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A revision of the "basal-axile placentation clade" of *Miconieae*, the newly erected *Miconia* sect. *Liogieria* (*Melastomataceae*: *Miconieae*) from the Greater Antilles

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Abstract: Phylogenetic analyses show that a group of species of *Miconia* (*Melastomataceae*: *Miconieae*) from the Greater Antilles all form a clade. They share the presence of backward-deflexed filaments with the entire androecium turning pink to red after anthesis and placentation reduced axile to basal. Additionally, many of these species are deciduous, and have fruits with few and relatively large seeds. These species have until recently been recognized in *Calycogonium*, *Miconia*, *Ossaea* and *Pachyanthus*. The group is composed of 14 species, two from Puerto Rico and 12 from Cuba, including the newly described *M. matosiana*. We formally describe this clade as *M.* sect. *Liogieria* and provide a revision of its species, including an identification key, descriptions, maps and photographs or illustrations for all of them. Twelve names are typified: *Calycogonium clidemioides* Griseb., *C. rosmarinifolium* Griseb., *Charianthus obliquus* Griseb., *Graffenrieda obtusa* Griseb., *Miconia baracoensis* Urb., *M. cerasiflora* Urb., *M. cerasiflora* var. *setulifera* Urb., *M. confusa* Cogn., *M. obtusa* f. *glabrior* Urb., *M. pachyphylla* Cogn., *M. thomasiana* DC. and *M. vernicosa* Naudin.

Keywords: basal-axial placentation clade, *Calycogonium*, Caribbean, *Charianthus*, Cuba, deciduous melastomes, *Graffenrieda*, Greater Antilles, *Melastomataceae*, *Miconia*, *Miconieae*, *Ossaea*, *Pachyanthus*, taxonomy

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Introduction

The tribe *Miconieae*, with some 1900 species distributed from Mexico to N Argentina and throughout the Antilles, is the largest in the *Melastomataceae* (Michelangeli & al. 2004; Goldenberg & al. 2008; Michelangeli & al. 2008, 2020). The group is characterized by baccate fruits, terminal or axillary inflorescences (but not cauline) and flowers that are never subtended by two pairs of bracteoles (characters of the *Henrietteeae* and *Blakeeae* respectively) (Michelangeli & al. 2004; Penneys & al. 2010; Penneys & Judd 2013). Phylogenetic analyses have shown that most of the 16–19 genera traditionally recognized in *Miconieae* are polyphyletic (Michelangeli & al. 2004; Goldenberg & al. 2008; Martin & al. 2008; Michelangeli & al. 2008; Kriebel & al. 2015; Reginato & Michelangeli 2016), but these and other analyses have revealed the existence of morphologically or geographically coherent clades (Penneys & Judd 2005; Bécquer-Granados & al. 2008; Gamba & Almeda 2014; Kriebel & al. 2015; Majure & al. 2015b; Reginato & Michelangeli 2016). A growing consensus has arisen that all species within the tribe *Miconieae* should be considered part of a single genus *Miconia* Ruiz & Pav. (Ionta & al. 2012; Judd & Ionta 2013; Gamba & Almeda 2014; Judd & al. 2014a; Majure & al. 2015a; Michelangeli & al. 2016), with all remaining necessary combinations and new names at species level recently published (Michelangeli & al. 2018). For an alternative view, see Kriebel (2016) and Reginato (2016).

Within the Caribbean + *Conostegia* D. Don clade of *Miconieae* consistently recovered in previous studies (Bécquer-Granados & al. 2008; Goldenberg & al. 2008; Michelangeli & al. 2008), there is a small clade with high support that is formed by species previously recognized in *Calycogonium* DC., *Miconia*, *Ossaea* DC. and *Pachyanthus* A. Rich. The species in this clade share several

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potential synapomorphies, e.g. small flowers (<1 cm), obovate to spatulate petals, strongly fused calyx lobes, few-seeded fruits, seeds raphal area concave and, most notably, either basal or axile placentation with the placental tissue reduced. The remarkable placentation of most species in this group led to its informal recognition as the "basal-axial placentation clade" by Bécquer-Granados & al. (2008) (corrected to basal-axile in the present work). Another notable feature found in this clade is that many of its species are deciduous, a rare trait in neotropical *Melastomataceae* (Goldenberg & al. 2012), and often flower when the branches lack leaves or when leaves are only starting to develop. Additionally, most species in this group have flowers with the stamens at anthesis arranged in two groups (usually 2–4 on the same side of the flower as the style and 6–8 on the opposite side). Lastly, in most species the stamens are bent backward and change colour from yellow to red or pink after anthesis.

Recently other clades of *Miconieae* that have been diagnosed and/or identified have been recognized at the sectional level within *Miconia*, many of these within the larger Caribbean clade (Ionta & al. 2012; Judd & al. 2014a, 2014b; Majure & al. 2015a, 2015b).

The main goal of this study is to characterize this group of 14 species, recognized until now as a "basal-axial placentation clade" of *Miconia*, here describing it as a new section (*M.* sect. *Liogieria* Bécquer & Michelang.) and placing it in a phylogenetic context. We also provide an identification key, detailed descriptions, specimen citations, distribution maps and illustrations for all treated species.

Material and methods

Phylogenetic analyses

The results presented here are taken directly from the tribe-wide analysis of the *Miconieae* by Gavrutenko & al. (2020). This study included 1083 species of *Miconieae* across all morphological groups and spanning the geographical distribution of the tribe. Of the 14 species putatively assigned to *Miconia* sect. *Liogieria*, 12 were included in the analyses, ten from Cuba and two species present in Puerto Rico. Additionally, 102 other species of the Caribbean clade (sensu Goldenberg & al. 2008) were included in the analysis. Among these is a species from W Cuba, *M. delicatula* A. Rich., which, although having deciduous leaves, lacks many characteristics putatively assigned to *M.* sect. *Liogieria*, particularly placentation and stamen colour and morphology, and we hypothesize that it is not part of this group. Phylogenetic analyses were based on DNA sequences from three nuclear markers (*waxy*, nrITS and nrETS) and six plastid markers (*trnS*, *psbK*, *accD*, *atpF*, *ndhF* and *rbcL*). Maximum likelihood analyses were performed in RaxML-HPC BlackBox through the CIPRES portal (Miller & al. 2010) on the basis of a nine-marker alignment (10,851 bp).

Taxonomy

Over 500 specimens of species putatively assigned to *Miconia* sect. *Liogieria* were examined for this study (see Appendix 1 in Supplemental content online). Two of the authors (ERB and FAM) made 46 collections, representing all the Cuban taxa. The remaining specimens or digital images examined are in the following herbaria: B, BM, BR, CORD, F, FLAS, G-DC, GH, GOET, HAC, HAJB, JE, K, MO, NY, P, S, US and YU (herbarium codes follow Thiers 2020+). All measurements included in the key and species descriptions were taken directly from dried material, with the exception of plant height and flower/fruit colour, which were taken from information on specimen labels, observed in the field or from photographs. Floral measurements were made from rehydrated material or alcohol-preserved material. The terminology and measurements follow Judd (2007). Species delimitations were based on the morphological-phenetic species concept (Judd 2007) and the diagnostic species concept (Wheeler & Platnick 2000). No natural hybrids are known in *M.* sect. *Liogieria*.

Seeds and leaves for scanning electron microscopy studies were mounted on aluminium stubs and coated with gold-palladium in a Denton DSK00V-0016 sputter coater. Scanning electron microscopy was performed on a Hitachi SU3500-VP and images taken with the SE detector with accelerating voltages ranging from 5 to 15 KVolts. Alternatively, some images were taken in a JEOL JSM-5410 at 15 Kvolts with similar coating conditions.

Information on vegetation types was taken from the labels of herbarium specimens and from field trips conducted in Cuba during 2003–2019 by two of the authors (ERB and FAM). The vegetation types mentioned in the species distributions follow Borhidi (1996).

In order to lectotypify the different names included in this study we followed the *International Code of Nomenclature for algae, fungi, and plants* (Turland & al. 2018). Specifically, in the cases for which the holotype was not specified, we chose to lectotypify in every case for which more than one specimen is known (McNeill 2014). In the case of the names published by Urban based on Ekman's specimens, we followed the criteria of Bécquer Granados (2012), Majure & al. (2016) and Carmenate-Reyes & Michelangeli (2021), i.e. choosing as the lectotypes the best available specimen deposited in S because these were without a doubt seen by Urban and given that there are no surviving Ekman specimens deposited in B (destroyed during WWII). We also chose to lectotypify in those cases in which the specimen deposited in S is the only known original material, because there is no way to know whether or not Urban had retained specimens in B.

Lectotypification of Grisebach's names based on Charles Wright's collections is a complex issue. The numbers on Wright's specimens do not correspond to collection numbers but to species numbers that were added later by Asa Gray. Because of this, the same number was often assigned to specimens collected at different localities and dates, occasionally resulting in the same number being assigned to what are now considered different species (Howard 1988). Although this can sometimes be inferred if the date or locality differs across specimens or they have different labels (which correspond to different periods, see Howard 1988), it is often impossible to ascertain whether two sheets are indeed part of the same gathering. Some specimens lack the labels used by Gray to distribute the duplicates (notably those in HAC, but occasionally others), so it is impossible to ascertain to which gathering they may belong. Lastly, some of the GH specimens have field notes from Wright, which may or may not correspond to the information on the label of the same specimen. While lectotypifying these names, we followed the criteria already employed by several authors (Rankin Rodríguez & Greuter 2000; Judd 2007; Bécquer Granados 2012; Majure & al. 2016; Bécquer & al. 2018; Carmenate-Reyes & Michelangeli 2021) to designate as the lectotype specimens likely seen by Grisebach (most often the one deposited in GOET), although there is no rule requiring this to be the case. The fact that we can often see Grisebach's handwriting on the specimens is confirmation that he, indeed, worked with those specimens. When we are not certain whether the specimens of the same number are indeed from the same collection, we choose to recognize them as possible isolectotypes (i.e. when they have the same label type or there is no label). If it is clear that a given number contains specimens from different gatherings (because they have different label types and/or dates and localities), we try to make this clear and we refer to them as dubious isolectotypes. Citation of collection numbers for Cuban specimens follows Regalado Gabancho & al. (2010).

Distribution maps and conservation status

Georeferenced locality data, when available, were taken directly from the specimen labels, or whenever possible assigned a posteriori following protocols implemented at the NYBG GIS lab. Distribution maps were then made in ArcGis. Several collections, especially those made prior to 1970, have very vague locality data. Additionally, the political subdivisions of Cuba have changed dramatically over the last 60 years and province names have changed. Updated information based on current political divisions or additions based on knowledge about the collecting localities of different botanists is provided in brackets.

The conservation status of each species was assessed according to the categories and criteria of the IUCN (2012) as well as the guidelines of the IUCN Standards and Petitions Subcommittee (IUCN 2019). The extent of occurrence (EOO) and area of occupancy (AOO) were calculated as recommended by the IUCN (2019) using the Geospatial Conservation Assessment Tool (GeoCAT; Bachman & al. 2011). For the AOO measurements, the area of the grid was considered 1 km^2, a quarter of the area recommended by the IUCN (2019), as has been used for other insular groups (García-Beltrán & al. 2020). The representation of protected areas was calculated from the superposition of the geographical coordinates of the localities on the digital map of protected areas of the CNAP (2013, 2019). For each species, the percentage of AOO included in protected areas is referred to, as well as the number of locations and the percentage of these with some portion in protected areas. Locations were defined in the sense of the IUCN (2012, 2019).

Results

Phylogenetic analyses

All species that were putatively assigned to the basal placentation group based on morphology indeed form a highly supported clade sister to the remaining species of the "Caribbean clade" (this relationship also highly supported), and no species that had not been previously assigned to this group were resolved within it. The Caribbean clade is sister to a clade containing the *Conostegia* clade, Mesoamerican members of *Miconia* sect. *Amblyarrhena* (Naudin) Benth. & Hook. f. and a group of species of *Miconia* formerly in *Clidemia* D. Don (the "globuliflora" group) (Fig. 1; for details see Gavrutenko & al. 2020). These analyses also confirmed that *M. delicatula*, another Cuban species with deciduous leaves but different anther morphology and placentation, although part of the Caribbean clade, is not part of *M.* sect. *Liogieria*, but rather it is resolved within another group of Caribbean *Miconia*. *Miconia thomasiana* DC. (from Puerto Rico and the Virgin Islands) was resolved as sister to *M. uninervis* Alain + *M. javorkana* Borhidi (from Cuba), and in turn this small clade was resolved as sister to the remaining members of *M.* sect. *Liogieria*. Within this larger clade, *M. pachyphylla* Cogn. (from Puerto Rico) was resolved as sister to the remaining species (all endemic to Cuba). The support of this all-Cuban clade was high, but internal relationships although well resolved were too poorly supported to really make any firm conclusions about species relationships. It should be noted that two accessions for *M. rosmarinifolia* (Griseb.) M. Gómez were not recovered forming a clade (for more details see the discussion under that species).

Biogeography

Of the 14 species belonging to *Miconia* sect. *Liogieria*, 12 are endemic to Cuba and two are found in Puerto Rico, with one of them extending to the Virgin Islands. *Miconia* sect. *Liogieria* seems to be completely absent from Hispaniola and Jamaica. This is especially surpris-

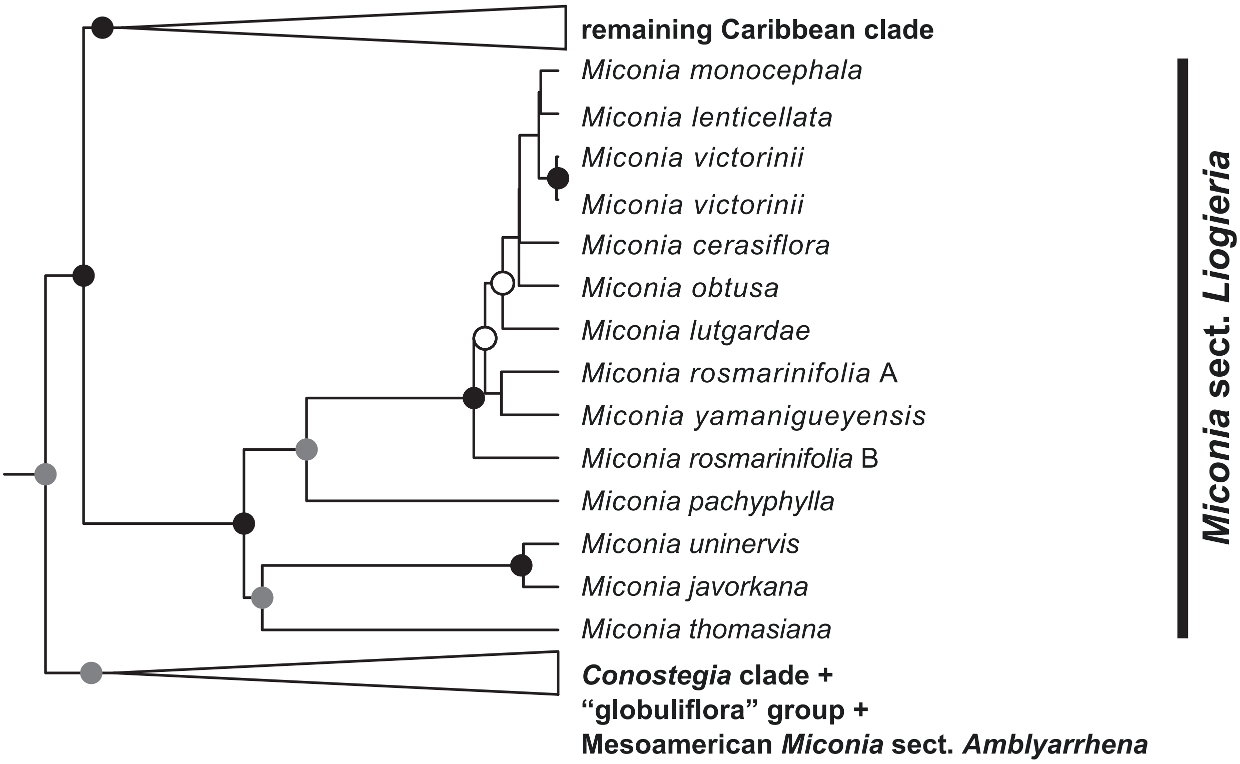

Fig. 1. Maximum likelihood phylogeny of *Miconia* sect. *Liogieria*, modified from Gavrutenko & al. (2020). Black circles denote nodes with 100% bootstrap support; grey circles denote nodes with 85–99% bootstrap support; nodes with open circles denote 50–84% bootstrap support. *Miconia rosmarinifolia* is represented by two accessions: "*M. rosmarinifolia* A" closely matches the type of *Calycogonium rosmarinifolium* subsp. *rosmarinifolium* and "*M. rosmarinifolia* B" matches the type of *C. rosmarinifolium* subsp. *moanum*; see text for details.

ing given that the majority of the other groups within the large Caribbean + *Conostegia* clade (sensu Goldenberg & al. 2008; Michelangeli & al. 2008) have species distributed both in Cuba and Hispaniola (e.g. *M.* sect. *Calycopteris* Judd & al., "Tetrazygia decorticans clade") or in those two islands and Jamaica (e.g. *M.* sect. *Calycodomatia* Skean & al., *M.* sect. *Echinatae* Judd & al., *M.* sect. *Lima* Majure & Judd and *M.* sect. *Sagraea* (DC.) Ionta & al.) (Ionta & al. 2012; Majure & al. 2014, 2015a, 2015b, 2016). *Miconia* sect. *Miconiastrum* (Bonpl. ex Naudin) Judd & al. is found in S Florida, Bahamas, Cuba and Hispaniola (Judd & al. 2014). The only other group not found in Cuba but only in Puerto Rico and Hispaniola is *M.* sect. *Krugiophytum* (Cogn.) Majure & Judd with three species (Majure & al. 2014b).

In general, Cuba and Hispaniola have a strong floristic affinity, with almost 76% of the species shared between them, while Hispaniola shares 23% of its flora with Puerto Rico (Borhidi 1996). The pattern of groups present in Cuba and Puerto Rico but not in Hispaniola is relatively rare among vascular plants. One of the few examples include the bromeliad genus *Wittmackia* Mez (which is also found in Jamaica, the Yucatán Peninsula and the Cayman Islands; Aguirre-Santoro & al. 2020). Reinforcing the rarity of this pattern is that at the species level there are only 11 taxa of vascular plants (eight angiosperms and three ferns) present in both Cuba and Puerto Rico and nowhere else. There are no common endemic genera exclusive to these two islands (Francisco-Ortega & al. 2007; Acevedo-Rodriguez & Strong 2012; Greuter & Rankin Rodríguez 2022).

Interestingly, neither all the Cuban taxa nor the two Puerto Rican species form a clade. On the contrary, each of the Puerto Rican species is sister to two different clades of Cuban endemics (of two and ten species, respectively). The 12 species of *Miconia* sect. *Liogieria* in Cuba are found exclusively in the E part of the island, from near sea level to the summits of the main mountain ranges of the area (the Sierra de Nipe, Sierra de Cristal, Sierra de Moa, Sierra de Baracoa, Cuchillas del Toa, Meseta del Guaso, Sierra de Imías and Jauco), i.e. 10–1230 m. These species grow in moist thickets and forests, mostly on serpentine soils; *M. victorinii* Alain can also be found on limestone outcrops. Of the two species in Puerto Rico, *M. pachyphylla* is found in moist and cloud forests over clay soils, while *M. thomasiana* grows at lower elevations over serpentine and limestone soils and is found also in the Virgin Islands.

Taxonomic history

The oldest name in the clade is *Miconia thomasiana*, described by Candolle (1828) based on a specimen without collector or date from St. Thomas, and now deposited in G-DC. This name was later transferred to *Acinodendron* Kuntze (Kuntze 1891) and *Tamonea* Aubl. ex Krasser (Cook & Collins 1903), but these genera were never really used by the botanical community. *Miconia vernicosa* Naudin (1851) was later described based on *Pleé s.n.* from Puerto Rico now housed in P, but it is without doubt a heterotypic synonym of *M. thomasiana*.

Based on collections by Charles Wright from Cuba, Grisebach (1866) described *Calycogonium clidemioides* Griseb., later transferred to *Miconia* by Gómez de la Maza (1894) with the name *M. baracoana* M. Gómez because the epithet *clidemiodes* was already occupied in *Miconia*. The Puerto Rican collections of Sintenis were also the basis for the description of *M. pachyphylla* by Cogniaux (1886). Later, Ekman's collections from Cuba were the base for Urban's descriptions of *M. baracoensis* Urb. and *M. cerasiflora* Urb. (Urban 1923a), both considered here as one highly variable entity (*M. cerasiflora*; see below). In this same work, Urban (1923a) described *M. monocephala* Urb., which was later transferred to *Pachyanthus* by Borhidi (1976).

Alain (1955), based on collections from E Cuba, described *Miconia bucherae* Alain, *M. lenticellata* Alain and *M. uninervis* Alain. The first two names are considered here to be heterotypic synonyms. In this same work, he also described the odd *Graffenrieda cordifolia* Alain, which was later treated as *M. cordifolia* (Alain) Borhidi (Borhidi 1976). However, because the epithet *cordifolia* was already occupied in *Miconia*, later Borhidi (1983) published the replacement name *M. javorkana* Borhidi (as "*javorkaeana*"). Alain (1955) also described *Ossaea ciliata* Alain, but similarly because the epithet *ciliata* was already occupied in *Ossaea*, he later published the replacement name *O. moaensis* (Liogier 1968) for the species, which was later still transferred to *Miconia* as *M. lutgardae* Bécquer & Michelang. (Michelangeli & al. 2018), another replacement name necessary because the epithet *moensis* was already occupied in *Miconia* and, although the spelling is not identical to *moaensis*, they are so similar that they are likely to be confused (Turland & al. 2018: Art. 53.2).

The last species described in the group previous to the present work was *Pachyanthus moaensis* Borhidi (Borhidi 1976). It was transferred to *Miconia* as *M. yamanigueyensis* Bécquer & Michelang. (Michelangeli & al. 2018), a replacement name necessary for the same reason as for *M. lutgardae* discussed above. Lastly, in the present study we describe *M. matosiana* Bécquer & Michelang. as a new species based on a single specimen from the Sierra de Cristal, Cuba.

Two groups deserve special attention due to their morphological similarities and their more complex nomenclatural issues: the *Miconia rosmarinifolia* complex and the *M. obtusa* (Griseb.) Triana and *M. victorinii* complex.

The *Miconia rosmarinifolia* complex

The *Miconia rosmarinifolia* complex is composed of three named and similar entities that mostly differ in leaf size, shape and indumentum, but with several intermediates, which only allow the recognition of one taxon at specific rank (see below). The first name in this group was published by Grisebach (1866) as *Calycogonium rosmarinifolium* Griseb. and later transferred to *Miconia* by Gómez de la Maza (1894). Later, Kitanov (1972) described "*C. rosmarinifolium* var. *mayarensis*" [sic] and "*C. rosmarinifolium* var. *parvifolium*". However, he did not indicate the type of either name, but cited four and six syntypes (from different gatherings), respectively, rendering these names not validly published (Turland & al. 2018: Art. 40.2). Almost simultaneously, Borhidi & Muñiz (1972) recognized the three entities in this complex at subspecific rank, describing *C. rosmarinifolium* subsp. *brachyphyllum* Borhidi & O. Muñiz and *C. rosmarinifolium* subsp. *moanum* Borhidi & O. Muñiz, later elevating the latter to the rank of species, as *C. moanum* (Borhidi & O. Muñiz) Borhidi & O. Muñiz, without giving any rationale for this change (Borhidi & Muñiz 1975). *Calycogonium moanum* was later transferred to *Miconia* as *M. moana* (Borhidi & O. Muñiz) Bécquer & Michelang. (Michelangeli & al. 2018), and in the present study we consider it to be a heterotypic synonym of *M. rosmarinifolia* along with *C. rosmarinifolium* subsp. *brachyphyllum*.

The *Miconia obtusa* and *M. victorinii* complex

These two species share a complicated taxonomic and nomenclatural history, which may be better understood if analysed separately from the other entities in the clade. The oldest name in the complex is *Charianthus obliquus* Griseb. (Grisebach 1860), which was described based on an incomplete specimen, *Wright 1217*, deposited in GOET. Among the few evident characters present in this specimen is the absence of glandular trichomes. Later, Grisebach (1866) described *Graffenrieda obtusa* Griseb. based on *Wright 2527* (in part), also deposited in GOET, a specimen that clearly has, among other characters, glandular trichomes. Triana (1872) transferred *G. obtusa* to *Miconia obtusa* and mentioned "*Charianthus obtusus*, Griseb." as a synonym, citing page 189 of Grisebach's *Plantae wrightianae* (Grisebach 1860). However, that name never existed, and in that paper (p. 186) Grisebach described only *C. obliquus*, and page 189 does not include the description of any *Melastomataceae*. It is likely that Triana's intentions were to synonymize both *C. obliquus* and *G. obtusa*, but the names got confused. Because Triana (1872) never mentioned the type of *C. obliquus* (*Wright 1217*), but did mention the type of *G. obtusa* (*Wright 2527*), the best option is to consider "*C. obtusus*" as an name not validly published. Adding taxonomic and nomenclatural confusion to this group of species, Cogniaux (1891), based on one of the two duplicates of *Wright 2527* deposited in BR (BR 5190799), described *M. confusa* Cogn., while determining the other duplicate (BR 5212330) as *M. obtusa*, obviously meaning that he thought the collection was based on mixed material; although in our concept all of these specimens belong to the same entity with glandular trichomes. At the same time, Cogniaux also cited "*C. obtusus*" as a synonym of *M. confusa*.

