

Synopsis of species of Apiales from Cuiabá lowlands, Mato Grosso, Brazil

Sinopsis de especies de Apiales de las tierras bajas de Cuiabá, Mato Grosso, Brasil

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ABSTRACT

The Cuiabá lowlands include parts of the Cerrado and Pantanal phytogeographical domains, showing high plant diversity. In this study, we aimed to assemble a taxonomic study of the species of Apiaceae and Araliaceae from this region. We examined specimens from thirteen herbaria and online databases. We recorded two genera and six species of Apiaceae, namely *Eryngium ebracteatum*, *E. eurycephalum*, *E. juncifolium*, *E. marginatum*, *E. pristis*, and *Klotzschia glaziovii*, along with three genera and four species of Araliaceae: *Dendropanax cuneatus*, *Didymopanax distractiflorus*, *D. malmei* and *Hydrocotyle ranunculoides*. These records represent ca. 60 % of the Apiaceae and 27 % of the Araliaceae previously recorded in the state of Mato Grosso. The most speciose genus was *Eryngium* (Apiaceae), with five species. *Eryngium eurycephalum*, *E. marginatum*, *Klotzschia glaziovii* and *Didymopanax malmei* are endemic to Brazil. Here we also present a new record for the state, *E. juncifolium*, thus showing the importance of taxonomic studies in understudied regions. The municipalities with the highest richness of these families are Cuiabá (six species), Chapada dos Guimarães (five species), Campo Verde, Nobres and Poconé (three species each). We provide an identification key, brief morphological descriptions, distribution data and illustration of the species. The new information provided in this work contributes to a better understanding of the taxonomy of this group and can support future conservation and biogeography research.

Keywords: Asterids, Cerrado, flora, Pantanal, taxonomy.

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RESUMEN

La baixada Cuiabana incluye áreas de los dominios fitogeográficos del Cerrado y del Pantanal, presentando una elevada diversidad vegetal. En este estudio, tuvimos como objetivo realizar un tratamiento taxonómico de las especies de Apiaceae y Araliaceae de esta región. Examinamos ejemplares de trece herbarios y bases de datos on-line. Se registraron dos géneros y seis especies de Apiaceae, a saber, *Eryngium ebracteatum*, *E. eurycephalum*, *E. juncifolium*, *E. marginatum*, *E. pristis* y *Klotzschia glaziovii*, así como tres géneros y cuatro especies de Araliaceae: *Dendropanax cuneatus*, *Didymopanax distractiflorus*, *D. malmei* y *Hydrocotyle ranunculoides*. Estos registros representan aproximadamente el 60 % de las Apiaceae y el 27 % de las Araliaceae previamente registradas para el estado de Mato Grosso. El género con mayor riqueza específica fue *Eryngium* (Apiaceae), con cinco especies. Los taxones *Eryngium eurycephalum*, *E. marginatum*, *Klotzschia glaziovii* y *Didymopanax malmei* son endémicos de Brasil. Asimismo, se presenta un nuevo registro para el estado, *E. juncifolium*, lo que evidencia la importancia de los estudios taxonómicos en regiones poco estudiadas. Los municipios con mayor riqueza de especies de estas familias son Cuiabá (seis especies), Chapada dos Guimarães (cinco especies) y Campo Verde, Nobres y Poconé (tres especies cada uno). Este estudio también incluye una clave de identificación, descripciones morfológicas breves, datos de distribución e ilustraciones de las especies. La nueva información aportada por este trabajo contribuye a una mejor comprensión de la taxonomía de este grupo y puede apoyar futuras investigaciones en conservación y biogeografía.

Palabras clave: Asteridas, Cerrado, flora, Pantanal, taxonomía

INTRODUCTION

Among Angiosperms, the Superasterids clade emerges as one of the most notable in terms of diversity, encompassing a variety of families with exuberant flowers (APG IV 2016). However, within this group the order Apiales stands out by its small, unshowy, flowers. Additionally, most of the members of this order are characterized by the presence of channels containing essential oils, resins or gum; the almost exclusively tricolporate pollen, the ovaries with a single ovule per carpel and the nuclear endosperm (Nicolas & Plunkett 2009, Christenhusz *et al.* 2017, Bittrich & Kadereit 2018). Most species occur in the Northern hemisphere, but three families, Apiaceae, Araliaceae and Griselinaceae, also have species present in the Brazilian territory, being found in all phytogeographical domains (Plunkett *et al.* 2004, BFG 2015).

Family Apiaceae shows higher species richness in the Atlantic Forest (59 species), Pampa (34 spp.) and Cerrado (30 spp.) phytogeographical domains (Flora e Funga do Brasil c2026 continuously updated). Also known by the alternative name Umbelliferae, it is characterized by inflorescences often of the compound umbel type. More than 460 genera are recognized, containing 3700 species (Nicolas & Plunkett

2009, Clarkson *et al.* 2021). In Brazil, 28 genera and 97 species occur, 35 of which are endemic to the country (Nery & Fiaschi 2019, Lucas & Cardozo c2024). In the state of Mato Grosso, six genera and ten species are recorded (Flora e Funga do Brasil c2026 continuously updated). The family has wide geographical distribution, being more frequent in temperate and subtropical regions, although several species are found in tropical environments (Downie *et al.* 2000).

This family has great economic importance, including crops such as carrots (*Daucus carota* L.), cilantro/coriander (*Coriandrum sativum* L.), parsley (*Petroselinum crispum* (Mill.) Fuss), celery (*Apium graveolens* L.), fennel (*Pimpinella anisum* L.) and cumin (*Cuminum cyminum* L.) (Iacobellis *et al.* 2005, Christensen & Brandt 2006). It also contains potentially medicinal species such as Dong Quai [*Angelica sinensis* (Oliv.) Diels] and Bai Zhi [*Angelica dahurica* (Hoffm.) Benth. & Hook.f. ex Franch & Sav.], used mainly on traditional Chinese medicine, and species with ornamental potential, such plants from genus *Astrantia*, the blue lace flower (*Trachymene coerulea* Grahnan), and sea-holly (*Eryngium maritimum* L.) as shown in Wang *et al.* (2022).

