WEBBIA Journal of Plant Taxonomy and Geography

Firenze University Press
www.fupress.com/webbia

OPEN ACCESS

Citation: Paulo José Fernandes Guimarães, Caio Baez, Patrícia Rosa, Gustavo Martinelli, Diego Nunes da Silva (2020) The importance of rediscovering rare and endemic plants: Two species of *Pleroma* D.Don (Melastomataceae), an update of conservation status, and improved descriptions. *Webbia. Journal of Plant Taxonomy and Geography* 75(2): 293-304. doi: 10.36253/jopt-8902

Received: May 15, 2020

Accepted: July 14, 2020

Published: November 18, 2020

Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Competing Interests: The Author(s) declare(s) no conflict of interest.

Funding: This work was self-funded.

Editor: Riccardo M. Baldini

The importance of rediscovering rare and endemic plants: Two species of *Pleroma* D.Don (Melastomataceae), an update of conservation status, and improved descriptions

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Abstract. The remaining portion of Atlantic Forest in the state of Rio de Janeiro constitutes a strategic challenge in the conservation of the biome, by concentrating high richness and endemism of species that are distributed in distinct vegetative fragments covering the mountainous regions. In the state, the genus *Pleroma* presents a high diversity, currently 45 species, of which 14 are endemic and several of these have knowledge gaps. This paper aims to document rediscoveries in the Três Picos State Park of two species of *Pleroma* that had not been collected for 69 and 100 years respectively. These discoveries resulted from the actions of the National Center for Plant Conservation, a division of the Rio de Janeiro Botanical Garden. Updated descriptions, geographic information and distribution maps, and cited collections for these two species of *Pleroma* are presented here together with an assessment of their current conservation status. Based on IUCN criteria, we recommend a classification of Critically Endangered (CR) and Endangered (EN) for *Pleroma virgatum* and *P. elegans*, respectively.

Keywords: *Campo de altitude*, Linnean shortfall, Melastomateae, Serra dos Órgãos, taxonomic inflation, Wallacean shortfall.

INTRODUCTION

Pleroma D.Don is a neotropical genus of Melastomataceae with 157 species, which are mainly distributed in eastern Brazil, occurring primarily in the Atlantic Forest and Cerrado biomes and rarely in the Caatinga (Guimarães et al. 2019). *Pleroma* is now considered a distinct genus from *Tibouchina* Aubl. based on the molecular phylogenetic analysis of Michelangeli et al.

(2013) and new combinations of the taxa were made by Guimarães et al. (2019). *Pleroma* is distinguished from the other genera of Melastomateae Neotropical by presenting stamens with well-developed pedoconnectives and purple or pink anthers and, if pedoconnectives have trichomes, they are glandular, and the calyx lobes are deciduous in fruits (Guimarães et al. 2019).

In Rio de Janeiro state, Brazil, *Pleroma* is represented so far by 45 species, and of these, 14 species are endemic to the state (P.J.F. Guimarães and D.N. Silva in prep.). Two species that are rare and endemic in the state of Rio de Janeiro, *Pleroma thereminianum* (DC.) Triana and *P. cleistoflorum* (Ule) P.J.F.Guim., Oliveira da Silva & Michelang., were studied regarding geographic distribution patterns in order to recommend conservation strategies (Pinheiro 2013). Of the other species endemic to the state, two are known only by the type collection: *Pleroma schwackei* (Cogn.) P.J.F.Guim. & Michelang. collected in 1887 in the municipality of Nova Friburgo, at Alto Macahé (Cogniaux 1891), a locality currently known as Macaé de Cima; and *P. discolor* (Brade) P.J.F.Guim. & Michelang. collected in 1935 in the municipality of Santa Maria Madalena, at Serra da Forquilha (Brade 1938). Additionally, two other species remain without any new record in nature for over 46 years: *Pleroma cristatum* (Brade) P.J.F.Guim. & Michelang. was last found in 1938 in Santa Maria Madalena (Brade 1938) and *P. pallidum* (Cogn.) P.J.F.Guim. & Michelang. recorded in the city of Rio de Janeiro at Pedra da Gávea in 1973 (Cogniaux 1885; Rosa et al. 2018).

The Global Strategy for Plant Conservation (GSPC) seeks to slow the pace of plant extinction around the world. The first of its five objectives starts with the best understanding of plant diversity through the publication of online floras and listings of species threatened with extinction (Sharrock et al. 2014). In 2010, Brazil published the Catalog of Plants and Fungi of Brazil (Forzza et al. 2010) and launched the first online version of the List of Species of the Brazilian Flora (Reflora 2010), meeting Target 1 (BFG 2018). Target 2 was reached in 2013 with the publication of the Red Book of the Brazilian Flora by the Rio de Janeiro Botanical Garden, consolidating an important framework for the study of Brazilian biodiversity conservation (Martinelli and Moraes 2013). To date, extinction risk assessment has been completed for 17 Brazilian species of *Pleroma* (Martinelli and Moraes 2013; Martinelli et al. 2018). However, two knowledge gaps have became obstacles to the assessment of conservation status, namely the Wallacean and Linnean shortfalls (Kozlowski 2008; Hortal et al. 2015). The Linnean shortfall is associated with systematics and refers to our extremely limited knowledge of overall biodiversity (Brown and Lomolino 1998; Brito 2010). The Wallacean shortfall is a question of biogeography and refers to our inadequate knowledge of the distribution of a particular taxon. Surely, the best way to circumvent both Wallacean and Linnean shortfalls is to invest in biodiversity inventories and herbaria curation (Balmford and Gaston 1999).

