

Hidden in the town square: the first record of *Tillandsia recurvata* (L.) L. (Bromeliaceae) in Mato Grosso State, Brazil

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ABSTRACT – (Hidden in the town square: the first record of *Tillandsia recurvata* (L.) L. (Bromeliaceae) in Mato Grosso, Brazil). *Tillandsia recurvata* (L.) L. is reported for the first time in the State of Mato Grosso, Brazil. A population of the species was found in the town square of the Chapada dos Guimarães municipality, growing in multiple phorophytes. Here, we present a description, taxonomic and ecological comments, geographic distribution data, and photos of the species. **Keywords:** Bromeliad, Centro-Oeste, *Diaphoranthema*, Epiphytes, Tillandsioideae

RESUMO – (Escondida na praça da cidade: primeiro registro de *Tillandsia recurvata* (L.) L. (Bromeliaceae) em Mato Grosso, Brasil). *Tillandsia recurvata* (L.) L. é relatada pela primeira vez no Estado de Mato Grosso, Brasil. Uma população da espécie foi encontrada na praça central do município de Chapada dos Guimarães, crescendo em diferentes forófitos. Aqui apresentamos uma descrição, comentários taxonômicos e ecológicos, dados de distribuição geográfica e fotos da espécie. **Palavras-chave:** Bromélias, Centro-Oeste, *Diaphoranthema*, Epífitas, Tillandsioideae

Introduction

Tillandsia L. is one of the biggest genera of Bromeliaceae composed of 741 species (Gouda *et al.* continuously updated), of which 108 occur in Brazil, distributed across all phytogeographic domains and States (Tardivo *et al.* 2023). The State of Mato Grosso already contains 13 known species of this genus: *Tillandsia didisticha* (E.Morren) Baker, *T. duratii* Vis., *T. limae* L.B.Sm., *T. limarum* E.Pereira, *T. loliacea* Mart. ex Schult. & Schult.f., *T. paraensis* Mez, *T. parvispica* Baker, *T. pohliana* Mez, *T. polystachia* (L.) L., *T. streptocarpa* Baker, *T. stricta* Sol., *T. tenuifolia* L., and *T. tricholepis* Baker (Tardivo *et al.* 2023). In this study, we added one more taxon to the list, *T. recurvata* (L.) L.

Tillandsia recurvata is one of the 30 species allocated in *Tillandsia* subgenus *Diaphoranthema* (Barfuss *et al.* 2016), and is characterized by its small size, distended and distichous leaves with filiform to subcylindrical blades, short peduncle with a bract in the apical portion, simple inflorescence, and flowers with petals ranging from light

blue to lilac (Guarçoni *et al.* 2018, Tardivo *et al.* 2023). It is an atmospheric epiphyte that occupies the canopy of trees in several places in the tropical America, occurring from the United States to Argentina (Bernal *et al.* 2005, TROPICOS 2023). In Brazil, has a wide distribution and can be found in areas of the Caatinga, Cerrado, Mata Atlântica and Pampa domains, in the States of Alagoas, Bahia, Ceará, Espírito Santo, Goiás, Minas Gerais, Mato Grosso do Sul, Pará, Paraíba, Paraná, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Santa Catarina, São Paulo, Sergipe and Distrito Federal (Tardivo *et al.* 2023). Recently, Guarçoni *et al.* (2018) registered its occurrence in the State of Maranhão in an area of the Cerradão.

During a field work for the “Flora of Bromeliaceae from the Chapada dos Guimarães National Park” project, we visited some urban areas of the Chapada dos Guimarães municipality, where we found a population of *T. recurvata*. Here, we record the first occurrence of the species in Mato Grosso, as well as presenting a complete description and images.

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Material and methods

The material was collected and herborized according to Fidalgo & Bononi (1989) and deposited in the UFMT Herbarium (acronym according to Thiers (2023), continuously updated). The morphological terminology follows Smith & Downs (1977) and is complemented with Gonçalves & Lorenzi (2011). To confirm the identification, the original description and the image of the type material (at BM Herbarium) were consulted. Also, to verify the possible existence of more samples of *T. recurvata* for Mato Grosso, we consulted Dubs (1998), SpeciesLink (CRIA 2022), and the REFLORE – virtual herbarium (2023).

Results and discussion

Tillandsia recurvata (L.) L., Sp. pl. ed. 2: 410. 1762. Type: JAMAICA, without exact location, s.d., fl. and fr., *H. Sloane s.n.* (BM 589695 [photo!]).

Figure 1 a-f.