Urban (1923b) considered *Miconia confusa* to be a synonym of *M. obtusa* (as do we), while also describing a new form based on *Ekman 10287*: *M. obtusa* f. *glabrior* Urb. This form is without a doubt the same entity as *Charianthus obliquus*, but the specimen has young leaves and flowers. The obvious differences between the types of *C. obliquus* and *M. obtusa* f. *glabrior* are a consequence of many of the species in this clade having deciduous leaves, and they often flower when they are leafless or when the leaves are very young. So, depending on what time of the year the plants were collected, the resulting specimen can look significantly different. Urban (1923b) also described *M. cerasiflora* var. *setulifera* Urb. based on *Ekman 3567*, a sterile specimen with fully expanded leaves that are conspicuously glandular setose, evidently the same as *Graffenrieda obtusa* (*M. obtusa*).

Later, Alain (1955) described *Miconia victorinii*, distinguishing it from *M. obtusa* because it had a glabrous calyx, whereas the latter has a calyx with glandular trichomes. However, he did not compare *M. victorinii* with *Charianthus obliquus*. In 1957, Alain published what is until now the most complete treatment of the *Melastomataceae* for Cuba (Alain 1957). In this work, he considered *C. obliquus* to be a synonym of *M. obtusa*, and also included *M. praecox* C. Wright as a synonym, but this latter name is in fact a synonym of *M. delicatula* A. Rich., a species belonging to *M.* sect. *Miconiastrum* (Judd & al. 2014b). In this same work, Alain considered *Graffenrieda obtusa* to be a synonym of *M. cerasiflora* var. *setulifera*.

In summary, this detailed analysis of the names and types shows that these names have traditionally been incorrectly applied. What has until now been recognized as *Miconia obtusa* is the entity without glandular trichomes and really corresponds to what Grisebach described as *Charianthus obliquus*. This name has never been transferred to *Miconia* but the epithet *obliqua* is already occupied there. *Charianthus obliquus* is a heterotypic synonym *M. victorinii* (see below); therefore, the latter name should be used for this entity. Similarly, what has until now been recognized as *M. cerasiflora* var. *setulifera* (the entity with glandular trichomes) is a heterotypic synonym of *Graffenrieda obtusa*, and therefore should be called *M. obtusa* when treated at specific rank.

General morphology

Habit and branches — Species within *Miconia* sect. *Liogieria* are erect (rarely climbing or decumbent: *M. javorkana*) shrubs to small trees, ranging in height from 1–10 m tall, evergreen or deciduous (i.e. *M. cerasiflora*, *M. lenticellata*, *M. lutgardae*, *M. obtusa*, *M. thomasiana* and *M. victorinii*). Young branches are mostly rectangular or terete in cross-section, rarely conspicuously winged to subquadrangular (i.e. *M. uninervis* and *M. victorinii*), and lack longitudinal ridges. Mature branches usually have conspicuous, longitudinal lenticels, and the bark is mostly grey to whitish, sometimes reddish as in *M. pachyphylla*, smooth to fissured or very thin and exfoliating easily in short fragments as in *M. lutgardae*. Lenticels are usually present at the nodal regions.

Deciduous species are very rare in neotropical *Melastomataceae* (Goldenberg & al. 2012). In *Miconieae*, in addition to those mentioned in this clade, there are *Miconia delicatula* and *M. ancistrophora* (C. Wright) Triana, related to *M.* sect. *Miconiastrum* (Judd & al. 2014b). This feature also occurs in *Merianthera* Kuhlm., a genus with seven species endemic to E Brazil (Goldenberg & al. 2012) in the tribe *Pyramieae* (Bochorny & al. 2019). Other deciduous species include *Tibouchina papyrus* (Pohl) Toledo (*Melastomateae*) and three species of *Mouriri* Aubl. (Morley 1976). The remaining deciduous representatives in the family belong to Old World genera (*Amphorocalyx* Baker, *Dichaetanthera* Endl., *Dionycha* Naudin and *Nothodissotis* Veranso-Libalah & G. Kadereit) (Veranso-Libalah & al. 2017). In the deciduous species of *M.* sect. *Liogieria*, this character coincides with flowering time, as it does in *Merianthera* (Goldenberg & al. 2012). *Merianthera* occurs on inselbergs on rocky outcrops (Goldenberg & al. 2012), while the deciduous representatives of *M.* sect. *Liogieria* occur on substrates derived from serpentinite, saturated with heavy metals (Borhidi 1996). Both E Brazil "Mata Atlântica" and NE Cuba are regions of high rainfall, therefore the deciduous character would be a convergence as a response to water stress or physiological drought, which has already been pointed out for these ecosystems in Cuba (Borhidi 1996).

Leaves — Leaves are petiolate (except sessile in *Miconia javorkana*), opposite and decussate, as in most species in the family (except for *M. monocephala* with 3-verticillate leaves per node). Leaves are usually isophyllous or slightly anisophyllous. The shape of the leaf blades is variable; the deciduous species and the more glabrescent species usually have wider blades (e.g. broadly ovate to almost orbiculate in *M. cerasiflora*, *M. obtusa* and *M. lutgardae*), but evergreen and densely pubescent species (e.g. *M. baracoana*, *M. rosmarinifolia* and *M. yamanigueyensis*) have narrower blades. It is interesting to note that the shape of the leaf blades of these deciduous species is very similar to most of the species of *Merianthera* (*Pyramieae*) in being broad (frequently wider than long) with a truncate to emarginate or cordate base and a truncate to emarginate apex (Goldenberg & al. 2012). The margin is usually more or less revolute and almost always entire, with the exception of *M. thomasiana*, which has a serrulate-denticulate margin. The adaxial surface is usually flat, or flat to bullate as in *M. cerasiflora* and *M. obtusa.* The venation is acrodromous with 1–3 pairs of secondary veins arching toward the leaf apex, although this is extremely hard to see in *M. uninervis*; the secondary veins can be basal or suprabasal. The tertiary veins are percurrent, more or less perpendicular to the midvein and often connected by quaternary veins (not evident in *M. uninervis*).

Mite domatia — Domatia are usually absent, but four species (*Miconia cerasiflora*, *M. obtusa*, *M. thomasiana* and *M. victorinii*) have domatia formed by a small cavity with a few stellate trichomes at the merger of the midvein and the innermost pair of secondary veins.

Indumentum — As is the case with most *Melastomataceae* (Wurdack 1986), there is a great diversity of trichome types within this group. Trichomes can be sessile or stalked, stellate or dendritic, and often mixed types are present on young branches, leaves, inflorescences, flowers and fruits, along with elongate glandular trichomes in some species (e.g. *Miconia baracoana*, *M. lutgardae*, *M. obtusa* and *M. thomasiana*). Lanate (vermiform) trichomes with more or less free arms are present in *M. monocephala* and *M. yamanigueyensis*, but they are appressed and matted in *M. pachyphylla*. Sessile to shortly stalked glandular trichomes are rare, found only in *M. pachyphylla*. The least pubescent species of this group is *M. uninervis*, with only scattered elongate glandular trichomes on young branches mostly caducous with age; the remaining species are at least to some degree covered by one to two types of trichomes. Some species have the leaf abaxial surface obscured by the indumentum (e.g. *M. baracoana*, *M. matosiana*, *M. monocephala*, *M. rosmarinifolia* and *M. yamanigueyensis*).

Inflorescences — Inflorescences are always terminal and can be sessile or pedunculate. These are usually formed by 3-flowered dichasia, that can be simple (e.g. *Miconia baracoana* and *M. rosmarinifolia*), or arranged in basal-ramose open/lax panicles (e.g. *M. cerasiflora*, *M. lutgardae* and *M. obtusa*) or in a pyramidal panicle (*M. pachyphylla*). A corymbiform cyme is exclusive to *M. yamanigueyensis* and a dense capitate glomerule to *M. monocephala*. Regardless of inflorescence morphology, there is wide variation in number of flowers per inflorescence: solitary flowers are found in *M. matosiana*, while most species have inflorescences with 3–7 flowers, *Miconia cerasiflora* has up to 29 flowers, and *M. pachyphylla* up to 100 flowers per inflorescence. Bracts and bracteoles are mostly inconspicuous and early caducous.

Hypanthium and calyx lobes — Hypanthia are mostly 4- or 5-lobed (6-lobed in *Miconia matosiana*), campanulate, not ridged (conspicuously conic and 12-ridged in *M. matosiana*). Internal calyx lobes are not extended, usually inconspicuous, mostly ovate to broadly triangular with rounded, obtuse to truncate or rarely acuminate apices. The calyx teeth are mostly inconspicuous, 0.1–3 mm long, but *M. matosiana* has conspicuous calyx teeth 5–6 mm long.

Corollas — Corollas are actinomorphic, with 4 or 5(or 6) petals (the same number as the calyx lobes). These are not unguiculate (as in the *Pachyanthus* sensu stricto clade), and they are obovate to broadly obovate, spatulate or oblong. Petals are also slightly asymmetric toward the apex (symmetric in *Miconia pachyphylla*), which are obtuse to rounded, usually with a lateral notch. The margin is entire, either glabrous or ciliate, with trichomes also occasionally present at the apex and/or abaxial surface (e.g. *M. baracoana*, *M. lutgardae* and *M. yamanigueyensis*). Petals are mostly pink to purple or white with a pink tinge. Gavrutenko & al. (2020) pointed out that pink petals evolved from white ones several times throughout the evolutionary history of *Miconieae* and are distributed throughout the tribe, but only two clades exhibit predominantly pink petals (*Tococa* Aubl. and *M.* sect. *Liogieria*).

Stamens — Flowers are always diplostemonous with 8–10(–12) stamens, glabrous, monosymmetric, usually deflexed in two groups at anthesis, with 3 or 4 on the same side of the flower as the style and 6 or 7 on the opposite side, or deflexed in one group opposite the style (*Miconia uninervis* and *M. yamanigueyensis*), rarely polysymmetric, surrounding the style (*M. javorkana*). In older flowers the filaments are then deflexed backward and turn pink to red with age, finally falling together with the petals (but in *M. javorkana* the petals close over the wilting stamens before they fall off). Filaments are flattened, distally more or less geniculate, and usually white. The anthers are yellow, like nearly all species within Caribbean *Miconieae* and the *Conostegia* clade (Gavrutenko & al. 2020), and may or may not have a projection below the thecae; they typically have one more or less apical pore.

Gynoecium — The gynoecium is (2 or)3- or 4-carpellate. The ovary is partially inferior, with the free portion usually rounded to conic, sulcate or not; the upper portion may be glabrous or pubescent. The placentation is reduced axile to basal, with the placentas generally not intruded into the ovary locule (in reduced-axile placentation the placenta is attached to the axis of the ovary at a single point and not throughout the length of the axis). The style is curved with a punctiform stigma, usually glabrous, except for *Miconia yamanigueyensis*, which has trichomes toward the base.

Herkogamy, the spatial separation of stamens and stigma, seems to be evolutionarily favoured within the *Miconieae*, which would explain the multitude of combinations of morphological features of several floral units (Gavrutenko & al. 2020). Herkogamy achieved through a curved style directed away from the centre of the flower and monosymmetric stamens with minute anther pores are commonly observed in *Melastomataceae*, which is consistent with morphological specialization toward buzz pollination by bees (Renner 1989). The monosymmetric androecium of stamens arranged into two different groups described here for *Miconia* sect. *Liogieria* seems to be unique within the *Miconieae*, and possibly in the entire *Melastomataceae*, and it may be associated with pollination by insects exclusive to Cuba and Puerto Rico.

Fruit — Fruits are few-seeded, with 20–24(–40) seeds, mostly spherical berries that range in colour at maturity from purple, purple-black to black. There is still much missing data for fruit colour and size for numerous taxa within this group, because fruits are not well preserved in herbarium specimens, and many specimens lack fruits altogether.

Seeds — The seeds are conspicuous, 1.3–2.7(–3.5) mm long, angular ovoid to pyramidal, with no appendage; the raphe is broad, usually deeply sunken (flat to slightly sunken in *Miconia rosmarinifolia*, flat to slightly projected in *M. matosiana*), brown, usually with a smooth testa. As noted by Bécquer & al. (2014), the seeds of these species, i.e. “Type Iia”, are also similar, and they may be synapomorphic.

Taxonomic treatment

Miconia sect. ***Liogieria*** Bécquer & Michelang., **sect. nov.**
Type: *Miconia cerasiflora* Urb.

Diagnosis — Species of *Miconia* differing from all others by combination of filaments deflexed backward and stamens turning pink to red after anthesis, placentation reduced axile to basal, not intruded, fruits few-seeded, and seeds with raphal area broad, usually deeply sunken.

Morphological description — Shrubs or small trees, erect (rarely climbing), evergreen or deciduous. *Indumentum* mostly of sessile or stalked stellate trichomes and dendritic trichomes, and lanate (vermiform) trichomes on young branches, leaves, inflorescences, flowers and fruits. *Young branches* terete to slightly flattened, conspicuously winged to subquadrangular. *Mature branches* usually with conspicuous longitudinal lenticels; bark mostly grey to whitish, sometimes reddish, smooth to fissured or very thin and exfoliating easily in short fragments. *Leaves* opposite, decussate, rarely 3-verticillate, petiolate, rarely sessile, isophyllous or slightly anisophyllous; blade with margin more or less revolute, entire to serrulate-denticulate, largest teeth to 0.6 mm long, sometimes ± glandular ciliate; adaxial surface flat to bullate. *Venation* acrodromous, with 1 or 2(or 3) pairs of mostly basal secondary veins, symmetric, rarely asymmetric, innermost conspicuous, sometimes suprabasal, marginal pair usually inconspicuous, tertiary veins percurrent, oriented ± perpendicular to midvein; midvein, secondary and tertiary veins usually prominent abaxially, quaternary veins mostly inconspicuous. *Mite domatia* generally absent, occasionally present as a cavity between midvein and first pair of secondary veins. *Inflorescence* terminal, cymose, mostly a basal-ramose open/lax panicle, pyramidal panicle, corymbiform cyme, dense capitate glomerule or in dichasia, sessile or pedunculate, with (1–)3–29(–100) flowers. *Flowers* 4- or 5(or 6)-merous, slightly zygomorphic, sessile or pedicellate. *Hypanthium* usually campanulate, not ridged (conspicuously conic and 12–ridged in *Miconia matosiana*). *Calyx teeth* mostly inconspicuous, arising from midline of calyx lobes, shorter to much exceeding length of calyx lobes; *calyx lobes* valvate in bud. *Petals* 4 or 5(or 6), white, pink to purple, broadly obovate, slightly asymmetric toward apex, glabrous or with trichomes at margin, apex and/or abaxial surface, base decurrent, not unguiculate, margin entire, apex obtuse to rounded with a notch. *Stamens* 8–10(–12), isomorphic, glabrous, usually deflexed in 2 groups at anthesis, (1–)3 or 4 on same side of flower as style and 6 or 7(–9) on opposite side, or deflexed as 1 group opposite style, rarely surrounding style; filaments later deflexed backward and entire androecium turning pink to red with age, mostly falling together with petals. *Filaments* flattened, distally ± geniculate, usually white. *Anthers* ovate, oblong to lanceolate, sometimes flattened toward apex; connective thick toward base, not projecting or with a 0.1–0.5 mm long projection below thecae, not bifurcate, without glands, yellow; thecae ovate to oblong in lateral view, sometimes slightly wrinkled, truncate at base, with a ± apical pore, usually light yellow to white. *Ovary* partially inferior, (2 or)3- or 4-locular, free portion of ovary rounded; placentation reduced axile to basal, not intruded. *Style* terete, attenuate toward apex, glabrous, rarely pubescent toward base, deflexed, white to light pink toward base; stigma punctiform. *Berries* subglobose with 20–24(–40) seeds, maturing purple to black. *Seeds* 1.3–2.7(–3.5) mm long, angular ovoid to pyramidal, appendage absent, raphe broad, usually deeply sunken, testa brown, usually smooth.

Distribution and ecology — *Miconia* sect. *Liogieria* contains 14 species from the Greater Antilles, where it is restricted to Cuba, Puerto Rico and in the Virgin Islands (Tortola and St. Thomas). They occur from sea level to 1325 m, mostly in humid areas over serpentine soils.

Etymology — The sectional epithet honours Brother Alain (Dr. Henri Eugene Liogier de Sereys Allut, 1916–2009). His dedication to the study of Antillean botany is reflected in his more than 100 scientific publications. He made thousands of herbarium collections in Cuba, Puerto Rico and Hispaniola, deposited mainly in Antillean herbaria. He authored about 600 taxa. Among these, 31 taxa of *Melastomataceae* from the Antilles stand out, of which five belong to this new section.

Identification key to the species of *Miconia* sect. *Liogieria*

1\. Climbing or decumbent shrubs; leaves sessile (Cuba) . . . . **3.** ***M. javorkana***

– Erect shrubs or small trees; leaves petiolate **2**

2\. Plants nearly glabrous, only with scattered elongate glandular trichomes on young branches; young branches conspicuously winged to subquadrangular; leaves without obvious secondary venation (Cuba) . . . . **12.** ***M. uninervis***

– Plants with indumentum visible on young branches, leaves, inflorescences, flowers or fruits; young branches mostly terete to flattened, rarely squared; leaves with obvious secondary venation **3**

3\. Leaf abaxial surface obscured by indumentum . . . **4**

– Leaf abaxial surface visible, not obscured by indumentum, glabrescent or very sparsely to moderately pubescent **8**

4\. Leaves verticillate; inflorescences capitate cymes (Cuba) . . . . **7.** ***M. monocephala***

– Leaves opposite; inflorescences open cymes or solitary flowers **5**

5\. Young branches with only stellate trichomes **6**

– Young branches with a mix of lanate (vermiform) trichomes and sparse elongate glandular trichomes . . **7**

6\. Leaves 1.2–1.6 cm wide, flowers 6-merous, hypanthium conic, 12–ridged (Cuba) . . . . **6.** ***M. matosiana***

– Leaves 0.1–0.7(–1) cm wide, flowers 4-merous, hypanthium campanulate, not ridged (Cuba) . . . . **10.** ***M. rosmarinifolia***

7\. Young branches and leaves ferruginous; sessile dichasia c. 0.7 × 1 cm, not branched, with 1–3 flowers; flowers 4-merous (Cuba) . . . . **1.** ***M. baracoana***

– Young branches and leaves whitish; pedunculate corymbiform cymes 1.5–3 × 2.7–3.5 cm, with 2–4 pairs of branches (paraclades), with 5–9 flowers; flowers 5- or 6-merous (Cuba) . . . . . . **14.** ***M. yamanigueyensis***

8\. Plants with conspicuous and persistent elongate glandular trichomes among stellate and dendritic trichomes on young branches, leaves, inflorescences, flowers and/or fruits **9**

– Plants with stellate and dendritic trichomes on young branches, leaves, inflorescences, flowers and/or fruits, usually lacking elongate glandular trichomes, or if present then confined to immature leaves and ephemeral **11**

9\. Elongate glandular trichomes present only on margins of leaves; leaves 1.7–3.5 cm long (Cuba) . . . . **5.** ***M. lutgardae***

– Elongate glandular trichomes present on young branches, leaves, inflorescences, flowers and/or fruits; leaves 4–16 cm long **10**

10\. Leaf margin always entire, innermost pairs of secondary veins always basal; elongate glandular trichomes present on young branches, leaves, inflorescences, flowers and fruits (Cuba) . . . . **8.** ***M. obtusa***

– Leaf margin usually serrulate-denticulate, innermost pairs of secondary veins suprabasal, merging with midvein 2–6(–16) mm above base; elongate glandular trichomes present only on petioles, inflorescences, flowers or fruits, absent on young branches and leaves (Puerto Rico and Virgin Islands) . . **11.** ***M. thomasiana***

11\. Leaf abaxial surface persistently tomentose (Cuba) . . . . **4.** ***M. lenticellata***

– Leaf abaxial surface glabrescent or indumentum very sparse or confined to veins **12**

12\. Leaves usually drying distinctly olivaceous with yellowish tint; inflorescences of 3–5(–7) flowers, petals white (Cuba) . . . . **13.** ***M. victorinii***

– Leaves usually drying dark brown to reddish; inflorescences of (5–)7–100 flowers, petals pink to purple **13**

13\. Young branches and leaves with stellate trichomes; leaves elliptic, ovate to broadly ovate, almost orbiculate, or obovate, base broadly cuneate, rounded to emarginate (Cuba) . . . . **2.** ***M. cerasiflora***

– Young branches and leaves with appressed and matted lanate trichomes; leaves ovate-lanceolate, base cordate to subcordate (Puerto Rico) . . . . . **9.** ***M. pachyphylla***

1. ***Miconia baracoana*** M. Gómez in Anales Soc. Esp. Hist. Nat. 23: 68. 1894 ≡ *Calycogonium clidemioides* Griseb., Cat. Pl. Cub.: 94. 1866 [non *Miconia clidemioides* Steud. in Flora 27: 724. 1844]. – **Lectotype (designated here):** Cuba, [Prov. Guantánamo], Cuchillas de Baracoa [as appearing in field notes of Wright on specimen in GH, and in protologue], 17 May [as appearing on specimens in GH and GOET] 1861 [as appearing on specimen in GOET], *C. Wright 2477* (GOET 7889!; dubious isolectotypes: BM 013718577!, G-DC 317700!, GH 71996!, HAC [2 sheets!, ex IM, ex HABA 827], K 535733!, NY 25672 [fragments!], P 1903734 [mixed specimens on same sheet, lower branches belonging to *Miconia secundolanceolata* M. Gómez, photo!], YU 65062!). – Fig. 2A, G; 4.

