

DISTRIBUTION EXTENSION OF *IPOMOEA MINUTIFLORA* (M. MARTENS & GALEOTTI) HOUSE (CONVOLVULACEAE): FIRST RECORD FOR THE STATE OF MATO GROSSO, BRAZIL

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ABSTRACT: *Ipomoea minutiflora* is a species being infrequent throughout its distribution, known from Brazil only in the Pará state. Its characterized by the small, yellow corolla. Here, we expanded its distribution, recording its first occurrence in the state of Mato Grosso. Also, we provide a morphological description and images for the species.

Palavras-chave: Morning glory; climber; corda-de-viola.

EXTENSÃO DA DISTRIBUIÇÃO DE *IPOMOEA MINUTIFLORA* (M.MARTENS & GALEOTTI) HOUSE (CONVOLVULACEAE): PRIMEIRO REGISTRO PARA O ESTADO DO MATO GROSSO, BRASIL

RESUMO: *Ipomoea minutiflora* é uma espécie pouco frequente ao longo de sua distribuição, conhecida no Brasil apenas no estado do Pará. Caracteriza-se pela corola pequena e amarela. Neste trabalho ampliamos sua distribuição, registrando sua primeira ocorrência no estado de Mato Grosso. Além disso, fornecemos uma descrição morfológica e imagens da espécie.

Palavras-chave: corda-de-viola; Gloria da manhã; trepadeira.

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INTRODUCTION

The discovery of new occurrences of plant species constitutes a crucial step both for advancing scientific knowledge and for supporting biodiversity conservation initiatives. From a taxonomic perspective, addressing the so-called Linnaean and Wallacean shortfalls namely, the lack of formal descriptions and spatial data on species, respectively is essential to guide more efficient and targeted sampling strategies (Ondo *et al.*, 2024). The use of herbarium collections, which provide temporally accurate and georeferenced specimen records, has proven particularly effective in filling these gaps, often surpassing isolated fieldwork in this regard (Vargas *et al.*, 2023).

From a conservation perspective, locating poorly known populations of rare plants is fundamental, as the absence of records poses critical challenges for assessing threat status and establishing protected areas. Models such as Ecological Niche Modeling have been employed to prioritize regions with the highest likelihood of harboring these populations (Kirk *et al.*, 2021).

Moreover, data from natural history collections feed into assessments such as the IUCN Red List and inform political decisions, the planning of ecological corridors, restoration actions, and adaptive habitat management (Rives *et al.*, 2011). The biodiversity crisis is also marked by a significant reduction in genetic diversity, with nearly two-thirds of populations analyzed showing declines in recent decades highlighting the urgency of documenting new occurrences to preserve genetic resilience in the face of environmental change (Shaw *et al.*, 2025).

Finally, the identification of “dark spots” with the potential to harbor yet undescribed species some possibly already threatened underscores the need for targeted efforts that integrate science, conservation, and local participation, particularly in biodiversity-rich tropical regions (Ondo *et al.*, 2024).

Ipomoea L. is the largest genus of the Convolvulaceae family comprises approximately 635-800 species, depending on its circumscription (Wood *et al.*, 2020, Powo, 2026). It is distributed predominantly in pantropical regions and absent in Mediterranean areas and temperate climates (Staples & Brummitt, 2007). Around 160 species occur in Brazil, occurring in all regions and phytogeographical domains, with the largest diversity in the Southeast, Central-West, and Northeast regions, mainly in the Cerrado, Atlantic Forest, and Amazon phytogeographical domains (Simão-Bianchini *et al.*, 2026). They are predominantly climbing plants, usually found on roadsides, forest edges, swamps, and savannas (Wood & Scotland 2017). Of the 160 species that occur in Brazil, 58 are found in Mato Grosso State (Simão-Bianchini *et al.*, 2026).