Plant epiphyte, 5.0-12.5 cm tall in flowering; roots present, rigid; stem elongated. Leaves 7-10, distichous, slightly curved; sheath 5.5-10 × 3-5 mm, elliptic-ovate, distinct; blade 4-8 × 0.4-0.5 cm, linear-triangular, apex attenuated, green, densely cinereous-lepidote. Peduncle 4.5-8 cm long, green; peduncle bracts 1.5-2 cm long, lanceolate, apex acuminate, shorter than the internodes, cinereous-lepidote. Inflorescence 1-2.3 cm long, simple, erect, not complanate, exceeding the leaves; floral bracts 5-8 × 3-3.5 mm, triangular-lanceolate, apex acute, shorter than the sepals, vinaceous, densely cinereous-lepidote. Flowers 1-2; sepals 0.7-1 × 0.2-0.4 cm, elliptic-lanceolate, apex acute and asymmetrical, green, glabrous; petals 7-10 × 1-1.5 mm, linear, apex retuse, strongly recurved, lilac; stamens 3-3.5 mm long, included, adnate to the base of the ovary; filament cylindrical; ovary 1-1.5 mm long, ellipsoid; style 0.3-0.5 mm long, conic; stigma simple-erect, apex fimbriate. Fruits capsule, 0.8-1.3 cm long, green. Seeds ca. 2 mm long, appendages 0.8-1 cm long, plumose.

Examined material: BRAZIL. MATO GROSSO: Chapada dos Guimarães, Dom Wunibaldo town square, 15°27'29.3"S, 55°44'50.4"W, 04-II-2022, fl. and fr., *A.K. Koch & M.A. Martins 1076* (UFMT).

Despite having a wide distribution in the neotropical region and in many States of Brazil, including the Distrito Federal, Goiás and Mato Grosso do Sul States in the Midwest region (Tardivo *et al.* 2023), *T. recurvata* had never been recorded for Mato Grosso. Surprisingly, the species has formed a very expressive population in the town square of Dom Wunibaldo in Chapada dos Guimarães, with flowers and fruits in February co-occurring with *T. loliacea* (ca. 11.5 cm tall in flowering, tiny flowers with yellow petals

covered by green bracts) and *T. tenuifolia* (15-20 cm tall in flowering, flowers with lilac petals covered by pink bracts) in different species of phorophytes [paineiras – *Ceiba speciosa* (A.St.-Hil.) Ravenna, sibipirunas – *Cenostigma pluviosum* (DC.) Gagnon & G.P.Lewis, murtas – *Murraya paniculata* (L.) Jack or figueiras – *Ficus* sp.]. The Dom Wunibaldo town square has about 1.7 ha and is the most visited place in the Chapada dos Guimarães municipality (figure 2a). It is home to street vendors, a space for outdoor leisure, and is also surrounded by souvenir shops, bars, restaurants, and banks (figure 2 b-f).

Until this moment, *T. recurvata* had never been collected in other regions of Mato Grosso. Perhaps, the climate can be the reason. Chapada dos Guimarães has average temperature between 22-23°C (Santos 2000, Costa *et al.* 2003), being milder than in the rest of the State, such as Cuiabá, with temperature 26.3°C (Climate-Data.org 2022) and located 60 km from Chapada dos Guimarães. *Tillandsia recurvata* is used to monitor global warming, as it is sensitive to high temperatures, although it has a good adaptation to water stress (Pérez-Noyola *et al.* 2020). The municipality region is covered by the Cerrado domain and several of its phytophysognomies (ICMBIO 2009) with the climate of the savanna type (Santos 2000).

During the study of the materials in the online databases, we found another voucher collected in the municipality of Jangada, Mato Grosso (*T.S.M. Grandi 2503* – ICN), 140 km from Chapada dos Guimarães. However, when analyzing the location indicated on the label of this sample “Taquaraçu de Minas, Jangada, MT” and its duplicate deposited in the BHC herbarium, with location “Jangada, Taquaraçu de Minas, Minas Gerais”, it was possible to confirm that the specimen was collected in the Minas Gerais State, not in the Mato Grosso State. In addition, by retrieving the collector history for the same date (31/V/1987), we confirm that the collection was only carried out in Minas Gerais, including prior to the sample in question (*T.S.M. Grandi 2502* – BHC).

Over the past decade, several occurrence records and new species were published from samples collected in Mato Grosso (*e.g.*: Vilela-Santos *et al.* 2013, Frisby & Hind 2014, Pellegrini *et al.* 2016, Engels & Marinho 2018, Koch *et al.* 2019, Segalla & Calonje 2019, Da Silva *et al.* 2020, Engels *et al.* 2022) proving that the flora of the State is still poorly studied. With the present work, we reinforce the need for more flora studies in Mato Grosso, considering that *T. recurvata* was found in an urban area of a touristic municipality with many visitors, which demonstrates that collections in easily accessible locations in the State still make it possible to find novelties for the local flora. Moreover, is important to highlight that the State has also been suffering from the recent speedy increase of deforestation and fires to expand anthropic activities and agribusiness, enhancing the loss of biodiversity before even being known.