The efforts to evaluate the extinction risk of endemic species in the state of Rio de Janeiro by the National Center for Plant Conservation/Rio de Janeiro Botanical Garden enabled the rediscovery of two species endemic to the state of Rio de Janeiro, as well as additional data for understanding their conservation status: *Pleroma elegans* Gardner (Figure 1), unknown in nature since 1915, and *P. virgatum* Gardner (Figures 3 and 4C), last collected in 1941. Both species did not include a detailed locality description, including only a reference to the extensively collected locality of Serra dos Órgãos. The previous known records of these species hinder conservation status assessments, giving insufficient data of geographical distribution and population size. This paper aims to document the rediscoveries of these two taxa in the Três Picos State Park occurring, respectively, after 69 and 100 years since they were last collected in the region. Here, we present their current conservation status, and the morphological description and taxonomy of the taxa are revisited.

MATERIAL AND METHODS

Rediscovery location

Serra do Mar runs through the state of Rio de Janeiro, Brazil, almost continuously from end to end, in a SW-NE direction, and its most imposing section is that which runs through the municipalities of Petrópolis, Teresópolis and Nova Friburgo, the mountain massif named Serra dos Órgãos (MMA 2008). It is in this portion of the Serra do Mar that the highest elevations and the largest relief gradients occur (Mallet-Rodrigues et al. 2007). The highest peak is the Pico Maior de Friburgo at 2,366 m in the Três Picos State Park (PETP) (Faria 2005). The PETP was established in 2002, with an area of 65,000 hectares and is located in the north-central region of Rio de Janeiro state, covering the municipalities of Teresópolis, Nova Friburgo, Cachoeira de Macacu, and Silva Jardim. The PETP is part of the mosaic of the *Mata Atlântica Central Fluminense* which aims to integrate 29 conservation units, including the Serra dos Órgãos National Park (PARNASO) (INEA 2013).

In the area of the PETP, there are different physiognomies of the Atlantic Forest biome, with Cloud Forest

[*Floresta Ombrófila Densa Montana*, according to Veloso et al. (1991), and also called *Floresta Pluvial Atlântica Montana* by Rizzini (1997)] being the one that predominates. In addition there is the Submontane Rain Forest (*Floresta Ombrófila Densa Submontana*) and the *campos de altitude* which is the site of occurrence of the rediscovered species.

The *campos de altitude* s.l. occur at the highest points of the main mountain ranges of the Atlantic Forest biome, such as Serra do Mar, Serra da Mantiqueira, and Serra Geral (Martinelli 1996; Safford 1999; Caiafa and Silva 2005). The peculiar and adverse environmental conditions present at *campos de altitude* where these grasslands are found, such as oscillation between high and low temperatures, wind intensity, frequent presence of fog, in addition to shallow and nutrient-poor soils, contribute to the large number of endemic species that have been described from this ecosystem (Mocochinski 2006).

Data compilation, morphology, and conservation status assessments

This study was conducted through analysis of field observations and collections deposited at BM, BR, C, F, G, K, LE, M, MO, NY, P, R, RB, and US herbaria. Acronyms are according to Thiers (2020). Radford et al. (1976) was consulted for morphological terminology. The map was developed using ArcGIS software (https://www.arcgis.com/index.html).

The conservation status of the rediscovered species was performed according to the model adopted for the evaluation of the Brazilian flora that follows the system of categories and criteria of the IUCN (IUCN 2012; MMA 2014; also see Moraes and Kutschenko 2012). We followed the generation of spatial indexes [Extent of Occurrence (EOO) and Area of Occupancy (AOO)] in the CNCFlora system, using minimum convex polygon, WGS84 datum and UTM projection. Where the EOO was calculated using the area of the minimum convex polygon, and AOO using a grid of 4 km^2 cells (IUCN 2017; also see Moraes and Kutschenko 2012).

RESULTS AND DISCUSSION

The species rediscovered here are clearly rare due to their restricted distribution and abundance (Flather and Sierg 2007). Both were recorded only in the central region of the state, in the massif of Serra dos Órgãos (Figures 2A and 4A), by a few collections. The taxonomic factor may influence the characterization of species as rare (Sano et al. 2014), because the species is a category that reflects the expert's perception of the group and the concept of species applied by this (Rapini 2000). On the other hand, rarity is the result of the analysis of measurable attributes, such as frequency, abundance, or distribution, applied to individuals or populations (Sano et al. 2014). However, the taxonomic limits of *Pleroma elegans* and *P. virgatum* are expanded because the heterotypic synonyms attributed to these species are accepted (Guimarães et al. 2019). This further reinforces the importance of these rediscoveries.