The family Araliaceae shows higher richness in the Atlantic Forest (49 spp.), Amazon Forest (27 spp.) and Cerrado (20 spp.) domains (Flora e Funga do Brasil c2020 continuously updated). It shows remarkable morphological diversity, including herbs, trees, shrubs and hemi-epiphytes, and occupying a wide variety of ecological niches (Simbanegavi *et al.* 2018). Araliaceae are distributed in various biomes around the world, from temperate to subtropical and tropical climates, mainly (Lowry *et al.* 2004). The family has 40-50 genera and about 1700 species (Lowry *et al.* 2004, Christenhusz *et al.* 2017); fourteen genera and 110 species are found in Brazil, of which seven genera and 94 species are native. In the state of Mato Grosso, three genera and fifteen species are recorded (Flora e Funga do Brasil c2026 continuously updated). Genera like *Heptapleurum* and *Polyscias* J.R.Forst. & G.Forst. are recognized by their medicinal, ornamental and ecological properties (Wen & Zimmer 1996).

Taxonomic studies about these families in Brazil remain sparse. Among the most comprehensive studies, we can cite Fiaschi & Plunkett (2018), who conducted a revision of genus *Didymopanax* (Araliaceae). Regional studies are available for Southeastern Brazil, such as the state of Minas Gerais (Corrêa & Pirani 1999, Fiaschi & Pirani 2005, Corrêa & Pirani 2009), São Paulo (Corrêa and Pirani 2005, Fiaschi *et al.* 2007), and some contributions to the flora of Southern Brazil, such as Mathias *et al.* (1972), Irgang (1974), and Cardozo *et al.* (2021), the last two focusing on *Eryngium*.

The knowledge about Apiaceae and Araliaceae in remote parts of Brazil, such as Mato Grosso, remains restricted to general floristic checklists (Dubs 1998, Pinto & Oliveira-Filho 1999, Silveira *et al.* 2009, Isernhagen c2015). This knowledge gap requires more detailed research to be closed. Cuiabá lowlands are located in the central-south part of the state of Mato Grosso, over an area of 80 330.13 km², representing 8.89 % of the state's area (Ribeiro *et al.* 2023, Zocal *et al.* 2023). The area contains a vegetational mosaic between the Cerrado and Pantanal domains (Dubs 1998). Taxonomic studies focused on the region are recent but already highlight the high local diversity of some groups, like Acanthaceae (Zocal *et al.* 2023), Astera-

ceae (Bucci *et al.* 2024), and Fabaceae (Amorim & Pessoa 2025). Based on this, our study aims to provide a taxonomic study for the order Apiales in Cuiabá lowlands. We provide an identification key, geographical distribution data, brief morphological descriptions, and illustrations of the species. The information generated in this work contributes to a better understanding of this group's taxonomy and supports future conservation and biogeography research, further contributing to advance floristic studies in Mato Grosso, a botanically neglected state.

MATERIALS AND METHODS

Study area

The study area comprehends fourteen municipalities located in the central-south part of the state of Mato Grosso, Brazil: Acorizal, Barão de Melgaço, Campo Verde, Chapada dos Guimarães, Cuiabá, Jangada, Nobres, Nossa Senhora do Livramento, Nova Brasilândia, Planalto da Serra, Poconé, Rosário Oeste, Santo Antônio do Leverger, and Várzea Grande (Ribeiro *et al.* 2023). Cuiabá lowlands are located in a semi-humid tropical climate, with two well-defined seasons: rainy Spring/Summer and dry Fall/Winter. The rains are more intense from September to May, reaching an approximate precipitation of 215 mm in January, while in the drier months, from July to September, the relative humidity can fall to 15 % in extreme cases (INPE c2012). The region's geology is diverse, with a highlight to Chapada dos Guimarães on the north, which is composed of three geological units: Cuiabá group, Furnas formation and Botucatu formation (CREA-MT c2023). On the other hand, the southern municipalities show a predominance of Pantanal phytophysiognomies, which have alluvial soils and sedimentary deposits from seasonal inundation (IBGE c2024). The soils of Cuiabá lowlands are mostly sandy and/or rocky, shallow and with high density, making it different from common cerrado soils (Lotufo *et al.* c2018), which are mostly deep, well drained, acid and halic (Haridasan 1992). The Cuiabá lowlands hydrography is marked by the Cuiabá River and its affluents, such as Coxipó River and Manso River. One of the main features is Pantanal, one of the largest flooded plains in the world, harboring diverse aquatic fauna and flora (IBGE c2024) (Fig. 1).



Figure 1. a–c. Map showing the location of the study area. **a.** Latin America, with Brazil highlighted; **b.** Brazil, highlighting the state of Mato Grosso; **c.** State of Mato Grosso, highlighting Cuiabá lowlands.

Taxonomic treatment

We analyzed specimens from the herbaria CEN, CGMS, CPAP, ESA, INPA, MBM, NY, R, SMDB, SPF, UB, UEC and UFMT (acronyms according to Thiers, continuously updated, <https://sweetgum.nybg.org/science/ih/>) and most specimens were analyzed through images available in the Reflora (<https://floradobrasil.jbrj.gov.br/reflora>) and SpeciesLink (<https://specieslink.net/>) databases. Specimens available at the UFMT herbarium were analyzed in person for identification. Specimen identification was made based on the literature available for genera from the families focus of the study (Corrêa & Pirani 1999, Corrêa & Pirani 2005, Corrêa & Pirani 2009, Fiaschi & Plunkett 2018, Cardozo *et al.* 2021), besides identification keys for the genera available at Flora do Brasil (Antar & Almeida c2026, Lucas & Cardozo c2026, Fiaschi & Nery c2026). Images of nomenclatural types were also consulted online for comparison. Morphological terminology followed

Harris and Harris (1994), and information about the species geographical distribution followed BFG (2015), and Flora e Funga do Brasil (c2020). An identification key was produced based on the information obtained for the studied species.

