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Original Paper

# Asteraceae of Serra da Confusão do Rio Preto, Quirinópolis, Goiás, Brazil

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**Abstract**

A floristic inventory and a taxonomic treatment of Asteraceae from Serra da Confusão do Rio Preto in the state of Goiás are provided. Collections were carried out from July 2017 to December 2018 in a fragment of cerrado sensu stricto with transition to cerrado rupestre (rocky cerrado), for a total of 38 expeditions covering all seasons. Taxonomic treatment of the resulting specimens includes identification keys, diagnoses and descriptions, conservation status, endemism and examined material. A total of 59 species were found, belonging to 32 genera and 10 tribes. The predominant genera were *Lessingianthus* (8 spp.) and *Chromolaena* (5 spp.) while the predominant tribes were Vernonieae (19 spp.), Eupatorieae (13 spp.) and Heliantheae (7 spp.). The richness pattern for tribes was the same as recorded in other floristic inventories in the Cerrado domain, especially cerrado sensu stricto. Twenty-one of the species (35.6%) are restricted to Brazil while only *Isostigma resupinatum* is restricted to the state of Goiás. *Conyza primulifolia*, *Lepidaploa cuiabensis* and *Lepidaploa sororia* were new occurrences for the state.

**Key words**: Cerrado, Compositae, diversity, floristic, taxonomy.

**Resumo**

Um inventário florístico e um tratamento taxonômico de Asteraceae da Serra da Confusão do Rio Preto no estado de Goiás são apresentados. As coletadas foram realizadas entre julho de 2017 a dezembro de 2018 em um fragmento de cerrado sentido restrito com transição para cerrado rupestre, totalizando 38 expedições abrangendo todas as estações do ano. O tratamento taxonômico dos espécimes resultantes inclui chaves de identificação, diagnoses e descrições, status de conservação, endemismo e material examinado. Ao todo 59 espécies foram encontradas, pertencendo a 32 gêneros e 10 tribos. Os gêneros predominantes foram *Lessingianthus* (8 spp.) e *Chromolaena* (5 spp.) enquanto as tribos predominantes foram Vernonieae (19 spp.), Eupatorieae (13 spp.) e Heliantheae (7 spp.). O padrão de riqueza para as tribos foi o mesmo registrado em outros inventários florísticos para o domínio Cerrado, especialmente o cerrado sentido restrito. Vinte e uma espécies (35.6%) são restritas ao Brasil e apenas *Isostigma resupinatum* é restrito ao estado de Goiás. *Conyza primulifolia*, *Lepidaploa cuiabensis* e *Lepidaploa sororia* são novas ocorrências para o estado.

**Palavras-chave**: Cerrado, Compositae, diversidade, florística, taxonomia.

## Introduction

Asteraceae is a monophyletic clade supported by several molecular and morphological synapomorphies (Mandel *et al*. 2019; Susanna *et al*. 2020), such as the presence of a head-type inflorescence, five fused anthers and cypsela-type fruit, which usually have a modified calyx called a pappus (Roque *et al*. 2017).

The classification of Asteraceae has changed over time, with the most recent accepted classification recognizing 16 subfamilies and 50 tribes (Susanna *et al*. 2020). The family has

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a cosmopolitan geographic distribution and is one of the largest angiosperm families with approximately 1,600 genera and 25,000–35,000 species (Funk *et al*. 2009; Panero & Crozier 2016; Mandel *et al*. 2019; Cheek *et al*. 2020).

Twenty-seven tribes, 326 genera and 2,205 species of Asteraceae occur in Brazil, with 71 genera and 1,361 species being restricted to the country (Roque *et al*. 2017, 2022). The family occurs in all Brazilian phytogeographic domains, but with greatest species richness in the Cerrado (1,248 species), Atlantic Forest (963 spp.) and Pampa (426 spp.) [Flora e Funga do Brasil 2022 (continuously updated)].

Given that species of Asteraceae predominates open environments and on high slopes (Mandel *et al*. 2019) places with these features can be expected to have significant diversity. The Cerrado, for example, occurs in the Brazilian central plateau, where the elevation can nearly 3,000 meters and 68% of the domain is covered by savannas and grasslands (Sano *et al*. 2007).

The Cerrado is the predominant phytogeographic domain in Goiás. However, only 10,170,172 hectares (29.89%) of natural area remain in the state and about 21,483,737 hectares (63.15%) are destined to farming (MapBiomas 2022). The current reduction of Cerrado in Brazil has been associated with fires and livestock, which alter climatic conditions, such as increased temperatures and reduced rainfall (Santos *et al*. 2021).

The Cerrado is internationally regarded as a biodiversity hotspot, which are environments with high endemism, diversity, and habitat loss (Mittermeier *et al*. 2004, 2011). The loss of the natural habitats of biodiversity hotspots can take several species to extinction due the high rate of endemism (Myers *et al*. 2000; Joppa *et al*. 2011; Pimm & Joppa 2014; Strassburg *et al*. 2017). According Strassburg *et al*. (2017), deforestation of the Cerrado will drive about 480 endemic species to extinction by 2050.

Estimates indicate that more species exist than have been described (Pimm & Joppa 2015; Lughadha *et al*. 2016), and thus it is probable that unknown species are being lost (Joppa *et al*. 2011). Thus, more research is needed to discover and document species in hotspots, considering the threats they face and the significant biodiversity they harbor.

Asteraceae has been studied within the state of Goiás and taxonomic treatments have been produced. However, the treatments published to date for the family only address tribes and genera. There has been no taxonomic treatment involving all the species of Asteraceae found in a floristic inventory.

Therefore, the aim of this study was to perform a floristic inventory and a taxonomic treatment of Asteraceae found in a fragment of cerrado sensu stricto with transition to cerrado rupestre (rocky cerrado) in southern Goiás.

## Material and Methods

The floristic inventory was carried out in the Serra da Confusão do Rio Preto (SCRP), located 6.5 km from the urban area of the municipality of Quirinópolis in southern Goiás, Brazil (Fig. 1). According to the Köppen classification, the climate of the region is of the AW-type with two well-defined seasons: a dry season in winter and wet season in summer (Galinkin 2003). The average annual temperature is 21 ºC, with little variation in monthly average, and average annual rainfall is approximately 1,400 mm, with November to April being the months with highest averages (Galinkin 2003).

The Serra da Confusão do Rio Preto is located at 18°17’10.00”S and 50°42’57.00”W and has elevations ranging 670–800 meters above sea level (Google Earth 2022). The most prevalent phytophysiognomy is cerrado sensu stricto, which transitions to a narrow area of cerrado rupestre on hillsides or to gallery forest, wet dirty fields and “vereda”.

The original vegetation has been suppressed and altered by pasture or monocultures. Anthropic activities have been the main cause of landscape modification in SCRP. Currently, the expansion of sugarcane production in the region has resulted in the installation of asphalt roads to facilitate truck traffic that transports the sugarcane to industries. This asphalting also facilitated access for the population, increasing visitations and, consequently, increasing the amount of trash and disturbance.

The floristic inventory was performed in a 55.4-hectare fragment covered by cerrado sensu stricto and cerrado rupestre. The fragment was divided into two areas to facilitate collections: Area 1 (A1) of approximately 31.3 hectares and Area 2 (A2) of approximately 21.2 hectares

(Google Earth 2022) (Fig. 1). A total of 38 expeditions (2–3 expeditions by month) involving the method of non-systematized walking proposed by Filgueiras *et al*. (1994) were undertaken from July 2017 to December 2018.

Specimens were identified using specific bibliographic sources, such as Barroso (1986), Katinas (1996), Magenta (2006), Dematteis (2007, 2009), Peter (2009), Roque *et al*. (2017) and Silva & Teles (2018), among others, and considering the most recent classification of Asteraceae (Susanna *et al*. 2020). Comparisons with identified specimens of Herbarium José Ângelo Rizzo (JAR) and Herbarium Uberlandense (HUFU) were also performed. Images available from databases of virtual collections, such as Reflora (<http://reflora.jbrj.gov.br/>) and SpeciesLink (<https://specieslink.net/>), aided identifications, as did identification keys of Flora Brasiliensis (<http://florabrasiliensis.cria.org.br/>).

The taxonomic treatment includes identification keys, descriptions, and diagnoses, conservation status, endemism and examined material. Descriptions for tribes were based just on studied species and diagnoses for species were systematized only for the same genus. Conservation status and endemism were evaluated through CNCFlora (<http://www.cncflora.jbrj.gov.br/>), IUCN Red List (<https://www.iucnredlist.org/>) and Flora do Brasil 2020 (continuously updated) (<http://reflora.jbrj.gov.br/>).

## Results and Discussion

A total of 59 species belonging to 32 genera and 10 tribes were found (Tab. 1). The genera with the most species were *Lessingianthus* (8 species) and *Chromolaena* (5 spp.) while the most species-rich tribes were Vernonieae (19 species, 32.2% of total), Eupatorieae (13 spp., 22%) and Heliantheae (7 spp., 11.8%) (Fig. 2). The richness pattern for tribes was the same as recorded in other floristic inventories of Cerrado domain (Nakajima & Semir 2001; Almeida *et al*. 2005).