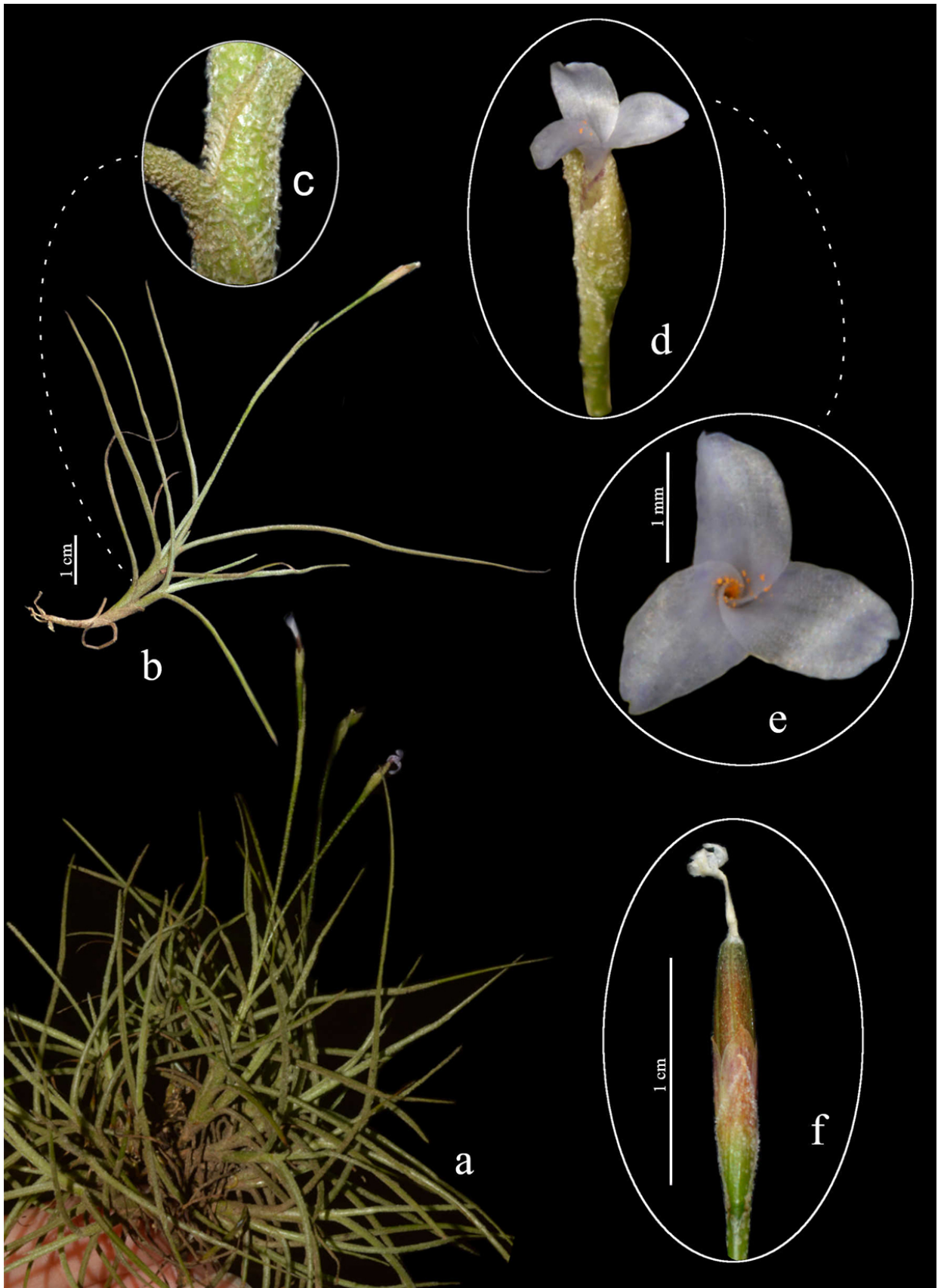


Figure 1. *Tillandsia recurvata* (L.) L. in Mato Grosso State, Brazil. a. Habit. b. Rosette with distichous leaves. c. Sheath surface sparsely lepidote. d. Flower in lateral view. e. Flower in frontal view. f. Immature fruit. Photos A.K. Koch.