Recently, during the activities of project “Flora das plantas vasculares das RPPNs Cristalino” realized by Universidade Federal de Mato Grosso - UFMT and Universidade do Estado de Mato Grosso - UNEMAT, was collected one individual of *Ipomoea minutiflora* (M.Martens & Galeotti) House., not yet registered for Mato Grosso. Here, we present the first record for the state.

METHODS

Study area.

The Cristalino region is formed by the mosaic vegetation of Conservation Units between Pará Southern and Mato Grosso Northern, including the Reserva Biológica Nascentes do Cachimbo, the Parque Estadual do Cristalino I and II, and the RPPNs Cristalino. (ar four

reserves). The RPPNs Cristalino are a set of four Private Natural Heritage Reserve (RPPN, acronym in Portuguese), with ca. 7000 ha, covering areas of the municipalities of Alta Floresta and Novo Mundo (FEC 2025), bordering the Cristalino River, near its mouth with the Teles Pires River, an important tributary of the Tapajós River.

The first RPPN of the Mato Grosso Amazon, the RPPN Lote Cristalino, was created in 1997 and comprises 670 ha, located in the municipality of Alta Floresta, on the right margin of Cristalino River (FEC 2017).

The climate of the region has two distinct seasons, a rainy summer and dry winter, with an average of 26°C and annual precipitation of 2,400 mm (FEC 2017).

According to Sasaki *et al.* (2010) and FEC (2017), the cover vegetation area is predominantly by the Dense Submontane Ombrophilous Forest (“Terra Firme”) permeated by Dense Alluvial Ombrophilous Forest (“Mata Inundável”), Seasonal Semideciduous Forest (“Mata de Transição”), Campo Rupestre and Seasonal Deciduous Forest (“Afloramentos graníticos” and “Mata Seca”), and Riparian Vegetation (“Formação pioneira”).

Morphological study.

The study was based on morphological analysis, consultation of the literature (Simão-Bianchini, R., Vasconcelos & Pastore, 2016), examination of collections from the UFMT herbaria (acronyms according to Thiers, 2026), and images of specimens available on virtual platforms (<http://floradobrasil.jbrj.gov.br/reflora/herbarioVirtual>), GBIF (<https://www.gbif.org>), and speciesLink (<http://splink.cria.org.br>). Specimens were collected and prepared according to standard taxonomic procedures (Mori *et al.*, 1986) and subsequently deposited in the UFMT herbarium. Identification was based on specialized literature (Simão-Bianchini, R., Vasconcelos & Pastore, 2016) and confirmed through analysis of the protologue and images of the type specimen available on JSTOR (<http://plants.jstor.org/>).

The morphological descriptions followed the terminology of Harris and Harris (2001). Data on geographical distribution were obtained from the literature (Austin & Cavalcante 1982; Austin & Huáman 1996) and from new records. Species distribution maps were produced using QGIS (Figure. 1). Information on flowering and fruiting periods was derived from field observations and the literature (Simão-Bianchini, R., Vasconcelos & Pastore, 2016).

Taxonomic treatment

Ipomoea minutiflora (M.Martens & Galeotti) House, *Muhlenbergia* 5(5): 71. 1909. (Fig. 2) Twining climber, delicate, with herbaceous, sparsely hirsute branches, internodes 6.5–7.5 cm; petiole 0.2–3.5 cm. Leaves entire, 2–2.5 × 2.6–3.7 cm, broadly ovate, ciliate, apex acuminate with a mucro ca. 1 mm, base cordate, sinus 6–9 mm, sparsely sericeous on both surfaces, trichomes ca. 2 mm, actinodromous venation. Inflorescence in thyrses, 1–4 flowers; primary peduncle 1.3–2.6 cm, sparsely hirsute; bracteoles scale-like, ca. 1 mm; pedicel 3–5 mm. Sepals subequal, externals 2–2.5 × 0.6–0.8 mm, lanceolate, apex acuminate, hirsute, internals slightly smaller. Corolla 4–8 mm long, tubular-campanulate, yellow, mid-petaline bands glabrous. Capsules globose 4–6 mm; seeds 2–3 mm long, dark

Specimens examined: Brazil. Mato Grosso: Alta Floresta, RPPN Lote Cristalino, jardim secreto, 17.V.2025, fl. e fr., A.K. Koch et al. 1982 (UFMT).