Twenty-one species (35.6%) are restricted to Brazil: six of Eupatorieae, five of Vernonieae, four of Heliantheae, two each of Coreopsideae and Neurolaeneae, and one each of Astereae (*Baccharis rivularis* Gardner) and Tageteae (*Pectis gardneri* Baker). The recently described *Isostigma resupinatum* V.R.Bueno, I.L.Morais & J.N.Nakaj is the only species restricted to the region of Quirinópolis and Rio Verde municipalities in southern state of Goiás (Bueno *et al*. 2019).

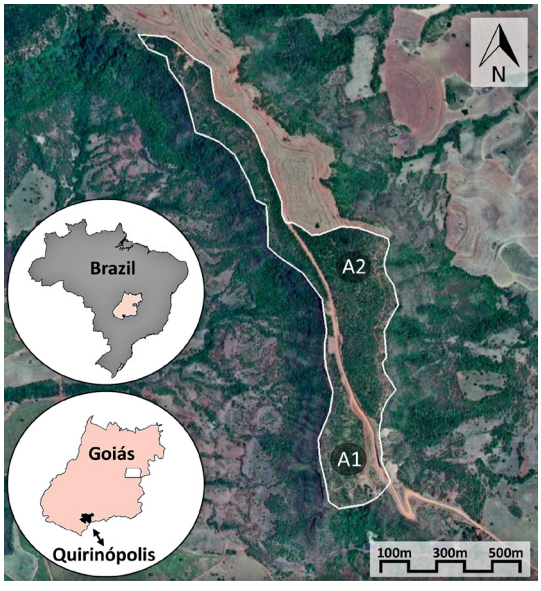


**Figure 1** – a-c. Site selected for floristic inventory – a. Brazil country; b. Goiás state showing Quirinópolis municipality; c. Fragment at Serra da Confusão do Rio Preto, A1 (indicate the area 1 with 31.3 ha) and A2 (indicate the area 2 with 21.2 ha).

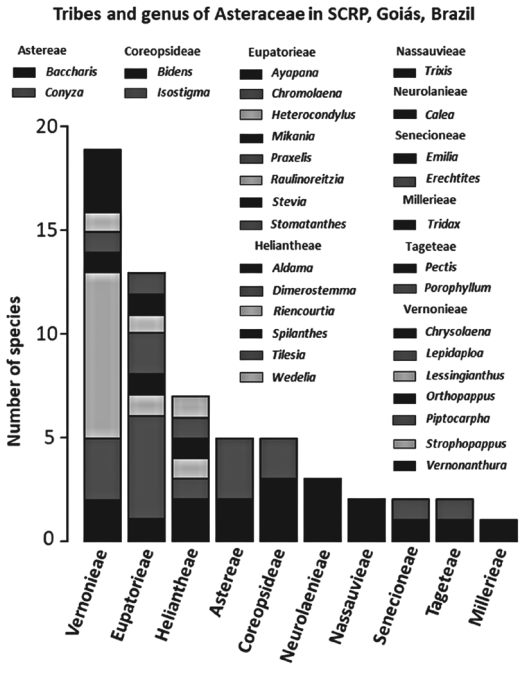


**Figure 2** – Number of species collected at Serra da Confusão do Rio Preto for each tribes and genus.

**Table 1** – Asteraceae' species at Serra da Confusão do Rio Preto, origin and endemism, vegetation where the specimen have been collected and conservation status.

| Tribes/Species | Origin/Endemism | Vegetation in SCRP | Conservation status |
|---|---|---|---|
| Astereae | | | |
| *Baccharis rivularis* Gardner | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Baccharis subdentata* DC. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Conyza bonariensis* (L.) Cronquist | Native/Not endemic | Anthropic area | Not Evaluated |
| *Conyza canadensis* (L.) Cronquist | Native/Not endemic | Anthropic area | Not Evaluated |
| *Conyza primulifolia* (Lam.) Cuatrec. & Lourteig (New record from Goiás state) | Native/Not endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| Coreopsideae | | | |
| *Bidens gadneri* Baker | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Bidens graveolens* Mart. | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Bidens squarrosa* Kunth | Naturalized/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Isostigma peucedanifolium* (Spreng.) Less. | Native/Not endemic | Cerrado sensu stricto | Least Concern |
| *Isostigma resupinatum* V.R.Bueno, I.L.Morais & J.N.Nakaj. | Native/Endemic | Cerrado rupestre (rocky cerrado) | Endangered |
| Eupatorieae | | | |
| *Ayapana amygdalina* (Lam.) R.M.King & H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Chromolaena cylindrocephala* (Baker) R.M.King & H.Rob. | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Chromolaena horminoides* DC. | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Chromolaena ivifolia* (L.) R.M.King & H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Chromolaena oxylepis* (DC.) R.M.King & H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Chromolaena squalida* (DC.) R.M.King & H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Heterocondylus alatus* (Vell.) R.M.King & H.Rob. | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Mikania acuminata* DC. | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Praxelis clematidea* R.M.King & H.Rob. | Native/Not endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Praxelis grandiflora* (DC.) Sch. Bip. | Native/Not endemic | Anthropic area | Least Concern |
| *Raulinoreitzia tremula* (Hook. & Arn.) R.M.King & H.Rob. | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Stevia involucrata* Sch.Bip. *ex* Baker | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Stomatanthes dentatus* (Gardner) H.Rob. | Native/Endemic | Cerrado sensu stricto | Least Concern |
| Heliantheae | | | |
| *Aldama goyazii* E.E.Schill. & Panero | Native/Endemic | Cerrado sensu stricto | Vulnerable |
| *Aldama squalida* (S.Moore) E.E.Schill. & Panero | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Dimerostemma brasilianum* Cass. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Riencourtia tenuifolia* Gardner | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Spilanthes nervosa* Chodat | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |

| Tribes/Species | Origin/Endemism | Vegetation in SCRP | Conservation status |
|---|---|---|---|
| *Tilesia baccata* (L.) Pruski | Naturalized/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Wedelia hispidula* (Baker) J.U. Santos | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| Millerieae | | | |
| *Tridax procumbens* L. | Native/Not endemic | Anthropic area | Not Evaluated |
| Nassauvieae | | | |
| *Trixis ophiorhiza* Gardner | Native/Not endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Trixis spicata* Gardner | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| Neurolaeneae | | | |
| *Calea divergens* Sch.Bip. *ex* Baker | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Calea lantanoides* Gardner | Native/Endemic | Cerrado sensu stricto | Least Concern |
| *Calea reticulata* Gardner | Native/Endemism unknown | Cerrado sensu stricto/Cerrado rupestre (rocky cerrado) | Not Evaluated |
| Senecioneae | | | |
| *Emilia sonchifolia* (L.) DC. *ex* Wight | Native/Not endemic | Anthropic area | Not Evaluated |
| *Erectithes hieracifolium* (L.) Raf. *ex* DC. | Native/Not endemic | Anthropic area | Not Evaluated |
| Tageteae | | | |
| *Pectis gardneri* Baker | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Porophyllum ruderale* (Jacq.) Cass. | Native/Not endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| Vernonieae | | | |
| *Chrysolaena desertorum* (Mart. *ex* DC.) Dematt. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Chrysolaena simplex* (Less.) Dematt. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Lepidaploa aurea* (Mart. *ex* DC.) H.Rob. | Native/Endemic | Cerrado sensu stricto | Least Concern |
| *Lepidaploa cuiabensis* (Baker) H.Rob. (New record from Goiás state) | Native/Endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Lepidaploa sororia* (DC.) H.Rob. (New record from Goiás state) | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Lessingianthus ammophilus* (Gardner) H.Rob. | Native/Endemic | Cerrado sensu stricto | Not Evaluated |
| *Lessingianthus bardanoides* (Less.) H.Rob. | Native/Not endemic | Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Lessingianthus brevifolius* (Less.) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Lessingianthus compactiflorus* (Mart. *ex* Baker) H.Rob. | Native/Endemic | Cerrado sensu stricto/ Cerrado rupestre (rocky cerrado) | Not Evaluated |
| *Lessingianthus durus* (Mart. *ex* DC.) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Lessingianthus ligulifolius* (Mart. *ex* DC.) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Lessingianthus obtusatus* (Less.) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Lessingianthus onopordioides* (Baker) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Orthopappus angustifolius* Gleason | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Piptocarpha rotundifolia* Baker | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Strophopappus speciosus* (Less.) R.Esteves | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Vernonanthura ferruginea* (Less.) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Vernonanthura membranacea* (Gardner) H.Rob. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |
| *Vernonanthura polyanthes* (Spreng.) A.J.Vega & Dematt. | Native/Not endemic | Cerrado sensu stricto | Not Evaluated |

The species were classified as 24 subshrubs, 18 shrubs, 13 herbs, three vines and one tree (*Piptocarpha rotundifolia* Baker). Fifty-three (90%) of the species have not been evaluated for conservation status by CNCFlora and the IUCN Red List. Of the evaluated species, only one is categorized as Vulnerable (V) (*Aldama goyazii* E.E.Schill. & Panero) and five as Least Concern (LC), of which three are restricted to Brazil: *Calea lantanoides* Gardner, *Lepidaploa aurea* (Mart. *ex* DC.) H.Rob., and *Stomatantes dentatus* (Gardner) H.Rob. Bueno *et al*. (2019) indicated that *Isostigma resupinatum* is Endangered (EN).