Morphological description — Shrubs 2–3 m tall, evergreen. *Indumentum* of lanate (vermiform) trichomes 0.2–0.3 mm long, ferruginous, later becoming grey to whitish, on young branches, leaves, inflorescences, flowers and hypanthia, and elongate glandular trichomes c. 1 mm long on young branches, leaf margins and hypanthia. *Young branches* terete, slightly flattened, densely ferruginous lanate, indumentum becoming grey to whitish, sometimes with a few elongate glandular trichomes. *Mature branches* with grey and smooth to slightly fissured bark. *Petiole* 0.25–0.4 cm long, terete, densely lanate and sometimes with few elongate glandular trichomes; *leaf blade* 1–4 × 0.6–1.6 cm, ovate to ovate-elliptic or elliptic-lanceolate, coriaceous, base obtuse, rounded to emarginate, apex acute to apiculate or acuminate, margin revolute, entire; adaxial surface flat to bullate, densely ferruginous lanate when young, later glabrescent; abaxial surface densely

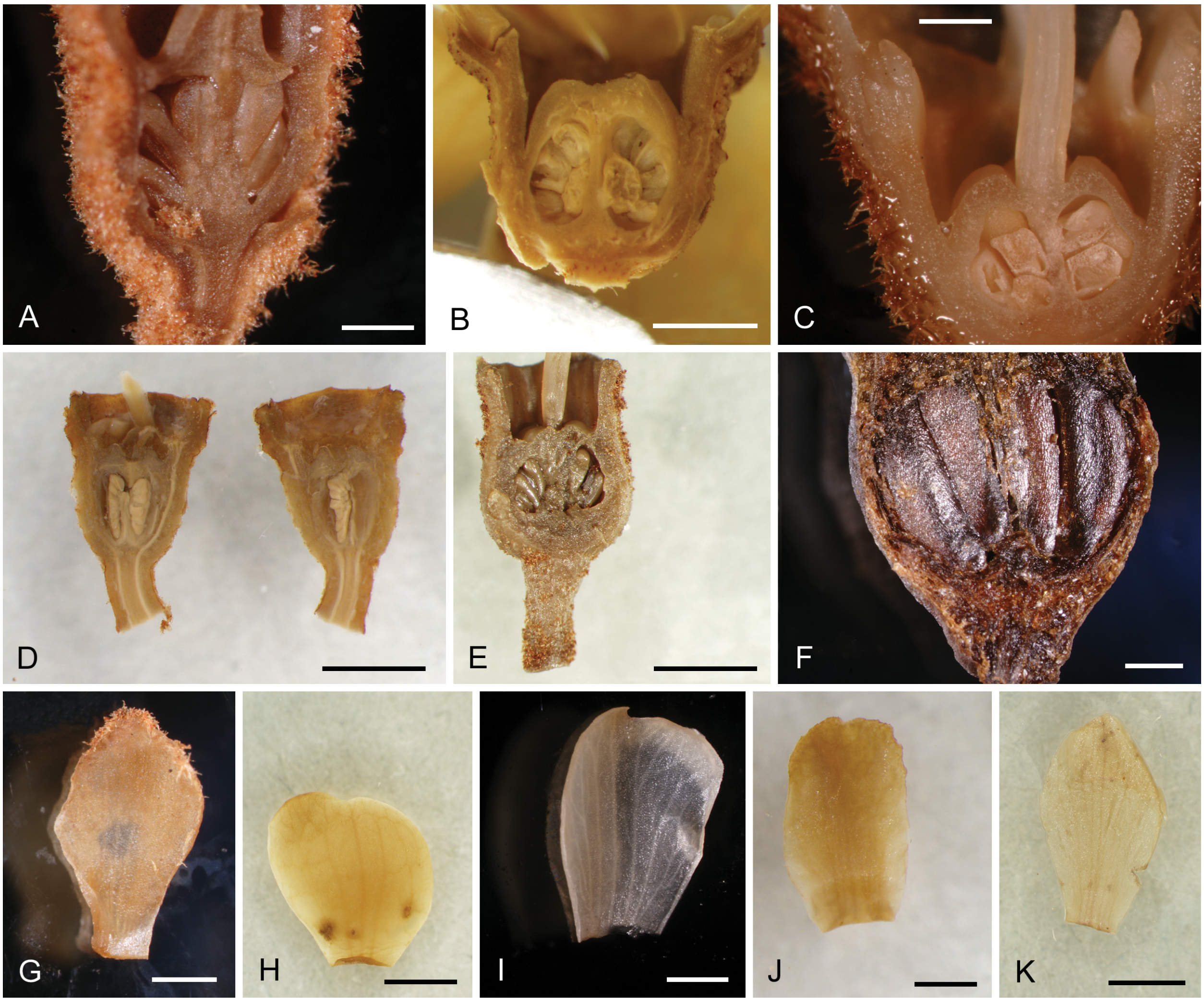

Fig. 2. Flower longitudinal sections (A–F) and petals (G–K) of selected species of *Miconia* sect. *Liogieria*. – A: *M. baracoana*; B: *M. cerasiflora*; C: *M. lutgardae*; D: *M. pachyphylla*; E: *M. rosmarinifolia*; F: *M. uninervis*; G: *M. baracoana*; H: *M. cerasiflora*; I: *M. lutgardae*; J: *M. pachyphylla*; K: *M. rosmarinifolia*. – A, G from *Bisse & Berazaín HFC-21886*; B, H from *Bécquer & al. HFC-81110*; C, I from *Bécquer & al. HFC-85475*; D, J from *Acevedo 7092*; E, K from *Bécquer & al. HFC-82482*; F from *Bisse & al. HFC-33847*. – Scale bars: A, C = 0.5 mm; B, F, G, I, J = 1 mm; D, E, H, K = 2 mm.

ferruginous to brown lanate, sometimes veins glabrescent. *Venation* with 1 pair of secondary veins, mostly symmetric, slightly suprabasal, placed 1–4 mm above base; midvein and secondary veins deeply impressed adaxially and strongly prominent abaxially, tertiary veins slightly impressed adaxially and prominent abaxially, quaternary veins visible to inconspicuous. *Mite domatia* absent. *Inflorescence* c. 0.7 × 1 cm, terminal, sessile dichasia, with 1–3 flowers; bracts c. 4 mm long, subulate, early caducous, bracteoles persistent, 2–3.5 mm long, subulate. *Flowers* 4-merous, sessile or with pedicel c. 1 mm long. *Hypanthium* c. 2.5 mm long, campanulate, free portion c. 1 mm long, external surface densely lanate, sometimes with a few elongate glandular trichomes, internal surface glabrescent. *Calyx tube* c. 0.5 mm long; *calyx lobes* c. 1.3 × 1 mm, not extended, ovate, internal surface glabrescent; *calyx teeth* c. 1 mm long, linear obtuse, erect at anthesis. *Petals* c. 3.8 × 2.3 mm, obovate to spatulate, purple, with lanate trichomes at margin and abaxial surface toward apex and densely papillose on both surfaces, base decurrent, apex rounded to truncate. *Stamens* 8, deflexed to opposite side of flower to style, probably deflexed backward and turning pink to red with age, falling together with petals. *Filaments* c. 2 × 0.3 mm. *Anthers* c. 1.5 × 0.5 mm, oblong-elliptic, obtuse; connective projecting 0.1–0.2 mm below thecae, base truncate; thecae smooth, with a ventral-apical pore. *Ovary* 2-locular, free portion rounded to conic, sulcate, apex deeply depressed at insertion of style, forming a ring around style, glabrous; placentation axile-basal. *Style* c. 6 mm long, glabrous, deflexed to one side. *Berries* c. 3.5 mm in diam., globose, ≤20-seeded. *Seeds* 1.7–1.8 mm long.

Phenology — Flowering specimens have been collected in March and April, fruiting specimens in May.

Distribution and ecology — *Miconia baracoana* is endemic to E Cuba (Fig. 5), where it occurs in the Sierra de

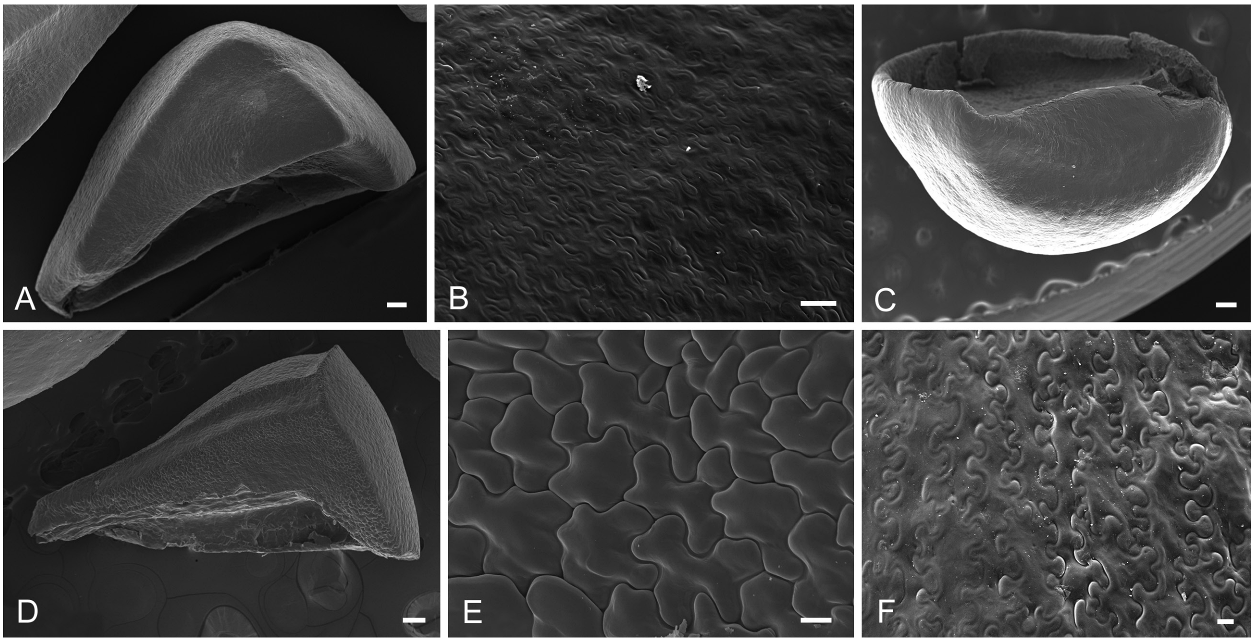

Fig. 3. Scanning electron micrographs of selected species of *Miconia* sect. *Liogieria*. – A: *M. cerasiflora*, entire seed; B: *M. cerasiflora*, detail of testa; C: *M. lutgardae*, entire seed; D: *M. pachyphylla*, entire seed; E: *M. pachyphylla*, detail of testa; F: *M. uninervis*, detail of testa. – A, B from *Clemente 3852*; C from *Bisse HFC-42383*; D, E from *Little 21621*; F from *Bisse HFC-33847*. – Scale bars: A, C, D = 100 μm; B = 30 μm; E, F = 10 μm.

Moa (Holguín and Guantánamo) and Cuchillas de Baracoa, Cuchillas de Toa and Sierra del Frijol (Guantánamo). It grows in semi-arid montane shrub woods on serpentine soils (Borhidi 1996) at 700–800 m.

Informal conservation status — *Miconia baracoana* (as *Calycogonium clidemiodes*) was preliminarily assessed in the Red List of Cuban flora as Threatened, but without a specific category (see González-Torres & al. 2016). The EOO of *M. baracoana* is estimated to be 66 km^2 (within the limit for Critically Endangered status under sub-criterion B1) and its AOO to be 3 km^2 also within the limit for Critically Endangered under sub-criterion B2. It is known from three localities representing the same number of locations (sensu IUCN 2012). The population is not considered severely fragmented, and all the locations are inside the National Park Alejandro de Humboldt. Despite its habitat being considered conserved, fires have occurred near the localities of this species (Cubadebate 2021) that may have affected part of its habitat. These fires could recur in the future if the prevailing drought continues. Therefore, a decline in extent and quality of habitat is expected. At Piedra La Vela we counted 30 mature individuals in 2019; hence it could be estimated that the entire population has fewer than 250 mature individuals, falling within the limit for Endangered status under criterion D. In the same way, the number of locations, fewer than five, makes it possible to categorize *M. baracoana* as Endangered under criteria B1ab(iii)+2ab(iii); D.

Discussion — *Miconia baracoana* most closely resembles *M. monocephala* and *M. yamanigueyensis* due to the presence of a lanate indumentum. It differs from those species by the presence of sessile dichasia that are 1–3-flowered (vs pedunculate corymbiform cymes in *M. yamanigueyensis* and capitate dense cymes in *M. monocephala*, both 5–9 flowered) and 4-merous flowers (vs 5- or 6-merous in the other two species).

The herbarium for the type of *Calycogonium clidemioides* was not mentioned in the protologue (Grisebach 1866). Therefore, all duplicates of *Wright 2477* should be considered syntypes (Turland & al. 2018: Art. 9.6 and 40.2). We designate here the specimen in GOET as the lectotype because it was clearly seen and annotated by Grisebach. Supposed duplicates of *Wright 2477* distributed in various herbaria have three different label types as defined by Howard (1988) with different dates and localities. The GOET lectotype has label type 9 while the specimens deposited in BM (013718577), G-DC (317700), GH (71996), K (535733), P (1903734) and YU (65062) have label type 7. The specimens in HAC (2 sheets, ex IM, ex HABA 827) and NY (25672, fragments) lack Wright labels. Because none of these specimens has the same label type as the GOET specimen, they were probably not part of the same gathering and should be considered as dubious isolectotypes.

2. ***Miconia cerasiflora*** Urb., Symb. Antill. 9: 112. 1923. – **Lectotype (designated here):** Cuba, Prov. Oriente [Holguín, Mayarí], Sierra de Nipe ad Río Piloto, c. 750 m, 15 May 1915, *E. L. Ekman 5696* (S 5-3433 [photo!]; isolectotypes: NY 99518!, US 120772!). – Fig. 2B, H; 3A, B; 6.

Fig. 4. Photograph of *Miconia baracoana* in the field, terminal branch with flower, by W. Carmenate from *Bécquer & al. HFC-90532*.

= *Miconia baracoensis* Urb., Symb. Antill. 9: 112. 1923. – **Lectotype (designated here):** Cuba, Prov. Oriente [Guantánamo], Baracoa in Lomas de Cuaba in pinetis fruticosis, 13 Jan 1915, *E. L. Ekman 4221* (S 5-3386!; isolectotypes: NY 99511!, US 120765!).

Morphological description — Shrubs or trees to 10 m tall, branched, deciduous. *Indumentum* of stellate and dendritic trichomes 0.1–0.3 mm long, light brown or ferruginous, on young branches, leaves, inflorescences, flowers and fruits. *Young branches* terete, densely ferruginous tomentose, later glabrescent. *Mature branches* with conspicuous longitudinal lenticels. *Petiole* 0.5–1.7 cm long, terete, canaliculate adaxially, glabrous; *leaf blade* 3.5–15 × 3.5–7.5 cm, elliptic, ovate to broadly ovate, almost orbiculate or obovate, subcoriaceous, base broadly cuneate, rounded to emarginate, apex obtuse to rounded, sometimes acute, margin slightly revolute, entire; adaxial surface flat to bullate, sparsely tomentose mostly at veins, later glabrescent; abaxial surface sparsely tomentose mostly at veins, early glabrescent. *Venation* with 2(or 3) pairs of mostly basal secondary veins, symmetric, innermost conspicuous, sometimes placed up to 3 mm above base, marginal pair sometimes inconspicuous; midvein and secondary veins impressed adaxially and prominent abaxially, tertiary veins impressed adaxially and slightly prominent abaxially, quaternary veins mostly inconspicuous. *Mite domatia* absent, or occasionally present as a cavity between midvein and innermost pair of secondary veins. *Inflorescence* 2.5–5 × 3.5–7 cm, a lax paniculate cyme, occasionally with one pair of branches near base, peduncle 0.7–2.5 cm long, with (5–)7–29 flowers; each inflorescence with 2 or 3 pairs of major branches, pseudopedicel 0.5–1 cm long; bracts c. 1.1 mm long, subulate, caducous, bracteoles 0.4–0.7 mm long, subulate, caducous. *Flowers* 5(or 6)-merous; pedicel c. 1 mm long. *Hypanthium* c. 2.3 mm long, campanulate, free portion c. 1 mm long, external surface stellate tomentose mostly toward calyx, internal surface glabrous. *Calyx* tube c. 0.3 mm long; *calyx lobes* 0.5–0.6 × c. 1 mm, broadly triangular to rounded, obtuse to almost truncate, internal surface glabrous; *calyx teeth* 0.2–0.3 mm long, inconspicuous, tomentose. *Petals* 4.5–5 × 3.5–5 mm, broadly obovate, white (occasionally with pink areas near margins on abaxial surface), glabrous, base decurrent, apex obtuse to rounded with a notch. *Stamens* 10, deflexed in 2 groups at anthesis, (2 or)3 or 4 toward style and 6 or 7(or 8) toward opposite side of flower, filaments later deflexed backward and stamens turning pink to red with age, mostly falling together with petals. *Filaments* 2.8–3 mm long. *Anthers* 1.6–3.5 × 0.7–0.8 mm, ovate to lanceolate, flattened and arcuate toward apex; connective thinning toward apex, not projecting below thecae; thecae slightly wrinkled, with a ventral-apical pore, white. *Ovary* 3- or 4-locular, free portion rounded, glabrous; placentation axile-central to basal. *Style* c. 3 mm long. *Berries* c. 6 × 8 mm, subglobose, 35–40-seeded. *Seeds* 2.5–3.5 mm long.

Phenology — Flowering specimens have been collected in January, from March to August and in October, fruiting specimens in July and October.

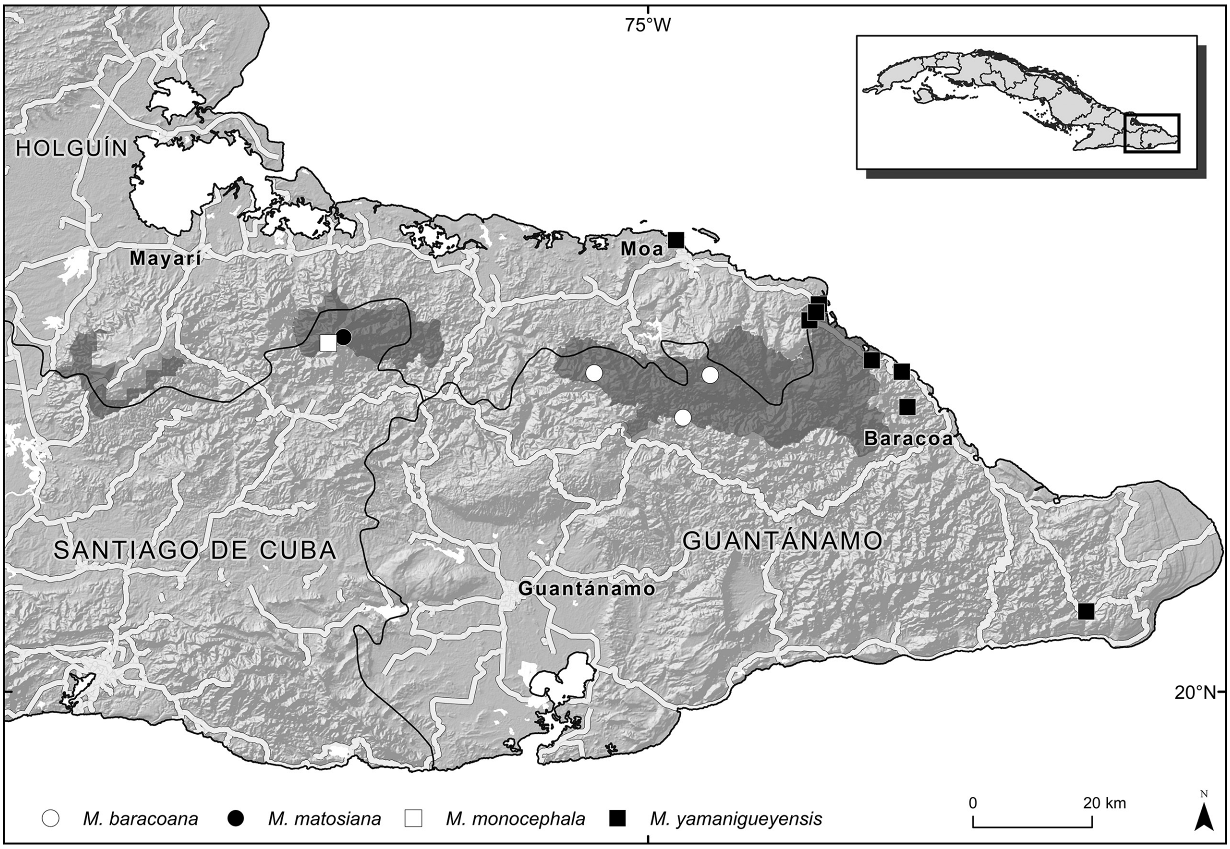

Fig. 5. Distribution of *Miconia baracoana*, *M. matosiana*, *M. monocephala* and *M. yamanigueyensis*.

Distribution and ecology — *Miconia cerasiflora* is endemic to E Cuba (Fig. 7), where it is found in the Sierra de Nipe, (Holguín), Sierra Cristal (Holguín and Santiago de Cuba), Sierra de Baracoa, Sierra del Frijol, Sierra del Maguey, Cuchillas del Toa and Sierra del Purial (Guantánamo), Sierra de Moa and serpentine hills of the coastal area between Moa and Baracoa (Holguín and Guantánamo). It grows in semi-arid montane shrub woods, semi-arid montane rainforest and pine forests on serpentine soils (Borhidi 1996) at 10–1200 m.

Informal conservation status — *Miconia cerasiflora* (including *M. cerasiflora* var. *setulifera* = *M. obtusa* in the present study) and its heterotypic synonym *M. baracoensis* were preliminarily assessed in the Red List of Cuban flora as Least Concern (LC) (see González-Torres & al. 2016). *Miconia cerasiflora* has an estimated EOO of 513 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO to be 46 km^2 also within the limit for Endangered under sub-criterion B2. However, it does not meet the conditions for this criterion because its population is not considered severely fragmented. It is inferred that gene flow occurs between its localities, guaranteed by the abundant production of fruits that can be consumed and dispersed by birds, as shown for other *Melastomataceae* (Loiselle & Blake 1999; Blendinger & al. 2011; Silveira & al. 2013). The species is known from 46 localities, 34 of them inside protected areas (National Parks Alejandro de Humboldt, La Mensura-Pilotos and Pico Cristal, Natural Monument Yunque de Baracoa and Protected Area with sustainable use of natural resources Cuchillas del Toa). In part of its range, civil constructions, intentional fires, mining and plantations of exotic trees for milling represent the main threats to its habitat. A decline in extent and quality of habitat is expected. The 46 localities represent more than 20 locations sensu IUCN (2012), with 83% of these locations inside protected areas. Population studies have not been carried out, but the species is considered frequent in its range of distribution. All of this allows us to recommend a status of Least Concern (LC).

Discussion — *Miconia cerasiflora* is a very variable member of the deciduous group of *Miconia* species endemic to E Cuba (i.e. *M. lenticellata*, *M. lutgardae*, *M. obtusa* and *M. victorinii*). Within this group, *M. cerasiflora* most closely resembles *M. obtusa* and *M. victorinii* (see taxonomic history above), and can be distinguished from the first species by its indumentum of stellate and dendritic trichomes on young branches, leaves, inflorescences, flowers or fruits (vs conspicuous elongate glandular trichomes mixed with stellate and dendritic trichomes in *M. obtusa*); also *M. cerasiflora* has petals mostly white or with a pink tinge, 6.4–8 mm long (vs petals pink, 4.5–5 mm long in *M. obtusa*). *Miconia cerasiflora* can be distinguished from *M. victorinii* by its leaves

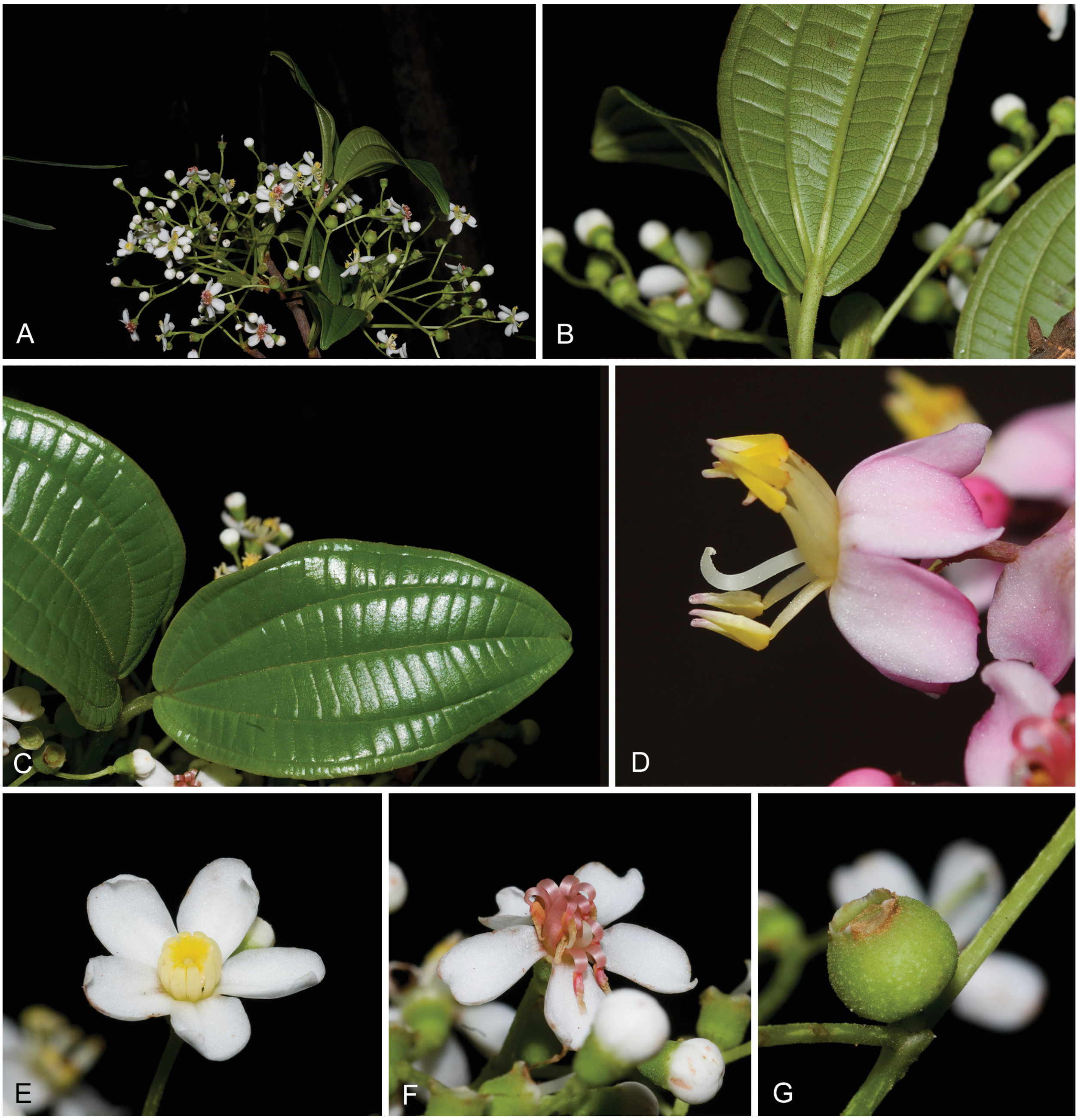

Fig. 6. Photographs of *Miconia cerasiflora* in the field. – A: flowering branch and inflorescence; B: leaf, abaxial surface; C: leaf, adaxial surface; D: flower at anthesis, lateral view; E: flower before anthesis, with anthers not yet unfolded; F: flower after anthesis, with anthers deflexed; G: immature fruit. – A–C, E–G by F. A. Michelangeli from *Michelangeli & al. 1497*; D by W. Carmenate, unvouchered.

that are usually bullate adaxially, drying dark brown and conspicuous inflorescences with 5–29 flowers (vs leaves usually flat adaxially, drying distinctly olivaceous with yellowish tint and the inflorescences of small cymes, with 3–5(–7) flowers in *M. victorinii*).