Pleroma elegans and *P. virgatum* were rediscovered during field expeditions carried out in areas of difficult access in *campos de altitude* of the PETP; seven different mountains were visited within this conservation unit. *Pleroma elegans* was found at 2000 m elevation, near the ridge of the mountain known as "Mulher de Pedra" (Figure 2), located exactly on the border of the municipalities of Cachoeiras de Macacu and Teresópolis, following 100 years without any collection records. *Pleroma virgatum* was rediscovered in the mountain known as "Branca de Neve", located in the municipality of Teresópolis between 1750 and 1950 m elevation (Figure 4), after 69 years without any records. Both species showed low population densities in their areas of occurrence.

1. Rediscovery of Pleroma elegans after 100 years and redescription

Pleroma elegans Gardner, London J. Bot. 2: 350. 1843

Type: Brazil, Rio de Janeiro, Organ Mountains, May 1837, *G. Gardner 405* [K barcode K000329022!, lectotype designated by Guimarães et al. (2019); isolectotype BM barcode BM000953939!]. See heterotypic synonyms in Guimarães et al. (2019).

(≡)*Lasiandra elegans* (Gardner) Naudin in Ann. Sci. Nat., Bot., sér. 3, 13: 159. 1850.

(≡) *Tibouchina elegans* (Gardner) Cogn., Fl. Bras. 14: 323. 1885.

Description

Shrubs ca. 1.30 m tall; branches rotund-quadrangular, terete or quadrangular, indument strigose, trichomes ca. 0.8 mm long, smooth multicellular trichome; older cauline internodes glabrescent. *Leaves* with petiole 5–8 mm long; blades 3.2–5.2 × 1.4–2.2 cm, lanceolate-ovate, oblong-lanceolate or lanceolate, base acute or obtuse, apex acute, margin strigose, trichomes 0.8–1 mm long, entire; adaxial surface plane, glabrous, abaxial surface sparsely short strigose, smooth multicellular tri-

Figure 1. *Pleroma elegans* Gardner. (a) Branch with leaves and flower. (b) Adaxial surface of leaf. (c) Detail of trichomes on the abaxial surface of leaf. (d) Adaxial surface of bracteole. (e) Flower in pre-anthesis. (f) Adaxial surface of petal. (g) Antesepalous (left) and antepetalous (right) stamens. (h) Details of the inner surface of sepals, style, and stigma. From *G. Gardner 405* (K).

chomes 0.25–1 mm long; primary veins densely strigose; 3-nerved, basal. *Inflorescences* reduced to a single flower or dichasium, terminal; bracteoles 2, 2.8–1.6 × 5–9 mm, concave, ovate, apex acute, outer surface sericeous, margin ciliate; pedicels 1–1.5 mm. *Flowers* 5-merous; hypanthium 5.5–6 × 4.8 mm, campanulate, indument hirsute-

scabrous, smooth multicellular trichome. Calyx with tube inconspicuous; lobes 9–10 × 2.8–3.2 mm, lanceolate, apex acute, strigose-sericeous in the middle, margin ciliate. Petals ca. 4 × 3.5 cm, magenta, apex rounded or apiculate, margin glandular-ciliate. Stamens 10, slightly dimorphic in size, filaments with glandular trichomes 0.25–0.5 mm long, pedoconnectives with ventral bicalcarate appendage; antepetalous stamens: filament ca. 6 mm long, thecae ca. 5 mm long, pedoconnective ca. 0.5 mm long, appendage ca. 0.75 mm long; antesepalous stamens: filament ca. 6.5 mm long, thecae ca. 5 mm long, pedoconnective ca. 1.2 mm long, appendage ca. 0.6 mm long. Ovary with apical portion densely covered with sericeous hairs; style ca. 6.5 mm long, glabrous. *Fruit* a capsule 9–10 × 8–9 mm; seeds ca. 1 mm long, cochleate. See Figure 1.

New record

BRAZIL: Rio de Janeiro, Teresópolis, Proteção Integral, Parque Estadual dos Três Picos, Seio da Mulher de Pedra próximo ao cume, 22°21'44"S, 42°35'26"W, 1822–2040 m, 17 January 2015 (fl., fr.), *C. Baez et al. 213* (RB barcode RB00932145!).

Additional specimens examined

BRAZIL: Rio de Janeiro, without municipality, "Centralstock" [Serra dos Órgãos], November 1915 (fl., fr.), *P. von Luetzelburg 6476* (M, NY barcode NY00685829!); ibid, Serra dos Órgãos, February 1890 (fl., fr.), *J.T. Moura s.n.* (RB barcode RB00541587!); ibid, Serra dos Órgãos, December 1888 (fl., fr.), *J.T. Moura 358* (BR barcode BR0000005225163!); ibid, Cachambú, près das Petropólis dans le bois vierge, 22 January 1887 (fl., fr.), *A.F.M. Glaziou 15981* (BR!, C!, K!, P barcodes P05228293! and P05228294!, R!); ibid, Serra d'Estrella, 27 January 1875 (fl.), *A.F.M. Glaziou 7611* (BR barcode BR0000005224838!, C barcode C10015060!, P barcodes P00121400! and P00121401!); ibid, in montibus Serra d'Estrella, Braziliae australis prope Bell Monte, 1844 (fl.), *H.A. Weddell 757* (B [probably destroyed] F negative barcode F0BN026117!, BR barcode BR0000005224500! [fragment], F barcode V0063574F! [fragment], G-DC barcode G00318950!, P barcodes P00121402! and P00121403!).