The fact that 90% of the species have not been evaluated for conservation status highlights the need for more studies, as such categorization is extremely important for conservation of species and of the natural environment.

*Lepidaploa cuiabensis* (Baker) H.Rob. and *L. sororia* (DC.) H.Rob. are new occurrence records for the state of Goiás, both being recorded only in the Cerrado domain. *Conyza primulifolia* (Lam.) Cuatrec. & Lourteig is also a new occurrence for the state, but its distribution is not restricted to the Cerrado domain and includes the Atlantic Forest.

**Key to Asteraceae tribes of the Serra da Confusão do Rio Preto (SCRP)**

1. Pappus 2–3-seriate ..... 10. Vernonieae
1’. Pappus 1-seriate.
  2. Presence of secretory cavities in leaves or involucral bracts ..... 9. Tageteae
  2’. Absent of secretory cavities in leaves or involucral bracts.
    3. Radiate heads.
      4. Pappus aristate, coroniform or absent.
        5. Leaves pinatissect, composite or trifurcate, receptacle flat ..... 2. Coreopsideae
        5’. Leaves entire, simple, not trifurcate, receptacle convex ..... 4. Heliantheae
      4’. Pappus of plumose bristles ..... 5. Millerieae
    3’. Discoid or disciform heads.
      6. Bilabiate florets ..... 6. Nassauvieae
      6’. Tubular florets.
        7. Anthers theca blackned ..... 4. Heliantheae
        7’. Anthers theca not blackned.
          8. Discoid heads.
            9. Dioecious plants ..... 1. Astereae
            9’. Cosexual or gynomonoecious plants.
              10. Leaves scabrous, capitulescence umbeliform, anthers theca yellow ..... 7. Neurolaeneae
              10’. Leaves glabrous or with another type of indument, capitulescence with other arrangements, anthers theca dark red, brownish, or pale.
                11. Leaves semiamplexicaul, involucre uniseriate, connate involucral bracts ..... 8. Senecioneae
                11’. Leaves not semiamplexicaul, involucre multiseriate, not connate involucral bracts.
                  12. Involucral bracts with different colors, pappus aristate .. ..... 2. Coreopsideae
                  12’. Involucral bracts with same colors, pappus of bristles or paleaceous.
                    13. Leaves usually opposite, style branches without hairs below the bifurcation, cypselae often blackned ..... ..... 3. Eupatorieae
                    13’. Leaves usualy alternate, style branches usually with hairs below the bifurcation, cypselae often not blackned ..... 10. Vernonieae

8’. Disciform heads.
14. Subshrubs, style branches acute or obtuse, not connate involucral bracts ..... 1. Astereae
14’. Herbs, style branches truncate or triangulate, connate involucral bracts ..... 8. Senecioneae

**1. Tribe Astereae** Cass.

Shrubs or subshrubs, dioecious or gynomonoecious. Leaves alternate or rosulate, pubescent, setose or tomentose. Capitulescence paniculiform or corymbiform. Heads discoid or disciform, receptacle flat or convex, glabrous, involucre 2–7-seriate. Ray florets pistillate, white, cream or yellow. Disc florets monoclinous or unisexual, white, cream or yellow. Anthers with apical appendages obtuse or acute, basal sagittate or absent. Style branches acute or obtuse. Cypselae glabrous or setose, pappus of bristles, uniseriate.

**Key to Astereae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Dioecious plants, discoid heads.
2. Shrubs, tomentose stems, leaves petiolate, 2.5–8 × 1–2.2 cm, lanceolate, glandular-dotted; pedunculate heads, anthers with obtuse apical appendages..... 1.1. *Baccharis rivularis*
2’. Subshrubs, glabrous stems, leaves sessile, 1.5–3 × 0.9–2 cm, obovate to oblanceolate, not glandular-dotted; sessile heads, anthers with acute apical appendages..... 1.2. *Baccharis subdentata*

1’. Gynomonoecious plants, disciform heads.
3. Alternate leaves.
4. Pubescent leaves, heads 0.4–0.6 × 0.5–0.8 cm, cyselae obovoid, glabrous..... 1.3. *Conyza bonariensis*
4’. Setose leaves, heads 0.3–0.4 × 0.2–0.5 cm, cypselae cilindrical, sericeous ..... 1.4. *Conyza canadensis*
3’. Rosulate leaves..... 1.5. *Conyza primulifolia*

**1.1. *Baccharis rivularis*** Gardner, London J. Bot. 7: 83 (1848a).

Dioecious shrubs, stems tomentose, leaves lanceolate, 2.5–8 × 1–2.2 cm, peciolate, tomentose, glandular-dotted , discoid heads, capitulescence paniculiform. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 20.I.2018, fl. and fr., *P. Renon 120* (JAR 5950).

**1.2. *Baccharis subdentata*** DC., Prodr. [A.P. de Candolle] 5: 408 (1836).

Dioecious subshrubs, stems glabrous, leaves obovate to oblanceolate, 1.5–3 × 0.9–2 cm, sessile, glabrous, without glands, discoid heads, capitulescence paniculiform.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VI.2017, fl. and fr., *P. Renon 19* (JARJAR 4297).

**1.3. *Conyza bonariensis*** (L.) Cronquist, Bull. Torrey Bot. Club 70: 632 (1943).

Gynomonoecious subshurbs, leaves lanceolate to oblanceolate, 1.7–4.6 × 0.3–0.8 cm, pubescent, disciform heads, florets white, cypselae glabrous.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, estrada da Serra, 24.XII.2017, fl. and fr., *P. Renon 69* (JAR 4778).

**1.4. *Conyza canadensis*** (L.) Cronquist, Bull. Torrey Bot. Club 70: 632 (1943).

Gynomonoecious subshrubs, leaves linear to lanceolate, 0.3–0.4 × 0.2–0.5 cm, setose, disciform heads, florets cream, cypselae sericeous.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, estrada da Serra, 24.XII.2017, fl. and fr. *P. Renon 67* (JAR 4776).

**1.5. *Conyza primulifolia*** (Lam.) Cuatrec. & Lourteig, Phytologia 58: 475 (1985).

Gynomonoecious subshrubs, leaves rosulate, obovate to oblanceolate, 1.9–7.5 × 0.2–1.5 cm, pubescent, disciform heads, florets yellow, cypselae setose. New record from Goiás.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 27.X.2018, fl. and fr., *P. Renon 420* (JAR 5949).

**2. Tribe Coreopsideae** Lindl.

Herbs, subshurbs or vines, cosexual. Leaves opposite or alternate-whorled, strigose or glabrous. Capitulescence corymbiform or absent. Heads radiate or discoid, involucre 2–4-seriate, receptacle flat, paleate. Ray florets neuter or pistillate, cream, white, orange or dark red. Disk florets monoclinous, yellow or dark red. Anthers with apical appendages obtuse or acute, basal absent or sagittate. Style branches acute, triangulate or acuminate. Cypselae fusiform or obcompressed, glabrous or hirsute, pappus aristate or absent.

**Key to Coreopsideae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Discoid heads.....2.2. *Bidens graveolens*
1'. Radiate heads.
   2. Pappus 3–4-aristate, ray florets orange ..... 2.1. *Bidens gardneri*
   2'. Pappus 2-aristate or absent, ray florets yellow, white or red.
      3. Leaves compound, petiolate, lanceolate to ovate; capitulescence corymbiform, styles branches with triangular apex..... 2.3. *Bidens squarrosa*
      3'. Leaves simple, sessile, filiform; solitary heads, style branches with acuminate apex.
         4. Leaves not resupinate, dark red involucral bracts without hyaline margins, ray florets with discolor limb, cypselae obcompressed.....2.4. *Isostigma peucedanifolium*
         4'. Leaves resupinate, brownish involucral bracts with hyaline margins, ray florets with concolor limb, cypselae fusiform.....2.5. *Isostigma resupinatum*

**2.1. *Bidens gardneri*** Baker, *Fl. bras.* (Martius) 6(3): 246 (1884).

Herbs, pinatissect leaves, 2.1–6.5 × 0.8–1.9 cm, strigose, radiate heads, ray florets orange, disk florets yellow, anthers brownish, pappus 3–4-aristate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fr., *P. Renon 28* (JAR 4306); 31.III.2018, fl. and fr., *P. Renon 177* (JAR 5956).