RESULTS AND DISCUSSION

We recorded two genera and six species of Apiaceae: *Eryngium ebracteatum* Lam., *E. eurycephalum* Malme, *E. juncifolium* (Urb.) Mathias & Constance, *E. marginatum* Pohl ex Urb., *E. pristis* Cham. & Schltdl., and *Klotzschia glaziovii* Urb., and three genera and four species of Araliaceae: *Dendropanax cuneatus* (DC.) Decne. & Planch., *Didymopanax distractiflorus* Harms, *Didymopanax malmei* Harms and *Hydrocotyle ranunculoides* L.f., representing 60 % of the Apiaceae and 26.7 % of the Araliaceae from Mato Grosso (Flora e Funga do Brasil c2026). The species

numbers are comparable to other local studies, such as Corrêa & Pirani (1999) for Serra do Cipó, in Minas Gerais, where three genera were recorded, *Hydrocotyle asterias* Cham. & Schltdl. as *H. quinqueloba* Ruiz & Pav., *Eryngium* (five spp.), and *Klotzschia* (two spp.). In Grão-Mogol, Minas Gerais (Corrêa & Pirani 2009), the authors found *Eryngium* (three spp.), *Hydrocotyle asterias* Cham. & Schltdl. as *H. quinqueloba* Ruiz & Pav., and *Klotzschia brasilienses* Cham. Another study in Serra do Cipó (Fiaschi & Pirani 2005) showed seven species from two genera: *Dendropanax cuneatus* (DC.) Decne. & Planch. and *Schefflera* (= *Didymopanax* and *Crepinella*) (six spp.).

The richest genus in the present study is *Eryngium* (Apiaceae), with five species, as seen in the studies by Corrêa & Pirani (1999, 2009). *Eryngium eurycephalum*, *E. marginatum*, *Klotzschia glaziovii* and *Didymopanax malmei* are endemic from Brazil (BFG 2015, Lucas & Cardozo c2024). Here we also present a new record for the state, *E. juncifolium*, showing the importance of taxonomic studies in understudied regions.

The richest municipalities in species numbers are Cuiabá (six spp.), Chapada dos Guimarães (five spp.), Campo Verde, Nobres and Poconé (three species each). The species' richness for each municipality is still a gap to be filled, as the records are limited to the areas where research is conducted. Cuiabá and Chapada dos Guimarães show more records, for example, because they are the target of most studies and the knowledge about their flora is better established when compared to other municipalities of Cuiabá lowlands. The importance of studies like ours is to bring more visibility to little known regions.

Identification key for species of Apiales from Cuiabá lowlands, Mato Grosso, Brazil

1. Herbs.....2
- 1'. Shrubs or trees.....7
2. Leaves distributed along the stems; stipules present
.....*H. ranunculoides*
- 2'. Leaves forming basal rosettes; stipules absent.....3
3. Capitula cylindrical.....*E. ebracteatum*
- 3'. Capitula ovoid to globose.....4

4. Leaf blade lanceolate; fruits white.....
.....*E. marginatum*
- 4'. Leaf blade linear or linear-lanceolate; fruits chestnut-brown.....5
5. Basal leaves canaliculate.....*E. juncifolium*
- 5'. Basal leaves plane.....6
6. Basal leaf blades 1.0–5.0 cm wide, margin serrulate; flowers greenish.....*E. eurycephalum*
- 6'. Basal leaf blades 0.1–0.7 cm wide, margin spinose-setose; flowers white.....*E. pristis*
7. Leaf blade simple, entire or palmatilobate.....8
- 7'. Leaf blade compound, palmate.....9
8. Leaf blade palmatilobate; inflorescence in panicle.....*Klotzschia glaziovii*
- 8'. Leaf blade entire; inflorescence in umbels.....
.....*Dendropanax cuneatus*
9. Leaflets with petiolules > 0.7 cm long, blade adaxially glabrescent, abaxially sericeous; flowers greenish.....*Didymopanax distractiflorus*
- 9'. Leaflets sessile or subsessile, with inconspicuous petiolules, blade adaxially glabrous, abaxially villose; flowers yellowish.....*Didymopanax malmei*

1. Apiaceae

1.1. *Eryngium ebracteatum* Lam., Encycl.

4(2): 759. 1798. (Fig. 2a)

Diagnosis: **Herbs**, graminoid-like. **Leaves** sessile, in basal rosettes, blades simple, entire, oblanceolate, plane, adaxially glabrous, abaxially glabrous, margins entire, apex acute, stipules absent. **Inflorescence** branched in dichasia, capitula terminal, cylindrical. **Flowers** vinaceous. **Fruits** ellipsoid to obovoid, white.

Comments: In the study area, this species can be confused with *E. juncifolium*, from which it can be differed by the inflorescences with terminal, cylindrical capitula (*vs.* globose). It is recorded in Argentina, Brazil, Colombia, Costa Rica, Honduras, Nicaragua, Paraguay, Uruguay and Venezuela (Cardozo et al. 2021, POWO c2024). It is