When Urban (1923a) described *Miconia baracoensis* and *M. cerasiflora* he differentiated them based on leaf size and shape, number of secondary veins, leaf apex and anther size (even though he only had seen two specimens of *M. baracoensis*, both with leaves that were not fully developed). He defined *M. baracoensis* as a species with ovate leaves with 2 pairs of secondary veins, obtuse to acute apex and anthers c. 1.5 mm long, while *M. cerasiflora* was characterized by its cordate leaves with 2 or 3 pairs of secondary veins, rounded apex and anthers c. 3.5 mm long. Alain (1957) in his treatment of the *Melastomataceae* for the *Flora of Cuba* only used the vegetative characters such as the shape of the leaf and number of secondary veins to delimit these entities in the key. He characterized *M. cerasiflora* with leaves orbiculate and 7-veined (3 pairs of secondary veins) and *M. baracoensis* with leaves ovate to oblong-lanceolate, 3–5-veined (1 or 2 pairs of secondary veins) and apex acuminate to obtuse or rounded. There

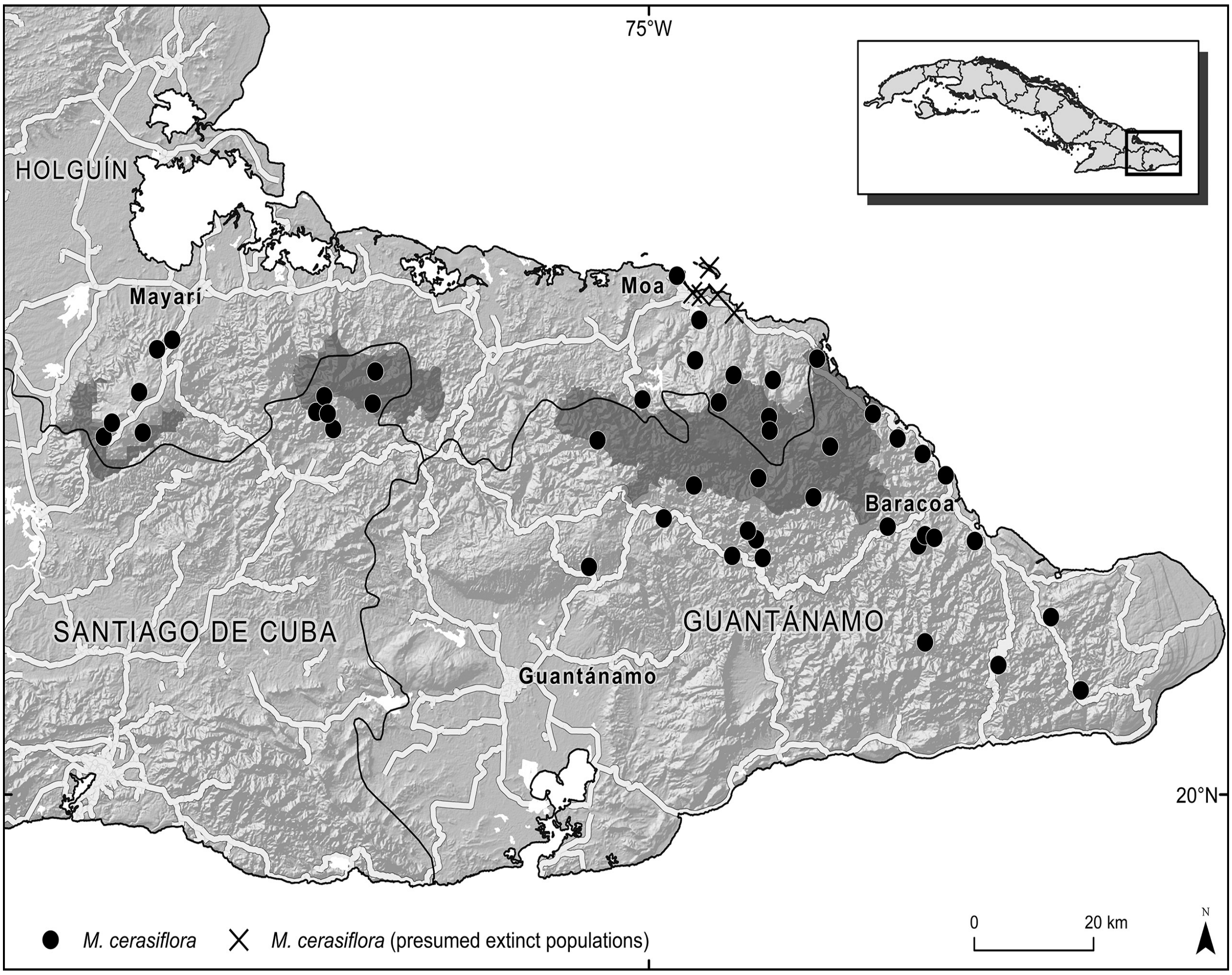

Fig. 7. Distribution of *Miconia cerasiflora*, including presumed extinct populations.

are numerous sterile herbarium specimens that have leaves ranging from ovate to orbiculate and have been determined over the years with one name or the other indiscriminately. In fact, the specimens *Ekman 2527*, *Ekman 2186* and *Ekman 2600* (all sterile), which Urban (1923a) mentioned in the protologue of *M. cerasiflora* and which were determined by him, mostly have ovate leaves with 2 pairs of secondary veins and an obtuse apex, characteristics attributed to *M. baracoensis*.

On the other hand, these plants being deciduous generally means that when they are collected in flower the leaves are absent or very young. Young leaves usually differ not only in size from adult ones, but also in shape, which is why they are not reliable for identifying specimens. In the field it is sometimes possible to find individuals in flower with some remaining mature leaves similar in size and shape to those among the leaf litter under the plant itself, which suggests that the leaves only complete their growth close to the time at which they drop prior to flowering. Another problem in separating the entities described by Urban (1923a) is that there is a continuum of anther sizes from small anthers c. 1.6 mm long (as in the type of *Miconia baracoensis*) to c. 3.5 mm long (as in *M. cerasiflora*). Based on these facts, we consider it better to treat *M. cerasiflora* as a highly variable species until more detailed field studies at the population level allow for any alternative definition of species limits.

3. *Miconia javorkana* Borhidi in Acta Bot. Acad. Sci. Hung. 29: 187. 1983 [‘*javorkaeana*’] ≡ *Graffenrieda cordifolia* Alain in Contr. Ocas. Mus. Hist. Nat. Colegio “De La Salle” 14: 1. 1955 ≡ *Miconia cordifolia* (Alain) Borhidi in Abstr. Bot. (Budapest) 4: 32 1976, nom. illeg. [non *Miconia cordifolia* Wurdack in Phytologia 31: 498. 1975]. – Holotype: Cuba, Prov. Oriente [Holguín], Camino de la Breña, Moa, 27 Jun 1945, *Clemente* [& *Crisogono*] *NSC-4407* (HAC ex LS!; isotype: NY 99579!). – Fig. 8.

Morphological description — Shrubs 1–2 m tall, climbing or decumbent, sparsely branched, evergreen. *Indumentum* of elongate glandular trichomes 1.5–1.8 mm long, reddish on young branches, leaves, inflorescences and hypanthium. *Young branches* terete, slightly flattened, glandular pilose. *Mature branches* with dark grey and fissured bark. *Leaves* sessile; blade 2–4.5 × 1–3.7 cm, ovate to orbiculate, coriaceous, base cordate, apex obtuse to acute or acuminate to apiculate, margin revolute, glan-

Fig. 8. Photographs of *Miconia javorkana* in the field. – A: branch, showing internodes and adaxial leaf surface; B: leaf, abaxial surface; C: inflorescence; D: detail of inflorescence; E: flower and bud, top view; F: flower at anthesis, lateral view. – A, B by F. A. Michelangeli from *Michelangeli & al. 1536*; C, D by R. Abbot from *Bécquer & al. HFC-82508*; E, F by W. Carmenate, unvouchered.

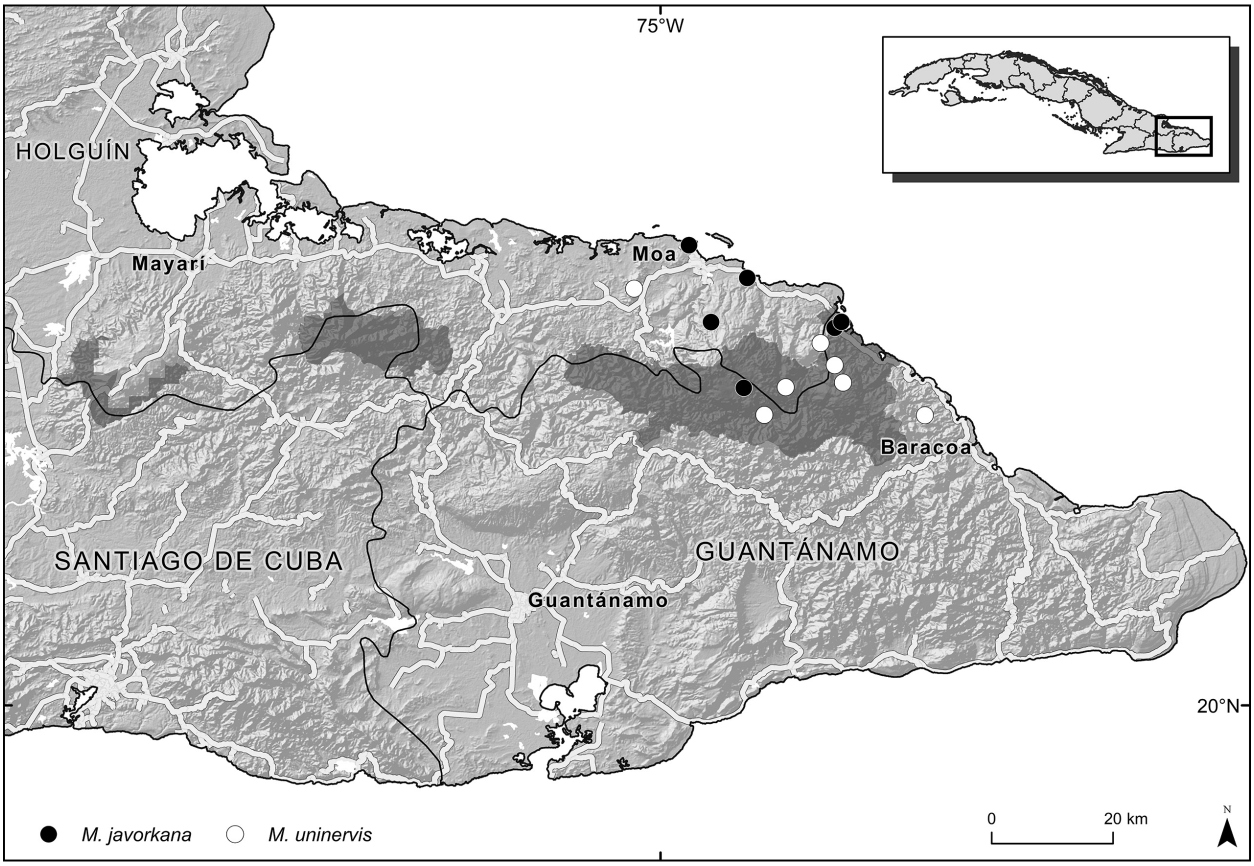

Fig. 9. Distribution of *Miconia javorkana* and *M. uninervis*.

dular ciliate when young and less frequently serrulate toward apex; adaxial surface flat, glabrous. *Venation* with 1 pair of secondary veins, symmetric, basal to slightly suprabasal, placed 0–4 mm above base; midvein slightly impressed adaxially and slightly prominent abaxially, secondary veins obscure, sometimes slightly raised adaxially, tertiary veins mostly obscure, sometimes slightly raised adaxially, quaternary veins obscure. *Mite domatia* absent. *Inflorescence* c. 5 × 7 cm, a lax paniculate cyme, peduncle c. 1.5 cm long, with 3–19 flowers; each inflorescence with 2 or 3 pairs of branches, pseudopedicel c. 1 cm long; bracts c. 0.7 mm long, subulate, persistent, bracteoles c. 0.4 mm long, subulate, persistent. *Flowers* 5-merous, sessile. *Hypanthium* c. 3.7 × 3 mm, campanulate, free portion c. 1 mm long, external surface scattered glandular pilose, internal surface glabrous. *Calyx tube* c. 1 mm long; *calyx lobes* inconspicuous, internal surface glabrous; *calyx teeth* inconspicuous, c. 0.1 mm long, linear, acute, erect at anthesis. *Petals* 5–6 × c. 3 mm, membranous, obovate, white to light pink, glabrous, base decurrent, apex rounded to emarginate or with an apical notch. *Stamens* 10, surrounding style, falling after petals. *Filaments* 3.8–4 × c. 0.3 mm. *Anthers* c. 2.5 × 0.7 mm, lanceolate, obtuse; connective projecting below thecae as a conspicuous dorsal spur 0.4–0.5 mm long; thecae ovate in lateral view. *Ovary* 3-locular, free portion rounded to conic, furrowed, apex deeply depressed at insertion of style, forming a ring around style, glabrous; placentation axile-basal. *Style* c. 6 mm long, glabrous. *Berries* c. 5 mm in diam. (only immature fruits seen), globose, 25–30-seeded. *Seeds* c. 1.7 mm long (immature).

Phenology — Flowering specimens have been collected in May, fruiting specimens in May.

Distribution and ecology — *Miconia javorkana* is endemic to E Cuba (Fig. 9), where it is found in the Sierra de Moa and coastal lowland surrounding the city of Moa and Yamaniguey (Holguín). It grows in semi-arid montane shrub woods on serpentine soils (Borhidi 1996) at 10–800 m.

Informal conservation status — *Miconia javorkana* was assessed in the Red List of Cuban flora as Critically Endangered (CR) (see González-Torres & al. 2016). The EOO of this species is estimated to be 239 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO to be 5 km^2 (within the limit for Critically Endangered under sub-criterion B2). The population is not considered to be severely fragmented. Currently it is known from five localities representing four locations sensu IUCN (2012). Therefore, it does not meet the conditions to assess it as Critically Endangered, but as Endangered using criterion B. Three localities representing two locations are inside the National Park Alejandro de Humboldt, but part of its habitat is affected by mining,

Fig. 10. Photographs of *Miconia lenticellata* in the field. – A: leaf, abaxial surface; B: inflorescence with flowers at anthesis; C: immature fruit. – All by R. Abbot from *Bécquer & al. HFC-82497*.

pollution and deforestation; i.e. Playa La Vaca, Monte la Breña and the mouth of the Yagrumaje River; this last locality is considered lost for this species due to the deplorable state of its habitat. Population studies have not been conducted on this species, but it is considered rare. The species is therefore assessed as Endangered (EN) under criteria B1ab(iii,v)+2ab(iii,v).

Discussion — *Miconia javorkana* can be distinguished from all other species of *M. sect. Liogieria* and almost all other Cuban melastomes by its climbing or decumbent habit and sessile and cordate leaves with glandular ciliate margin when young.

4. *Miconia lenticellata* Alain in Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" 14: 3. 1955. – Holotype: Cuba, Prov. Oriente [Guantánamo, Yateras], Cumbre del Pico Galano [Galán], Sierra del Frijol, Toa, 1 Jan 1954, *Alain 3746* (HAC ex LS!; isotypes: HAC ex SV!, NY 99523!). – Fig. 10.

= *Miconia bucherae* Alain in Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" 14: 2. 1955. – Holotype: Cuba, Prov. Oriente [Holguín], Moa, Dec 1939, *G. C. Bucher 124* (NY 99516!; isotype: HAC ex SV 11441!).

Morphological description — Shrubs 1–2 m tall, deciduous. *Indumentum* of stellate and dendritic trichomes 0.1–0.2 mm long, brown to ferruginous on young branches, leaves, inflorescences, flowers and fruits, and elongate glandular trichomes c. 0.5 mm long on very young leaves. *Young branches* squared, with lenticels, at first densely tomentose, later glabrescent. *Mature branches* with light brown bark and conspicuous longitudinal lenticels. *Petiole* 4–7 mm long, terete, canaliculate adaxially, densely tomentose, later glabrescent; *leaf blade* 2–3 × 0.6–1.1 cm, oblong-lanceolate to elliptic-lanceolate, subcoriaceous, base rounded to cuneate, apex acute, margin revolute, entire, sometimes glandular ciliate on very young leaves, later becoming glabrous; adaxial surface flat to bullate, glabrescent, wrinkled when dry, darker than abaxial surface; abaxial surface tomentose, later sparsely tomentose, indumentum confined to veins, epidermis drying distinctly brown-yellowish. *Venation* with 1 pair of secondary veins, symmetric, conspicuous, basal to slightly suprabasal, placed c. 1 mm above base; midvein and secondary veins impressed adaxially and prominent abaxially, tertiary veins slightly impressed adaxially and prominent abaxially, quaternary veins mostly inconspicuous to prominent abaxially. *Mite domatia* absent. *Inflorescence* 1–3.5 × 1–3.5 cm, peduncle c. 1.5 cm long, with 1–3 flowers; each inflorescence with 1 pair of branches, pseudopedicel 3–5.5 cm long; bracts c. 2 mm long, linear, early caducous, bracteoles c. 1 mm long, linear-subulate, early caducous. *Flowers* 4- or 5-merous; pedicel 0.5–1 mm long. *Hypanthium* c. 2.5 mm long, campanulate, free portion c. 1 mm long, external surface sparsely tomentose, internal surface glabrous. *Calyx* tube c. 0.3 mm long; *calyx lobes* c. 0.6 mm long, broadly triangular, internal surface glabrous; *calyx teeth* c. 0.5 mm long. *Petals* c. 6 × 3.5 mm, obovate, white with pink tint, glabrous, base decurrent, apex obtuse with a lateral notch. *Stamens* 10, deflexed in 2 groups on both sides of flower at anthesis, (1–)3 or 4 on same side as style and 6 or 7(–9) on opposite side, or deflexed as 1 group opposite style, rarely surrounding style; filaments later deflexed backward and all stamens turning pink to red with age, mostly falling together with petals. *Filaments* c. 5 mm long. *Anthers* c. 3 × 1 mm, lanceolate, connective projecting 0.1–0.2 mm long below thecae; thecae smooth, with an apical pore, white. *Ovary* 2-locular, free portion rounded, apex lobulate, glabrous; placentation axile-basal. *Style* c. 5 mm long. *Berries* c. 4 × 4 mm, c. 20-seeded. *Seeds* c. 2 mm long.

Phenology — Flowering specimens have been collected in May, fruiting specimens in January.

Distribution and ecology — *Miconia lenticellata* is endemic to E Cuba (Fig. 11), where it occurs in the Sierra

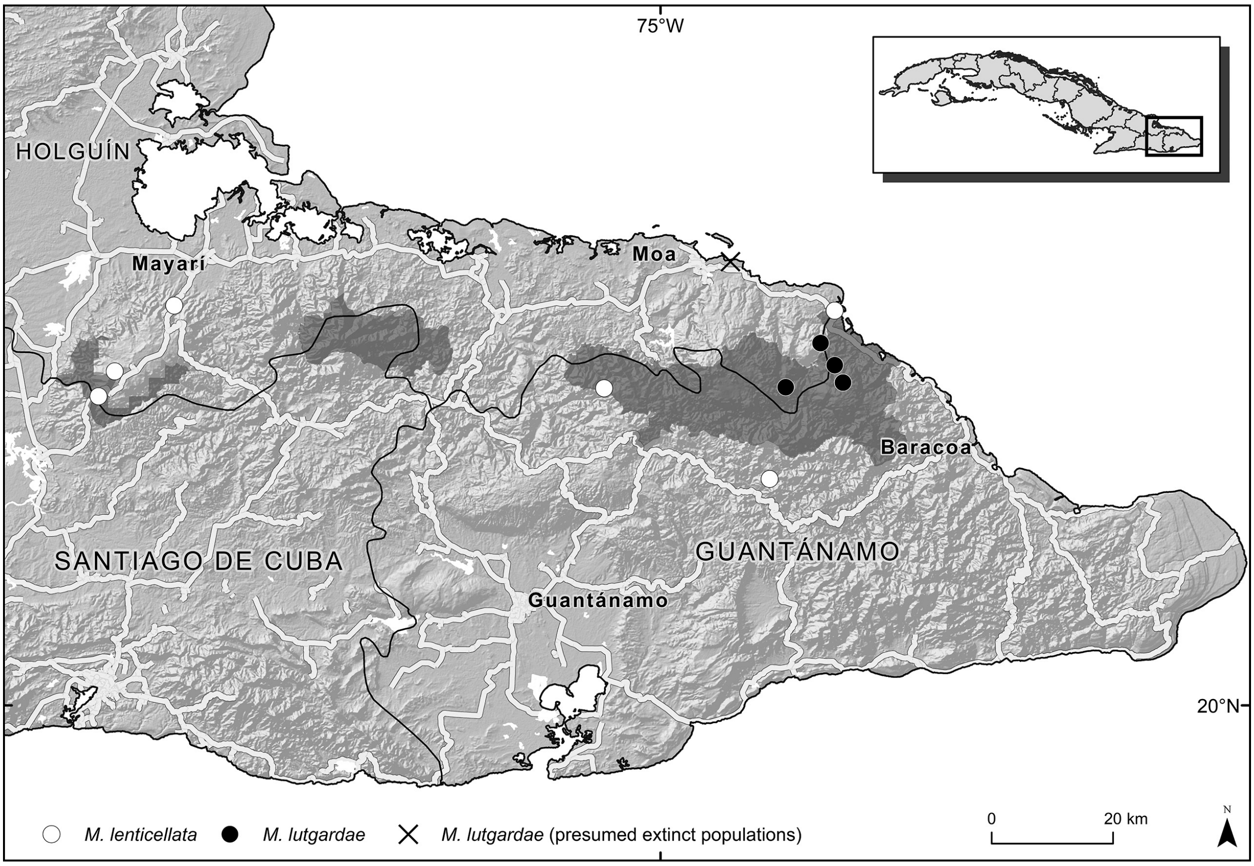

Fig. 11. Distribution of *Miconia lenticellata* and *M. lutgardae*, including presumed extinct populations.

de Nipe, Sierra de Moa, coastal area of Moa (Holguín) and the Sierra del Frijol (Guantánamo). It grows in semi-arid montane serpentine shrub woods (Borhidi 1996) at 10–995 m.

Informal conservation status — *Miconia lenticellata* was assessed in the Red List of Cuban flora as a Data Deficient (DD), and its synonym *M. bucherae* was preliminarily assessed as Threatened, but without a specific category (see González-Torres & al. 2016). The EOO of *M. lenticellata* is estimated to be 283 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO to be 6 km^2 (within the limit for Critically Endangered under sub-criterion B2). It is known from six localities, all except one of which are inside protected areas (National Parks Alejandro de Humboldt and Mensura-Pilotos and Protected Area with sustainable use of natural resources Cuchillas del Toa). Intentional fires, civil constructions, logging of associated species and pollution represent the main threats to its habitat. A decline in extent and quality of habitat is expected in part of its range (Moa, Yamaniguey and Loma la Bandera, Sierra de Nipe). The six localities represent five locations sensu IUCN (2012). The species is considered very rare; in three localities only three mature individuals have been observed, so it could be estimated that the population of this species has fewer than 50 mature individuals, falling within the limit for Critically Endangered status under criterion D. It can also be considered as a severely fragmented population due to the small number of individuals, which makes gene flow between its localities unlikely, especially between the Sierra de Nipe and Sierra de Moa. Therefore, we recommend that *M. lenticellata* be considered Critically Endangered (CR) B2ab(iii,v); D.

Discussion — *Miconia lenticellata* can be distinguished from the other members of *M.* sect. *Liogieria* with the leaf abaxial surface visible and not obscured by the indumentum (i.e. *M. cerasiflora*, *M. lutgardae*, *M. obtusa*, *M. pachyphylla*, *M. thomasiana* and *M. victorinii*) by its mature leaves persistently ± densely stellate tomentose (vs mature leaf with abaxial surface glabrescent or the indumentum very sparse or confined to the veins).