Taxonomic notes

The diagnostic features of this species are the adaxial leaf surface glabrous and the abaxial surface sparsely short strigose, trichomes 0.25–1 mm long, with 3 acrodromous basal nerves. *Pleroma elegans* is more similar to *Pleroma dubium* (Cham.) P.J.F.Guim. & Michelang. and *P. floribundum* (Cogn.) P.J.F.Guim. & Michelang., due to their floral characteristics, of which they can be separated mainly by the leaf indumentum. In the last two, the adaxial leaf surface has trichomes that vary from strigose to scabrous and arranged in rows parallel to the veins. *Pleroma dubium* has been collected from the state of São Paulo to Rio Grande do Sul, on *campos de altitude*, growing between crevices, river banks and cloud forests, at elevations of 800–1500 m (Guimarães and Oliveira 2009). *Pleroma floribundum* has been recorded only for the state of Rio de Janeiro, in rocky outcrops at approximately 1100 m.

Some of the collections attributed to *Lasiandra imperatoris* Wawra collected in Bahia, Brazil were identified wrongly by Cogniaux (1885) as *T. elegans* (Gardner) Cogn. (= *P. elegans* Gardner), although there are no morphological and geographic similarities between them, see *J.B. Blanchet 3078A* (G-DC barcode G00318961).

Habitat, distribution, and phenology

Pleroma elegans is a medium-sized heliophilous terrestrial shrub, growing in *campos de altitude*. This species was collected, until now, only in the state of Rio de Janeiro, at higher elevations in the massif of Serra dos Órgãos in the municipalities of Teresópolis and Petrópolis, between 1800–2000 m (Figure 2). Specimens with flowers and fruits were recorded from November to January.

This species was last collected in 1915 in Serra dos Órgãos (*Luetzelburg 6476*), probably in the Retiro (Pedra do Retiro, Petrópolis, Rio de Janeiro, Brazil), and recollected 100 years later in the municipality of Teresópolis in the Três Picos State Park during the Flora of Altitude Grasslands Project.

Conservation status

This species should be considered Endangered (EN) according to the criteria B1ab(i,ii,iii) + 2ab(i,ii,iii). Its AOO is equal to 16 km² and EOO is 41.08 km². The historical collections made by naturalists in the 19th century indicate that *Pleroma elegans* occurs in Serra dos Órgãos and in the Serra da Estrela, localities currently impacted by the irregular anthropic occupation of slopes in the mountainous region of the state of Rio de Janeiro (Guerra *et al.* 2007); there are also records of invasion of exotic species in the area (Mautone *et al.* 1990). Forest fires are also one of the main threats to known populations of this species (INEA 2013). Before rediscovery, this species was evaluated as DD (Deficient Data).