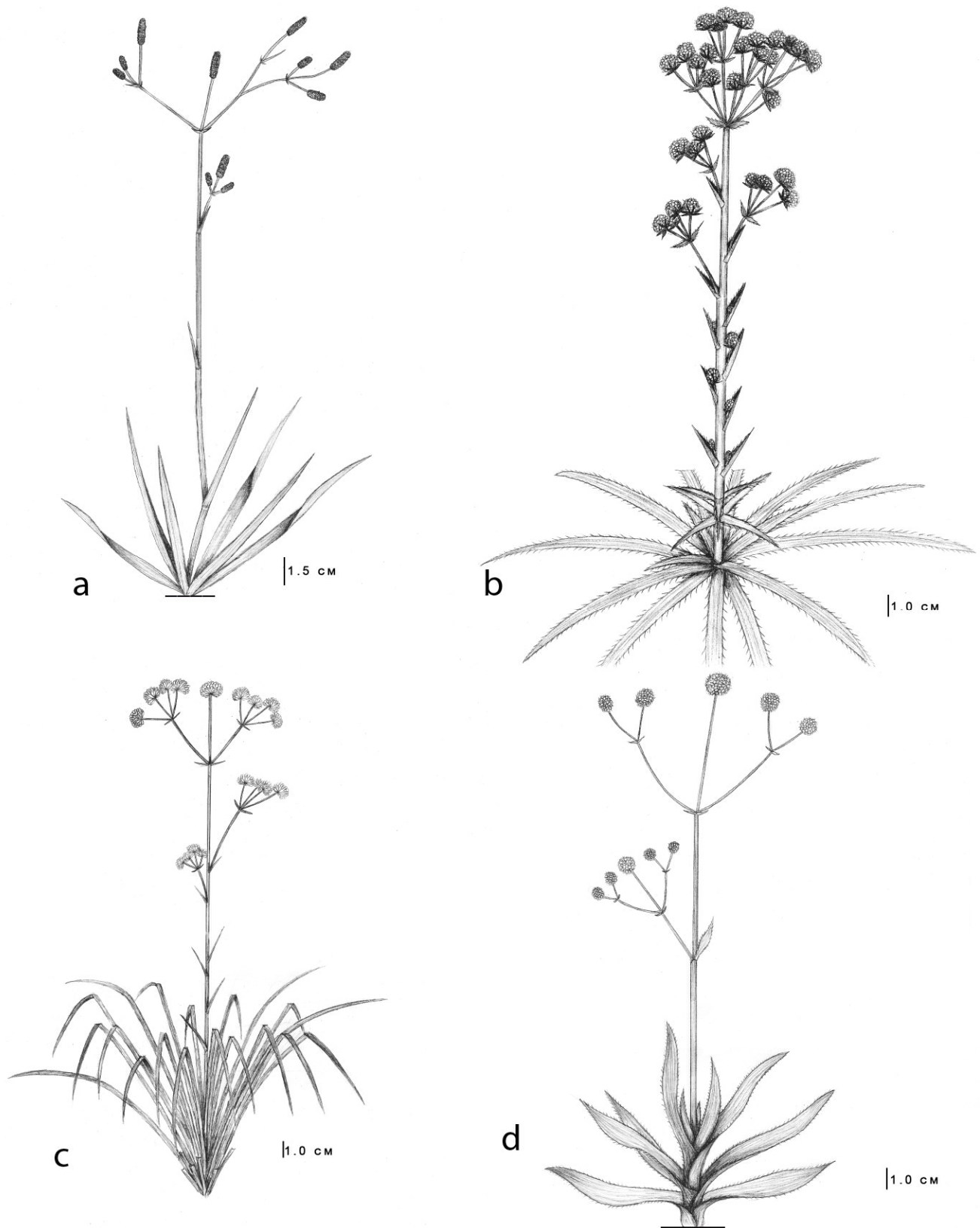


Figure 2. **a.** *Eryngium ebracteatum* Lam., **b.** *E. eurycephalum* Malme, **c.** *E. juncifolium* (Urb) Mathias & Constance, **d.** *E. marginatum* Pohl ex Urb.

found is most of the extra-Amazonian Brazilian territory, especially in open areas (Lucas & Cardozo c2024). In the study area, it was found in the municipalities of Cuiabá, Poconé, and Santo Antônio do Leverger.

Examined material: **BRAZIL. Mato Grosso**, Cuiabá, Coxipó, 18 Oct 1983, C.T. Rizzini 3374 (RB); *ibid.*, Universidade Federal de Mato Grosso, 16 Aug 1976, M. Macedo 428 (INPA); *ibid.*, Nossa Senhora da Guia, 6. Nov 1985, G. Guarim Neto 1101 (UFMT); Poconé, Várzeas da região do Campo Jofre, 7 Nov 1992, M. Schessl 1931 (UFMT); *ibid.*, Fazenda Nossa Senhora Aparecida, Dec 2006, L. Rebelato 85 (UFMT); *ibid.*, Porto Cercado, 22 Oct 1985, J.F.M. Valls 9320.0 (CEN, CPAP); *ibid.*, Fazenda Santa Carmen, 22 Oct 1992, A.L. Prado 3014 (UEC); Santo Antônio do Leverger, 20 Jan 1979, A.A. Maciel (INPA); *ibid.*, 12 Feb 1975, G.G. Hatschbach 36092 (MBM, RB).

1.2. *Eryngium eurycephalum* Malme, Ark.

Bot. 3(13): 12. 1904. (Fig. 2d)

Diagnosis: **Herbs**, bromeliad-like. **Leaves** sessile, in basal rosettes, blades simple, entire, linear-lanceolate, plane, adaxially glabrous, abaxially glabrous, margins serrulate, apex acute, stipules absent. **Inflorescences** branched in dichasia, capitula terminal, ovoid to globose. **Flowers** greenish. **Fruits** oblong-obovoid, chestnut brown.

Comments: It can be confused in the study area with *E. pristis* but differs mainly by the serrulate leaf blade margin (*vs.* spinose-setose). This species is endemic from Brazil and mainly found in the Central-West and Southeast regions, besides the states of Bahia and Paraná (Lucas & Cardozo c2024). In the study area it was found in the municipalities of Chapada dos Guimarães and Cuiabá.

Examined material: **BRAZIL. Mato Grosso**, Chapada dos Guimarães, entre Buriti e São Jerônimo, Mar 1903, G.O.A. Malme II- 3496 (S); *ibid.*, UHE-Manso, 23 Jul 1999, M.G. Macedo et al. 7700 (UFMT); *ibid.*, Marco da Geodesia, 1 Mar 1983, G. Guarim Neto et al. 801 (UFMT). Cuiabá, São José da Serra, 11 Feb 1975, G.G. Hatschbach 36042 (MBM, MO, NY, US).

1.3. *Eryngium juncifolium* (Urb.) Mathias &

Constance, Sellowia 23: 50. 1971.

Eryngium junceum subsp. *juncifolium* Urb. in Mart.

