</i> Baill.	<b><i>A. emirnensis</i></b> Baill.
<b><i>A. baretiae</i></b> I.Montero & Cardiel	
<i>A. baronii</i> Baker	<b><i>A. emirnensis</i></b> Baill.
<b><i>A. boinensis</i></b> Leandri	
<b><i>A. berryi</i></b> I.Montero & Cardiel, <i>sp. nov.</i>	
<i>A. buchenavii</i> Müll.Arg.	<b><i>A. spachiana</i></b> Baill.
<b><i>A. burmanii</i></b> I.Montero & Cardiel	
<b><i>A. cardielii</i></b> I.Montero & G.A.Levin	
<b><i>A. chibomboia</i></b> Baill.	
<b><i>A. claoxyloides</i></b> Hutch.	
<i>A. cloiselana</i> M. Denis in Leandri <i>nom. nud.</i>	<b><i>A. gracilipes</i></b> Baill.
<i>A. codonocalyx</i> Baill.	<b><i>A. chibomboia</i></b> Baill.
<i>A. colorata</i> (Poir.) Spreng.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> Baill. <i>nom. nud.</i>	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> Baill. ex Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>acutifolia</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>brevifolia</i> Baill. ex Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>concolor</i> Baill. <i>nom. nud.</i>	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>discolor</i> Baill. <i>nom. nud.</i>	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>gracilipes</i> (Baill.) Müll.Arg.	<b><i>A. gracilipes</i></b> Baill.
<i>A. commersoniana</i> var. <i>longifolia</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>obtusifolia</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>parvifolia</i> Baill. <i>nom. nud.</i>	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> var. <i>parvifolia</i> Baill. ex Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> f. <i>colorata</i> (Poir.) Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> f. <i>concolor</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> f. <i>discolor</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> f. <i>purpurea</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> f. <i>purpureo-marginata</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersoniana</i> f. <i>unicolor</i> Müll.Arg.	<b><i>A. integrifolia</i></b> Willd.
<i>A. commersonii</i> Baill. <i>nom. nud.</i>	<b><i>A. gracilipes</i></b> Baill.
<i>A. comorensis</i> Pax	<b><i>A. chibomboia</i></b> Baill.
<b><i>A. crateriana</i></b> (Coode) I.Montero & Cardiel, <i>comb. nov.</i>	
<i>A. crenata</i> var. <i>glandulosa</i> Müll.Arg.	<b><i>A. lanceolata</i></b> var. <i>glandulosa</i> (Müll.Arg.) Radcl.-Sm.
<b><i>A. decaryana</i></b> Leandri	
<b><i>A. diminuta</i></b> Baill.	
<i>A. discolor</i> Bojer <i>nom. nud.</i>	<b><i>A. integrifolia</i></b> Willd.
<b><i>A. emirnensis</i></b> Baill.	
<i>A. emirnensis</i> var. <i>bara</i> Leandri	<b><i>A. emirnensis</i></b> Baill.
<i>A. emirnensis</i> var. <i>jabohaziana</i> Leandri	<b><i>A. emirnensis</i></b> Baill.
<i>A. fasciculata</i> Müll.Arg., <i>syn. nov.</i>	<b><i>A. emirnensis</i></b> Baill.
<i>A. fasciculata</i> var. <i>humbertiana</i> Leandri, <i>syn. nov.</i>	<b><i>A. emirnensis</i></b> Baill.
<i>A. fasciculata</i> var. <i>lyallii</i> (Baker) Leandri, <i>syn. nov.</i>	<b><i>A. emirnensis</i></b> Baill.
<b><i>A. filiformis</i></b> Poir.	
<i>A. filiformis</i> var. <i>arborea</i> Poir.	<b><i>A. filiformis</i></b> Poir.
<i>A. filiformis</i> var. <i>goudotiana</i> (Baill.) Govaerts	<b><i>A. urophylla</i></b> Boivin ex Baill.
<i>A. filiformis</i> var. <i>ovalifolia</i> (Baill.) Govaerts	<b><i>A. ovalifolia</i></b> Baill.