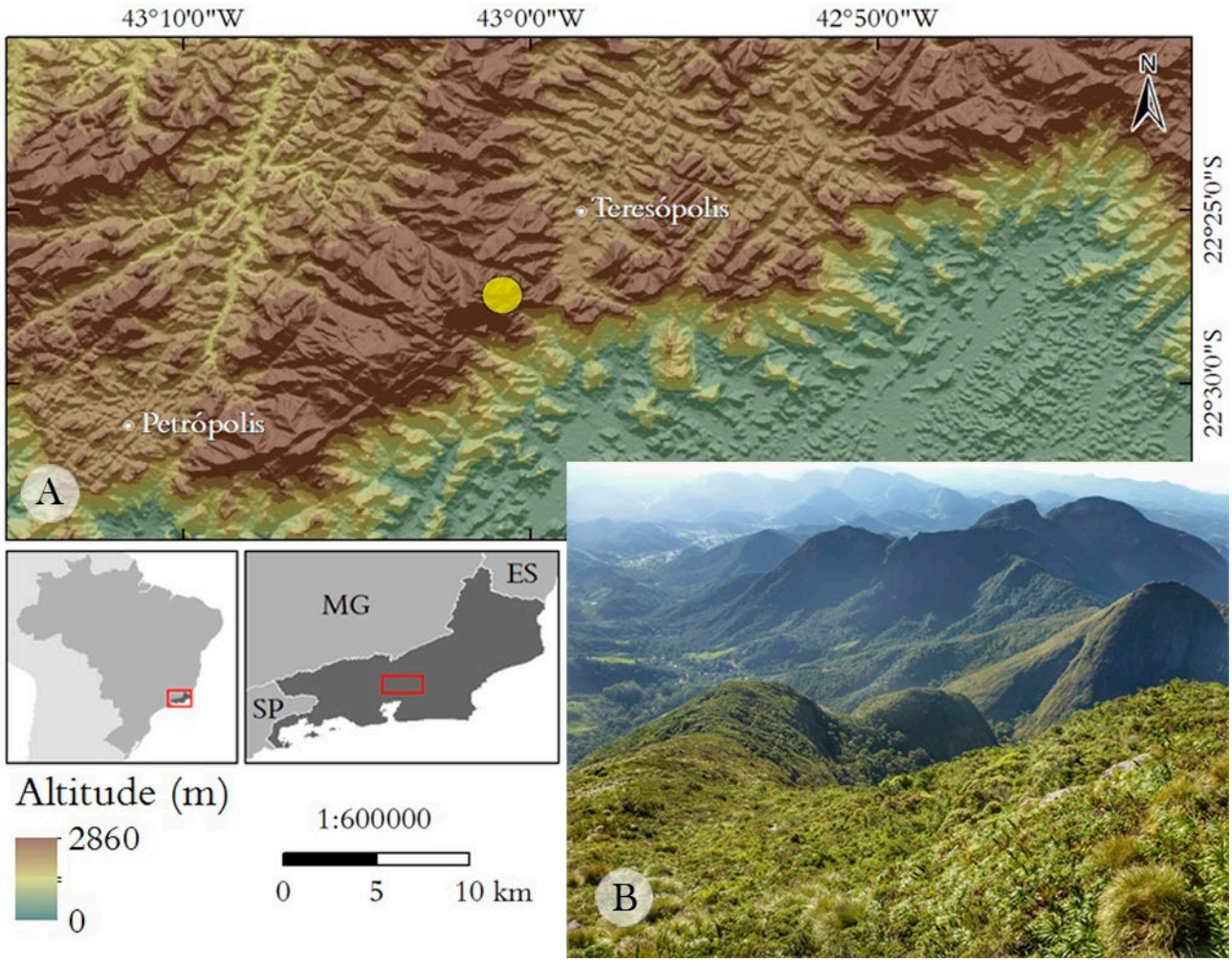

Figure 2. Distribution map and habitat of *Pleroma elegans* Gardner. (a) Geographic distribution of the species (yellow dot). (b) Location near the top of the "Seio da Mulher de Pedra", Teresópolis, Rio de Janeiro state, Brazil. Photo: C. Baez (B).

2. Rediscovery of Pleroma virgatum after 69 years and re-description

Pleroma virgatum Gardner, London J. Bot. 2: 350. 1843.

Type: BRAZIL. Rio de Janeiro: Organ mountain, elev. 4500 ft., May 1837, *G. Gardner 403* [BM barcode BM000020625!, lectotype designated by Guimarães et al. (2019); isolectotypes K barcode K000329058!, NY barcode NY00245682!]. See heterotypic synonyms in Guimarães et al. (2019).

(≡) *Lasiandra virgata* (Gardner) Naudin, Ann. Sci. Nat., Bot., sér. 3, 13: 159. 1850.

(≡) *Tibouchina virgata* (Gardner) Cogn., Fl. Bras. 14: 365. 1885.

Description

Shrubs ca. 60 cm tall; branches rotund-quadrangular, canaliculate, indument sparsely scabrous, trichomes 0.4–1.5 mm long, short barbellate, older branches becoming terete with bark peeling off. *Leaves* with the petiole 0.8–2.3 cm long; blades 6.2–9.5 × 2.7–6.4 cm, lanceolate-ovate or ovate, rarely oblong-lanceolate, base obtuse or sub-cordate, apex obtuse, rarely acute, margin ciliate, trichomes 0.7–1.2 mm long, entire, rarely weakly crenulate; adaxial surface flat or slightly bullate, indument strigose, trichomes (0.4–)1.75–3.5 mm long, base forked, adaxial surface with indument short strigose to sericeous or almost glabrous, interspersed with trichomes barbellate 0.3–0.6mm long; primary veins strigose or strigose-sericeous, trichomes barbellate (0.5–)1–3 mm long; 7–11-nerved, acrodromous suprabasal.

Inflorescences thyrsoid, terminal, 7–17.5 cm long; bracteoles 2, 6–8.5 × 4.5–6 mm, white, concave, oblong, apex obtuse, outer surface strigose-sericeous, margin ciliate; pedicels 0.6–1.5 mm. *Flowers* 5-merous; hypanthium 4–5 × 3.5 mm, campanulate, indument strigose-sericeous, trichomes dendritic. Calyx with reduced tube to ca. 0.6 mm long; lobes 2–3 × 1.2–1.8 mm, oblong, apex obtuse, covered with trichomes as those of the hypanthium, margin ciliate. Petals ca. 1.4 × 0.7 cm, purple, margin ciliate. Stamens 10, slightly dimorphic in size, glabrous, connectives with ventral bituberculate appendage; antepetalous stamens: filament ca. 7.5 mm long, thecae 5–6 mm long, pedoconnective ca. 0.4 mm long, appendages ca. 0.5 mm long; antesepalous stamens: filament ca. 9.5 mm long, thecae ca. 7 mm long, pedoconnective 2–2.8 mm long, appendages ca. 0.75 mm long. Ovary with apical portion densely covered with sericeous hairs; style 7–8.5 mm long, glabrous. *Fruit* a capsule 5.5–7 × 5–6 mm; seeds ca. 0.6 mm long, cochleate. See Figures 3 and 4C.