& Eichl., Fl. Bras. 11(1): 335. 1879. (Fig. 2b)

Diagnosis: **Herbs**, graminoid-like. **Leaves** sessile, in basal rosettes, blades simple, entire, linear, plane, adax-

ially glabrous, abaxially glabrous, basal leaves canaliculate, margin inconspicuously ciliate, apex acute, stipules absent. **Inflorescences** branched in dichasia, capitula terminal, globose. **Flowers** white. **Fruits** obovoid, chestnut-brown.

Comments: In the study area, it can be confused with *E. ebracteatum*, from which it can be distinguished by inflorescences in terminal, globose capitula (*vs.* cylindrical). The species has records in Argentina, Brazil and Paraguay (Cardozo et al. 2021, POWO c2024). In Brazil its occurrence was confirmed in the Central-West region and in the states of Minas Gerais, Paraná, Santa Catarina and São Paulo (Lucas & Cardozo c2024). We present here a new record for the state of Mato Grosso. In the study area it was found in the municipalities of Chapada dos Guimarães and Cuiabá.

Examined material: **BRAZIL. Mato Grosso**, Chapada dos Guimarães, Cachoeira Véu de Noiva, 18 Nov 1982, J.U. Santos et al. 367 (UFMT); *ibid.*, Morro do São Jerônimo, 3 Mar 2011, L.L. Giacomini et al. 1291 (BHCB); *ibid.*, 27 Dec 1994, P.G. Windisch et al. 7677 (ICN); *ibid.*, Véu de Noiva, 14 Oct 1973, G.T. Prance 18963 (INPA); Cuiabá, Rio Caxipozinho, 21 Oct 1985, C.A.C. Ferreira 6533 (INPA, K, NY, SPF).

1.4. *Eryngium marginatum* Pohl ex Urb. in Mart.

& Eichl., Fl. Bras. 11(1): 321. 1879. (Fig. 2c)

Diagnosis: **Herbs**, bromeliad-like. **Leaves** sessile, in basal rosettes, blades simple, entire, lanceolate, plane, adaxially glabrous, abaxially glabrous, margin setose, apex acute, stipules absent. **Inflorescence** branched in dichasia, capitula terminal, globose. **Flowers** white. **Fruits** obovoid, white.

Comments: In the study area, *Eryngium marginatum* has distinct features from the other species but it can be confused with *E. ebracteatum*, from which it differs by the lanceolate leaves with setose margins (*vs.* oblanceolate with entire margin) and inflorescences with terminal, globose capitula (*vs.* cylindrical). The species is endemic to Brazil and is found in the Central-West region and in the states of Minas Gerais and São Paulo (Lucas & Cardozo c2024). In the study area it was recorded in the municipalities of Chapada dos Guimarães, Cuiabá, Nobres, Nova Brasilândia and Rosário Oeste.

Examined material: **BRAZIL. Mato Grosso**, Chapada dos Guimarães, Água Fria, 26 Sep 1988, M.G.L. Wanderley *et al.* 75082 (UFMT); Cuiabá, Mirassol D'Oeste, 23 Oct 1983, S. Nagib 3473 (RB); Nobres, Sul do rio da Serragem, 18 Jun 1990, J. F. M. Valls *et al.* 12599 (CEN, UFMT); Nova Brasilândia, 10 Oct 1997, V. C. Souza *et al.* 20641 (ESA, RB, UFMT); *ibid.*, 6 Oct 1997, V. C. Souza *et al.* 20047 (ESA, UFMT); Rosário Oeste, Marzagão, s.d, V. C. Souza 20577 (ESA); *ibid.*, Marzagão, s.d, Souza *et al.* 20454 (ESA).

1.5. *Eryngium pritis* Cham. & Schltdl.,
Linnaea 1: 337. 1826. (**Fig. 3a**)

Diagnosis: **Herbs**, bromeliad-like. **Leaves** sessile, in basal rosettes, blades simple, entire, linear-lanceolate, plane, adaxially glabrous, abaxially glabrous, margin spinose-setose, apex acute, stipules absent. **Inflorescence** branched in dichasia, capitula terminal, globose. **Flowers** white. **Fruits** ellipsoid to obovoid, chestnut-brown.

Comments: In the study area, it can be confused with *E. megapotamicum*, from which it can be differentiated by the spinose-setose leaf blade (*vs.* serrulate). The species has records in Argentina, Bolivia, Brazil, Paraguay and Uruguay (Cardozo *et al.* 2021, POWO c2024). In Brazil, it has confirmed occurrence in most of the South, Southeast and Central-West regions, besides the state of Tocantins (Lucas & Cardozo c2024). In the study area it was recorded in the municipalities of Poconé and Várzea Grande.

Examined material: **BRAZIL. Mato Grosso**, Poconé, 12 Feb 1980, M. Macedo 1492 (NY); *ibid.*, Comunidade Morro Cortado, 17 Dec 2009, L. Amorim Neto 90 (UFMT); Várzea Grande, 3 Feb 1909, P. Dusén 7671 (K).

1.6. *Klotzschia glaziovii* Urb., Bot. Jahrb. Syst. 25(3, Beibl. 60): 12. 1898. (**Fig. 3b**)

Diagnosis: **Shrubs**. **Leaves** petiolate, grouped on branch tips, blades simple, palmatilobate, orbicular, plane, adaxially glabrous, abaxially with stellate trichomes, lobes triangular, apex acute, margin dentate, stipules absent. **Inflorescence** branched in panicles, with terminal capitula. **Flowers** cream color. **Fruits** ovoid, green.

Comments: It can be differed from remaining species in the study area by the palmatilobate, orbicular leaves, with lobes with acute apex and dentate margin. The only other species with superficially similar leaves in the area is *Hydrocotyle ranunculoides*, but it has semiorbiculate lobes

with crenate margin. The species is endemic of Brazil, being found mostly in the Central-West region (BFG 2015, Antar & Almeida c2026, Govaerts *et al.* c2021). In the study area, it was found in the municipality of Nobres.

Examined material: **BRAZIL. Mato Grosso**, Nobres, Crista da Serra da Caixa Furada, 19 May 1997, V.C. Souza *et al.* 16473 (ESA, UB, UFMT).