<i>A. filiformis</i> var. <i>pervilleana</i> (Baill.) Govaerts	<b><i>A. pervilleana</i></b> Baill.
<i>A. filiformis</i> var. <i>urophylla</i> (Boivin ex Baill.) Govaerts	<b><i>A. urophylla</i></b> Boivin ex Baill.
<i>A. filiformis</i> var. <i>urophyloides</i> (Pax & K.Hoffm.) Govaerts	<b><i>A. pervilleana</i></b> Baill.
<b><i>A. fimbriata</i></b> Schumach. & Thonn.	
<i>A. fryeri</i> Hutch.	<b><i>A. claoxyloides</i></b> Hutch.
<i>A. gagnepainii</i> Leandri <i>nom. illeg.</i>	<b><i>A. medibracteata</i></b> Radcl.-Sm. & Govaerts
<i>A. gagnepainii</i> var. <i>calcicola</i> Leandri	<b><i>A. medibracteata</i></b> Radcl.-Sm. & Govaerts
<b><i>A. gillespieae</i></b> G.A.Levin & I.Montero	
<i>A. goudotiana</i> Baill.	<b><i>A. urophylla</i></b> Boivin ex Baill.
<b><i>A. gracilipes</i></b> Baill.	
<i>A. hildebrandtii</i> Baill.	<b><i>A. radula</i></b> Baker
<b><i>A. hispida</i></b> Burm.f.	
<i>A. hologyna</i> Baker	<b><i>A. emirnensis</i></b> Baill.
<b><i>A. humbertii</i></b> Leandri	



## Appendix 2. — Continuation.

Published names	Accepted names
<i>A. humblotiana</i> Baill.	<i>A. pervilleana</i> Baill.
<b>A. indica</b> L.	<i>A. bailloniana</i> Müll.Arg.
<i>A. indica</i> var. <i>bailloniana</i> (Müll.Arg.) Hutch.	<i>A. marginata</i> (Poir.) Spreng.
<b>A. integrifolia</b> Willd.	<i>A. marginata</i> (Poir.) Spreng.
<i>A. integrifolia</i> subsp. <i>marginata</i> (Poir.) Coode	<i>A. integrifolia</i> Willd.
<i>A. integrifolia</i> subsp. <i>panduriformis</i> Coode	<i>A. integrifolia</i> Willd.
<i>A. integrifolia</i> var. <i>colorata</i> (Poir.) Pax & K.Hoffm.	<i>A. crateriana</i> (Coode) I.Montero & Cardiel, comb. nov.
<i>A. integrifolia</i> var. <i>concolor</i> (Müll.Arg.) Pax & K.Hoffm.	<i>A. gracilipes</i> Baill.
<i>A. integrifolia</i> var. <i>crateriana</i> Coode	<i>A. integrifolia</i> Willd.
<i>A. integrifolia</i> var. <i>gracilipes</i> (Baill.) Pax & K.Hoffm.	<i>A. integrifolia</i> Willd.
<i>A. integrifolia</i> var. <i>longifolia</i> (Müll.Arg.) Coode	<i>A. marginata</i> (Poir.) Spreng.
<i>A. integrifolia</i> var. <i>parvifolia</i> (Baill. ex Müll.Arg.) Pax & K.Hoffm.	<i>A. rottleroides</i> Baill.
<i>A. integrifolia</i> var. <i>saltuum</i> Coode	
<b>A. isaloensis</b> I.Montero & Cardiel	
<i>A. juliflora</i> Pax	
<b>A. lamiana</b> (Leandri) I.Montero & Cardiel	
<b>A. lanceolata</b> var. <i>glandulosa</i> (Müll.Arg.) Radcl.-Sm.	
<i>A. lantanaefolia</i> Bojer nom. nud.	<i>A. filiformis</i> Poir.
<b>A. leandrii</b> I.Montero & Cardiel	
<b>A. leonii</b> Baill.	<i>A. leonii</i> Baill.