**2.2. *Bidens graveolens*** Mart., Isis 590 (1824).

Subshrubs, leaves elliptical to oblanceolate, 1.9–11.5 × 0.5–2.2 cm, glabrous, discoid heads, florets and anthers dark red, pappus 2-aristate. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 17.III.2018, fl. and fr., *P. Renon 175* (JAR 5957).

**2.3. *Bidens squarrosa*** Kunth, Nov. Gen. Sp. [H.B.K.] 4(17): 187 (ed. fol.) (1818).

Vines, leaves lanceolate to ovate, 2.7–9.1 × 1–3.6 cm, glabrous, radiate heads, ray and disk florets yellow, anthers brownish, pappus 2-aristate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 14.IV.2018, fl. and fr. *P. Renon 184* (JAR 5959).

**2.4. *Isostigma peucedanifolium*** (Spreng.) Less., Linnaea 6: 514 (1831).

Subshrubs, leaves trifurcate, 11.4–15.6 × 0.1 cm, erect, involucral bracts without hyaline margin, radiate heads, ray florets with discolor limb, abaxial surface red and adaxial white. Least concern (LC).

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 17.XI.2017, fl. and fr., *P. Renon 48* (JAR 4758).

**2.5. *Isostigma resupinatum*** V.R.Bueno, I.L.Morais & J.N.Nakaj., Phytotaxa 408(3): 228 (2019).

Subshrubs, leaves not trifurcate, 2.4–4.6 × 0.05–0.1 cm, resupinate, involucral bracts with hyaline margin, radiate heads, ray florets with concolor limb, both abaxial and adaxial surfaces white. Restrict to Brazil. Endangered (EN).

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 19.III.2018, fl. and fr., *P. Renon 280* (JAR 5958).

**3. Tribe Eupatorieae** Cass.

Herbs, shrubs, subshurbs or vines, cosexual. Leaves usually opposite or alternate, often glandular-dotted. Capitulescence corymbiform, paniculiform or solitary heads. Heads discoid, involucre 1–8-seriate, involucral bracts deciduous or persistent, receptacle flat, convex or concave,

epaleate or paleate. Florets monoclinous, cream, white or lilac. Anthers with apical appendages acute or obtuse, basal sagittate or absent. Style branches obtuse, clavate or acute, prolonged, without hairs below the bifurcation. Cypselae prismatic, cylindrical, obconic or elliptical, usually blackned, often glabrous or setose, hirsute, tomentose, pappus of bristles, uniseriate.

**Key to Eupatorieae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Involucre 5-seriate or more.
   2. Leaves with glands only in abaxial surface, extenal and internal involucral bracts with differents apex ..... 3.2. *Chromolaena cylindrocephala*
   2'. Leaves with glands in both surfaces, external and internal involucral bracts with equals apex
      3. Involucral bracts glabrous.
         4. Leaves sessile, hemispheric heads, receptacle paleaceous, cypselae cylindrical..... ..... 3.3. *Chromolaena horminoides*
         4'. Leaves petiolate, cylindrical heads, receptacle epaleaceous, cypselae prismatic ..... ..... 3.6. *Chromolaena squalida*
      3'. Involucral bracts hirsute, pubescent or tomentose.
         5. Subshrubs, capitulescence corymbiform, involucral bracts with truncate-cuspidate apex ..... 3.4. *Chromolaena ivifolia*
         5'. Shrubs, capitulescence paniculiform, involucral bracts with acute apex.
            6. Leaves 1–6.5 × 0.5–3 cm, petiole without wings, involucral bracts without glands, cypselae glabrous ..... 3.5. *Chromolaena oxylepis*
            6'. Leaves 4–15 × 0.3–1.2 cm, petiole with wings, involucral bracts with glands cypselae setose ..... 3.7. *Heterocondylus alatus*
1'. Involucre 1–4-seriate.
   7. Heads with 4–5 florets.
      8. Vines, leaves ovate to deltoid, margin entire, capitulescence raceme-paniculate..... ..... 3.8. *Mikania acuminata*
      8'. Shrubs, subshrubs or herbs, leaves lanceolate, linear or obovate, margin serrate, crenate or dentate; capitulescence paniculiform or corymbiform.
         9. Heads with 4 florets, anthers without apical appendages, style branches clavate..... ..... 3.13. *Stomatanthes dentatus*
         9'. Heads with 5 florets, anthers with apical appendages, style branches obtuse.
            10. Shrubs, leaves petiolate, 3–8 × 3–0.3 cm, glabrous, involucre 3–4-seriate, cypselae obconic, pappus of bristles ..... 3.11. *Raulinoreitzia tremula*
            10'. Herbs, leaves sessile, 2–6 × 0.5–1.6 cm, pubescents; involucre 1-seriate cypselae fusiform, pappus aristate ..... 3.12. *Stevia involucrata*
   7'. Heads with more than 5 florets
      11. Capitulescence corymbiform.
         12. Leaves sessile, oblanceolate; involucral bracts persistent, receptacle flat, cypselae glabrous ..... 3.1. *Ayapana amygdalina*
         12'. Leaves petiolate, ovate; involucral bracts decidous, receptacle convex, cypselae hirsute ..... 3.9. *Praxelis clematidea*
      11'. Capitulescence cymose ..... 3.10. *Praxelis kleinioides*

**3.1.** ***Ayapana amygdalina*** (Lam.) R.M.King & H.Rob., Phytologia 20: 211 (1970c).

Subshrubs, leaves oblanceolate, 0.8–9.2 × 0.2–2.2 cm, involucral bracts lilac and glandular-dotted, 20–40 florets per head.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 20.VI.2017, fl. and fr., *I.L. Morais 4936* (JAR 4067).

**3.2.** ***Chromolaena cylindrocephala*** (Baker) R.M.King & H.Rob., Phytologia 47: 230 (1980).

Shrubs, leaves ovate to oblanceolate, 1–5 × 0.3–2 cm, capitulescence paniculiform, involucral bracts glabrous, apex obtuse and acute, 20–25 florets per head. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 20* (JAR 4298); 18.VII.2017, fl. and fr., *P. Renon* 34 (JAR 4316).

**3.3.** ***Chromolaena horminoides*** DC., Prodr. [A.P. de Candolle] 5: 133 (1836). Fig. 3a

Shrubs, leaves ovate, 1–3 × 0.7–1 cm, capitulescence corymbiform, involucral bracts glabrous, apex obtuse, 20–30 florets per head. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 14.IV.2018, fl. and fr., *P. Renon 188* (JAR 5961).

**3.4.** ***Chromolaena ivifolia*** (L.) R.M.King & H.Rob., Phytologia 20(3): 202 (1970b). Fig. 3b

Subshrubs, leaves lanceolate, 0.8–2 × 0.1–0.6 cm, capitulescence corymbiform, involucral bracts tomentose, apex truncate-cuspidate, 12 florets per head.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 12.X.2017, fl. and fr., *P. Renon 41* (JAR 4751).

**3.5.** ***Chromolaena oxylepis*** (DC.) R.M.King & H.Rob., Phytologia 20(3): 204 (1970b).

Shrubs, leaves lanceolate, 1–6.5 × 0.5–3 cm, capitulescence paniculiform, involucral bracts pubescent, apex acute, 15–24 florets per head.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 14.IV.2018, fl. and fr., *P. Renon 189* (JAR 5960).

**3.6.** ***Chromolaena squalida*** (DC.) R.M.King & H.Rob., Phytologia 20(3): 206 (1970b).

Shrubs, leaves ovate to elliptical, 1.5–6.5 × 0.6–3 cm, capitulescence corymbiform, involucral bracts glabrous, apex obtuse and acute, 20–30 florets per head.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 17.III.2018, fl. and fr., *P. Renon 174* (JAR 5964); 18.VII.2017, fl. and fr., *P. Renon* 35 (JAR 4317).

**3.7.** ***Heterocondylus alatus*** (Vell.) R.M.King & H.Rob., Phytologia 49: 5 (1981). Fig. 3c

Subshrubs, leaves lanceolate to oblanceolate, 4–15 × 0.3–1.2 cm, winged petiolate, capitulescence paniculiform, involucral bracts glandula-dotted, 20–30 florets per head. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 21.VII.2018, fl. and fr., *P. Renon 414* (JAR 5962).

**3.8.** ***Mikania acuminata*** DC., Prodr. [A.P. de Candolle] 7(1): 270 (1838b).

Vines, leaves ovate to deltoid, 1.9–2.5 × 0.6–1.2 cm, capitulescence raceme-paniculiform, involucre uniseriate, involucral bracts deciduous, 4 florets per head. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 25* (JAR 4303).

**3.9.** ***Praxelis clematidea*** R.M.King & H.Rob., Phytologia 20: 194 (1970a).

Herbs, leaves ovate, 1.8–4.5 × 0.4–2 cm, base obtuse, capitulescence corymbiform, involucral bracts deciduous, 37–52 florets per head.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 20.I.2018, fl. and fr., *P. Renon 121* (JAR 4871).