2. Araliaceae

2.1. *Dendropanax cuneatus* (DC.) Decne. & Planch., Rev. Hort. (Paris) 16: 107. 1854. *Hedera cuneata* DC., Prodr. 4: 262. 1830. (**Fig. 3c**)

Diagnosis: **Trees**. **Leaves** petiolate, distributed along the stems, blades simple, entire, elliptical, plane, adaxially glabrous, abaxially glabrous, margin entire, apex acute to acuminate, stipules present. **Inflorescence** branched in racemes of globose umbels. **Flowers** yellowish white. **Fruits** globose, black.

Comments: It can be easily differentiated from the other species in the area by its arboreal habit with simple, unlobed leaves with entire margins. The species has records in Argentina, Bolivia, Brazil and Paraguay (POWO c2024). In Brazil, it occurs in all regions and phytogeographical domains (Fiaschi & Nery c2026). In the study area, it was found in the municipalities of Cuiabá and Nossa Senhora do Livramento.

Examined material: **BRAZIL. Mato Grosso**, Cuiabá, Fazenda Nossa Senhora Aparecida, 31 Jul 1972, S. Nagib 749 (UFMT); *ibid.*, 26 Sep 1963, J.M. Pires 56868 (UB); Nossa Senhora do Livramento, 19 Jun 2018, J.A. Silva 1338 (UFMT).

2.2. *Didymopanax distractiflorus* Harms, Notizbl. Bot. Gart. Berlin-Dahlem 11(106): 488. 1932. (**Fig. 4b-e**)

Diagnosis: **Treelets**. **Leaves** petiolate, in the tips of branches, blades compound, palmate, leaflets petiolate, elliptical, oblong or obovate, plane, adaxially glabrescent, abaxially sericeous, apex rounded, obtuse, acute or acuminate, margin entire, stipules present. **Inflorescences** branched in racemes, umbels terminal, globose. **Flowers** greenish. **Fruits** transversally ellipsoid, chestnut brown.

Comments: This species has wide leaf morphological variation in the study area, presenting elliptical, oblong or obovate leaflets, with acute, cuspidate or retuse apex (**Fig. 4**). However, according to Fiaschi & Plunkett (2018),

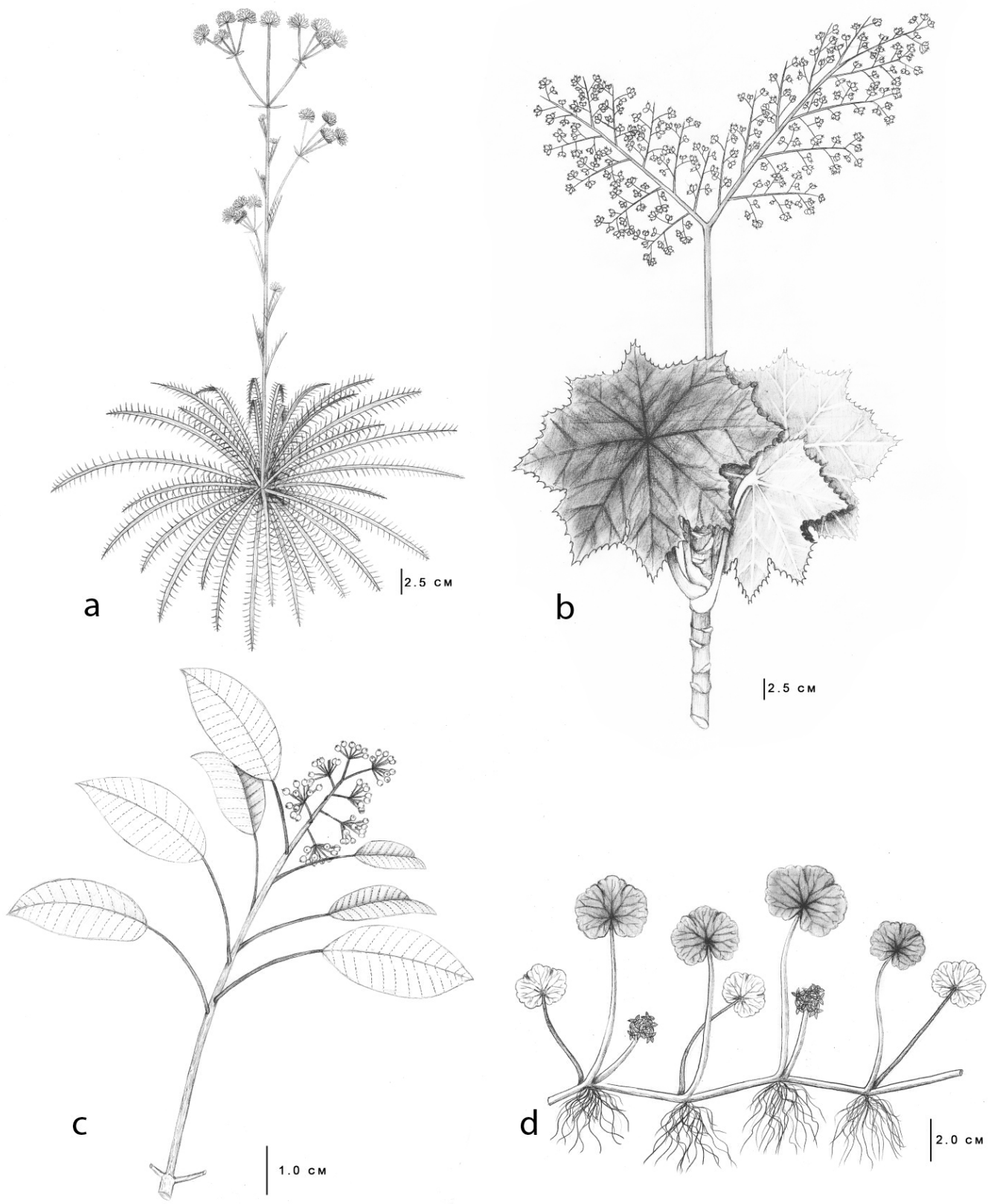


Figure 3. a. *Eryngium pristis* Cham. & Schltdl., b. *Klotzschia glaziovii* Urb., c. *Dendropanax cuneatus* (DC.) Decne. & Planch., d. *Hydrocotyle ranunculoides* L.f.