Alain described *Miconia lenticellata* and *M. bucherae* in the same publication (Alain 1955). He differentiated them by floral merosity (5-merous in *M. lenticellata* and 4-merous in *M. bucherae*), and by the somewhat larger leaves in *M. lenticellata*. Additionally, he stated that *M. bucherae* was unique among Cuban *Melastomataceae* due to its leaf size and shape. He placed *M. bucherae* near *M. obtusa* but distinguished it from the latter by the pubescence on the abaxial surfaces of the leaves. The descriptions in the protologues were based on only one gathering per species, thereby not allowing Alain to appreciate the

Fig. 12. Photographs of *Miconia lutgardae* in the field. – A: habit; B: young leaves, adaxial surface; C: flowering branch with flowers before anthesis; D: flower at anthesis, frontal view; E: flowering branch with flower at anthesis; F: immature fruits. – A by W. Carmenate, unvouchered; B by J. L. Gómez-Hechavarría, unvouchered; C–E by F. A. Michelangeli from *Michelangeli & al. 1485*; F by L. R. González-Torres, unvouchered.

full variability in this group; in the case of *M. lenticellata* the type has only fruits and in the case of *M. bucherae* the type has only flowers (Alain 1955). Recent collections of this entity have vegetative characters that resemble the type of *M. lenticellata*, but with 4-merous flowers as in the type of *M. bucherae*. Although floral merosity has been used as a distinguishing character in some species complexes of *Miconieae* (Michelangeli 2005), it is usually accompanied by other co-occurring characters. Moreover, floral merosity has been found to vary occasionally even within the same individual, and discounting this character has already led to the synonymization of other names in the *Miconieae* (e.g. *Pachyanthus clementis* P. Wilson ex Britton and *P. lunanus* Britton & P. Wilson, currently accepted as *M. clementis* (P. Wilson ex Britton) Bécquer; Bécquer 2012). Therefore, we believe that *M. lenticellata* and *M. bucherae* are indeed the same species, and we choose to keep the name *M. lenticellata* because the great majority of the collections of this species have been determined under this name.

The protologue of *Miconia lenticellata* (Alain 1955) mentioned that the type was deposited in the Colegio de La Salle herbarium (LS) and that there was an isotype in NY. The herbaria formerly in LS and SV are now housed in the herbarium HAC (Regalado Gabancho & al. 2010). There are two specimens of *Alain 3746* in HAC, one of which is clearly that from LS because it is labelled as such and it corresponds to the one in the protologue (Alain 1955: fig. 3); it should therefore be considered as the holotype and the one from SV as an additional isotype.

5. ***Miconia lutgardae*** Bécquer & Michelang. in Brittonia 71: 103. 2018 ≡ *Ossaea ciliata* Alain in Contr. Ocas. Mus. Hist. Nat. Colegio “De La Salle” 14: 10. 1955, nom. illeg. [non *Ossaea ciliata* (Triana) Cogn. in Candolle & Candolle, Monogr. Phan. 7: 1067. 1891] ≡ *Ossaea moaensis* Alain in Brittonia 20: 158. 1968 [non *Miconia moensis* (Britton) Alain in Contr. Ocas. Mus. Hist. Nat. Colegio “De La Salle” 14: 4. 1955]. – Holotype: Cuba, Prov. Oriente [Holguín], Cayo Coco, Moa, 15 Apr 1945, *Acuña SV 12639* (HAC ex SV!; isotype: US 00123674!). – Fig. 2C, I; 3C; 12.

Morphological description — Shrubs 1–1.5 m tall, deciduous. *Indumentum* of stellate and dendritic trichomes c. 0.5 mm long, light brown or ferruginous on young branches, leaves, inflorescences, flowers and fruits, and elongate glandular trichomes 1.2–1.5 mm long, light brown on leaves. *Young branches* terete, densely tomentose, dendritic trichomes present mostly on nodes. *Mature branches* with light brown thin bark readily exfoliating in short fragments. *Petiole* 3–5 mm long, terete, canaliculate adaxially, tomentose, dendritic trichomes present but early caducous; *leaf blade* 1.7–3.5 × 1–2 cm, ovate to broadly ovate, chartaceous, base rounded to slightly cordate, apex obtuse to rounded, margin slightly revolute, entire, glandular ciliate; adaxial surface flat to bullate, sparsely tomentose, early glabrescent; abaxial surface sparsely tomentose, dendritic trichomes mostly on veins and early deciduous. *Venation* with 2 pairs of secondary veins, symmetric, innermost conspicuous, basal, marginal pair inconspicuous; midvein and secondary veins impressed adaxially and prominent abaxially, tertiary veins impressed adaxially and slightly prominent abaxially, quaternary veins mostly inconspicuous. *Mite domatia* absent. *Inflorescence* c. 1.5 × 1.5 cm, peduncle 5–7 mm long, with 2–4(or 5) flowers; each inflorescence with 0–1 pairs of major branches, terminal dichasia of 1 or 2(or 3) flowers, pseudopedicel 0.5–1 cm long, lateral branches arising at base of main axis with a terminal flower; bracts 1.5–2 mm long, subulate, early caducous, bracteoles c. 1.5 mm long, subulate, early caducous. *Flowers* 5-merous; pedicel 0.5–0.8 mm long. *Hypanthium* 1.8–2 mm long, campanulate, free portion c. 1 mm long, external surface densely tomentose mostly with dendritic trichomes, internal surface glabrous. *Calyx* tube c. 0.5 mm long; *calyx lobes* broadly triangular, 1–1.3 mm long, internal surface glabrous; *calyx teeth* 1–1.5 mm long, terete, densely tomentose mostly with dendritic trichomes. *Petals* 3.5–4 × 2.8–3 mm, oblong to slightly obovate, white to slightly pink, base decurrent, apex blunt with a notch and a group of dendritic trichomes, with one side folded inward. *Stamens* 10, deflexed to 1 side of flower at anthesis, rarely deflexed in 2 groups, deflexed backward and turning pink to red with age, falling together with petals. *Filaments* c. 2 mm long. *Anthers* ovate to shortly lanceolate, abruptly flattened toward apex, 1.4–1.7 × 0.5–0.7 mm, smooth; connective not projecting below thecae; thecae smooth, with an apical pore, white. *Ovary* 2-locular, free portion rounded, apex lobulate, glabrous; placentation axile-basal. *Style* c. 4.3 mm long. *Berries* 4–5 mm long, subglobose, 10–15-seeded. *Seeds* c. 2 mm long.

Phenology — Flowering specimens have been collected in March and April, fruiting specimens from March to May.

Distribution and ecology — *Miconia lutgardae* is endemic to E Cuba (Fig. 11), in the Sierra de Moa (Holguín and Guantánamo). It grows in semi-arid montane shrub woods and semi-arid montane rainforest on serpentine soils (Borhidi 1996) at 300–800 m.

Informal conservation status — *Miconia lutgardae* (as *Ossaea moaensis*) was preliminarily assessed in the Red List of Cuban flora as Threatened, but without a specific category (see González-Torres & al. 2016). The EOO of *M. lutgardae* is estimated to be 31 km^2 (within the limit for Critically Endangered status under sub-criterion B1) and its AOO to be 4 km^2 (within the limit for Critically Endangered under sub-criterion B2). However, these sub-criteria cannot be used because the conditions for the category Critically Endangered are not met. *Miconia lutgardae* is considered a rare species. It is known from only four localities representing three locations (sensu IUCN 2012), two of them included in the National Park Alejandro de Humboldt. Mining is the main threat to its habitat; therefore, a decline in extent and quality of habitat and number of individuals is expected in the locations of the Santa Teresita mining concession. Additionally, the location of Cayo Coco, Moa, is considered lost due to mining activities. The number of locations falls within the range of Endangered, and the species is therefore assessed as Endangered (EN) under criteria B1ab(i,ii,iii,v) +2ab(i,ii,iii,v).

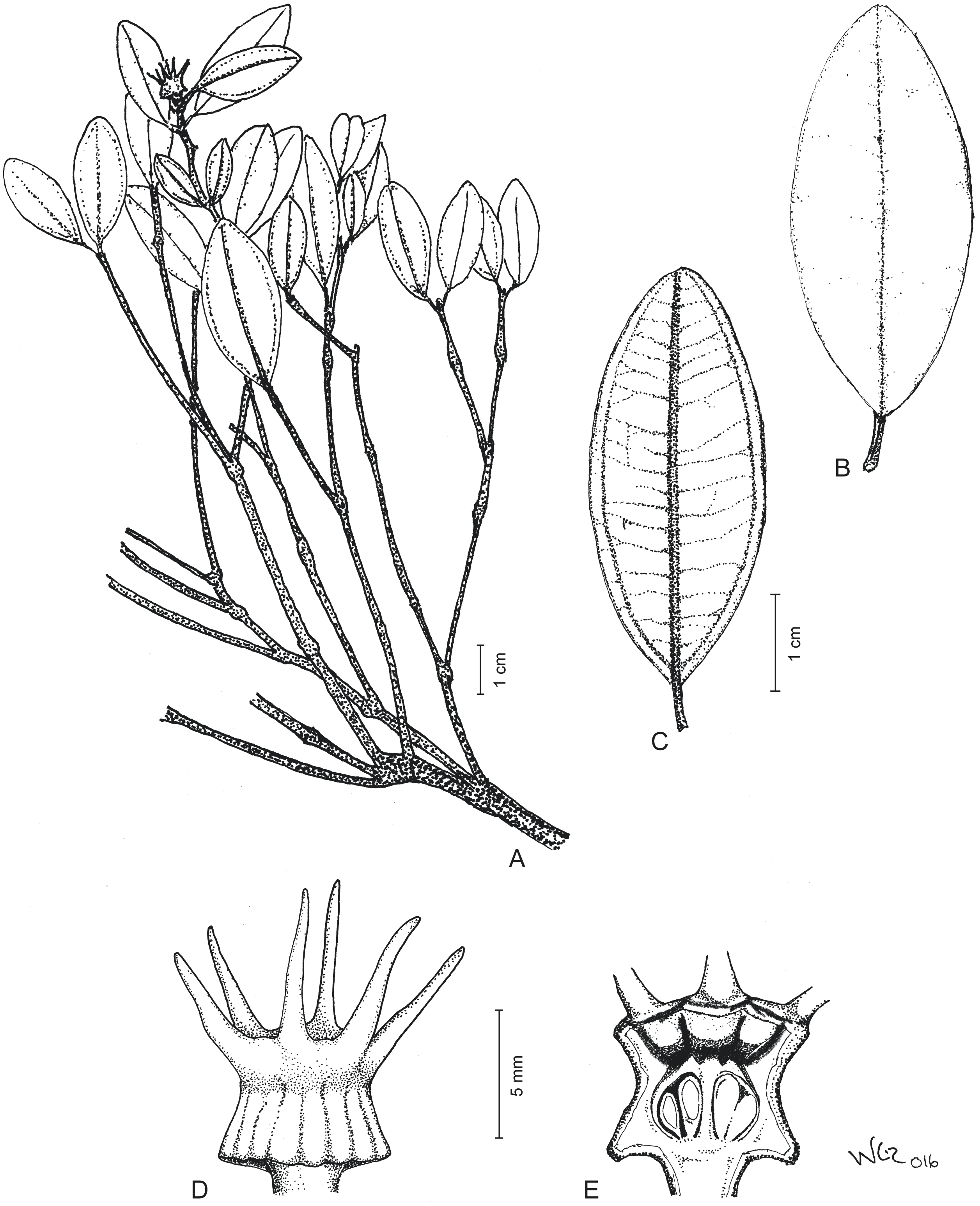

Fig. 13. *Miconia matosiana*. – A: habit; B: leaf, adaxial surface; C: leaf, abaxial surface; D: detail of hypanthium in young fruit; E: longitudinal section of hypanthium in young fruit. – Drawn by W. Carmenate from the isotype in NY.

Discussion — Among Cuban species of *Miconia* sect. *Liogieria*, both *M. lutgardae* and *M. obtusa* share a conspicuous indumentum of elongate glandular trichomes, which in the case of *M. lutgardae* are restricted to the leaf margins, but in *M. obtusa* are on the young branches, leaves, inflorescences, flowers and fruits. These species can be further differentiated by the leaves being 1.7–3.5 cm long in *M. lutgardae* vs 4–16 cm long in *M. obtusa*. *Miconia lutgardae* is easy to distinguish from the other deciduous species of *Miconia* endemic to E Cuba (i.e. *M.*

cerasiflora, *M. lenticellata* and *M. victorinii*) by its conspicuous fringe of elongate glandular trichomes on the leaf margins (vs such trichomes lacking, or early caducous as in *M. lenticellata*), by the external surface of the hypanthium, calyx lobes and calyx teeth being densely tomentose mostly with dendritic trichomes (vs glabrescent to sparsely stellate tomentose) and the stamens usually being deflexed in a single group opposite the style (vs consistently deflexed in two groups, one with the style and the other opposite).

When we published the new name *Miconia lutgardae* (Michelangeli & al. 2018), we made a mistake when pointing out that the new name was a "new combination based on the available heterotypic synonym". In fact, the name was proposed as a replacement name (there are no known heterotypic synonyms) in honour of Lutgarda González Geigel (1948–2006), a beloved professor of botany in the Biology Faculty of Havana University and one of the founders of the National Botanical Garden of Havana.

6. *Miconia matosiana* Bécquer & Michelang., **sp. nov.** – Fig. 13.
Holotype: Cuba, Prov. Santiago de Cuba, Segundo Frente, Sierra Cristal, Charrascales de las estribaciones de Sierra Cristal, parteagua divisorio de las provincias Santiago de Cuba y Holguín, 900–1020 m, 21 Oct 2000, *Bécquer E. & Matos J. HFC-79821* (HAJB 001269!; isotype: NY 04239388!).

Diagnosis — Species resembling *Miconia grisebachiana* Bécquer & Michelang. but differing by its leaves with apex obtuse to rounded, sometimes slightly emarginate (vs obtuse to acute, or acuminate), secondary venation slightly suprabasal, with internal secondary veins merging 1.6–1.8 mm above base (vs secondary venation basal), hypanthium conspicuously conic and 12-ridged (vs hypanthium turbinate and 4-ridged). Hypanthium shape of *M. matosiana* unique among Cuban *Melastomataceae*.

Morphological description — Shrubs 2–2.5 m tall. *Young branches* flattened, densely tomentose, with a mix of mostly roughened and appressed trichomes and a few stellate trichomes, indumentum later becoming matted and amorphous. *Petiole* 0.4–0.5 cm long, carinate, densely tomentose; *leaf blade* 2.5–3.4 × 1.2–1.6 cm, elliptic to elliptic-obovate, base obtuse, apex obtuse to rounded, sometimes slightly emarginate, margin entire, flat to revolute, coriaceous; abaxial surface light brown to grey (when dry) and densely pubescent with stellate trichomes obscuring surface and veins on young leaves, later becoming whitish and glabrescent on secondary and tertiary veins; adaxial surface flat, whitish pubescent when young, later glabrescent, drying light green to yellowish. *Venation* with 1 pair of secondary veins, slightly suprabasal, originating 1.6–1.8 mm above base, symmetric; midvein slightly impressed adaxially and prominent abaxially, secondary veins flat adaxially and slightly prominent abaxially, tertiary and quaternary veins inconspicuous. *Mite domatia* absent. *Flowers solitary*, terminal, pseudopedicel absent; bracts if present early caducous, bracteoles c. 1.3 mm long, caducous. *Flowers* 6-merous; pedicel 0.1–0.2 cm long, thick. *Hypanthium* c. 0.5 × 0.6 cm, conspicuously conic, 12-ridged, outside densely brown to ferruginous, trichomes roughened toward base, stellate toward apex, later becoming matted and amorphous. *Calyx* (in immature fruits) campanulate, truncate; *calyx lobes* c. 0.27 cm wide, not extended, broadly triangular, totally and permanently fused (not tearing after anthesis); *calyx teeth* 0.5–0.6 cm long, linear, laterally flattened toward base, connected to hypanthial ridge, acute. *Petals* 6 and *stamens* 12 (not seen but evidenced by scars in apex of hypanthium). *Ovary* 2-locular, free portion conic, with locule included, not ridged, densely white tomentose toward apex; placentation basal. *Style* not seen. *Berries* not seen. *Seeds* c. 2 × 1 mm (immature), ovoid, not angular, raphe flat to slightly projected, testa papillate.

Phenology — Flowering probably in August or September, because the only known collection with old hypanthia is from October.

Distribution and ecology — *Miconia matosiana* is endemic to E Cuba (Fig. 5), in the Sierra de Cristal (Holguín). It grows in semi-arid montane serpentine shrub woods (Borhidi 1996) at 900–1100 m.

Informal conservation status — *Miconia matosiana* is known only from the type gathering made in 2000. Only a single individual was found in one of the most conserved and inaccessible places in Cuba, within the National Park Pico Cristal. The EOO and AOO are estimated to be 1 km^2. We estimated that its population is very small, probably less than 50 mature individuals, therefore, we recommend an assessment of Critically Endangered (CR) under criterion D.

Etymology — This species is dedicated to the Cuban botanist Jesús Matos Mederos (1960–), who accompanied the first author when the only known gathering of this enigmatic species was collected. Matos has spent much of his life working on the conservation of the Cuban flora.

Discussion — *Miconia matosiana* is known only from the recent type gathering made on the peaks of Sierra Cristal by the first author. It is surprising that despite the level of knowledge of the Cuban flora, there are still plants that remain unknown to science and that have not been collected in the almost 200 years of botanical exploration.

Vegetatively *Miconia matosiana* resembles *M. grisebachiana* (a species not in *M.* sect. *Liogieria*) by its leaf shape, the whitish indumentum on the abaxial leaf surface and the light green-yellowish colour of the adaxial leaf surface when dry. However, *M. matosiana* has

Fig. 14. Photographs of *Miconia monocephala* in the field. – A: branch with internodes showing 3-verticillate leaves and leaf adaxial surface; B: flowering branch and inflorescence; C: flower at anthesis and young leaves with indumentum. – All by E. Bécquer; A from *Bécquer & al. HFC-83731*; B, C from *Bécquer & Testé HFC-89741*.

the leaf apex obtuse to rounded or slightly emarginate (vs obtuse to acute or acuminate in *M. grisebachiana*) and secondary venation slightly suprabasal, placed 1.6–1.8 mm above the base (vs secondary venation basal). The two species also differ markedly by the shape of the hypanthium, which is conspicuously conic and 12-ridged in *M. matosiana* (vs hypanthia turbinate and 4-ridged in *M. grisebachiana*). Most importantly, the placentation of *M. matosiana* is completely basal, with reduced placentation and the locules of the ovary not extending into the free portion of the hypanthium (vs placentation axile, deeply intruded, with locules extending into the free portion of the hypanthium in *M. grisebachiana*). This last feature constitutes the synapomorphy of a small group of species that includes *M. bissei* (Bécquer) Bécquer & Michelang. (≡ *Calycogonium bissei* Bécquer), *M. cupeyalensis* Bécquer & Michelang. (≡ *C. floribundum* Borhidi), *M. pseudofloribunda* (Bécquer) Bécquer & Michelang. (≡ *C. pseudofloribundum* Bécquer), *M. perezii* (Alain) Bécquer & Michelang. (= *C. revolutum* Alain) and *M. lindmanii* (Urb.) Bécquer & Michelang. (= *Pachyanthus reticulatus* Britton & P. Wilson) (Bécquer Granados 2010, 2011) and that is not closely related to *M.* sect *Liogieria* (Gavrutenko & al. 2020; Majure & al.

2022). Lastly, the conic and 12-ridged hypanthium characteristic of *M. matosiana* not only distinguishes it from the rest of *M.* sect. *Liogieria*, but also from all other Antillean melastomes. Flowers at anthesis of *M. matosiana* are unknown because the only gathering possesses mature hypanthia that had already lost the petals, stamens and style. However, the characteristics of the hypanthia leave no doubt that this is an undescribed species and the presence of basal placentation places this species in *M.* sect. *Liogieria*.

7. ***Miconia monocephala*** Urb., Symb. Antill. 9: 117. 1923 ≡ *Pachyanthus monocephalus* (Urb.) Borhidi in Abstr. Bot. (Budapest) 4: 27. 1976. – Lectotype (designated by Bécquer Granados in Brittonia 64: 204. 2012): Cuba, Prov. Oriente [Holguín], Sierra de Cristal, in cacum. montis inter saxa, 1325 m, 8 Mar 1916, *E. L. Ekman 6821* (S 05–3627 [photo!]; isolectotype: US 1302460!). – Fig. 14.

Morphological description — Shrubs 1–2 m tall, evergreen. *Indumentum* of lanate (vermiform) trichomes 0.1–0.2 mm long, ferruginous, becoming grey to whitish with age, on young branches, leaves, inflorescences, flowers and hypanthium. *Young branches* terete, slightly flattened, densely lanate. *Mature branches* with grey smooth bark. *Leaves* verticillate; *petiole* 0.3–0.5 cm long, terete, densely lanate; *leaf blade* 2–5.5 × 1.5–3 cm, ovate to elliptic-ovate or broadly ovate to orbiculate, rigid, thick and coriaceous, base rounded to emarginate, apex rounded to shortly apiculate, margin revolute, entire; adaxial surface usually bullate, densely whitish lanate when young, later mostly glabrescent; abaxial surface densely lanate, indumentum ferruginous becoming whitish to brown. *Venation* with 2 pairs of secondary veins, symmetric, basal, innermost conspicuous, placed 2.5–5 mm from margin, marginal pair mostly inconspicuous; midvein and secondary veins slightly impressed adaxially and prominent abaxially, tertiary and quaternary veins forming a dense reticulum, raised adaxially but inconspicuous abaxially. *Mite domatia* absent. *Inflorescence* 1.5–2 cm long, a densely glomerulate cyme, sessile, with 5–9 flowers; pseudopedicel absent; bracts 3.5–4 mm long, subulate, persistent, bracteoles persistent, c. 2 mm long, subulate. *Flowers* 5-merous, sessile. *Hypanthium* c. 4 × 5 mm, campanulate, free portion c. 1.5 mm long, external surface densely ferruginous lanate, internal surface glabrous. *Calyx tube* c. 0.5 mm long; *calyx lobes* c. 0.8 mm long, not extended, broadly triangular, internal surface glabrous; *calyx teeth* 1.5–2 mm long, linear, extended at anthesis. *Petals* c. 5 × 2.5 mm, obovate, pink to purple, glabrous, apex truncate, base decurrent. *Stamens* 10, probably deflexed to opposite site of flower to style, deflexed backward and turning pink to purple with age, probably falling together with petals. *Filaments* 2.5–3 × c. 0.4 mm. *Anthers* c. 2.2 × 0.5 mm, oblong, obtuse; connective projecting below thecae 0.1–0.2 mm; thecae smooth, with a ± apical pore. *Ovary* 3-locular, free portion rounded to conic, smooth, depressed at insertion of style, glabrous except at lanate apex; placentation axile-central. *Style* c. 3 mm long, glabrous. *Berries* 5–6 mm long, globose, probably maturing purple, c. 20-seeded. *Seeds* c. 1.7 mm long.

Phenology — Flowering specimens have been collected in May, July and October, fruiting specimens in May.

Distribution and ecology — *Miconia monocephala* is endemic to E Cuba (Fig. 5), where it occurs in the Sierra de Cristal (Holguín and Santiago de Cuba). It grows in montane shrub woods on serpentine soils (Borhidi 1996) at 900–1240 m.

Informal conservation status — *Miconia monocephala* was preliminarily assessed in the Red List of Cuban flora as Threatened, but without a specific category (see González-Torres & al. 2016). The EOO and AOO of *M. monocephala* are both estimated to be 1 km^2 (within the limit for Critically Endangered status under criterion B). The species is known from only one location inside the National Park Pico Cristal at the summits of this mountain range in conserved areas. The population of *M. monocephala* is not considered severely fragmented and no major threats are known for this species or its habitats. However, the population of *M. monocephala* is considered small and restricted, possibly with fewer than 1000 individuals. Therefore, the species can be assessed as Vulnerable (VU) under criterion D1.

Discussion — *Miconia monocephala* may be related to the lanate species *M. baracoana* and *M. yamanigueyensis*, as explained in the discussion of *M. baracoana*, and can be distinguished not only from them but from all other Cuban *Melastomataceae* by the presence of 3-whorled leaves at each node.

8. ***Miconia obtusa*** (Griseb.) Triana in Trans. Linn. Soc. London 28: 103. 1871 ≡ *Graffenrieda obtusa* Griseb., Cat. Pl. Cub.: 103. 1866 ≡ *Acinodendron obtusum* (Griseb.) Kuntze, Revis. Gen. Pl. 2: 952. 1891. – **Lectotype (designated here):** Cuba, Cuba oriental [Prov. Guantánamo], Pinal near Baracoa, 15 Jun 1861 [as appearing on specimen in GOET and field note of Wright on specimen in GH], *C. Wright 2527* (GOET 7029!; dubious isolectotypes: BM 1008010 [photo!], BR 5212330 [photo!], G-DC 00316986 [1] and 00316987 [2] on same sheet [photo!], G-DC 00316994 [photo!], GH 72277!, GOET [*C. Wright 709*]!, K 535933!, MO 313842 [photo!], NY 99580!, NY 99581!, S 5-3633, S 9-39614 [a] and S 9-12537 [b] on same sheet [photo!], UC 936605!, US 120414!, YU 65038!). – Fig. 15.