<i>A. leonii</i> var. <i>perrierana</i> Leandri	
<b>A. lepidopagensis</b> Leandri	
<b>A. leptomyura</b> Baill.	
<b>A. levinii</b> I.Montero & Cardiel	
<b>A. linearifolia</b> Leandri	
<i>A. lyallii</i> Baker	<i>A. emirmensis</i> Baill.
<i>A. madagascariensis</i> Pax & K.Hoffm., syn. nov.	<i>A. emirmensis</i> Baill.
<i>A. madreporica</i> Baill.	<i>A. emirmensis</i> Baill.
<b>A. magistri</b> I.Montero & Cardiel	
<b>A. marginata</b> (Poir.) Spreng.	
<b>A. mayottensis</b> I.Montero & Cardiel	
<b>A. medibracteata</b> Radcl.-Sm. & Govaerts	<i>A. medibracteata</i> Radcl.-Sm. & Govaerts
<i>A. medibracteata</i> var. <i>calcicola</i> (Leandri) Radcl.-Sm. & Govaerts	<i>A. pervilleana</i> Baill.
<i>A. meiodonta</i> Baill., syn. nov.	<i>A. medibracteata</i> Radcl.-Sm. & Govaerts
<i>A. menabeana</i> Leandri nom. nud.	
<b>A. menavody</b> (Leandri) I.Montero & Cardiel	
<b>A. neptunica</b> Müll.Arg.	
<b>A. nusbaumeri</b> I.Montero & Cardiel	
<i>A. ovalifolia</i> Baill.	<i>A. richardiana</i> Baill.
<i>A. paxii</i> Aug.DC., syn. nov.	<i>A. pervilleana</i> Baill.
<b>A. perrieri</b> Leandri	
<b>A. pervilleana</b> Baill.	
<b>A. poiretii</b> Spreng.	
<i>A. polynema</i> Baill.	<i>A. rottleroides</i> Baill.
<b>A. rabesahalana</b> I.Montero & Cardiel	
<b>A. radula</b> Baker	
<i>A. reticulata</i> (Poir.) Müll.Arg.	<i>A. filiformis</i> Poir.
<i>A. reticulata</i> var. <i>arborea</i> (Poir.) Müll.Arg.	<i>A. filiformis</i> Poir.
<i>A. reticulata</i> var. <i>cloiselana</i> Leandri	<i>A. gracilipes</i> Baill.
<i>A. reticulata</i> var. <i>goudotiana</i> (Baill.) Müll.Arg.	<i>A. urophylla</i> Boivin ex Baill.
<i>A. reticulata</i> var. <i>longifolia</i> Müll.Arg.	<i>A. integrifolia</i> Willd.
<i>A. reticulata</i> var. <i>meiodonta</i> (Baill.) Leandri, syn. nov.	<i>A. pervilleana</i> Baill.
<i>A. reticulata</i> var. <i>ovalifolia</i> (Baill.) Müll.Arg.	<i>A. richardiana</i> Baill.
<i>A. reticulata</i> var. <i>pervilleana</i> (Baill.) Müll.Arg.	<i>A. pervilleana</i> Baill.
<i>A. reticulata</i> var. <i>urophylla</i> (Boivin ex Baill.) Müll.Arg.	<i>A. urophylla</i> Boivin ex Baill.
<i>A. reticulata</i> var. <i>urophyloides</i> Pax & K.Hoffm.	<i>A. pervilleana</i> Baill.
<i>A. reticulata</i> f. <i>aberrans</i> Müll.Arg.	<i>A. integrifolia</i> Willd.
<i>A. reticulata</i> f. <i>andronea</i> Leandri	<i>A. pervilleana</i> Baill.
<i>A. reticulata</i> f. <i>glabrescens</i> Leandri	<i>A. urophylla</i> Boivin ex Baill.
<i>A. reticulata</i> f. <i>humblotiana</i> (Baill.) Leandri	<i>A. pervilleana</i> Baill.