this leaf variability is comprehended within the circumscription of this single taxon. Many specimens in the study area were erroneously identified as *Didymopanax morototoni* (Aubl.) Decne. & Planch., but this species has taller stature, reaching more than 5 m, which is not the case of the specimens we analyzed. In the study area, *D. distractiflorus* can be confused with *D. malmei*, but it can be differed by the presence of petiolate leaflets (*vs.* sessile leaflets). The species has records in Bolivia and Brazil (POWO c2024). In Brazil, its occurrence is confirmed in Mato Grosso do Sul, Mato Grosso, Amazonas, Pará and Rondônia (Fiaschi & Plunkett 2018, Fiaschi & Nery c2026). In the study area, it was found in the municipalities of Campo Verde, Chapada dos Guimarães, Cuiabá, Nobres and Nova Brasilândia.

Examined material: **BRAZIL. Mato Grosso**, Campo Verde, Cerradinho – Fazenda Modelo, 12 Oct 1997, M. Macedo *et al.* 6242 (UFMT); *ibid.*, 8 Oct 1997, V.C. Souza *et al.* 20418 (SPF, UFMT); *ibid.*, Rio Casca, 11 Aug 1997, G. Hatschbach *et al.* 66637 (MBM); Chapada dos Guimarães, Marco da Geodesia, 1 Mar 1983, G. Guarim Neto *et al.* 789 (UFMT); *ibid.*, Mata Fria, 8 Jun 2019, K. Zocal *et al.* 15 (UFMT); *ibid.*, 22 Apr 1983, A.T. Oliveira-Filho 33 (UFMT); *ibid.*, 27 May 1982, M.B. Vasconcellos *et al.* 13562 (UFMT); *ibid.*, APM-Manso, 18 May 2000, N. Somavilla s.n., (UFMT); *ibid.*, 6 Mar 1983, A.T. Oliveira-Filho 01 (UFMT); *ibid.*, Proximidades da Cachoeira Sonrizal, 25 Jul 2000, M.A. Laneto *et al.* 1107 (UFMT); *ibid.*, Centro Geodésico da América do Sul, 6 Jun 2006, P. Fiaschi 3007 (MBM); *ibid.*, Cabeceira do Rio Claro, 27 Sep 2005, O.S. Nasser 08 (UFMT); *ibid.*, S.D., F.E.F. Souza 18 (UFMT); *ibid.*, Fazenda 20 de Novembro, 4 Nov 1985, J. R.B.M. *et al.* 167 (UFMT); *ibid.*, 7 Jul 2018, G.M. Antar 2166 (UFMT); Cuiabá, Serra do São Vicente, 27 Sep 1988, R. Kral *et al.* 75106 (UFMT); *ibid.*, Rio das Mortes, 22 Aug 1984, L. Coradin 6806 (CEN); *ibid.*, 12 May 1999, L. Amorim Neto *et al.* 869 (UFMT); Nobres, Rio Celeste, 19 Sep 1985, W.W. Thomas 3882 (INPA); *ibid.*, 18 Sep 1985, C.A.C. Ferreira 6105 (INPA); Nova Brasilândia, 15 Sep 2003, C.P. Costa *et al.* 04 (UFMT); *ibid.*, Reserva Extrativista Lago do Cedro 5 Sep 2013, R.F. Haidar 1752 (CEN); *ibid.*, 10 Oct 1997, V.C. Souza (UFMT).

2.3. *Didymopanax malmei* Harms, Notizbl. Bot. Gart. Berlin-Dahlem 11(106): 489. 1932. (**Fig. 4a**)

Diagnosis: **Treelets.** **Leaves** petiolate, grouped in the tips of branches, leaves compound, palmate, leaflets ses-

sile, oblanceolate, plane, adaxially glabrous, abaxially villose, margin entire, apex rounded to obtuse, stipules present. **Inflorescence** branched in racemes, umbels terminal, globose. **Flowers** yellowish. **Fruits** transversally ellipsoid, chestnut brown.

Comments: In the study area, it can be confused with *D. distractiflorus* but differs by the sessile leaflets (*vs.* petiolate). The species is endemic to Brazil, with confirmed occurrence in the Central-West region and in the states of Rondônia and São Paulo (Fiaschi & Plunkett 2018, Fiaschi & Nery c2026). In the study area it was found in the municipalities of Campo Verde, Chapada dos Guimarães and Cuiabá, occurring in cerrado vegetation (*lato sensu*).

Examined material: **BRAZIL. Mato Grosso**, Campo Verde, 14 Nov 1997, M. Macedo *et al.* 6158 (UFMT); Chapada dos Guimarães, Foz Buriti, 24 Oct 1984, A.T. Oliveira-Filho 217 (UFMT); *ibid.*, 22 Oct 1973, G.T. Prance *et al.* 19269 (UFMT); *ibid.*, 18 Feb 1997, A.G. Nave *et al.* 1038 (UFMT); *ibid.*, 8 Oct 1997, V.C. Souza *et al.* 20338 (UFMT); *ibid.*, Marco da Geodesia, 1 Mar 1983, G. Guarim Neto *et al.* 792 (UFMT); *ibid.*, 2 Jan 1995, B. Dubs 1824 (ESA); *ibid.*, Apr 2006, P. Fiaschi 3005 (SPF); *ibid.*, 6 Apr 2006, P. Fiaschi 3006 (SPF); Cuiabá, Rio Caxipozinho, 21 Oct 1985, C.A.C. Ferreira 6558 (INPA); *ibid.*, 18 Feb 1997, A.G. Nave *et al.* 1038 (UEC).