New records

BRAZIL: Rio de Janeiro, Nova Friburgo, Parque Estadual dos Três Picos, Sítio República dos Três Picos (Paulo & Rose), na trilha para a Cabeça do Dragão, 22°19'14"S, 42°43'24"W, 1976 m, 6 April 2016 (fl.), *J.F.A. Baumgratz et al. 1485* (RB barcode RB01118483!); ibid, 22°19'14"S, 42°43'25"W, 1980 m, 6 April 2016 (fl.), *J.F.A. Baumgratz et al. 1486* (RB barcode RB01118484!); ibid, 22°19'15"S, 42°43'25"W, 1990 m, 6 April 2016 (fl.), *J.F.A. Baumgratz et al. 1487* (RB barcode RB01118485!). Teresópolis, Proteção Integral, Parque Estadual dos Três Picos. Trilha para o cume da Branca de Neve já na área de campos de altitude, 22°21'15"S, 42°45'38"W, 1780–2040 m, 3 February 2015 (fl.), *C. Baez et al. 225* (RB barcode RB00932157!).

Additional specimens examined

BRAZIL: Rio de Janeiro, Alto Macahé [Nova Friburgo], 21 April 1888 (fl., fr.), *A.F.M. Glaziou 16794 part*. (BR barcode BR0000005226665!, C barcode C10015092!, G [on 3 sheets], K barcode K000329011!, LE, P barcode P00708718!); ibid, 8 April 1888 (fl.), *A.F.M. Glaziou 16794 part*. (BR barcodes BR0000005226337! and BR0000005226641!, K barcode K000329010, MO barcode MO100754164!, P barcodes P00708714!, P00708715!, and P00708716!, R barcode R000009288!). Petrópolis, 14 March 1888 (fl.), *A.F.M. Glaziou 16795* (B [probably destroyed] F negative barcode F0BN016726!, BR barcodes BR0000005225378! and BR0000005226030!, C barcodes C10015093! and C10015094!, G [on 2 sheets], K barcode K000329012!, P barcode P00708727!). Petrópolis (Sapucaia), Distrito de Serra Capim, Serra das Flores, 1 May 1946 (fl., fr.), *R. Burle Marx & H.L. Mello Barreto 15461* (RB barcode RB00231755!). Without municipality, ibid, Frade, Serra dos Orgãos, 4 April 1870 (fl., fr.), *A.F.M. Glaziou 3974* (BR barcode BR0000005226023!, C barcode C10015091!, K barcode K000329011!, P barcodes P00708719! and P00708720!, R barcode R000009289!); ibid, Serra dos Órgãos ou Friburgo?, *s.d.* (fl.), *s.c.* (RB barcode RB00231530!).

Taxonomic notes

The diagnostic features of this species are the lightly bullate adaxial leaf surface, with strigose indumentum, trichomes (0.4–)1.75–3.5 mm long, abaxial surface short strigose to sericeous or subglabrous, with barbellate trichomes 0.3–0.6 mm long. *Pleroma virgatum* resembles *P. pallidum* in floral characteristics, but in the latter the adaxial leaf surface is flat, not bullate and the adaxial surface has smooth trichomes, not barbellate, that are sparsely distributed. *Pleroma pallidum* was collected in the city of Rio de Janeiro, Brazil, in the Tijuca forest in rock outcrops of Pedra da Gávea.

Cogniaux (1885, 1891) described two other species, *Tibouchina nervulosa* Cogn. and *T. aspericaulis* Cogn., respectively, close to *Pleroma virgatum*. However, in this study we are following the synonymies suggested by Guimarães et al. (2019).

Habitat, distribution, and phenology

Pleroma virgatum is a small, heliophilous, terrestrial shrub occupying the *campos de altitude* s.l. and along the Montane Rain Forest (*Floresta Ombrófila Densa Alto-Montana*), where it is occasional. This species was recorded only in the state of Rio de Janeiro in the Serra dos Órgãos massif (Figure 4). Specimens with flowers and fruits were recorded from March to July.

This species was described in the late 19th century; it was collected again in 1946 in the municipality of Petrópolis in Serra do Capim in Pedra das Flores, but it had not been collected since that time. Through the efforts of the CNCFlora, *Pleroma virgatum* was recollected in 2015 in the Três Picos State Park.