**3.10.** ***Praxelis kleinioides*** (Kunth) Sch. Bip., Jahresber. Pollichia 22–24:254 (1866).

Subshrubs, leaves oblanceolate, 1.5–3.8 × 0.3–0.6 cm, base truncate, capitulescence cymose, involucral bracts persistent, 30–50 florets per head. Least concern (LC).

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, trilha, 24.XII.2017, fl. and fr., *P. Renon 70* (JAR 4779).

**3.11.** ***Raulinoreitzia tremula*** (Hook. & Arn.) R.M.King & H.Rob., Phytologia 22: 114 (1971).

Shrubs, leaves linear to lanceolate, 3–8 × 0.3–3 cm, margin serrate, capitulescence paniculiform, involucral bracts glabrous, 5 cream florets per head. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 12.III.2019, fl. and fr., *P. Renon 454* (JAR 7259).

**3.12.** ***Stevia involucrata*** Sch.Bip. *ex* Baker, *Fl. bras.* (Martius) 6(2): 211 (1876). Fig. 3d

Herbs, leaves lanceolate, 2–6 × 0.5–1.6 cm, capitulescence corymbiform, involucre uniseriate, 5 white florets per head. Endemic to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 6.XI.2018, fl. and fr., *P. Renon 427* (JAR 5963).

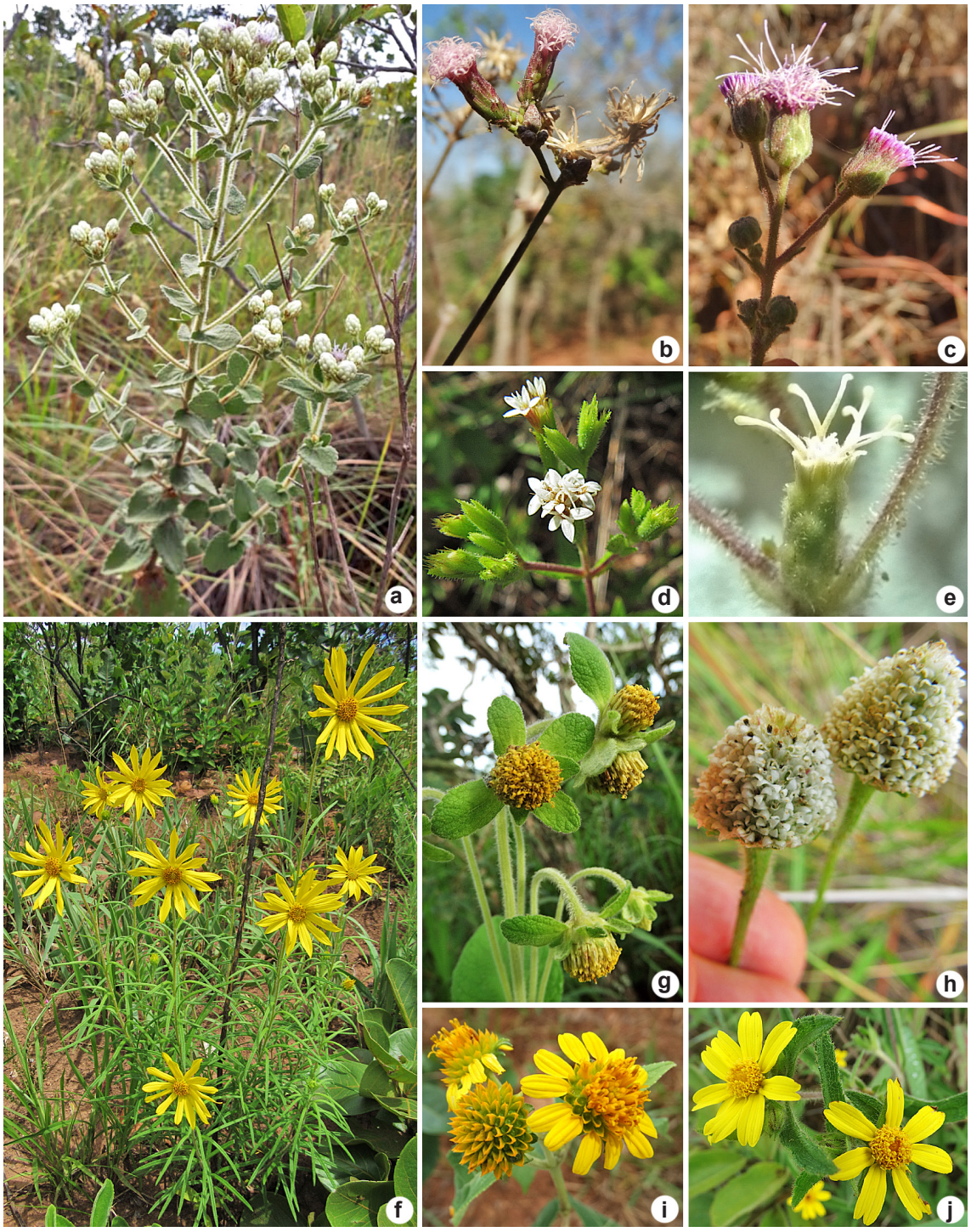


**Figure 3** – a-j. Eupatorieae and Heliantheae tribes of SCRP – a. *Chromolaena horminoides* – capitulescence; b. *Chromolaena ivifolia* – heads; c. *Heterocondylus alatus* – heads; d. *Stevia involucrata* – flowers; e. *Stomatanthes dentatus* – head; f. *Aldama goyazii* – habit; g. *Dimerostemma brasilianum* – heads; h. *Spilanthes nervosa* – glomerulus; i. *Tilesia baccata* – heads; j. *Wedelia hispidula* – heads. (a. *P. Renon 188*; b. *P. Renon 41*; c. *P. Renon 414*; d. *P. Renon 427*; e. *P. Renon* 17; f. *P. Renon & I.L. Morais 47*; g. *P. Renon 93*; h. *I.L. Morais 5129*; i. *P. Renon 135*; j. *P. Renon 94*).

**3.13.** ***Stomatanthes dentatus*** (Gardner) H.Rob., Phytologia 20(6): 336 (1970). Fig. 3e

Subshrubs, leaves obovate, 1.7–7 × 0.6–2 cm, capitulescence paniculiform, involucral bracts tomentose, deciduous, 4 florets per head. Least concern (LC). Restrict to Brazil.

**Examinaed material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 11.VII.2017, fl. and fr., *P. Renon 17* (JAR 4295).

**4. Tribe Heliantheae** Cass.

Herbs, shrubs or subshrubs, gynomonoecious. Leaves opposite or alternate, often hispid or scabrous. Capitulescence cymose, paniculiform, dichasiform, absent or grouped in glomerulus. Heads radiate, discoid or disciform, involucre 2–3-seriate, receptacle convex, concave or flat, paleate or epaleate. Ray florets neuter or pistilate, 2–5-lobed, yellow or cream. Disk florets monoclinous or staminate, yellow or white. Anthers often blackned, apical appendages acute or obtuse, basal sagittate. Style branches acute, acuminate, truncate or triangulate. Cypselae obovoid, obcompressed, oblong or orbicular, glabrous or setose, pappus coroniform, aristate or absent.

**Key to Heliantheae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Radiate heads.
    2. Involucre with leaf-like outer series of involucral bracts, ray florets cream, 4–5-lobed, capitulescence of third order (sinflorescence) ..... 4.3. *Dimerostemma brasilianum*
    2'. Involucre without leaf-like outer series of involucral bracts, ray florets yellow, 2–3-lobed, capitulescence of second order or solitary heads.
        3. Leaves peciolate, receptacle with striated pales, pappus absent .....4.6. *Tilesia baccata*
        3'. Leaves sessile, receptacle without striated pales, pappus coroniform or aristate.
            4. Capitulescence paniculiform, ray florets pistillate, receptacle flat, style branches triangulated in disk florets ..... 4.7. *Wedelia hispidula*
            4'. Solitary heads, ray florets neuter, receptacle convex, style branches truncate or acuminate in disk florets
                5. Leaves alternate, 3–10 × 0.1–0.3 cm, linear to lanceolate, 1-nerve, abaxial surface hispid, truncate style branches .....4.1. *Aldama goyazii*
                5'. Leaves opposite, 2–5.5 × 0.6–2.5 cm, ovate to elliptical, 3-nerves, abaxial surface pubescent, acuminate style branches.....4.2. *Aldama squalida*
1'. Discoid or disciform heads.
    6. Subshrubs, capitulescence cymose, disciform heads, receptacle epaleceos, pappus absent..... .....4.4. *Riencourtia tenuifolia*
    6'. Herbs, solitary heads, discoid heads, receptacle paleaceos, pappus aristate..... .....4.5. *Spilanthes nervosa*

**4.1.** ***Aldama goyazii*** E.E.Schill. & Panero, Bot. J. Linn. Soc. 167(3): 323 (2011). Fig. 3f

Subshrubs, leaves linear to lanceolate, 3–10 × 0.1–0.3 cm, revolute, heads radiate, florets yellow, style branches truncate, pappus coroniform and aristate. Restrict to Brasil. Vulnerable (VU).