2.4. *Hydrocotyle ranunculoides* L.f., Suppl. Pl.: 177. 1781 [1782]. (**Fig. 3d**)

Diagnosis: **Herbs**, stoloniferous. **Leaves** petiolate, distributed along the stems, blades simple, lobate, lobes semiobovate, adaxially glabrous, abaxially glabrous, apex rounded, margin crenate, stipules present. **Inflorescence** simple, globose umbels. **Flowers** white. **Fruits** subglobose, greenish.

Comments: This species can be easily differentiated from the remaining species in the study area by the stoloniferous herbaceous habit, with orbicular leaves with rounded apex, and the simple inflorescence. The species has records throughout the neotropical region, being invasive in countries like Australia and United Kingdom (POWO c2024). In Brazil, it has confirmed occurrence in the North, Central-West, South and Southeast regions, besides the state of Bahia (Fiaschi & Nery c2026). In the study area, it was found in the municipalities of Barão de Melgaço and Poconé.

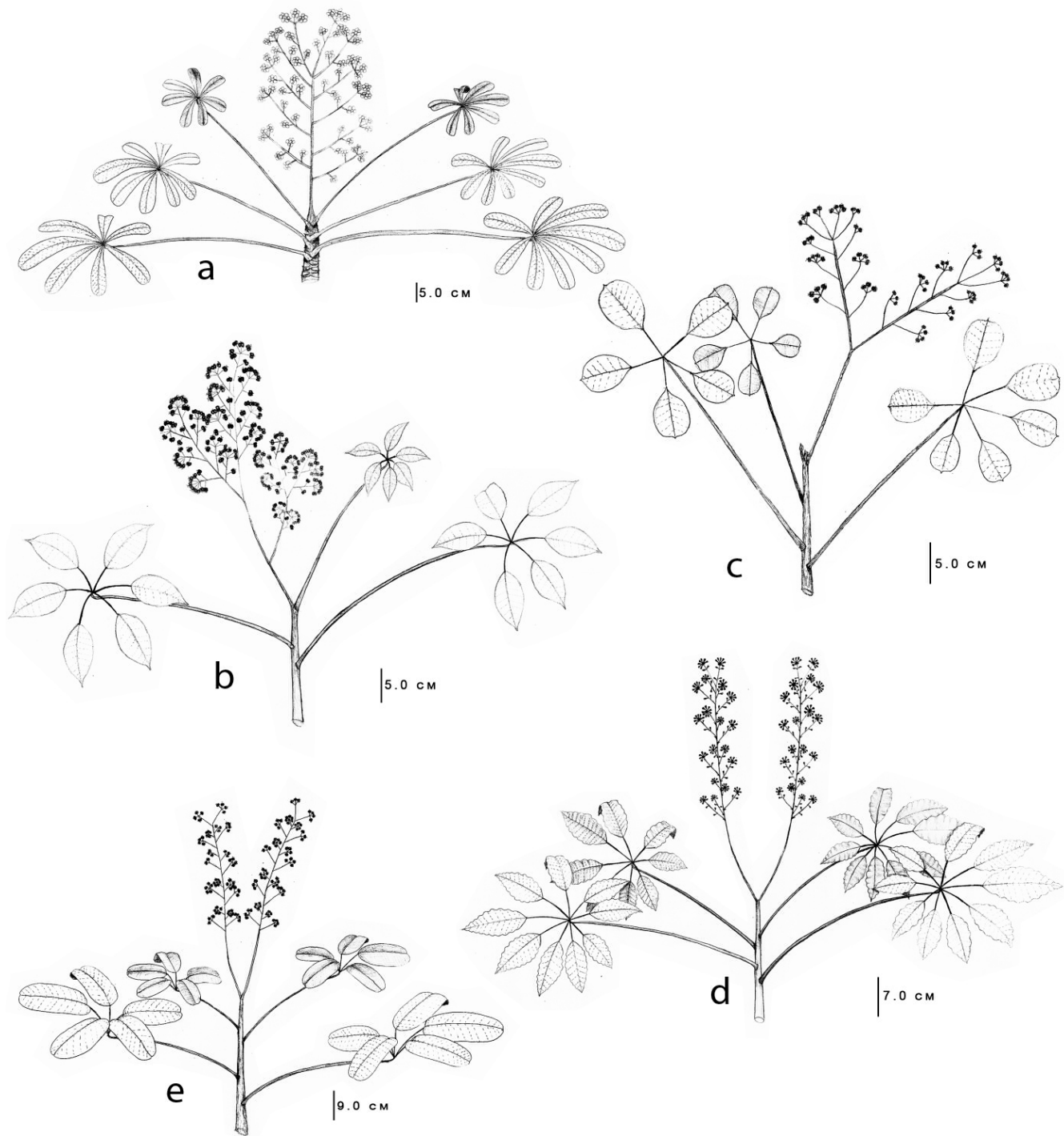


Figure 4. a. *Didymopanax malmei* Harms, b–e. *Didymopanax distractiflorus* Harms.

Examined material: **BRAZIL. Mato Grosso**, Barão de Melgaço, Baía Acurizal, 23 Apr 1993, V.J. Pott *et al.* 2106.0 (CPAP); *ibid.*, Aug 2017, U.M. Pozzobom s.n (UFMT); Poconé, Parque Nacional do Pantanal, 19 Nov 2001, V.J. Pott 4992 (CEN, CGMS, CPAP); *ibid.*, Rio Caracará, 23 Mar 2001, V.J. Pott 4340 (CEN, CPAP, CGMS); *ibid.*, Rio Alegre, 24 Mar 2001, V.J. Pott *et al.* 4410.0 (CGMS, CPAP); *ibid.*, Parque Nacional do Pantanal, 15 Nov 2001, V.J. Pott 4921.0 (CGMS, CPAP); *ibid.*, Rio Cassange, 20 Aug 1993, M. Macedo *et al.* 3176 (UB); *ibid.*, 26 Mar 1993, M. Schessl 3252 (UFMT).

AUTHOR CONTRIBUTION

BM analyzed plant specimens in herbaria, described them and created the identification key; PF validated identifications and participated in writing the final version of the manuscript; EP designed the study and participated in writing.

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