= *Miconia confusa* Cogn. in Candolle & Candolle, Monogr. Phan. 7: 759. 1891. – **Lectotype (designated here):** Cuba oriental, without precise locality or date, *C. Wright 2527* p.p. (BR 5190799 [photo!]).

Fig. 15. Photographs of *Miconia obtusa* in the field. – A: flowering branch with young leaves; B: flowering branch without leaves; C: young leaves on terminal branches; D: flower bud, lateral view; E: infructescence. – A–C, E by R. Abbot from *Bécquer HFC-82501*; D by F. A. Michelangeli from *Michelangeli & al. 2267*.

= *Miconia cerasiflora* var. *setulifera* Urb., Symb. Antill. 9: 112. 1923. – **Lectotype (designated here):** Cuba, Prov. Oriente [Guantánamo], Baracoa in collibus pineti prope El Yunque, 20 Nov 1914, *E. L. Ekman 3567* (S 9-12764 [photo!]).

Morphological description — Shrubs 1–1.7 m tall, branched, deciduous. *Indumentum* of stellate and dendritic trichomes 0.1–0.2 mm long, light brown or ferruginous, and elongate glandular trichomes 1–3 mm long, reddish to purple, on young branches, leaves, inflorescences, flowers and fruits. *Young branches* terete, densely glandular tomentose, later glabrescent, glandular trichomes more persistent than other trichomes. *Mature branches* with conspicuous longitudinal lenticels, sometimes setulose. *Petiole* 0.7–1.7 cm long, terete, canaliculate adaxially, sparsely glandular tomentose; *leaf blade* 5.5–10(–13) × 3.5–6.5(–11) cm, ovate-elliptic to broadly elliptic, subcoriaceous, base broadly cuneate, rounded to slightly cordate, apex obtuse to rounded, sometimes acute to acuminate, margin flat to slightly revolute, entire; adaxial surface flat to bullate, sparsely to moderately glandular tomentose; abaxial surface sparsely tomentose mostly on veins, glandular trichomes scattered. *Venation* with 2(or 3) pairs of basal secondary veins, symmetric, innermost conspicuous, marginal pair sometimes inconspicuous; midvein and secondary veins slightly impressed adaxially and prominent abaxially, tertiary veins flat to slightly impressed adaxially and slightly prominent abaxially, quaternary veins mostly inconspicuous. *Mite domatia* present as a cavity between midvein and pairs of secondary veins. *Inflorescence* 6–9 × 5–8.5 cm, an open/lax paniculate cyme, peduncle 0.3–2 cm long, with 5–19 flowers; each inflorescence with 2 or 3 pairs of major branches, usually reddish and densely glandular tomentose, pseudopedicel 0.4–1.5 cm long; bracts 1.7–2.5 mm long, subulate, caducous, bracteoles 0.5–1.2 mm long, subulate, caducous. *Flowers* 5- or 6-merous; pedicel c. 1 mm long. *Hypanthium* 2–2.5 mm long, campanulate, free portion c. 1 mm long, usually reddish to purple, external surface tuberculate and densely glandular tomentose with scattered stellate trichomes, mostly toward calyx, internal surface glabrous. *Calyx* tube 0.3–0.5 mm long; *calyx lobes* 0.5–0.7 × 1.6–1.7 mm, rounded, internal surface glabrous; *calyx teeth* 0.2–0.3 mm long, inconspicuous, ferruginous tomentose. *Petals* 6.4–8 × 4–4.5 mm, broadly obovate, pink, glabrous, apex obtuse to rounded with a lateral apical notch, base decurrent. *Stamens* 10, deflexed in 2 groups on both sides of flower at anthesis, 3 or 4 toward style and 6 or 7 on opposite

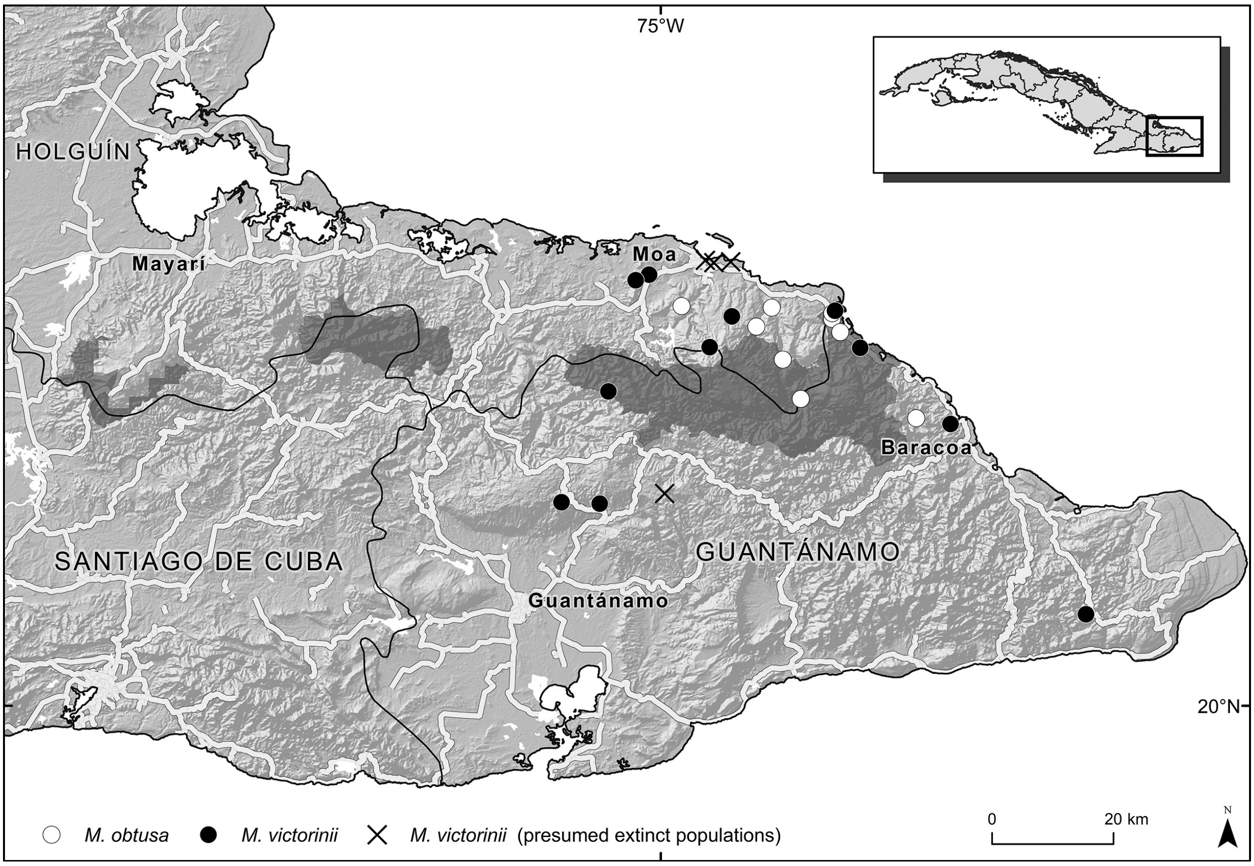

Fig. 16. Distribution of *Miconia obtusa* and *M. victorinii*, including presumed extinct populations.

side, deflexed backward and turning pink to red with age, falling together with petals. *Filaments* 4–5.5 mm long. *Anthers* 2–3.5 × 0.7–1 mm, ovate to shortly lanceolate, flattened toward apex; connective thinning out toward apex, as long as thecae and not projecting below; thecae oblong in lateral view, slightly wrinkled, truncate at base, with a ventral-apical pore, white. *Ovary* 3-locular, free portion rounded, glabrous; placentation reduced axile. *Style* 1–1.1 cm long, glabrous. *Berries* c. 6 × 6.5 mm, subglobose, 35–37-seeded. *Seeds* 2.3–2.5 mm long.

Phenology — Flowering specimens have been collected in March, May, June and October, fruiting specimens in June and August.

Distribution and ecology — *Miconia obtusa* is endemic to E Cuba (Fig. 16), where it is found in the Sierra de Moa (Holguín and Guantánamo), Sierra de Baracoa (Guantánamo) and the coastal area between Moa and Baracoa (Holguín and Guantánamo). It grows in semi-arid montane shrub woods, semi-arid montane rainforest and pine forest on serpentine (Borhidi 1996) at 10–800 m.

Informal conservation status — *Miconia obtusa* (as *M. cerasiflora* var. *setulifera*) was preliminarily assessed in the Red List of Cuban flora as Least Concern (LC) (see González-Torres & al. 2016). We estimated the EOO of *M. obtusa* to be 306 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO to be 9 km^2 (within the limit for Endangered under sub-criterion B2). It is known from nine localities, seven of them included in the National Park Alejandro de Humboldt and the Protected Area with sustainable use of natural resources Cuchillas del Toa. These localities represent three locations (sensu IUCN 2012). The number of locations allows us to assess this species within the Endangered category using criterion B. The extent and quality of habitat and number of individuals is declining at Yamaniguey because of illegal logging of associated timber species and construction and maintenance of high-voltage towers. The population is not considered severely fragmented, but the species is rare. Therefore, we assess *M. obtusa* as Endangered (EN) under criteria B1ab(iii,v)+2ab(iii,v).

Discussion — *Miconia obtusa* is one of the members of *M.* sect. *Liogieria* with a distinctive indumentum of elongate glandular trichomes. See the identification key and discussion under *M. lutgardae* for comparisons with that species. It can also be distinguished from *M. thomasiana*, the only member of the deciduous species endemic to Puerto Rico, by the differences in leaf margin, venation and the distribution of elongate glandular trichomes on the plant (see the key).

Our concept of *Miconia obtusa* corresponds with what until now has been treated as *M. cerasiflora* var. *setulifera* (see taxonomic history above). Given the

Fig. 17. *Miconia pachyphylla*. – Watercolour by Frances Worth Horne, from Nathaniel Lord Britton's unpublished popular flora of Puerto Rico, Flora Borinqueña, courtesy of the New York Botanical Garden, LuEsther T. Mertz Library Archives.

morphological variability across all other species in this clade, and between *M. obtusa* and what had been traditionally recognized as *M. cerasiflora* var. *cerasiflora*, we feel that these two entities are distinct and should both be recognized at specific rank.

In the protologue of *Graffenrieda obtusa*, Grisebach (1866) did not specify a herbarium for the type gathering. As we clarified above, the specimen of *G. obtusa* (*Wright 2527*) seen by Grisebach was deposited in GOET (7029), which is designated here as the lectotype. Specimens from *Wright 2527* have five different labels (sensu Howard 1988). The lectotype in GOET in the only one with label type 9. The GOET specimen with the number "709" (handwritten by A. Gray) and "2527" (handwritten by Grisebach) has label type 5, while that in US (120414) has label type 6 and those in BM (1008010), G-DC (00316994), GH (72277), K (535933), MO (313842), NY (99581), S (9-39614 [a] and 9-12537 [b] on the same sheet), UC (936605) and YU (65038) all have label type 6. The specimens in NY (99580) and S (5-3633) have la-

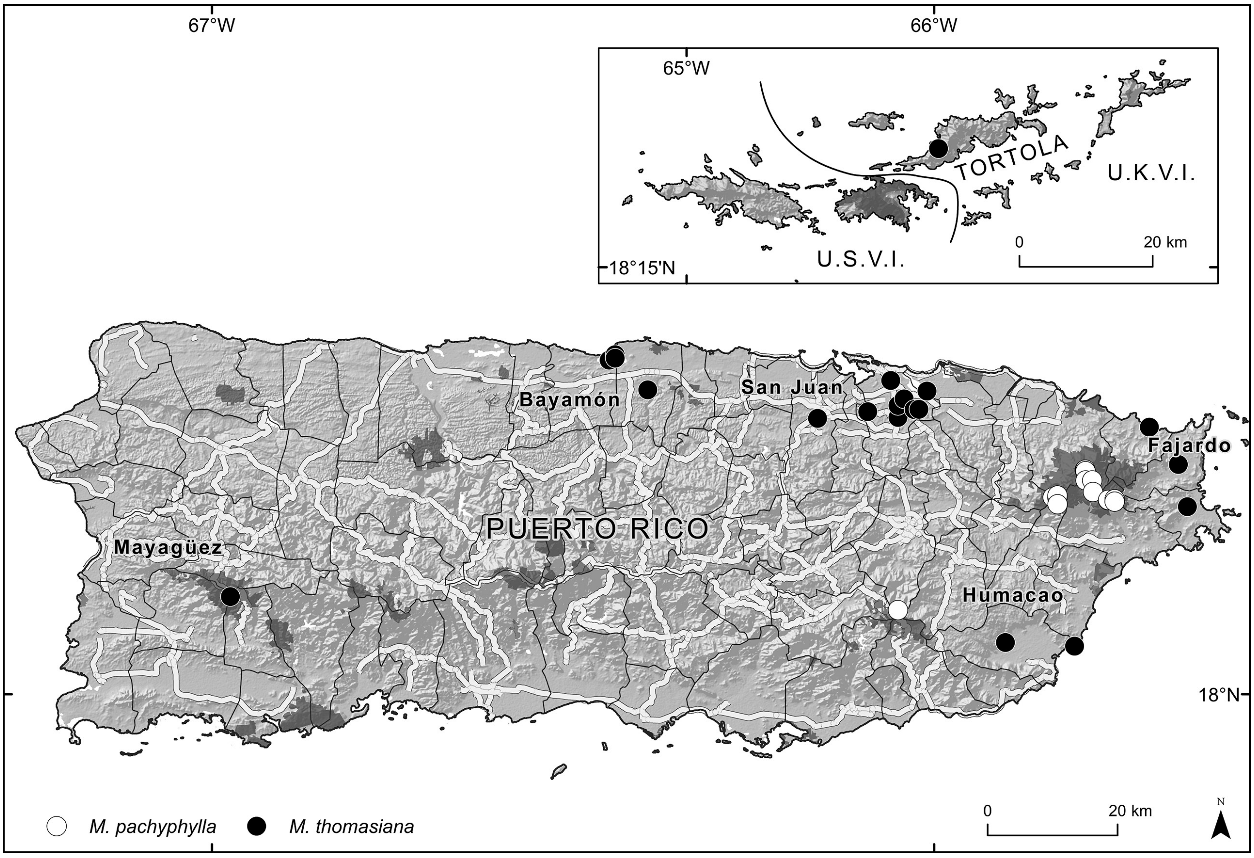

Fig. 18. Distribution of *Miconia pachyphylla* and *M. thomasiana*.

bel type 8 and, finally, those in BR (5212330) and G-DC (00316986 [1] and 00316987 [2] on the same sheet) do not have Wright labels. None of the additional specimens has the same label type as the lectotype and they should therefore be considered as dubious isolectotypes. Moreover, the sheet deposited in GH (72277) contains a mixture of gatherings. On this sheet, inside the envelope, are two Wright field notes with different data on locations and dates: (1) "Edges of savannas near Sagna de Taramo", "3 Apr"; (2) "Pinal near Baracoa, 15 Jun 1861". The data on the second field note match those on the label of the lectotype in GOET, but it is impossible to discern which of the three specimens mounted on the GH sheet is the one that corresponds to that field note.

The protologue of *Miconia confusa* (Cogniaux 1891) did not specify a herbarium for the type gathering. As we clarified above, only the specimen of *Wright 2527* in BR (5190799) has a handwritten determination by Cogniaux, as *M. confusa*, and therefore it is selected as the lectotype. It should be noted that because under *M. confusa* Cogniaux (1891) cited *Wright 2527* only in part, and likewise the synonyms *Graffenrieda obtusa* and *M. obtusa* in part, *M. confusa* was not nomenclaturally superfluous when published.

9. *Miconia pachyphylla* Cogn. in Jahrb. Konigl. Bot. Gart. Berlin 4: 279. 1886 ≡ *Acinodendron pachyphyllum* (Cogn.) Kuntze, Revis. Gen. Pl. 2: 952. 1891. – **Lectotype (designated here):** Puerto Rico, Sylva de Luquillo, in sylvis primaeva ultra planicium montis Jimenez, 9 Jul 1885, *Sintenis 1334* (BR 5212255 [photo!]; isolectotypes: BR 5212316 [photo!], GH 72762!, GOET 8010 [photo!], K 535912!, LD 1423560 [photo!], M 165631 [photo!], S 5-3638 [photo!], US 00120809!, US 00594710!). – Fig. 2D, J; 3D, E; 17.

Morphological description — Shrubs or small trees to 10 m tall, branched, evergreen. *Indumentum* of appressed and matted lanate trichomes 0.3–0.4 mm long, ferruginous on young branches, leaves, inflorescences, flowers and hypanthium, and sessile to shortly stalked glandular trichomes c. 0.1 mm long, reddish, on young leaf surfaces. *Young branches* terete, slightly flattened, densely lanate. *Mature branches* with reddish to grey fissured bark. *Petiole* 1–3 cm long, terete, densely lanate; *leaf blade* 6–17 × 3.3–8 cm, ovate-lanceolate, coriaceous, base cordate to subcordate, apex attenuate to acuminate or acute, rarely obtuse, margin revolute, entire; adaxial surface flat, lanate when young, later glabrescent; abaxial surface densely reddish to brown lanate mostly at veins, later glabrescent except on veins. *Venation* with 2 pairs of secondary veins, symmetric, basal; midvein and secondary veins impressed adaxially and prominent abaxially, tertiary veins slightly impressed adaxially and prominent abaxially, quaternary veins visible adaxially and slightly impressed abaxially. *Mite domatia* absent. *In-*

Fig. 19. Photographs of *Miconia rosmarinifolia* in the field, exhibiting variability across different entities (see text). – A: trunk and bark; B: leaf, abaxial surface; C: flowering branch and flowers at anthesis; D: leaves, abaxial surface; E: flowering branch with young bud and young fruit; F: flowering branch with flower at anthesis; G: leaves, abaxial surface; H: flowering branch with young bud and young fruit. – A–C by R. Abbott from *Bécquer & al. HFC-82482*; D, E by F. A. Michelangeli from *Michelangeli & al. 1553*; F by R. Abbott from *Bécquer & al. HFC-82499*; G, H by F. A. Michelangeli from *Michelangeli & al. 1518*.

florescence 5–11.5 × 4–11.5 cm, a pyramidal paniculate cyme, peduncle 1–4.5 cm long, with 9–100 flowers; each inflorescence with 2–4 pairs of branches, pseudopedicel 0.2–0.5 mm long; bracts 0.02–1.2 cm long, subulate, persistent, bracteoles 0.5–0.7 mm long, subulate persistent. *Flowers* 4-merous, sessile or with pedicel c. 1 mm long. *Hypanthium* c. 2.4 × 2.1 mm, campanulate, free portion c. 0.5 mm long, external surface tuberculate and pu-

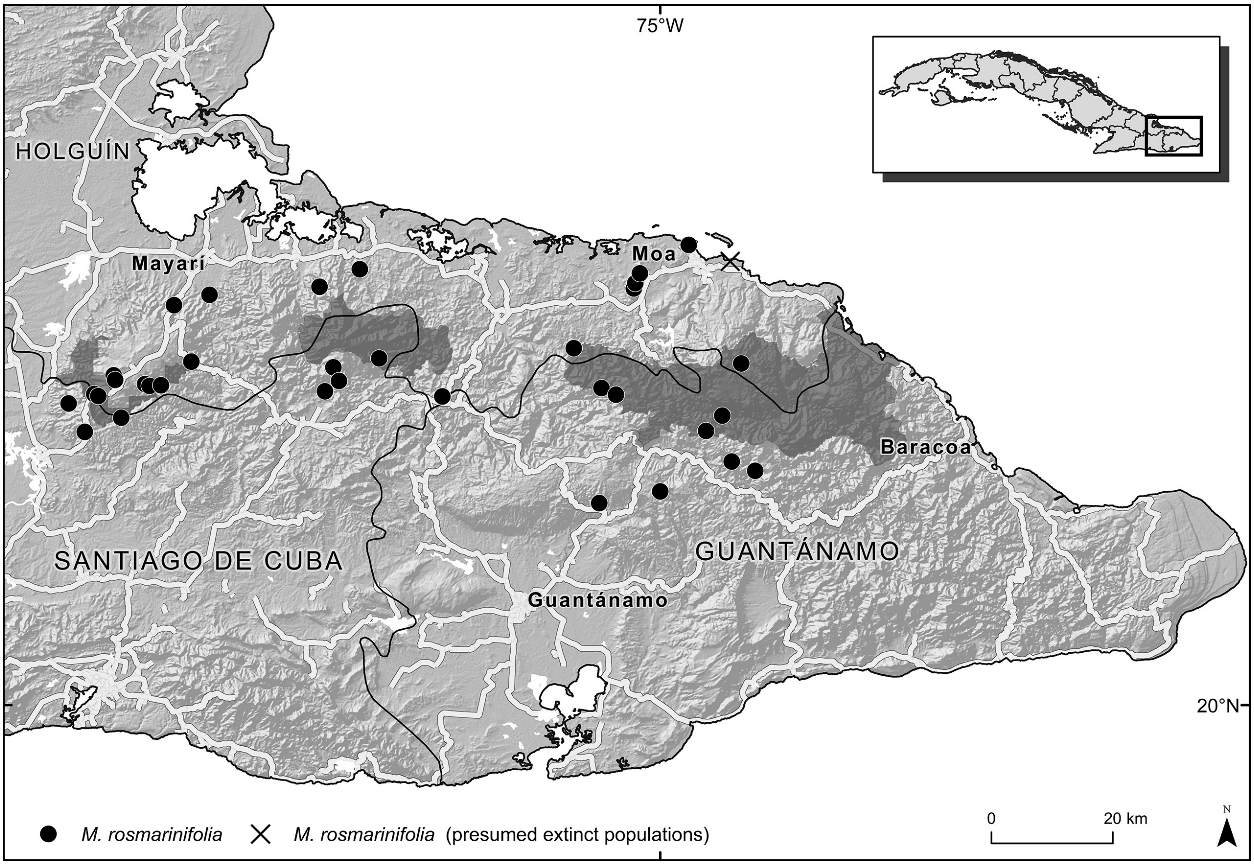

Fig. 20. Distribution of *Miconia rosmarinifolia*, including presumed extinct populations.

berulous with appressed and matted trichomes, internal surface glabrous. *Calyx tube* c. 1 mm long; *calyx lobes* inconspicuous, broadly triangular to truncate, c. 0.1 mm long, internal surface glabrous; *calyx teeth* inconspicuous, tuberculate, c. 0.1 mm long. *Petals* 3.5–4 × c. 2 mm, oblong, symmetric, purple, glabrous, base slightly decurrent, apex rounded to truncate with an apical notch. *Stamens* 8, deflexed to opposite side of flower to style. *Filaments* 1.8–2 × c. 0.3 mm, flattened, distally attenuate and geniculate, white. *Anthers* c. 1.5 × 0.5–0.6 mm, ovate to oblong, obtuse; connective projecting below thecae 0.4–0.5 mm; thecae smooth, with an apical pore. *Ovary* 3-locular, free portion rounded to conic, apex deeply depressed at insertion of style, forming a ring around style, glabrous; placentation axile-central. *Style* c. 4.2 mm long. *Berries* 5–6 mm long, globose, 40–50-seeded. *Seeds* 1.3–1.7 mm long.

Phenology — Flowering specimens have been collected from January to May, fruiting specimens in March and from May to August.

Distribution and ecology — *Miconia pachyphylla* is endemic to Puerto Rico (Fig. 18). It grows in montane thickets, dwarf forests and moist forests at 300–1060 m in El Yunque massif and Barrio Farrallón in the E portion of the island.

Informal conservation status — *Miconia pachyphylla* has an estimated EOO of 115 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO is estimated at 10 km^2 (also within the limit for Endangered under sub-criterion B2). It is known from 20 localities representing two locations (sensu IUCN 2012). We have no data to estimate the size of the population, although the species is considered rare. The populations are not considered severely fragmented, and one location is included in El Yunque National Park. Most of the habitat of this species is considered conserved, but the location of Barrio Farrallón SW of El Yunque is threatened by agriculture and livestock, deforestation and invasion of exotic species. Therefore, there is a decline in extent and quality of habitat, resulting in a potential decline in EOO and AOO. If we take into account the number of locations, fewer than five, it is possible to assess *M. pachyphylla* as Endangered under criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v).