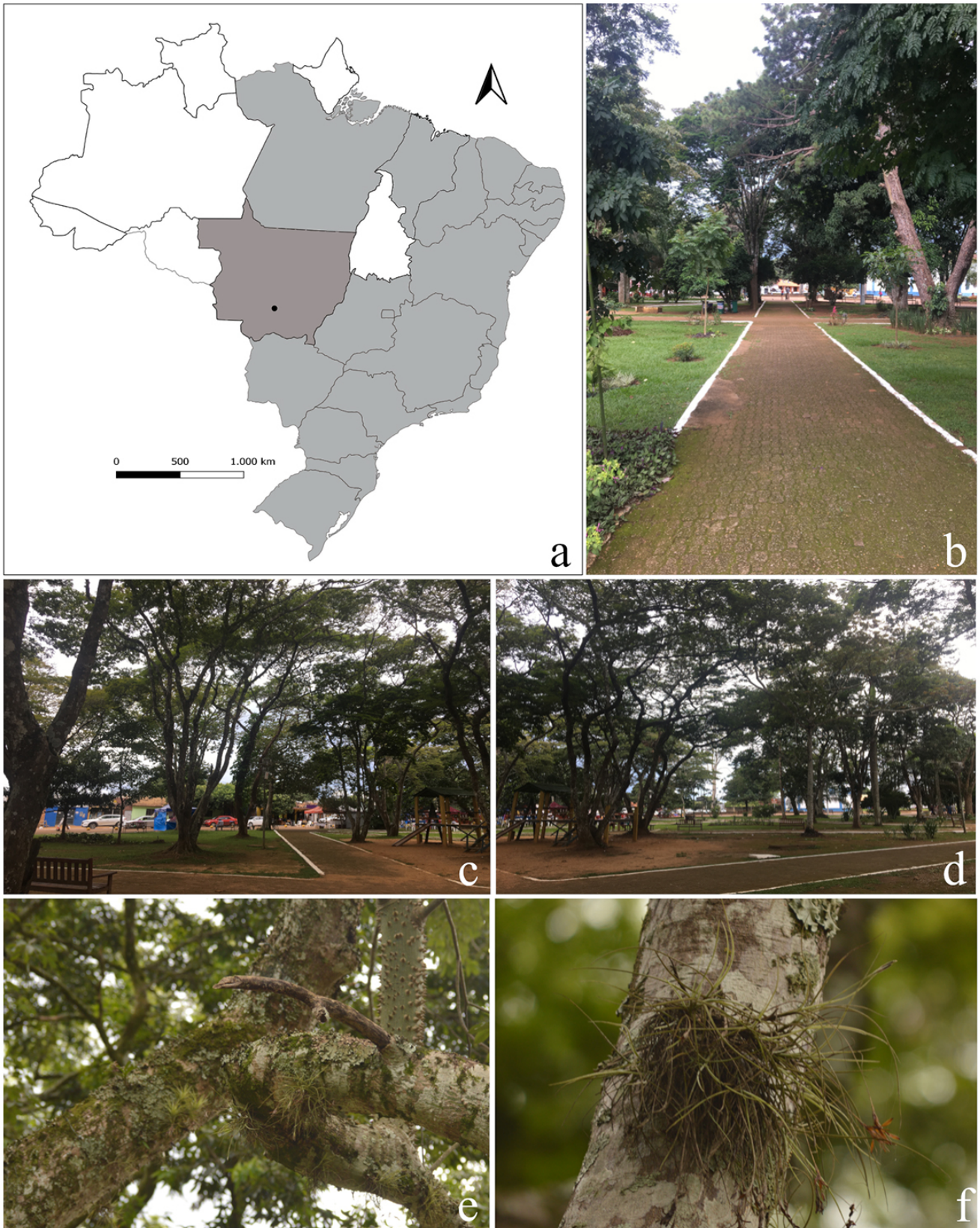


Figure 2. a. *Tillandsia recurvata* (L.) L. distribution in Brazil and location of the sample collected in Chapada dos Guimarães, Mato Grosso State, Brazil. b-d. Dom Wunibaldo town square. e-f. Specimens on the phorophytes. Photos b-f A.K. Koch. States in gray color: occurrence of *T. recurvata*. (Guarçoni *et al.* 2018, Tardivo *et al.* 2023).

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Authors contribution

Mariana Andrade Martins: data curation, analysis, formal data, research and methodology, essay, proofreading and editing.

Ana Kelly Koch: data curation; analysis, formal data, research and methodology, essay, proofreading, editing and photos.

Conflict of interest

There is no conflict of interest.

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