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 17. XI. 2017, fl. and fr., *P. Renon & I.L. Morais 47* (JAR 4757).

**4.2.** ***Aldama squalida*** (S.Moore) E.E.Schill. & Panero, Bot. J. Linn. Soc. 167(3): 325 (2011).

Subshrubs, leaves ovate to elliptical, 2–5.5 × 0.6–2.5 cm, not revolute, heads radiate, florets yellow, style branches acuminate, pappus coroniform.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 10.XII.2017, fl. and fr., *P. Renon 51* (JAR 4761).

**4.3.** ***Dimerostemma brasilianum*** Cass., Bull. Sci. Soc. Philom. Paris 1818: 58 (1818). Fig. 3g

Subshrubs, leaves ovate, 3–5.5 × 1.2–4.7, discolor, heads radiate, capitulescence dichasiform, florets cream and yellow, heads are grouped in sinflorescence or solitary, papus aristate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 7.I.2018, fl. and fr., *P. Renon 93* (JAR 4801).

**4.4.** ***Riencourtia tenuifolia*** Gardner, London J. Bot. 7: 287 (1848b).

Subshrubs, leaves linear, 2–8 × 0.3–0.6 cm, capitulescence cymose, heads disciform, florets white, cypselae shortly rostrate, pappus absent. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 1.XII.2018, fl. and fr., *P. Renon 438* (JAR 5945).

**4.5.** ***Spilanthes nervosa*** Chodat, Bull. Herb. Boissier ser. 2, 3: *724* (1903). Fig. 3h

Herbs, leaves lanceolate to elliptical, 1.5–9 × 0.5–2.5 cm, heads discoid, solitary heads, discoid heads, florets white, pappus aristate. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 26.I.2018, fl. and fr., *I.L. Morais* 5129 (JAR 6718).

**4.6.** ***Tilesia baccata*** (L.) Pruski, Novon 6(4): 414 (1996). Fig. 3i

Shrubs, leaves lanceolate to elliptical, 6.5–11 × 2–6 cm, discolor, heads radiate, capitulescence cymose, receptacle with striated pales, florets yellow, pappus absent.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 21.XII.2018, fl. and fr., *I.L. Morais 5179* (JAR 7260).

**4.7.** ***Wedelia hispidula*** (Baker) J.U. Santos, Boletim do Museu Paraense Emilio Goeldi, 4(1): 154 (1988). Fig. 3j

Subshrubs, leaves lanceolate, 2–7.5 × 0.7–2.5 cm, heads radiate, capitulescence paniculiform, involucral bracts foliaceous, florets florets, pappus coroniform. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 24.XII.2017, fl. and fr., *P. Renon 68* (JAR 4777); 20.I.2018, fl. and fr., *P. Renon 118* (JAR 5944).

**5. Tribe Millerieae** Lindl.

Herbs, cosexual. Leaves opposite, strigose. Capitulescence absent. Heads radiate, involucre 2-seriate, receptacle convex, paleate. Ray florets pistilate, 3-lobed, cream. Disk florets monoclinous, yellow. Anthers blackned, apical appendages, basal sagittate. Style branches acute. Cypselae obconic, sericeous, pappus of plumose bristles, uniseriate.

**5.1.** ***Tridax procumbens*** L., Sp. Pl. 2: 900 (1753).

Herbs, leaves ovate to lanceolate, 1–3.5 × 0.3–1 cm, margin serrate, petiolate, heads radiate, ray florets pistilate, anthers blackned, cypselae obconic, pappus of plumose bristles.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, estrada da serra, 24.XII.2017, fl. and fr., *P. Renon 71* (JAR 4780).

**6. Tribe Nassauvieae** Cass.

Shrubs or subshrubs, cosexual. Leaves alternate or alternate-whorled, pilose. Capitulescence pseudo-racemiform or pseudo-spike. Heads discoid, involucre 3–4-seriate, receptacle flat or concave, glabrous or pilose. Florets monoclinous, bilabiated, yellow. Anthers with apical appendages acute or lanceolate, basal caudate. Style branches truncate with tuft of hairs. Cypselae cylindrical or obovoid, tomentose, pappus of bristles, uniseriate.

**Key to Nassauvieae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Stems without wings, leaves alternate-whorled, base not decurrent; capitulescence pseudo-racemiform, receptacle glabrous, anthers with acute apical appendages .....6.1. *Trixis ophiorhiza*
1'. Stems with wings, leaves alternate, base decurrent, capitulescence pseudo-spike, receptacle pilose, anthers with lanceolate apical appendages..... 6.2. *Trixis spicata*

**6.1.** ***Trixis ophiorhiza*** Gardner, London J. Bot. 6: 461 (1847).

Shrubs, stems without wings, leaves elliptical, 2–15 × 0.5–5 cm, base acute, florets bilabiated, style branches with tuft of hairs.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 11.VII.2017, fl. and fr., *P. Renon 9* (JAR 4287); 22.IX.2018, fr., *P. Renon 415* (JAR 5952).

**6.2.** ***Trixis spicata*** Gardner, London J. Bot. 6: 462 (1847).

Subshrubs, stems with wings, leaves elliptical to obovate, 4–7 × 1.5–3 cm, base decurrent, florets bilabiated, style branches without tuft of hairs.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 24.VIII.2018, fl. and fr., *P. Renon 196* (JAR 5951).

**7. Tribe Neurolaeneae** Rydb.

Herbs, subshrubs, vines, cosexual. Leaves opposite or whorled, scabrous. Capitulescence umbeliform, compound umbeliform or dichasium-umbeliform. Heads discoid, involucre 2–3-seriate, receptacle convex, paleate. Florets monoclinous, yellow. Anthers with yellow thecas, apical appendages acute, basal sagittate. Style branches clavate or obtuse. Cypselae obconic, obovoid or prismatic, hirsute or pubescent, pappus paleaceous.

**Key to Neurolaeneae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Leaves opposite, peciolate, venation actinodromous, involucre 3–4-seriate, cypselae hirsute.
   2. Vines, leaves lanceolate, concolor, capitulescence compound-umbeliform, style branches clavate, cypselae obconic ..... 7.1. *Calea divergens*
   2'. Subshrubs, leaves ovate, discolor; capitulescence dichasium-umbeliform, style branches obtuse, cypselae obovoid..... 7.2. *Calea lantanoides*
1'. Leaves whorled, sessil, venation camptodromous; involucre 2-seriate, cypselae pubescent ..... ..... 7.3. *Calea reticulata*

**7.1. *Calea divergens*** Sch.Bip. *ex* Baker, *Fl. bras.* (Martius) 6(3): 262 (1884).

Vines, leaves lanceolate, 1.5–7 × 0.6–3 cm, concolor, capitulescence compound-umbeliform, style branches clavate, cypselae hirsute. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 8.V.2019, fl. and fr., *D.A.R.B. Ventura 496* (JAR 7261).

**7.2. *Calea lantanoides*** Gardner, London J. Bot. 7: 416 (1848c).

Subshrubs, leaves ovate, 1.1–6 × 0.6–4.5 cm, discolor, capitulescence dichasium-umbeliform, style branches obtuse, cypselae hirsute. Restrict to Brazil. Least concern (LC).

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 17.III.2018, fl. and fr., *P. Renon 171* (JAR 5948); 31.III.2018, fl. and fr. *P. Renon 178* (JAR 5947).

**7.3. *Calea reticulata*** Gardner, London J. Bot. 7: 416 (1848c).

Herbs, leaves lanceolate to elliptical, discolor, capitulescence umfeliform, style branches clavate, cypselae pubescent. Unknown endemism.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 6.XI.2018, fl. and fr., *P. Renon 423* (JAR 5943); cerrado sentido restrito, 16.VI.2018, fl. and fr., *P. Renon 436* (JAR 5942).

**8. Tribe Senecioneae** Cass.

Herbs, gynomonoecious. Leaves alternate, setose, glandular-dotted. Capitulescence corymbiform or paniculiform. Heads discoid or disciform, involucre uniseriate, involucral bracts connate, receptacle flat or concave, glabrous. Ray florets pistillate, yellow. Disk florets monoclinous, yellow or red. Anthers with apical appendages obtuse, basal absent. Style branches truncate or triangulate, with tufts of hairs or absent. Cypselae fusiform or cylindrical, glabrous or setose, pappus of bristles, uniseriate.

**Key to Senecioneae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Leaves with amplexicaul base, capitulescence corimbiform, discoid heads, receptacle flat red florets, cypselae cilindric, 5-costate ..... 8.1. *Emilia sonchifolia*
1'. Leaves with truncate base, capitulescence paniculiform, disciform heads, receptacle concave, yellow florets, cypselae fusiform, 1–8-costate..... 8.2. *Erechtites hieraciifolius*

**8.1. *Emilia sonchifolia*** (L.) DC. *ex* Wight, Contr. Bot. India [Wight] 24 (1834).

Herbs, leaves lanceolate, 3.5–9 × 1–3 cm, base amplexicaul, heads discoid, capitulescence corymbiform, florets red, cypselae setose, 5-costate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, estrada da serra, 24.XII.2017, fl. and fr., *P. Renon 73* (JAR 4782).