Comments: *Ipomoea minutiflora* is a species being infrequent throughout its distribution occurring from Mexico to northern South America (Austin & Cavalcante 1982; Austin & Huáman 1996). Its first record for Brazil was in the state of Pará in 2016, in Serra dos Carajás, it has been collected only once, in a low forest canga area in Serra Sul and it is mentioned as a rare species in the Serra dos Carajás region (Simão-Bianchini, R., Vasconcelos & Pastore, 2016)). Now, 10 years after its first record in Brazil, we found *I. munitiflora* in Mato Grosso state, Central West region, expanding its distribution in the country.

In Mato Grosso, the species inhabit the Seasonal Deciduous Forest area [=“Mata Seca” in Sasaki *et al.* (2010) and Zappi *et al.* (2011)], called “jardim secreto” (Fig. 3). In this area, the vegetation grows directly on rock or on shallow soils and the dry season, most trees lose their leaves completely when they come into bloom, also the temperatures in these habitats rise significantly during this time of year (SASAKI *et al.* 2010).

Ipomoea minutiflora was collected in the end of rainy season and the vegetation was still green, but the soil was already well-drained with little humidity. Morphologically, *I. minutiflora* is characterized by the small flowers, with yellow corolla mid-petaline bands area glabrous, Leaf broadly ovate, ciliate, apex acuminate with a mucro, base cordate, sinus, sparsely sericeous on both surfaces. Simão-Bianchini, *et al.* (2016), describe it as a very distinctive plant, comparable only to *Ipomoea aristolochiifolia* G.Don, especially in the vegetative parts; it differs by its ovate sepals and campanulate-infundibuliform corolla, more than 1.5 cm long and lilac in color.