<i>A. reticulata</i> f. <i>lamiana</i> Leandri	<i>A. lamiana</i> (Leandri) I.Montero & Cardiel
<i>A. reticulata</i> f. <i>longa</i> Leandri	<i>A. urophylla</i> Boivin ex Baill.
<i>A. reticulata</i> f. <i>meeusei</i> Leandri	<i>A. urophylla</i> Boivin ex Baill.
<i>A. reticulata</i> f. <i>typique</i> Leandri nom. inval.	<i>A. urophylla</i> Boivin ex Baill.
<i>A. reticulata</i> f. <i>vohitrae</i> Leandri	<i>A. urophylla</i> Boivin ex Baill.
<b>A. richardiana</b> Baill.	
<b>A. rottleroides</b> Baill.	
<i>A. salviifolia</i> Baill. nom. nud.	<i>A. radula</i> Baker

Published names	Accepted names
<b>A. spachiana</b> Baill.	<b>A. spachiana</b> Baill.
<i>A. spachiana</i> var. <i>acutifolia</i> Baill.	<b>A. spachiana</b> Baill.
<i>A. spachiana</i> var. <i>latifolia</i> Baill.	<b>A. spachiana</b> Baill.
<i>A. spachiana</i> var. <i>minor</i> Baill.	<b>Claoxylon spiciflorum</b> (Burm.f.) A.Juss.
<i>A. spiciflora</i> Burm.f.	<b>A. menavody</b> (Leandri) I.Montero & Cardiel
<i>A. spiciflora</i> var. <i>menavody</i> Leandri	<b>A. spachiana</b> Baill.
<i>A. squarrosa</i> Pax	
<b>A. tremula</b> I.Montero & Cardiel	
<b>A. urophylla</b> Boivin ex Baill.	<b>A. pervilleana</b> Baill.
<i>A. urophylla</i> Pax <i>nom. illeg.</i>	<b>Leptonema venosum</b> (Poir.) A.Juss.
<i>A. venosa</i> Poir.	
<b>A. vulneraria</b> Baill.	
<b>A. wilkesiana</b> Müll.Arg.	<b>A. integrifolia</b> Willd.
<i>Caturus sessilis</i> Thouars ex Baill. <i>nom. nud.</i>	<b>A. bailloniana</b> Müll.Arg.
<i>Ricinocarpus baillonianus</i> (Müll.Arg) Kuntze	<b>A. hispida</b> Brum.f.
<i>Ricinocarpus hispidus</i> (Brum.f.) Kuntze	<b>A. poiretii</b> Spreng.
<i>Ricinocarpus poiretii</i> (Spreng.) Kuntze	<b>A. wilkesiana</b> Müll.Arg.
<i>Ricinocarpus wilkesianus</i> (Müll.Arg.) Fosberg	<b>A. integrifolia</b> Willd.
<i>Tragia colorata</i> Poir.	<b>A. burmanii</b> I.Montero & Cardiel
<i>Tragia filiformis</i> Poir.	<b>A. integrifolia</b> Willd.
<i>Tragia fruticosa</i> Commers. in Baill. <i>nom. nud.</i>	<b>A. integrifolia</b> Willd.
<i>Tragia lobata</i> Wall. <i>nom. nud.</i>	<b>A. integrifolia</b> Willd.
<i>Tragia macrophylla</i> Wall. <i>nom. nud.</i>	<b>A. integrifolia</b> Willd.
<i>Tragia marginata</i> Poir.	<b>A. integrifolia</b> Willd.
<i>Tragia obtusata</i> Vahl. in Baill. <i>nom. nud.</i>	<b>A. filiformis</b> Poir.
<i>Tragia reticulata</i> Poir.	<b>A. radula</b> Baker
<i>Tragia salviifolia</i> Bojer in Baill. <i>nom. nud.</i>	<b>A. spachiana</b> Baill.
<i>Tragia saxatilis</i> Bojer in Pax & K.Hoffm. <i>nom. nud.</i>	