Discussion — The relationships between *Miconia pachyphylla* and the remaining species of the clade are not clear; the indumentum most closely resembles that of *M. baracoana*, *M. monocephala* and *M. yamanigueyensis*, but the lanate trichomes have appressed arms and are matted. On the other hand, the inflorescences of *M. pachyphylla* are pyramidal-paniculate cymes (vs dichasia, capitate glomerules, corymbiform cymes or basally branched lax paniculate cymes in the rest of the species).

The protologue of *Miconia pachyphylla* (Cogniaux 1886) mentioned two gatherings, *Sintenis 1334* and *Sintenis 1566*, which therefore must be considered syntypes (Turland & al. 2018: Art. 9.6). Further, Cogniaux did not mention the herbarium where these gatherings were deposited. In BR, the herbarium in which Cogniaux worked (Stafleu & Cowan 1976; Stafleu & Mennega 1997), there are two specimens of *Sintenis 1334* and one of *Sintenis 1566.* The specimen BR 521225 belonging to *Sintenis 1334* also includes a description of the species on the label with the handwriting of Alfred Cogniaux, and is therefore selected as the lectotype.

10. ***Miconia rosmarinifolia*** (Griseb.) M. Gómez in Anales Soc. Esp. Hist. Nat. 23: 68. 1894 ≡ *Calycogonium rosmarinifolium* Griseb., Cat. Pl. Cub.: 93. 1866. – **Lectotype (designated here):** Cuba, [Prov. Holguín], road to Pinal Mayarí, 4 Aug (as appearing on specimen in GOET) 1860–1864, *C. Wright 2480* (GOET 7893!; possible isolectotypes: BM!, G-DC 317699 [photo!], GH 72012!, K 535734 [photo!], P 01903722 [photo!]; dubious isolectotypes: HAC ex HABA 822!, NY 99413 [fragments!]). – Fig. 2E, K; 19.

= *Calycogonium rosmarinifolium* subsp. *brachyphyllum* Borhidi & O. Muñiz in Acta Bot. Acad. Sci. Hung. 17: 19. 1972. – Holotype: Cuba, prov. Oriente [Holguín], entre los Mulos 2100 pies y La Corea 2200 pies (camino de Mayarí Abajo a Sierra de Cristal), 27–28 Jul 1959, *López-Figueiras UO 288* (HAC ex LS!; isotypes: HAJB 288!, US 120730!).

= *Calycogonium rosmarinifolium* subsp. *moanum* Borhidi & O. Muñiz in Acta Bot. Acad. Sci. Hung. 17: 18. 1972 ≡ *Calycogonium moanum* (Borhidi & O. Muñiz) Borhidi & O. Muñiz in Bot. Közlem. 62: 26. 1975 ≡ *Miconia moana* (Borhidi & O. Muñiz) Bécquer & Michelang. in Brittonia 71: 105. 2018. – Holotype: Cuba, Prov. Oriente [Prov. Holguín], Moa, Mina Johnson, 20 Jul 1947, *León LS-23198* (HAC ex LS!).

– "*Calycogonium rosmarinifolium* var. *mayarensis*" [sic] Kitanov in God. Sofiisk. Univ. Biol. Fak., 2 Bot. Mikrobiol. Fiziol. Biokhim. Rast. 64(2): 4. 1972, nom. inval. (Turland & al. 2018: Art. 40.2).

– "*Calycogonium rosmarinifolium* var. *parvifolium*" Kitanov in God. Sofiisk. Univ. Biol. Fak., 2 Bot. Mikrobiol. Fiziol. Biokhim. Rast. 64(2): 4. 1972, nom. inval. (Turland & al. 2018: Art. 40.2).

Morphological description — Shrubs 1–2 m tall, branched, evergreen. *Indumentum* of sessile or stalked stellate trichomes c. 0.1 mm long, light brown to ferruginous, on young branches, leaves, inflorescences, flowers and hypanthium. *Young branches* terete, slightly flattened, densely ferruginous tomentose. *Mature branches* with grey to whitish and fissured bark. *Petiole* 0.1–0.42 cm long, terete, densely ferruginous tomentose; *leaf blade* (0.7–)1.3–4.5 × (0.1–)0.25–0.7(–1) cm, linear to narrowly elliptic to oblong-lanceolate or ovate to elliptic to oblong-elliptic, coriaceous, base cuneate, apex rounded or obtuse to apiculate, margin strongly revolute, entire; adaxial surface flat to wrinkled, densely ferruginous tomentose when young, later glabrescent; abaxial surface densely ferruginous tomentose, later trichomes mostly turning light brown, sometimes veins becoming pubescent to glabrescent. *Venation* with 1 pair of secondary veins, marginal, inconspicuous to almost obscure, symmetric, basal to slightly suprabasal, placed 1–1.6 mm above base; midvein deeply impressed adaxially and prominent abaxially, secondary veins slightly impressed adaxially and visible abaxially, tertiary and quaternary veins mostly inconspicuous to obscure. *Mite domatia* absent. *Inflorescence* 0.5–0.9 × 0.7–0.9 cm, a cyme, sessile or with a peduncle 0.3–1.5 cm long, with (1–)3–5 flowers; sometimes with 2 pairs of branches, pseudopedicel absent or 0.3–0.4 cm long; bracts 2.5–6 mm long, subulate, early caducous, bracteoles 0.5–1 mm long, triangular to subulate, usually persistent. *Flowers* 4-merous; pedicel (0.5–)1.4–1.6 mm long. *Hypanthium* 2–2.2 mm long, campanulate, free portion 1–1.5 mm long, external surface tomentose, internal surface glabrous. *Calyx tube* 0.4–0.5 mm long; *calyx lobes* 1–2 × 1.5–2 mm, not extended, broadly triangular, internal surface glabrous; *calyx teeth* (0.2–)0.5–2.3 mm long, terete, obtuse, fused with and parallel to calyx lobes. *Petals* 4–5.5 × 2.5–3.6 mm, obovate to spatulate, light pink to purple, glabrous, base decurrent, apex rounded to truncate or obtuse to acute. *Stamens* 10, deflexed in 2 groups on both sides of flower at anthesis, 3 or 4 on same side as style and 6 or 7 on opposite side, deflexed backward and filaments turning pink to red with age, falling together with petals. *Filaments* 2.5–3.9(–4.5) × c. 0.3 mm. *Anthers* 2–2.8(–3.5) × 0.6–0.8 mm, oblong-elliptic, obtuse; connective lanceolate, projecting below thecae 0.1–0.2 mm; thecae smooth, with a ± apical pore. *Ovary* 2- or 3(or 4)-locular, free portion rounded, furrowed, apex deeply depressed at insertion of style, forming a ring around style; placentation axile-basal. *Style* 6–9 mm long, glabrous. *Berries* 0.4–1 × c. 0.7 cm, cylindric to globose, ≤ 20-seeded. *Seeds* 2–2.3 mm long.

Phenology — Flowering specimens have been collected in April, May, July, October and November, fruiting specimens in May.

Distribution and ecology — *Miconia rosmarinifolia* is endemic to E Cuba (Fig. 20), where occurs in Sierra de Nipe (Holguín), Sierra de Mícara and Sierra Cristal (Holguín/Santiago de Cuba), Cerro Galano on the serpentine hills near the city of Holguín, the serpentine hills and coastal lowland surrounding the city of Moa, Sierra de Moa (Holguín) and S toward Cuchillas del Toa and Cupeyal del Norte (Holguín/Guantánamo) and Meseta del Guaso (Guantánamo). It grows in semi-arid montane serpentine shrub woods and dry lowland xeromorphic serpentine shrub woods (Borhidi 1996) at 75–1300 m.

Informal conservation status — *Miconia rosmarinifolia* (as *Calycogonium rosmarinifolium* subsp. *rosmarinifolium*) was preliminarily assessed in the Red List of Cuban flora as Threatened, but without a specific category, the same as the other two entities belonging to the *M. rosmarinifolia* complex (as *C. moanum and C. rosmarinifolium* subsp. *brachyphyllum*) (see González-Torres & al. 2016). The EOO of *M. rosmarinifolia* (as broadly defined here) is estimated to be 5607 km^2 (within the limit for Vulnerable status under sub-criterion B1) and its AOO to be 39 km^2 (within the limit for Endangered under sub-criterion B2). It is known from 39 localities representing 31 locations sensu IUCN (2012), 12 included in protected areas (National Parks Alejandro de Humboldt, La Mensura-Pilotos and Pico Cristal and Protected Area with sustainable use of natural resources Cuchillas del Toa). Although there is a decline in extent and quality of habitat, and in the number of individuals in various locations due to intentional fires, felling of associated timber species, deforestation, mining and invasion of exotic species, the number of locations does not allow the species to be assessed as threatened. We have no data to estimate population size, but the species is considered to be uncommon. The populations of *M. rosmarinifolia* are not considered severely fragmented. Therefore, due to the lack of more precise data on the status of this species, we assess *M. rosmarinifolia* as Least Concern (LC).

Discussion — The *Miconia rosmarinifolia* complex has until now been recognized as three distinct subspecies of *Calycogonium rosmarinifolium* or as two species, one of them with two infraspecific taxa (see taxonomic history above). All of these taxa have 4-merous flowers and small, mostly linear to narrowly elliptic leaves with the abaxial surface densely tomentose. Borhidi & Muñiz (1971) separated these three entities, taking into account differences in the width and length of the leaves, the length of the inflorescence peduncle and the position of the fruit (sessile vs pedicellate). However, all the measurement ranges of these characters, given in the key, overlap or have continuous values. In specimens at the extreme ranges of these characters, it is possible to observe certain morphological differences, e.g. *C. rosmarinifolium* subsp. *moanum* has the longest and narrowest leaves of the three entities, with inconspicuous basal venation (vs leaves with the pair of secondary veins emerging above the base and visible in the remaining entities), pedunculate inflorescences with 1–3 flowers and minute external calyx teeth. The specimens identified as *C. rosmarinifolium* subsp. *brachyphyllum* usually have the shortest leaves in the complex, wider than in *C. rosmarinifolium* subsp. *moanum*, and mostly sessile inflorescences of 1–3 flowers. The typical specimens identified as *C. rosmarinifolium* subsp. *rosmarinifolium* have longer leaves than in *C. rosmarinifolium* subsp. *brachyphyllum*, the largest inflorescences of the three entities (pedunculate cymes of up to 5 flowers) and the largest external calyx teeth of the three entities. However, there are several specimens (in HAJB) with intermediate characters from the following gatherings: *Álvarez & al. HFC-57629*; *Bässler & al. HFC-61197*, *61406*; *Bisse HFC-50786*; *Bisse & Köhler HFC-6859*, *6919*, *5887*; *Bisse & Rojas HFC-3555*, *4255*; *Bisse & al. HFC-49778.*

Borhidi & Muñiz (1971) separated these three entities as geographically isolated: *Calycogonium rosmarinifolium* subsp. *rosmarinifolium* from Sierra de Nipe, *C. rosmarinifolium* subsp. *brachyphyllum* from Sierra de Mícara and Sierra Cristal and *C. rosmarinifolium* subsp. *moanum* from Sierra de Moa. However, Borhidi (1996) presented a distribution map for this complex with points of presence for *C. rosmarinifolium* subsp. *brachyphyllum* in Sierra de Nipe and S of Sierra de Moa and *C. rosmarinifolium* subsp. *rosmarinifolia* in Moa. Hence there is no strict geographical isolation of these entities, and reproductive isolation may be incomplete. In addition, the delimitation between the entities is unclear or cryptic, which allows us to define them as a species complex (Duminil & al. 2012). We consider it prudent to define the complex as *Miconia rosmarinifolia* s.l. until it can be evaluated in more detail.

It should be noted that two representatives of this complex were included in the phylogenetic analyses, one that could be assigned to the typical subspecies and one that matches the characters of the type of *Calycogonium rosmarinifolium* subsp. *moanum*. These two accessions are not resolved as sister to each other (Fig. 1), but rather the typical one is resolved as sister to *Miconia yamanigueyensis* while the second one is resolved at the base of the clade that includes all Cuban endemics except *M. javorkana* and *M. uninervis*. However, there is no support for the position of any of these three terminals, and a sister relationship between the two specimens of *M. rosmarinifolia* cannot be discounted at this time. If anything, this result emphasizes the need for a careful analysis of this complex.

In the protologue of *Calycogonium rosmarinifolium*, Grisebach (1866) did not specify the herbarium for the type gathering. Here we designate the specimen of *Wright 2480* in GOET (7893) as the lectotype because it was seen by Grisebach for his description of the species. The lectotype has the label type 7 (Howard 1988), the same as the specimens in BM, G-DC (317699), GH (72012), K (535734) and P (01903722), so these are considered to be possible isolectotypes. However, the specimens in HAC (ex HABA 822) and NY (99413) do not have the original labels that Asa Gray designated for the Charles Wright materials, so they should be considered as dubious isolectotypes.

11. ***Miconia thomasiana*** DC., Prodr. 3: 189. 1828 ≡ *Acinodendron thomasianum* (DC.) Kuntze, Revis. Gen. Pl. 2: 953. 1891 ≡ *Tamonea thomasiana* (DC.) O. F. Cook & G. N. Collins in Contr. U. S. Natl. Herb. 8: 249. 1903.

Fig. 21. Photographs of *Miconia thomasiana* in the field. – A: inflorescence in plant without leaves; B: inflorescence in plant with leaves; C: flower at anthesis, frontal view, and buds; D: fruiting branch with older leaves. – All by S. Maldonado Silvestrini, unvouchered.

– **Lectotype (designated here):** Antilles, St. Thomas? [without collector and number] (G-DC 201736 [photo!]). – Fig. 21.

= *Miconia vernicosa* Naudin in Ann. Sci. Nat., Bot., ser. 3, 16: 191. 1851. – **Lectotype (designated here):** Antilles, Puerto Rico, *Pleé s.n.* (P 5281685 [photo!]).

Morphological description — Shrubs or small trees to 6 m tall, evergreen but sometimes inflorescence branches deciduous before flowering. *Indumentum* of stellate and dendritic trichomes 0.1–0.3 mm long, brown to ferruginous on young branches, leaves, inflorescences, flowers and fruits, and elongate glandular trichomes 0.8–1.5 mm long, reddish on petiole, inflorescences, flowers and fruits. *Young branches* terete, densely tomentose, later glabrescent. *Mature branches* with light brown bark and longitudinal lenticels. *Petiole* (0.4–)1–1.9 cm long, terete, canaliculate and setulose adaxially; *leaf blade* 4–16 × 2.5–8 cm, ovate to elliptic, coriaceous, base rounded to slightly cordate, apex acute to acuminate, margin flat to slightly revolute, entire to serrulate-denticulate, largest teeth to 0.6 mm long (when present); adaxial surface flat to slightly bullate, reticulate, glabrescent, shiny; abaxial surface glabrescent. *Venation* with 2(or 3) pairs of secondary veins, symmetric, sometimes asymmetric, innermost conspicuous, slightly suprabasal, placed 2–6(–16) mm above base, marginal pair inconspicuous; midvein and secondary veins impressed adaxially and prominent abaxially, tertiary veins impressed to raised adaxially and prominent abaxially, quaternary veins raised adaxially and prominent abaxially. *Mite domatia* sometimes present as small holes with few stellate trichomes at point where midvein and secondary veins join. *Inflorescence* 4.5–10.5 × 4–10 cm, peduncle 0.6–2.2 cm long with 15–29 flowers; each inflorescence with 3–5 pairs of branches, densely tomentose, later glabrescent, usually reddish, pseudopedicel 0.3–1.3 cm long, lateral branches arising at base of main axis with several flowers; bracts 3–6 mm long, subulate, densely tomentose, persistent during anthesis, later caducous, bracteoles 1.5–2.5 mm long, subulate, densely tomentose, persistent during anthesis, later caducous. *Flowers* 5-merous; pedicel 0.6–1.1 mm long. *Hypanthium* c. 2 mm long, campanulate, free portion c. 1 mm long, external surface tomentose, mostly glandular setose, internal surface glabrous. *Calyx* tube 0.4–0.7 mm long; *calyx lobes* 1–2.1 mm long, broadly triangular, obtuse to acuminate, internal surface glabrous; *calyx teeth* c. 0.5 mm long, subulate. *Petals* 6.5–7.5 × 3.5–5 mm, slightly obovate, pink to violet, glabrous, base decurrent, apex rounded-emarginate, with a notch. *Stamens* 10, deflexed in 2 groups on both sides of flower at anthesis, 3 or 4 on same side as style and 6 or 7 on opposite side, deflexed backward and turning reddish to orange with age, falling together with petals. *Filaments* 3.7–4.7 mm long. *Anthers* 2.7–2.9 × c. 0.9 mm, lanceolate, flattened toward apex; connective not projecting below thecae; thecae wrinkled, with a ventral-apical pore. *Ovary* 3-locular, free portion ridged, apex lobulate and sunken at union with style, glabrous; placentation axile-central to basal. *Style* 6.5–7.5 mm long. *Berries* 0.8–1.2 × c. 1.2 cm, 40–44-seeded, maturing black. *Seeds* 1.8–2.3 mm long.

Phenology — Flowering specimens have been collected from January to May and in August and October, fruiting specimens from March to May and in September and October.

Distribution and ecology — *Miconia thomasiana* is endemic to Puerto Rico and the Virgin Islands (Tortola, St. Thomas) (Fig. 18). It grows in dry coastal scrub and forests on sandy soils or limestone hills, and in thickets on red clay over serpentine, at 0–640 m.

Informal conservation status — *Miconia thomasiana* was assessed as Near Threatened (NT) by Barrios & Hamilton (2018). This species has an EOO of 6540 km^2 (within the limit for Vulnerable status under sub-criterion B1) and its AOO is 19 km^2 (within the limit for Endangered under sub-criterion B2). It is known from 19 localities representing nine locations sensu IUCN (2012), some of them included in protected areas: Sage Mountain National Park on the island of Tortola, and within Maricao State Forest, Susúa State Forest, Toro Negro State Forest and Laguna Tortuguero Natural Reserve in Puerto Rico (Barrios & Hamilton 2018). These authors reported a decline in extent and quality of habitat and number of individuals in various locations because of development associated with urbanization and tourism, illegal farming and feral livestock on Tortola. On Puerto Rico, the threats include unsanctioned trail development, illegal fires, invasive plant species (*Casuarina equisetifolia* L. and *Melaleuca quinquenervia* (Cav.) S. T. Blake). *Miconia thomasiana* is also affected by an insect with the potential to become a damaging pest. We have no data to estimate the size of the population, even though the species seems to be locally uncommon. In the absence of additional data, we agree with the previous assessment of NT (Barrios & Hamilton 2018).

Discussion — *Miconia thomasiana* is the only species of deciduous *Miconia* from the Greater Antilles endemic to Puerto Rico and the Virgin Islands. It shares with *M. obtusa* and *M. lutgardae* the glandular indumentum but differs from these species by the characters mentioned in the key.

In the protologue of *Miconia thomasiana*, Candolle (1828) mentioned a possible specimen as "*Melast. coriacea* Juss. in herb. mus. Par." (i.e. in P) but did not provide the name of the collector. We could not find any specimen of *M. thomasiana* in P annotated by Candolle. However, in Candolle's personal herbarium in Geneva (G-DC) there is a specimen (G-DC 201736) without collector or collecting number but with a label annotated "*Miconia Thomasiana* dC", another one with "*M. coriacea* Juss. Antilles" and an envelope (with fruits) annotated "*Mel. coriacea*. Porto rico" in Candolle's handwriting (checked against http://www.ville-ge.ch/musinfo/bd/cjb/auxilium/calligraphie.php?personne=341), which coincides with the protologue. This specimen is therefore chosen as the lectotype of *M. thomasiana*.

The exact publication date of *Miconia vernicosa* is problematic because the journal (see Naudin 1851) gave the year of publication as 1851, but Stafleu & Cowan (1981: no. 6652) cited it as August 1850. This difference has no nomenclatural ramifications because the publication of *M. thomasiana* is from 1828; therefore, we have decided to leave the date for *M. vernicosa* as shown in the journal.

12. *Miconia uninervis* Alain in Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" 14: 4. 1955. – Holotype: Cuba, Prov. Oriente [Holguín], Manigua, base del Cerro de Cananova, Jul 1949, *Alain 1008 [Clemente & Crisogono]* (HAC ex NSC 6906!; isotypes: GH 72771!, HAC [2 sheets!, ex SV, ex LS], NY 99610!, US 120837!). – Fig. 2F; 3F; 22.

Morphological description — Shrubs or small trees 1.5–3 m tall, branched, evergreen. *Indumentum* mostly absent, plants nearly glabrous or with scattered elongate glandular trichomes 0.5–1.5 mm long, reddish, on young branches, inflorescences branches and bracts. *Young branches*

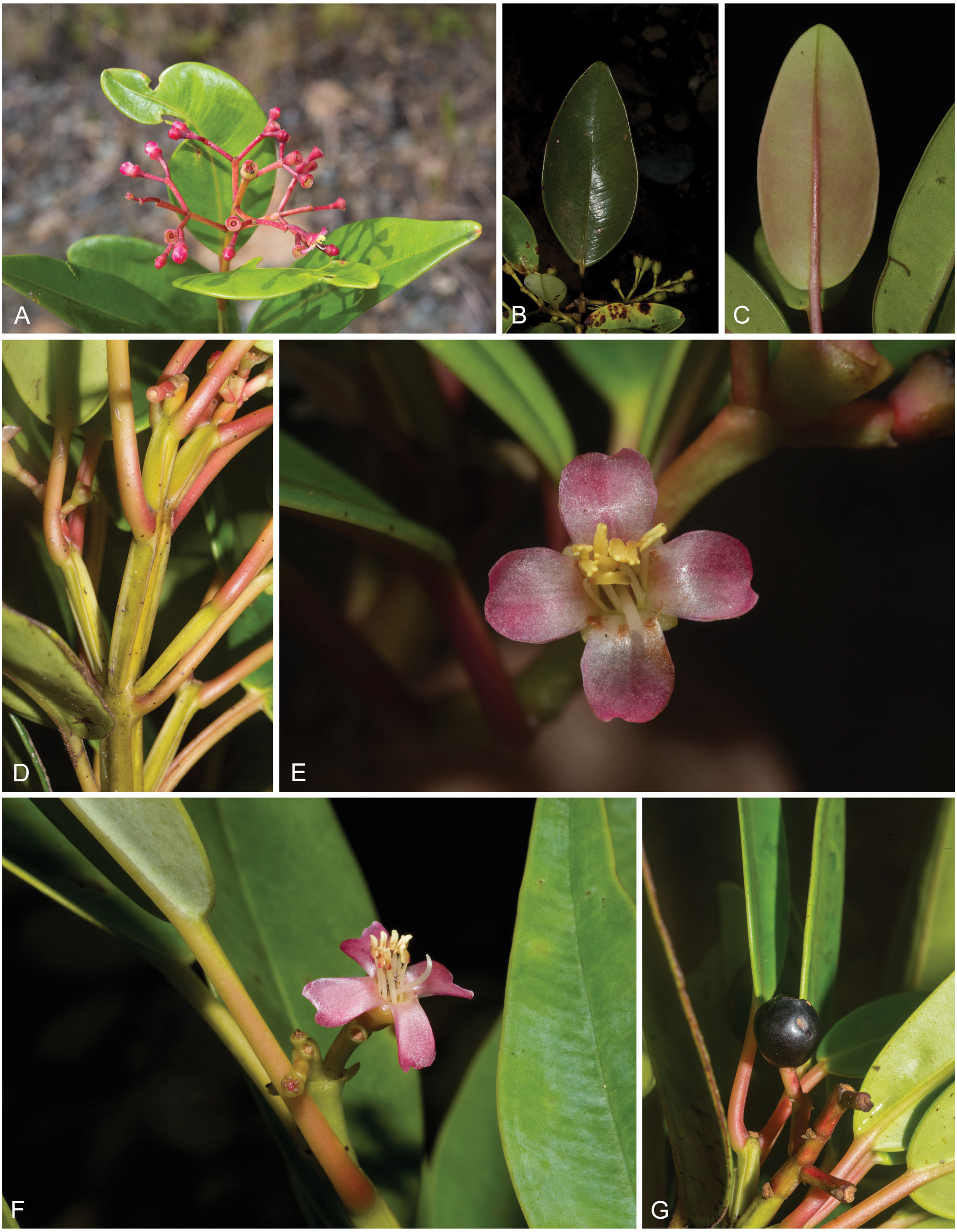

Fig. 22. Photographs of *Miconia uninervis* in the field. – A: flowering branch; B: leaf, adaxial surface; C: leaf, abaxial surface; D: internodes, showing quadrate and winged stems; E: flower at anthesis, frontal view; F: flower, lateral view; G: infructescence with a mature fruit. – All by F. A. Michelangeli; A, B, D, E, G from *Michelangeli & al. 2252*; C from *Michelangeli & al. 1493*; F from *Michelangeli & al. 1474*.

winged to subquadrangular, glabrescent, reddish to purple. *Mature branches* with grey and ± smooth bark with lenticels. *Petiole* 1.5–3 cm long, terete, canaliculate adaxially; *leaf blade* 3.5–13 × 1.5–6 cm, elliptic to elliptic-lanceolate, coriaceous, base obtuse to rounded, apex rounded to emarginate, sometimes margin revolute, entire; adaxial surface flat, glabrous, reddish to purple when young. *Venation* with 1 pair of marginal and obscure secondary veins, symmetric, basal to slightly suprabasal, placed 1–2 mm above base; midvein impressed adaxially and strongly prominent abaxially, secondary veins inconspicuous or slightly raised adaxially toward base in dry material, tertiary veins inconspicuous or slightly raised adaxially and inconspicuous abaxially, quaternary veins obscure. *Mite domatia* absent. *Inflorescence* 3.5–9 × 3.5–10 cm, a paniculate cyme, sessile or with a peduncle 2–4 cm long, with 9–64 flowers; with 2 or 3 pairs of branches, pseudopedicel 3–10 mm long; bracts (0.05–)0.15–1.5 cm long, oblong to subulate, persistent, bracteoles c. 0.5 mm long, persistent, subulate. *Flowers* 4-merous, sessile. *Hypanthium* c. 3.1 × 3 mm, campanulate, free portion c. 0.7 mm long, glabrous on both surfaces. *Calyx tube* c. 1.2 mm long, slightly quadrangular; *calyx lobes* c. 0.5 × 2 mm, not extended, broadly triangular, internal surface glabrous; *calyx teeth* inconspicuous. *Petals* 5–5.5 × c. 3.5 mm, oblong to spatulate, pink to purple, glabrous, base decurrent, apex rounded to truncate, emarginate or with an apical notch. *Stamens* 8, deflexed to opposite side of flower to style. *Filaments* 2.4–2.8 × c. 0.3 mm, flattened, distally attenuate and geniculate, white. *Anthers* c. 2.9 × 0.6 mm, ovate to oblong, obtuse; connective projecting below thecae 0.1–0.2 mm; thecae smooth, with a ± apical pore. *Ovary* 3-locular, free portion conic, smooth, apex deeply depressed at insertion of style, forming a ring around style, glabrous; placentation axile-basal. *Style* c. 3 mm long. *Berries* c. 6 mm in diam., globose, ≤20-seeded. *Seeds* 3.2–3.4 mm long.