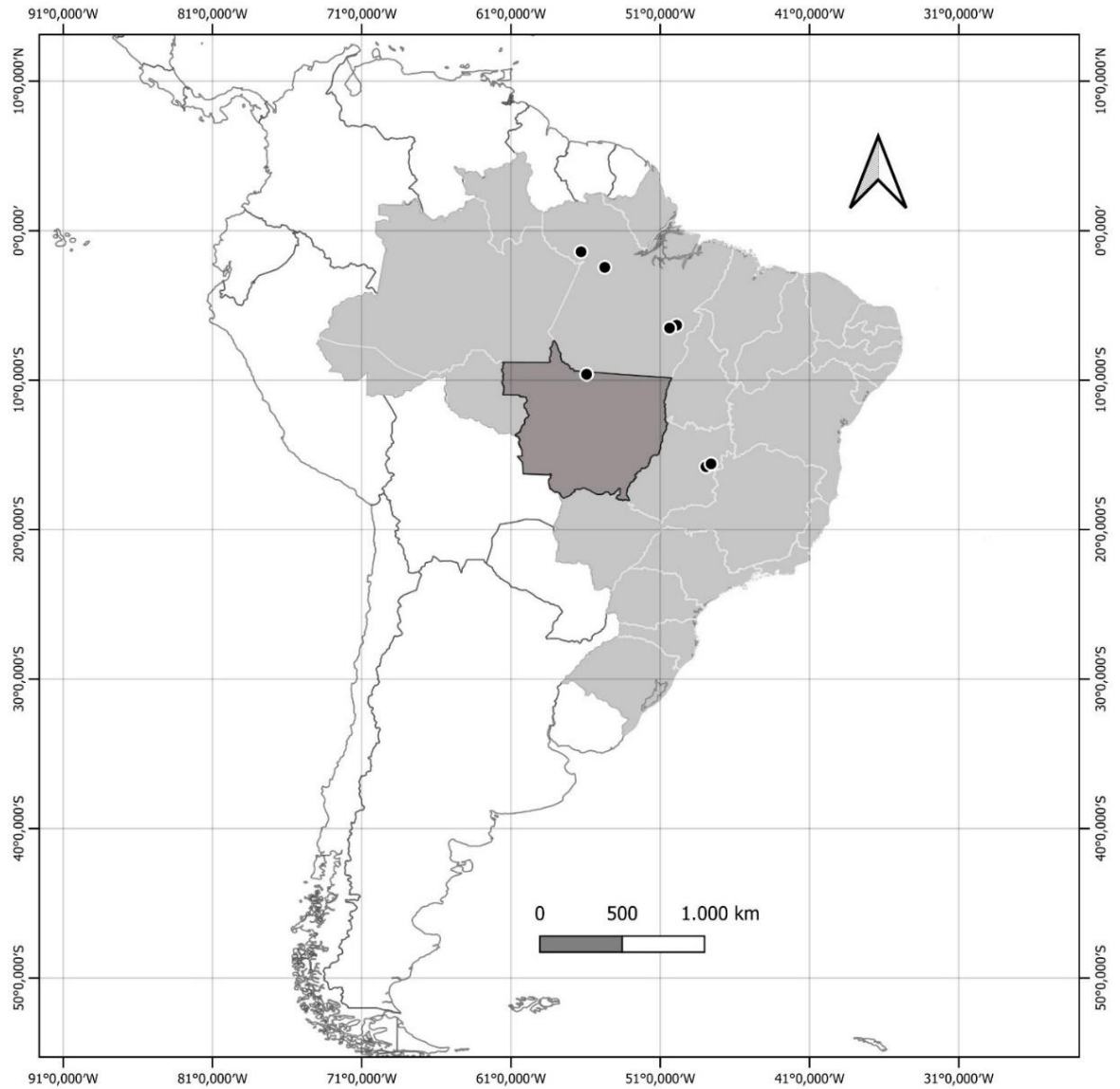


Figure 1 – Geographic distribution of *Ipomoea minutiflora* (M.Martens & Galeotti) House in Brazil.