Conservation status

This species should be considered Critically Endangered (CR) according to the criteria B2ab (ii,iii). Its AOO is equal to 8 km^2 and EOO is 73.16 km^2. *Pleroma virgatum* is constantly threatened due to forest fires that spread easily when they reach low vegetation in the *campos de altitude* of the state of Rio de Janeiro (Aximoff and Rodrigues 2011). In addition, the growing number of tourists and hikers visiting the region may also neg-

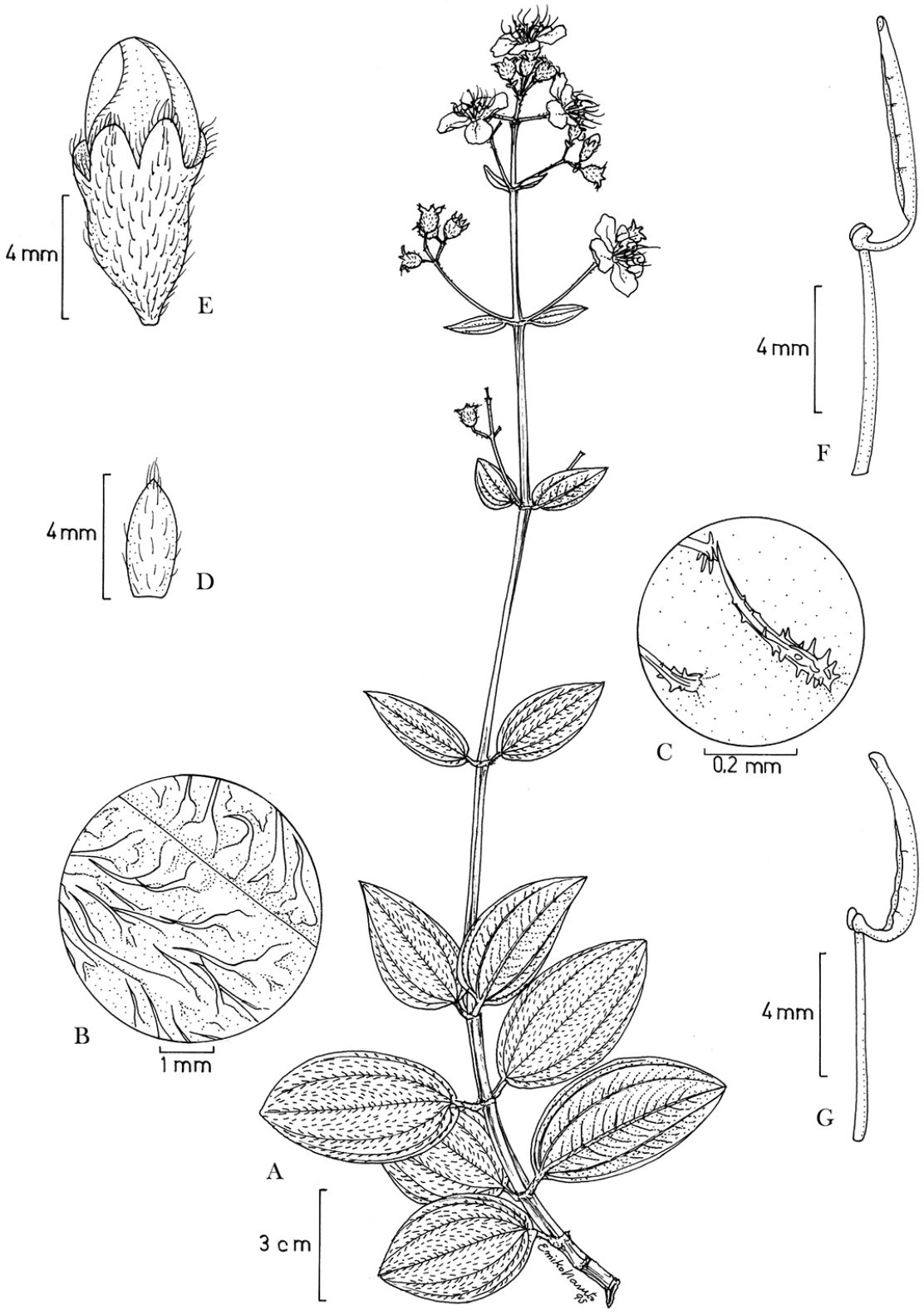

Figure 3. *Pleroma virgatum* Gardner. (a) Branch with leaves, flowers, and immature fruits. (b–c) Detail of trichomes on leaves. (b) Adaxial surface. (c) Abaxial surface. (d) Adaxial surface bracteole. (e) Floral bud. (f–g) Stamens. (f) Antesepalous. (g) Antepetalous. From *G. Gardner 403* (BM).