Phenology — Flowering specimens have been collected in October, fruiting specimens in October and November.

Distribution and ecology — *Miconia uninervis* is endemic to E Cuba (Fig. 9), where it occurs in the coastal area of Moa, Sierra de Moa (Holguín and Guantánamo) and the Sierra de Baracoa (Guantánamo). It grows in semi-arid montane shrub woods on serpentine soils (Borhidi 1996) at 100–800 m.

Informal conservation status — *Miconia uninervis* was preliminarily assessed in the Red List of Cuban flora as Data Deficient (DD) (see González-Torres & al. 2016). The EOO of this species is estimated to be 357 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO to be 7 km^2 (within the limit for Critically Endangered under sub-criterion B2). It is known from seven localities representing four locations sensu IUCN (2012), all of them included in the National Park Alejandro de Humboldt and the Protected Area with sustainable use of natural resources Cuchillas del Toa. The number of locations allows us to assess this species within the Endangered category using criterion B. Immediate threats include mining activities in the locations of Santa Teresita, Moa, and the presence of invasive alien species and intentional fires at the location of Cananova. The populations are not considered severely fragmented, but the species is rare. Therefore, we assess *M. uninervis* as Endangered (EN) under criteria B1ab(ii,iii,iv,v)+2ab (ii,iii,iv,v).

Discussion — *Miconia uninervis* can be easily distinguished from the rest of the species of *M.* sect. *Liogieria* by its quadrangular young branches, the almost completely obscure secondary venation and the seeds 3.2–3.4 mm long, the largest in the group (Bécquer & al. 2014).

In the protologue of *Miconia uninervis*, Alain (1955) mentioned that the holotype was deposited in the Colegio de La Salle herbarium (LS) and that there is an isotype in NY. In addition to these, there are isotypes in GH and US. The collections from LS are now housed in HAC (Regalado Gabancho & al. 2010), and there are three duplicates of *Alain 1008* in the latter herbarium. One of these is clearly labelled as from the “Colegio Ntra. Sra. de la Caridad, Santiago de Cuba” (which also belonged to the order of La Salle Brothers but was in Santiago de Cuba, not in Havana where LS was) with the accession number of brother *Clemente 6906* (identified as NSC by Regalado Gabancho & al. 2010). This sheet also corresponds the one shown in the protologue (Alain 1955: fig. 4) and it is annotated by Alain as the holotype. The two other sheets lack accession numbers; one is annotated as being from the SV herbarium, which was also incorporated into the HAC collection (Regalado Gabancho & al. 2010), and the other states that it is ex LS. It should also be noted that although all three sheets indicate *Alain 1008* as the collector and number, all three have slight differences in displaying this information and which collectors are included on the labels.

13. ***Miconia victorinii*** Alain in Contr. Ocas. Mus. Hist. Nat. Colegio “De La Salle” 14: 5. 1955. – Holotype: Cuba, Prov. Oriente [Holguín], Cerca de la Playa de Moa, 25 Mar 1942, *León, Victorin & Clemente LS-20670* (HAC ex LS!; isotypes: GH 72773!, HAC [2 sheets!, ex SV, ex LS], NY 99612!). – Fig. 23.

= *Charianthus obliquus* Griseb., Pl. Wright. 1: 186. 1860 ≡ *Calycogonium obliquum* (Griseb.) Cogn. in Candolle & Candolle, Monogr. Phan. 7: 947. 1891 [non *Miconia obliqua* Gleason in Amer. J. Bot. 19: 743. 1932]. – **Lectotype (designated here):** Cuba, Cuba Oriental [Prov. Guantánamo], Monte Verde, Jan–Jul [as appearing on specimens in GH and GOET], or [Prov. Guantánamo], Pinal at M. Purali [Purial?], 22 Aug [as appearing on field notes of C. Wright on specimen in GH] 1859. *C. Wright 1217* (GOET 7028!; possible isolectotypes: GH 72759!, K 535770!).

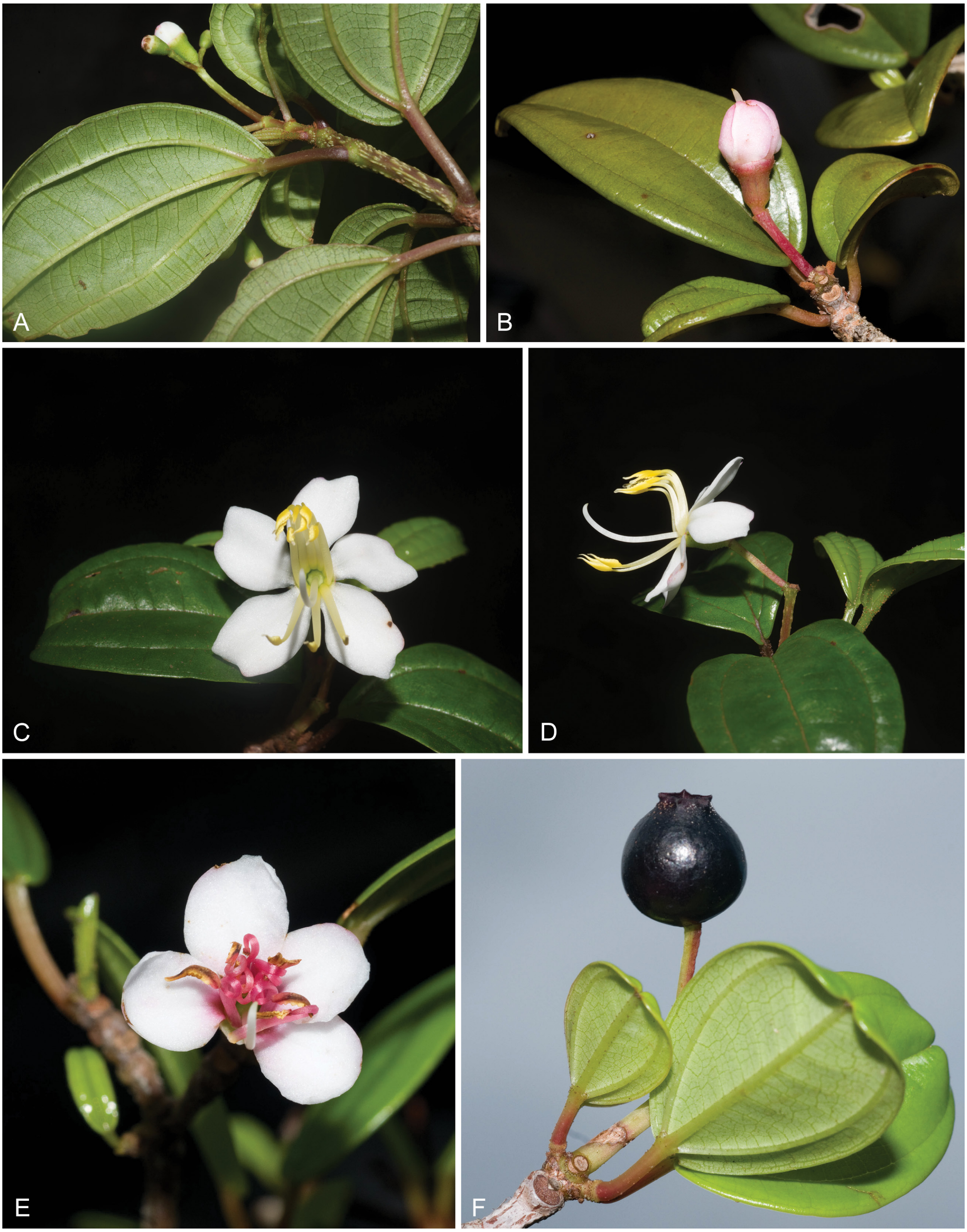

Fig. 23. Photographs of *Miconia victorinii* in the field. – A: flowering branch and leaf, abaxial surface; B: flowering branch with flower before anthesis; C: flower at anthesis, frontal view; D: flower at anthesis, lateral view; E: flower after anthesis with stamens deflexed backward; F: mature fruit. – All by F. A. Michelangeli; A, C, D, from *Michelangeli & al. 1530*); B, E, F from *Michelangeli & al. 2277*.

= *Miconia obtusa* f. *glabrior* Urb., Symb. Antill. 9: 112. 1923. – **Lectotype (designated here):** Cuba, Prov. Oriente [Guantánamo], Monte Líbano at San Fernández in pinetis, c. 800 m, *E. L. Ekman 10287* (S 13-13281 [photo!]; isolectotype: NY 1100732!).

Morphological description — Shrubs 1.5–2.5 m tall, branched, deciduous. *Indumentum* of stellate and dendritic trichomes 0.1–0.2 mm long, brown to ferruginous, on young branches, leaves, inflorescences, flowers and fruits, and scales 0.05 mm long, brown, on hypanthium. *Young branches* quadrate, with longitudinal lenticels, densely to sparsely stellate tomentose, quickly glabrescent. *Mature branches* with a light brown bark, usually with conspicuous longitudinal lenticels. *Petiole* 0.3–2 cm long, terete, canaliculate adaxially, reddish when young, glabrescent; *leaf blade* 2–7 × 1.4–3 cm, mostly elliptic, sometimes ovate-elliptic, ovate-oblong to lanceolate or obovate-elliptic, subcoriaceous to coriaceous, base rounded to slightly cordate, sometimes cuneate or slightly decurrent, apex obtuse to rounded, usually retuse, or acute, margin flat, later revolute, entire to spaced serrate visible on young leaves, teeth up to 0.5 mm; adaxial surface flat, rarely bullate, glabrescent, usually drying distinctly olivaceous with yellowish tint, darker than abaxial surface; abaxial surface sparsely tomentose, mostly on veins, quickly glabrescent, drying distinctly yellowish. *Venation* with 2 pairs of secondary veins, usually symmetric, innermost conspicuous, suprabasal, placed 0.5–4 mm above base, marginal pair inconspicuous; midvein and secondary veins impressed adaxially and prominent abaxially, tertiary veins slightly impressed adaxially and slightly prominent abaxially, quaternary veins mostly inconspicuous. *Mite domatia* present as small holes with few stellate trichomes at point where midvein and secondary veins join. *Inflorescence* 2.5–4 × 1.5–4 cm, peduncle 0.3–1.2 cm long, with 2 or 3(–7) flowers; each inflorescence with 1 or 2 pairs of branches, pseudopedicel 0.4–1.5 cm long, lateral branches arising at base of main axis with a terminal flower; bracts c. 1 mm long, subulate, early caducous, bracteoles c. 1 mm long, subulate, early caducous. *Flowers* 5-merous; pedicel 0.2–1 mm long. *Hypanthium* 4–4.5 mm long, campanulate, free portion 2.3–2.5 mm long, external surface sparsely tomentose to glabrescent, tuberculate, internal surface glabrous. *Calyx tube* c. 0.5 mm long; *calyx lobes* 0.1–0.7 mm long, rounded to broadly triangular, inconspicuous, internal surface glabrous; *calyx teeth* c. 0.1 mm long, inconspicuous. *Petals* 6.5–9.5 × 5–7 mm, broadly obovate, white with pink tint, glabrous, base obtuse, apex obtuse, rounded to truncate with a notch. *Stamens* 10, deflexed in 2 groups on both sides of flower at anthesis, 2 or 3 on same side as style and 7 or 8 on opposite side, deflexed backward and turning pink to red with age, falling together with petals. *Filaments* 4.5–7 mm long. *Anthers* 3–4.3 × 0.8–1 mm, lanceolate, flattened toward apex; connective not projecting below thecae; thecae smooth, with a ventral-apical pore. *Ovary* 3-locular, free portion ridged, apex lobulate and sunken at union with style, glabrous; placentation axile-central to basal. *Style* 7–10 mm long. *Berries* 6–7 × 6–7 mm, subglobose, 20–30-seeded, maturing black. *Seeds* 2.2–2.7 mm long.

Phenology — Flowering specimens have been collected in May, July, October and November, fruiting specimens in May, July, August, October and November.

Distribution and ecology — *Miconia victorinii* is endemic to E Cuba (Fig. 16), where it is found in the Sierra de Baracoa, Meseta del Guaso, Cuchillas del Toa and Sierra de Imías (Guantánamo), Sierra de Moa and serpentine hills and lowland coastal areas between Moa and Baracoa (Holguín and Guantánamo). It grows in semi-arid montane shrub woods and pine forests on serpentine soils (Borhidi 1996), as well as on limestone outcrops of Pinar de Montecristo, Yateras (Guantánamo), at 10–800 m.

Informal conservation status — *Miconia victorinii* and *Charianthus obliquus* (as *M. obtusa* sensu Alain (1957), non (Griseb.) Triana), were preliminarily assessed in the Red List of Cuban flora as Threatened, but without a specific category (see González-Torres & al. 2016). The EOO of *M. victorinii* is estimated to be 2424 km^2 (within the limit for Vulnerable status under sub-criterion B1) and its AOO to be 11 km^2 (within the limit for Endangered under sub-criterion B2). It is known from 12 localities representing eight locations sensu IUCN (2012), five of them included in the National Park Alejandro de Humboldt and the Protected Area with sustainable use of natural resources Cuchillas del Toa. Ongoing mining work in Playa La Vaca, Moa, and the presence of invasive alien species and intentional fires at Miraflores-Cananova have the potential to drastically degrade and reduce the habitat of this species. Furthermore, at least three locations are considered to have been lost due to mining and urban development in the city of Moa (Playa de Moa, Cayo Coco de Moa and woods near Moa airstrip). Lastly, the locality of Monte Verde, Yateras, is considered highly degraded by subsistence agriculture and livestock. Although population studies have not been carried out, the species is considered rare. However, it is not estimated that its population is severely fragmented. Therefore, we assess *M. victorinii* as Vulnerable (VU) under criteria B1 ab(ii,iii,iv,v)+2ab(ii,iii,iv,v).

Discussion — *Miconia victorinii* is a member of the deciduous group of *Miconia* endemic to E Cuba, and it closely resembles the other species that lack conspicuous elongate glandular trichomes (i.e. *M. cerasiflora* and *M. lenticellata*). For differencesm, see the key and the discussion under these two other species.

Some specimens collected in poorly drained Moa ferritic soils (Marie-Victorin & León 1956) (e.g. *Montero LS-20877*, *Michelangeli & al. 1523*) usually have flat leaves, with the adaxial surface bullate, both surfaces

Fig. 24. Photographs of *Miconia yamanigueyensis* in the field. – A: habit; B: trunk and bark; C: leaf, abaxial surface; D: detail of sterile branches; E: detail of inflorescence with flower buds and old flower; F: flower at anthesis, lateral view; G: flower at anthesis, frontal view. – A, B, F by R. Abbot from *Bécquer & al. HFC-82504*; C–E by F. A. Michelangeli from *Michelangeli & al. 1531*; G by L. R. González, unvouchered.

drying darker, while others collected on dry rocky soils with serpentine substrates (e.g. *Bisse & al. HFC-49397*, *Michelangeli & al. 1530*) usually have convex leaves, with the adaxial surface not bullate, drying distinctly olivaceous with a yellowish tint, darker than the abaxial surface, also the abaxial surface drying distinctly yellowish. The first group corresponds to the definition of *Miconia victorinii* s.str. of Alain (1955) and the latter resembles the type of *Charianthus obliquus* Griseb. However, there are no differences in floral characters that allow these entities to be separated, particularly due to the scarcity of flowering specimens for both groups. In the future, more detailed studies using morphometric techniques of both vegetative and reproductive characters at the population level will be necessary to define this species complex. It should be noted that the two accessions of *M. victorinii* included in the phylogenetic analyses (one of which matches the type of *M. victorinii* and one that matches the type of *C. obliquus*) are resolved as sisters with strong support.

In the protologue of *Miconia victorinii*, Alain (1955) mentioned that the holotype was deposited in the Colegio de La Salle herbarium, Vedado-Habana (LS), and that there is an isotype in NY. There are now two duplicates of *Victorin & Clemente LS-20670* in HAC. One of these is clearly labelled as from the herbarium (LS). This sheet also corresponds to the one shown in the protologue (Alain 1955: fig. 5) and it is annotated by Alain as the holotype. The other sheet is annotated as from Estación Experimental Agronómica, Santiago de las Vegas (SV), which was also incorporated into the HAC collection (Regalado Gabancho & al. 2010).

In the protologue of *Charianthus obliquus*, Grisebach (1866) did not specify the herbarium for the type gathering. As we explain above, the specimen in GOET (7028) is chosen as the lectotype. All other specimens labelled *Wright 1217* have label type 2 (Howard 1988), so they may belong to the same gathering and are cited as possible isolectotypes. It should be noted that the locality and date on the labels of these duplicates ("prope villam Monte Verde dictam, Cuba Orientali Jan. – July 1859") differs from the field note that appears attached to the specimen deposited in GH ("Pinal at M. Purali [Purial?], 22 Aug"). At this point, it is impossible to explain this disagreement.

14. ***Miconia yamanigueyensis*** Bécquer & Michelang. in Brittonia 71: 118. 2018 ≡ *Pachyanthus moaensis* Borhidi in Abstr. Bot. (Budapest) 4: 26. 1976 [non *Miconia moensis* (Britton) Alain in Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" 14: 4. 1955]. – Holotype: Cuba, Prov. Oriente [Guantánamo, Baracoa], Sierra de Iberia, Taco Bay, Santamaría, in pinetis, 22 Mar 1970, *Borhidi A. 4872 [Muñiz O. & Vázquez] SV 27745* (HAC ex SV!; isotype: BP [n.v.]). – Fig. 24.

Morphological description — Shrubs 1–2.5 m tall, densely branched, evergreen. *Indumentum* of lanate (vermiform) trichomes 0.1–0.2 mm long, whitish or grey to ferruginous, on young branches, leaves, inflorescences, flowers and hypanthium, and elongate glandular trichomes c. 1 mm long, on young leaves. *Young branches* terete, slightly flattened, densely lanate. *Mature branches* with grey and fissured bark. *Petiole* 0.2–1 cm long, terete, densely lanate; *leaf blade* 1.7–7 × 0.5–2 cm, elliptic to oblong-lanceolate, coriaceous, base obtuse, rounded to emarginate, acute to apiculate, margin revolute, entire; adaxial surface flat to bullate, when young densely white lanate with scattered elongate glandular trichomes mostly toward margin, later glabrescent; abaxial surface densely whitish to brown or ferruginous lanate. *Venation* with 1 pair of secondary veins, symmetric, slightly suprabasal, placed 1 mm above base; midvein and secondary veins deeply impressed adaxially and strongly prominent abaxially, tertiary veins slightly impressed adaxially and prominent abaxially, quaternary veins mostly inconspicuous. *Mite domatia* absent. *Inflorescence* 1.5–3 × 2.7–3.5 cm, a corymbiform cyme, peduncle 1–2 cm long, with 5–9 flowers; each inflorescence with 2–4 pairs of branches, pseudopedicel c. 6 mm long; bracts c. 1 mm long, subulate, early caducous, 4–10(–33) × 1.5–2.5(–16) mm, bracteoles persistent, 1–1.5 mm long, subulate. *Flowers* 5- or 6-merous, sessile or with pedicel 1–2 mm long. *Hypanthium* c. 2.5 mm long, campanulate, free portion 0.7–1.1 mm long, external surface densely ferruginous lanate, internal surface puberulous with appressed trichomes. *Calyx tube* 0.5–1 mm long; *calyx lobes* 0.4–1 × 1.4–1.5 mm, not extended, ovate to broadly triangular, internal surface pubescent; *calyx teeth* 0.5–3 mm long, linear, acute, erect at anthesis. *Petals* 3–4.5(–5) × 2–2.5 mm, obovate to spatulate, light pink to purple, with lanate trichomes at margin and on abaxial surface, base decurrent, apex rounded to truncate. *Stamens* 10, deflexed to side of flower opposite style, deflexed backward and turning pink to red with age, falling together with petals. *Filaments* 3.3–4.2 × c. 0.3 mm, white to light pink. *Anthers* c. 2.2 × 0.5–0.6 mm, oblong-elliptic, obtuse, smooth; connective projecting below thecae 0.1–0.2 mm; thecae smooth, with a ± apical pore. *Ovary* 3-locular, free portion rounded to conic, sulcate, apex deeply depressed at insertion of style, forming a ring around style, densely lanate; placentation axile-central to basal. *Style* c. 6.4 mm long, pubescent at base. *Berries* c. 5 mm in diam., globose, 20–24-seeded. *Seeds* c. 1.8 mm long.

Phenology — Flowering specimens have been collected from March to June and in October and November, fruiting specimens from April to July.

Distribution and ecology — *Miconia yamanigueyensis* is endemic to E Cuba (Fig. 5), where it is found in the coastal area between Moa and Baracoa (Holguín and Guantánamo) and to the S on serpentine outcrops of

Peladero de Jauco, Maisí (Guantánamo). It grows in pine forests and semi-arid montane serpentine shrub woods (Borhidi 1996) at 0–200 m.

Informal conservation status — *Miconia yamanigueyensis* (as *Pachyanthus moaensis*) was preliminarily assessed in the Red List of Cuban flora as Least Concern (LC) (see González-Torres & al. 2016). The EOO of *M. yamanigueyensis* is estimated to be 450 km^2 (within the limit for Endangered status under sub-criterion B1) and its AOO to be 8 km^2 (within the limit for Critically Endangered under sub-criterion B2). It is known from eight localities representing five locations (sensu IUCN 2012), three of them included in the National Park Alejandro de Humboldt and the Protected Area with sustainable use of natural resources Cuchillas del Toa. The number of locations allows us to assess this species within the Endangered category using criterion B. In addition, a decline in extent and quality of habitat and number of individuals is projected by mining at Playa la Vaca, Moa. The populations are not considered severely fragmented, and the species is not considered rare, at least in the Yamaniguey area. Based on these additional data, we assess *M. yamanigueyensis* as Endangered (EN) under criteria B1ab (i,ii,iii,v)+2ab(i,ii,iii,v).

Discussion — *Miconia yamanigueyensis* shares with *M. baracoana* and *M. monocephala* the indumentum of lanate (vermiform) trichomes but differs by the pedunculate corymbiform cymose inflorescences (vs sessile dichasia in *M. baracoana* and capitate dense cymes in *M. monocephala*). Also, *M. yamanigueyensis* is related to the *M. rosmarinifolia* complex (including *M. moana*), as has been shown by Bécquer & al. (2008), Goldenberg & al. (2008) and Michelangeli & al. (2008), but differs by the presence of lanate (vs stellate) trichomes and its 5- or 6-merous (vs 4-merous) flowers.

Author contributions

ERB and FAM conceived the research and wrote the manuscript as co-lead authors. TB carried out DNA isolations, sequencing and preliminary phylogenetic analyses and assisted with other aspects of morphological descriptions. MG carried out final phylogenetic analyses and assisted with floral descriptions.

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Appendix 1. Additional specimens examined.

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