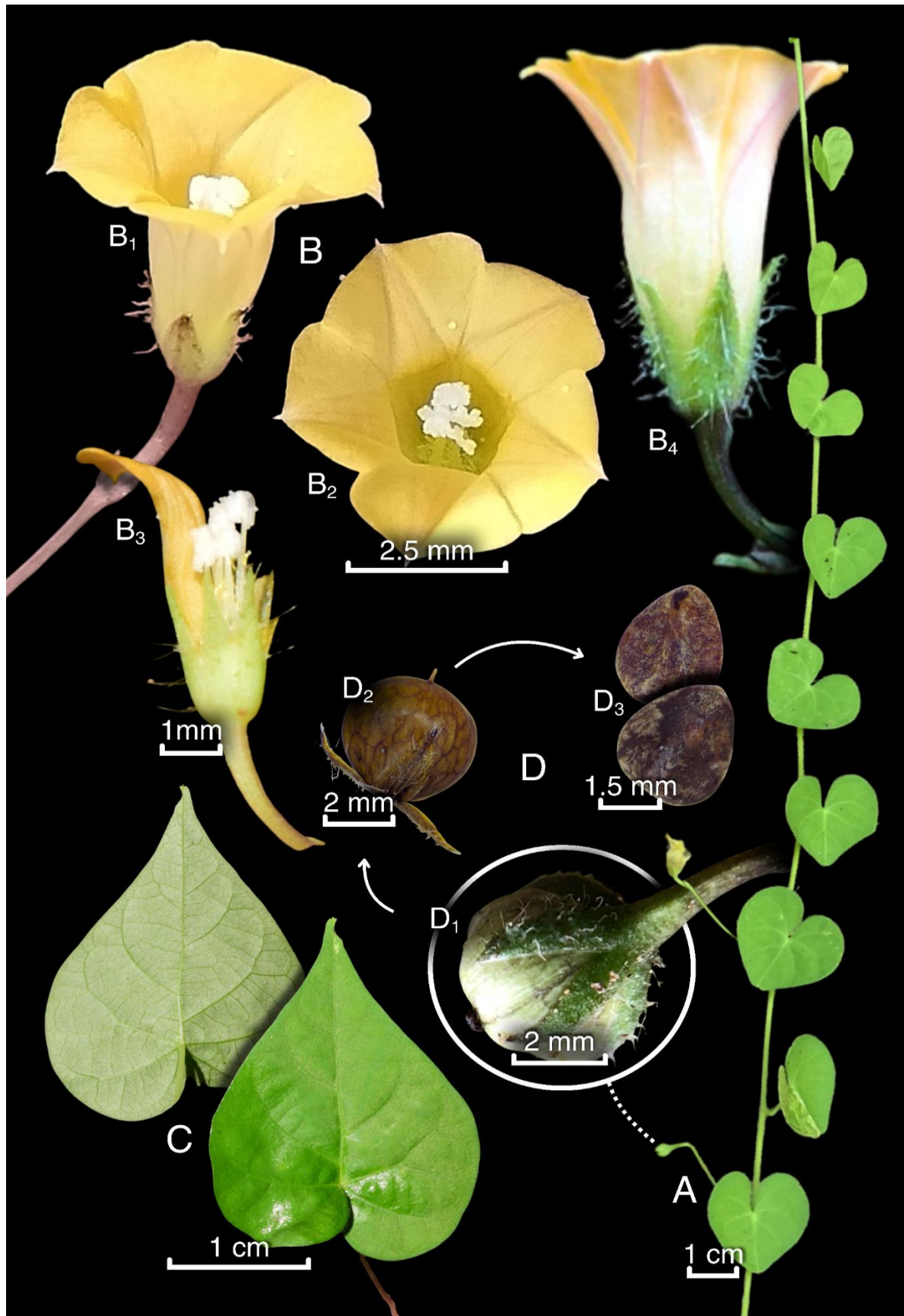


Figure 2 – *Ipomoea minutiflora* (M. Martens & Galeotti) House – A: Habit; B₁: Corolla; B₂: Frontal view of the corolla; B₃: Corolla showing reproductive structures; B₄: Detail of the corolla; C: Adaxial and abaxial leaf surfaces; D₁: Fruit; D₂: Mature fruit; D₃: Seeds. (Photos: A. Hernández; Designed by JV)



Figure 3 – Phytophysiology of occurrence of *Ipomoea minutiflora* (M.Martens & Galeotti) House in the Cristalino Private Natural Heritage Reserve Lote Cristalino. – A. Area in the rainy season; B. Area during the transition between the rainy season and the beginning of the dry season; C. Area in the dry season; D. Detail of shallow soil over a rocky outcrop. Photos: A.K. Koch.

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REFERENCES

AUSTIN, D.F. & CAVALCANTE, P.B. Convolvuláceas da Amazônia. *Boletim do Museu Paraense Emílio Goeldi* 36: 1-134. 1982.

AUSTIN, D.F. AND HUÁMAN, Z. A Synopsis of *Ipomoea* (Convolvulaceae) in the Americas. *Taxon* 45: 3-38. 1996. <http://dx.doi.org/10.2307/1222581>

FEC – Fundação Ecológica Cristalino. Available at: <https://www.fundacaocristalino.org.br/o-que-fazemos/reservas-naturais-do-cristalino/>. Accessed on: 31 Aug 2025.

FEC – Fundação Ecológica Cristalino – FEC. *Plano de manejo da Reserva Particular do Patrimônio Natural Lote Cristalino*. 171p. 2017.