**8.2.** ***Erechtites hieraciifolius*** (L.) Raf. ex DC., Prodr. [A. P. de Candolle] 6: 294 (1838a).

Herbs, leaves lanceolate, 3–9.5 × 0.5–3.4 cm, base truncate, heads disciform, capitulescence paniculiform, florets yellow, cypselae, glabrous, 8–10-costate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, estrada da serra, 10.XII.2017, fl. and fr., *P. Renon 52* (JAR 4762).

**9. Tribe Tageteae** Cass.

Herbs, gynomonoecious. Leaves opposite, glabrous or scabrous, glandular-dotted, usually with secretory cavities. Capitulescence corymbiform or absent. Heads radiate or discoid, involucre 1–seriate, presence of secretory cavity, receptacle flat or convex, glabrous. Ray florets pistillate, yellow. Disk florets monoclinous, yellow or dark red. Anthers with apical appendages obtuse, basal sagittate or absent. Style branches obtuse. Cypselae blackned, cylindrical, pubescent or hispid, glandular-dotted, pappus of bristles, uniseriate.

**Key to Tageteae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Leaves linear-filiform, radiate heads, convex receptacle, yellow florets, short style branches, cypselae not rostrate ..... 9.1. *Pectis gardneri*
1'. Leaves ovate, discoid heads, flat receptacle, red florets, long style branches, cypselae rostrate..... .....9.2. *Porophyllum ruderale*

**9.1.** ***Pectis gardneri*** Baker, *Fl. bras.* (Martius) 6(3): 287 (1884).

Herbs, leaves linear-filiform, 0.6–4.5 × 0.1–0.2 cm, scabrous, base semiamplexicaul, solitary heads, heads radiate, florets yellow, ray florets pistillate, cypselae pubescent. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 28.IV.2018, fl. and fr., *P. Renon 195* (JAR 5951); 3.III.2018, fl. and fr., *P. Renon 263* (JAR 5953).

**9.2.** ***Porophyllum ruderale*** (Jacq.) Cass., Dict. Sci. Nat., ed. 2. [F. Cuvier] 43: 56 (1826).

Herbs, leaves ovate, 1.1–4 × 0.4–1.8 cm, glabrous, acute base, capitulescence corymbiform, heads discoid, involucral bracts and florets dark red, cypselae hispid.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 3.III.2018, fl. and fr., *P. Renon 243* (JAR 5957).

**10. Tribe Vernonieae** Cass.

Herbs, shrubs, subshrubs or tree, cosexual. Leaves alternate or sometimes rosulate, glabrous or pilose. Capitulescence corymbiform, cymose, scorpioide, paniculiform, spiciform or absent. Heads discoid, involucre 2–9-seriate, receptacle flat, convex, glabrous, pilose or paleaceous. Florets monoclinous, lilac, purple, pink, cream or white. Anthers with apical appendages acute, acuminate or obtuse, basal sagittate or caudate. Style branches acute, acuminate or obtuse, with hairs below the bifurcation. Cypselae prismatic, obconic, obovoid, obcompressed, fusiform or cylindrical, pilose or glabrous, pappus of bristles, paleaceous or both, often biseriate.

**Key to Vernonieae genus of the Serra da Confusão do Rio Preto (SCRP)**

1. Pappus ferrugineus.
    2. Leaves with glands only in abaxial surface, capitulescence absent, involucre 2-seriate, glandular-dotted, external involucral bracts not revolute, receptacle glabrous..... ..... 10.1. *Chrysolaena desertorum*
    2'. Leaves with glands only in adaxial surface, capitulescence corymbiform, involucre 3-seriate, not glandular-dotted, external involucral bracts revolute, recepacle pilose..... ..... 10.2. *Chrysolaena simplex*
1'. Pappus not ferrugineus.
    3. Capitulescence scorpioid.

4. Involucral bracts with apex spinescent.
    5. Leaves glandular-dotted in abaxial surface, involucral bracts greenish, anthers with sagittate basal appendages, cypselae obconic.....10.7. *Lessingianthus bardanoides*
    5'. Leaveas not glandular-dotted in abaxial surface, involucral bracts purplish, anthers with caudate basal appendages, cypselae prismatics.
        6. Leaves elliptical to obovate, sericeous, lobes of florets glabrous..... .....10.3. *Lepidaploa aurea*
        6'. Leaves oblanceolate, pubescents, lobes of florets pilose 10.4. *Lepidaploa cuiabensis*
4'. Involucral bracts with apex not spinescent .....10.5. *Lepidaploa sororia*

3'. Capitulescence corymbiform, cymose, paniculiform or spiciform.
7. Heads axillary disposed along of the principal stem.
    8. Shrubs or subshrubs, more of 5 florets per head.
        9. Leaves peciolate, elliptical to obovate, concolor; white florets, anthers with caudate basal appendages, bristles of pappus enlarged in apex ..... ..... 10.6. *Lessingianthus ammophilus*
        9'. Leaves sessile, oblong, discolor, purple florets, anthers with sagittate basal appendages, bristles of pappus not enlarged in apex ..... 10.11. *Lessingianthus ligulifolius*
    8'. Trees, 4–5 florets per head .....10.15. *Piptocarpha rotundifolia*
7'. Heads terminal or disposed in secundaries stems.
    10. Leaves rosulate, zygomorph florets, pappus 1-seriate .... 10.14. *Orthopappus angustifolius*
    10'. Leaves alternate, actinomorph florets, pappus 2–3-seriate.
        11. Involucral bracts pink, pappus paleaceous, 3-seriate ..... ..... 10.16. *Strophopappus speciosus*
        11'. Involucral bracts of others colors, pappus of bristles or bristles and paleas, 2-seriate.
            12. Capitulescence cymose..... 13
                13. Leaves linear to filiform, membranaceous, capitulescence with terminal heads, 30–40 florets per head, anthers not falciform ..... ..... 10.8. *Lessingianthus brevifolius*
                13'. Leaves oblong to elliptical, coriaceous, capitulescence with axillary heads, 80–100 florets per head, anthers falciform ..... ..... 10.13. *Lessingianthus onopordioides*
            12'. Capitulescence corymbiform or paniculiform ..... 14
                14. Leaves sessile or subsessile ..... 15
                    15. More than 40 florets per head, cypselae not blackned..... 16
                        16. Leaves linear, discolor ..... 10.9. *Lessingianthus compactiflorus*
                        16'. Leaves elliptical to lanceolate, concolor ..... ..... 10.10. *Lessingianthus durus*
                    15'. Less than 40 florets per head, cypselae not blackned..... .....10.12. *Lessingianthus obtusatus*
                14'. Leaves peciolate..... 17
                    17. Stems tomentose, leaf blade discolor, involucre subimbricate, lobes of florets glabrous ..... 10.17. *Vernonanthura ferruginea*
                    17'. Stems glabrescent; leaf blade concolor, involucre imbricate, lobes of florets glandular-dotted ..... 18
                        18. Leaves linear to lanceolate, abaxial surface without glands, 8–22 florets per head, anthers with obtuse apical appendages ..... ..... 10.18. *Vernonanthura membranacea*
                        18'. Leaves oblong, abaxial surface with glands, 15–23 florets per head, anthers with apiculate apical appendages ..... ..... 10.19. *Vernonanthura polyanthes*

**10.1. *Chrysolaena desertorum*** (Mart. *ex* DC.) Dematt., Ann. Bot. Fenn. 44(1): 62 (2007).

Herbs, leaves linear to lanceolate, 4–19.5 × 0.2–0.7 cm, solitary heads, involucre 2-seriate, external involucral bracts not revolute, 23–40 florets per head, pappus ferrugineus.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 6.XI.2018, fl. and fr., *P. Renon 426* (JAR 6054).

**10.2. *Chrysolaena simplex*** (Less.) Dematt., Ann. Bot. Fenn. 44(1): 62 (2007).

Herbs, leaves linear to oblanceolate, 3–10.5 × 0.2–1.4 cm, capitulescence corymbiform, involucre 3-seriate, external involucral bracts revolute, 13–22 florets per head, pappus ferrugineus.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 6.XI.2018, fl. and fr., *P. Renon 424* (JAR 6052).

**10.3. *Lepidaploa aurea*** (Mart. *ex* DC.) H.Rob., Proc. Biol. Soc. Washington 103(2): 482 (1990).

Shrubs, leaves elliptical to obovate, 1.6–3.1 × 0.6–1.5 cm, capitulescence scorpioid, involucral bracts with apex spinescent lobes of florets glabrous, pappus of bristles and pales. Restrict to Brazil. Least concern (LC).

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 12.X.2017, fl. and fr., *P. Renon 37* (JAR 4747).