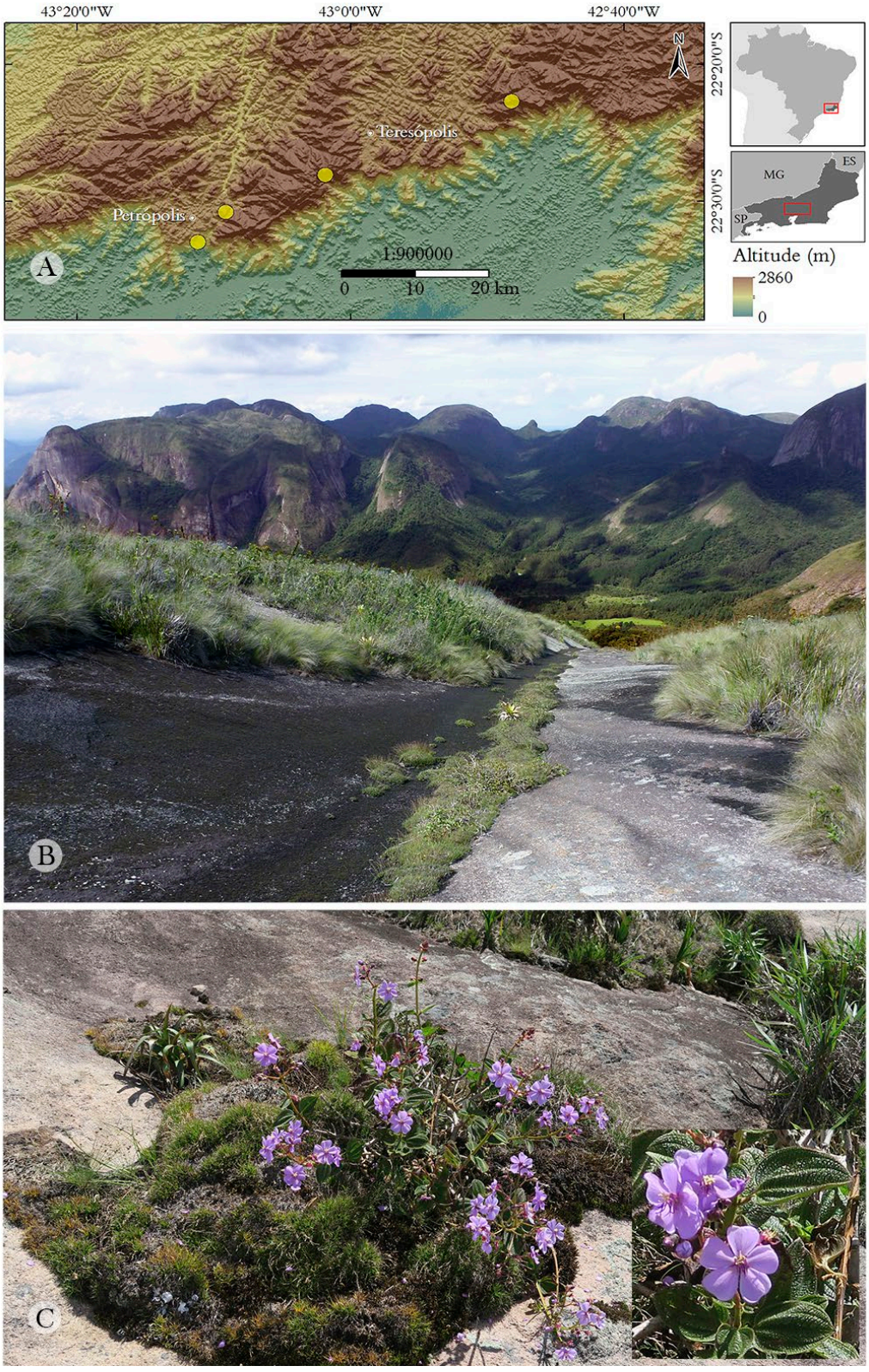

Figure 4. Distribution map and habitat of *Pleroma virgatum* Gardner. (a) Geographic distribution of the species (yellow dots). (b) Location near the top of the "Branca de Neve", Teresópolis, Rio de Janeiro state, Brazil. (c) Specimens images on the trail to "Cabeça do Dragão", Nova Friburgo, Rio de Janeiro state, Brazil. Photos: C. Baez (B) and J.F.A. Baumgratz (C).

atively impact the native vegetation of these environments. Before rediscovery, this species was evaluated as DD (Deficient Data).

CONCLUSION

Studies on the taxonomy, systematics, and conservation of endemic species are imperative to overcome the various knowledge gaps and comply with the international agreements of the Global Strategy for Plant Conservation. The collection of poorly known species is a challenging but necessary task, especially for megadiverse countries such as Brazil (Teixeira et al. 2014). Recently, sampling efforts in under-collected areas of the Brazilian Atlantic Forest have revealed taxonomic novelties in different genera of Melastomataceae (Goldenberg et al. 2016; Bochorny et al. 2017; Bacci et al. 2018; Justino et al. 2018). Therefore, the collection of specimens of rare species is essential to refine morphological circumscriptions of taxa, gain knowledge about their geographic distribution, and to provide recommended conservation assessments. Thus, we believe that our data provide fundamental information for conservation management decisions as poorly known species are rediscovered.

ACKNOWLEDGEMENTS

The authors are grateful to Cynthia Sothers (Royal Botanic Gardens, Kew) for the revision of English and previous reading of the manuscript, to José Fernando Andrade Baumgratz (IP/JBRJ) for the photos of *Pleroma virgatum* in the field, to Emiko Naruto, *in memoriam*, for the illustrations, and to and Frank Almeda and two other reviewers for their suggestions and comments. DNS is also grateful to Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) for the MSc. student fellowship granted (Process n° 88882.447047/2019-01 – Finance Code 001).

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