SHAW, R.E., FARQUHARSON, K.A., BRUFORD, M.W. *et al.* Global meta-analysis shows action is needed to halt genetic diversity loss. *Nature* 638: 704–710. 2025. <https://doi.org/10.1038/s41586-024-08458-x>

KIRK, D.A., KARIMI, S., MAIDA, J.R., HARVEY, J.A., LARSEN, K.W., BISHOP, C.A. Using Ecological Niche Models for Population and Range Estimates of a Threatened Snake Species (*Crotalus oreganus*) in Canada. *Diversity* 13(10): 467. 2021.

ONDO, I., DHANJAL-ADAMS, K.L., PIRONON, S., SILVESTRO, D., COLLI-SILVA, M., DEKLERCK, V., GRACE, O.M., MONRO, A.K., NICOLSON, N., WALKER, B., ANTONELLI, A. Plant diversity darkspots for global collection priorities. *New Phytologist* 244(2):719-733. 2024.

POWO - Plants of the World Online. Royal Botanic Gardens, Kew. Available at: <http://www.plantsoftheworldonline.org>. Accessed on 22.02.2026.

SASAKI, D. ZAPPI, D., MILLIKEN, W., HENICKA, G. S., PIVA, H. J. *Vegetação e plantas do Cristalino: um manual*. Royal Botanic Garden – Kew, Fundação Ecológica Cristalino, 128p. 2010.

SIMÃO-BIANCHINI, R.; FERREIRA, P.P.A.; VASCONCELOS, L.V. *Ipomoea in Flora e Funga do Brasil*. Jardim Botânico do Rio de Janeiro. Available at: <https://floradobrasil.jbrj.gov.br/FB7021>. Accessed on 23.02. 2026

SIMÃO-BIANCHINI, R., VASCONCELOS, L.V., & PASTORE, M. Flora das cangas da Serra dos Carajás, Pará, Brasil: Convolvulaceae. *Rodriguésia*, 67(5spe): 1301–1318. 2016.

STAPLES, G.W. & BRUMMITT, R.K. **Convolvulaceae**. In: V.H. Heywood, R.K. Brummitt, A. Culham & O. Seberg (eds.). *Flowering plant families of the world*. Royal Botanic Gardens, Kew, pp. 108-110. 2010.

THIERS, B. *Index herbariorum: a global directory of public herbaria and associated staff*. New York Botanical Garden's Virtual Herbarium. Available at: <http://sweetgum.nybg.org/science/ih/>. Accessed on: 03.03.2026.

VARGAS, C.A., BOTTIN, M., SARKINEN, T., RICHARDSON, J.E., CELIS, M., VILLANUEVA, B., & SANCHEZ, A. How to fill the biodiversity data gap: Is it better to invest in fieldwork or curation? *Plant Diversity* 46, 39–48. 2023.

RIVERS, M.C., TAYLOR, L., BRUMMITT, N.A., MEAGHER, T.R., ROBERTS, D.L. & NIC LUGHADHA, E. How many herbarium specimens are needed to detect threatened species? *Biological Conservation* 144: 2541–2547. 2011.

WOOD, J.R.I., MUÑOZ-RODRIGUEZ, P., DEGEN, R. & SCOTLAND, R.W. New species of *Ipomoea* (Convolvulaceae) from South America. *Phytokeys* 88: 1-38. 2017

WOOD, J.R., MUNOZ-RODRIGUEZ, P., WILLIAMS, B.R.M. & SCOTLAND, R.W. A foundation monograph of *Ipomoea* (Convolvulaceae) in the new world. *Phytokeys* 143: 1–823. 2020.

ZAPPI, D.C., SASAKI, D., MILLIHKEN, W., PIVA, J.H., HENICKA, G.S., BIGGS, N., FRISBY, S. Plantas vasculares da região do Parque Estadual Cristalino, norte de Mato Grosso, Brasil. *Acta Amazonica* 41: 29-38. 2011.