**10.4. *Lepidaploa cuiabensis*** (Baker) H.Rob., Proc. Biol. Soc. Washington 103(2): 486 (1990). Fig. 4a

Shrubs, leaves oblanceolate, 1.7–8.5 × 0.6–3 cm, capitulescence scorpioid, involucral bracts with apex spinescent, lobes of florets papillose, pappus of bristles and pales. Restrict to Brazil. New record from Goiás.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 11.VII.2017, fr., *P. Renon 6* (JAR 4284); 17.III.2018, fl. and fr., *P. Renon 170* (JAR 6048).

**10.5. *Lepidaploa sororia*** (DC.) H.Rob., Proc. Biol. Soc. Washington 103: 493 (1990).

Shrubs, leaves oblanceolate to obovate, 1.7–12.6 × 0.5–4 cm, capitulescence scorpioid, involucral bracts with apex not spicescent, lobes of florets glabrous, pappus of bristles. Restrict to Brazil. New record from Goiás.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fr., *P. Renon 22* (JAR 4300); 14.IV.2018, fl. and fr., *P. Renon 185* (JAR 6053). New record from Goiás.

**10.6. *Lessingianthus ammophilus*** (Gardner) H.Rob., Proc. Biol. Soc. Washington 101(4): 940 (1988). Fig. 4b

Shrubs, leaves elliptical to obovate, 2.3–12 × 1.8–5.4 cm, coriaceous, capitulescence cymose, 40–50 white florets per head, pappus of bristles and pales. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 17.III.2018, fl. and fr., *P. Renon 173* (JAR 6047).

**10.7. *Lessingianthus bardanoides*** (Less.) H.Rob., Proc. Biol. Soc. Washington 101(4): 940 (1988).

Shrubs, leaves ovate to lanceolate, 2.4–15.5 × 0.4–4.5 cm, subcoriaceous, capitulescence scorpioid, 75–130 purple florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 28.IV.2018, fl. and fr., *P. Renon 440* (JAR 6050).

**10.8. *Lessingianthus brevifolius*** (Less.) H.Rob., Proc. Biol. Soc. Washington 101(4): 941 (1988). Fig. 4c

Subshrubs, leaves linear to filiform, 0.9–3 × 0.1 cm, sessile, membranaceous, capitulescence cymose, 30–40 purple florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 27* (JAR 4305).

**10.9. *Lessingianthus compactiflorus*** (Mart. *ex* Baker) H.Rob., Proc. Biol. Soc. Washington 101(4): 942 (1988). Fig. 4d

Subshrubs, leaves linear, 9–10 × 0.4–1 cm, coriaceous, capitulescence corymbiform, 40–50 purple florets per head, pappus of bristles and paleas. Restrict to Brazil.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado rupestre, 18.VII.2017, fl. and fr., *P. Renon 33* (JAR 4315); cerrado sentido restrito, 17. II.2018, fl. and fr., *P. Renon 176* (JAR 6045).

**10.10. *Lessingianthus durus*** (Mart. *ex* DC.) H.Rob., Proc. Biol. Soc. Washington 101(4): 942 (1988).

Subshrubs, leaves elliptical to lanceolate, 2–9 × 0.5–3.7 cm, coriaceous, capitulescence corymbiform, 40–50 lilac florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 30* (JAR 4308).


**Figure 4** – a-h. Vernonieae tribe of SCRP – a. *Lepidaploa cuiabensis* – heads (new record for Goiás); b. *Lessingianthus ammophilus* – head; c. *Lessingianthus brevifolius* – flowers; d. *Lessingianthus compactiflorus* – head; e. *Lessingianthus onopordioides* – capitulescence; f. *Strophopappus speciosus* – heads; g. *Piptocarpha rotundifolia* – habit; h. *Piptocarpha rotundifolia* – capitulescence. (a. *P. Renon 170*; b. *P. Renon 173*; c. *P. Renon 27*; d. *P. Renon 176*; e. *P. Renon 179*; f. *P. Renon 24*; g-h. *P. Renon 21*).

**10.11.** ***Lessingianthus ligulifolius*** (Mart. *ex* DC.) H.Rob., Proc. Biol. Soc. Washington 101(4): 944 (1988).

Subshrubs, leaves oblong, 4.3–14 × 0.9–2.8 cm, coriaceous, capitulescence cymose, 25 purple florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 11.VII.2017, fl. and fr., *P. Renon 11* (JAR 4289); 17.III.2018, fl. and fr., *P. Renon 172* (JAR 6046).

**10.12.** ***Lessingianthus obtusatus*** (Less.) H.Rob., Proc. Biol. Soc. Washington 101(4): 946 (1988).

Shrubs, leaves oblong to lanceolate, 1.2–4.3 × 0.7–2.6 cm, cartaceous, capitulescence paniculiform, 10 purple florets per head, cypselae blackned, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 11.VII.2017, fl. and fr., *P. Renon 10* (JAR 4288).

**10.13.** ***Lessingianthus onopordioides*** (Baker) H.Rob., Proc. Biol. Soc. Washington 101(4): 946 (1988). Fig. 4e

Subshrubs, leaves oblong to elliptical, 2.4–8.5 × 1–3 cm, coriaceous, capitulescence cymosewith axillary heads, 80–100 purple florets per head, anthers falciform, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 31.III.2018, fl. and fr., *P. Renon 179* (JAR 6051).

**10.14.** ***Orthopappus angustifolius*** Gleason, Bull. New York Bot. Gard. 4: 238 (1906).

Herbs, leaves rosulate, oblanceolate to lanceolate, 3.9–29.4 × 0.4–2.5 cm, heads grouped in glomerulus, 10–15 zygomorph florets per head, pappus uniseriate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 7.I.2018, fl. and fr., *P. Renon 91* (JAR 4800).

**10.15.** ***Piptocarpha rotundifolia*** Baker, *Fl. bras.* (Martius) 6(2): 125 (1873). Fig. 4g-h

Trees, leaves oblongs to elliptical, 6.5–10 × 3.3–6.9 cm, heads grouped in leaf-axils, 4–5 cream florets per head, pappus of bristles.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fr., *P. Renon 21* (JAR 4299); 3.II.2018, fl. and fr., *P. Renon 129* (JAR 7262).

**10.16.** ***Strophopappus speciosus*** (Less.) R.Esteves, Bradea 6(32): 279 (1994). Fig. 4f

Shrubs, leaves elliptical, 1.5–8.9 × 0.8–4.4 cm, discolor, capitulescence cymose, involucral bracts and florets pink, pappus paleaceous, 3-seriate.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 24* (JAR 4302).

**10.17.** ***Vernonanthura ferruginea*** (Less.) H.Rob., Phytologia 73(2): 70 (1992).

Shrubs, leaves elliptical to lanceolate, 2.3–18 × 1.3–7 cm, leaf blade discolor, capitulescence paniculiform, 25 lilac florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 26* (JAR 4304); 11.VII.2017, fl., *P. Renon 14* (JAR 4292).

**10.18.** ***Vernonanthura membranacea*** (Gardner) H.Rob., Phytologia 73(2): 71 (1992).

Shrubs, leaves linear to oblanceolate, 10.5–17.3 × 1–1.4 cm, leaf blade concolor, capitulescence paniculiform, 8–22 lilac florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 32* (JAR 4314).

**10.19.** ***Vernonanthura polyanthes*** (Spreng.) A.J.Vega & Dematt., Phytotaxa 8: 47 (2010).

Shrubs, leaves oblongs, 2.9–12.5 × 0.8–3 cm, leaf blade concolor, capitulescence paniculiform, 15–23 lilac florets per head, pappus of bristles and pales.

**Examined material**: Quirinópolis, Serra da Confusão do Rio Preto, cerrado sentido restrito, 18.VII.2017, fl. and fr., *P. Renon 31* (JAR 4313); 12.X.2017, fl. and fr., *P. Renon 43* (JAR 4753).

This work contributes to documenting the richness, endemism, distribution and conservation status of species of Asteraceae that occur on SCRP, a remaining region of the Cerrado that is undergoing degradation due anthropic influence.

The results indicate that SCRP shelters a considerable diversity of Asteraceae. Three of the found species are new records for the state of Goiás, and one, the recently discovered *Isostigma resupinatum*, is Endangered and restricted to Goiás.

Providences should be taken to help mitigate the anthropic disturbances on SCRP. Additionally, more research could be undertaken to further expand knowledge of the plant diversity of SCRP, including the discovery of new species and new occurrences for the region. Such information would be important to press public authorities to protect natural areas.

A gap in knowledge regarding conservation status was found for Asteraceae, with 90% of the collected species having not been evaluated for threat. Considering the present sixth mass extinction, determination of the threat level of species becomes vital to facilitate their protection.

Floristic inventories and taxonomic treatments help to better understand local biodiversity. Accurate identifications are an indispensable part of any biodiversity study, but especially species lists, which will come to compose databases. The taxonomic treatment presented here included identification keys, diagnoses and descriptions and photographs to help to recognize and differentiate species of Asteraceae on the Serra da Confusão do Rio Preto. This research will also be important to future inventories of local floras by aiding in the identification of species of Asteraceae.

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