# Vernonanthura warmingiana (Asteraceae: Vernonieae), a new species from Brazil

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Dematteis, M. (Instituto de Botánica del Nordeste, UNNE-CONICET, Casilla de Correo 209, 3400 Corrientes, Argentina; e-mail: dematteisar@yahoo.com.ar). *Vernonanthura warmingiana* (Asteraceae: Vernonieae), a new species from Brazil. Brittonia 58: 182–188. 2006.—A new species of *Vernonanthura* (Asteraceae), **V. warmingiana**, from the Brazilian states of Minas Gerais and São Paulo is described and illustrated. The new species resembles *Vernonanthura laxa*, but differs in having 15–20 florets per capitula, small leaves, the blades elliptic to lanceolate and rounded at the apex. In addition, a new synonym is reported for *Vernonanthura laxa*, which is also described, and for the first time illustrated.

**Key Words:** Brazil, cerrado, new species, *Vernonanthura*.

Dematteis, M. (Instituto de Botánica del Nordeste, UNNE-CONICET, Casilla de Correo 209, 3400 Corrientes, Argentina; e-mail: dematteisar@yahoo.com.ar). *Vernonanthura warmingiana* (Asteraceae: Vernonieae), a new species from Brazil. Brittonia 58: 182–188. 2006.—Una nueva especie de *Vernonanthura* (Asteraceae), **V. warmingiana**, de los estados brasileros de Minas Gerais y São Paulo es descrita e ilustrada. La nueva especie se asemeja a *Vernonanthura laxa*, pero difiere por presentar 15–20 flores por capítulo, hojas de menor tamaño y lámina foliar elíptica o lanceolada, redondeada en el ápice. Además se presenta un nuevo sinónimo para *Vernonanthura laxa*, la cual también es descrita y por primera vez ilustrada.

The tribe Vernonieae Cass. (Asteraceae) comprises about 98 genera and 1300 species concentrated around two greater centers of diversification, the tropical region of Africa and southern Brazil. The members of the tribe are grouped into six different subtribes based on inflorescence pattern, persistence of the phyllaries, pollen morphology, chemical composition, and chromosome number (Bremer, 1994). The subtribe Vernoniinae Less., constitutes the largest group within the Vernonieae, including approximately 1100 species. This group comprises almost all the species previously placed into the huge genus *Vernonia* Schreb., the majority of which has been segregated to different genera in a series of studies by Robinson (1987, 1988, 1989, 1990, 1992, 1993).

The genus *Vernonanthura* H. Rob. was established to separate the taxa early arranged under *Vernonia* sect. *Lepidaploa* (Cass.) DC. subsect. *Paniculatae* Benth. (Robinson, 1992). A considerable number of taxa included in this genus were later placed into *Vernonia* sect. *Lepidaploa* subsect. *Chamaedrys* Cabrera, which was revised by Stutts (1988). As presently delimited, *Vernonanthura* comprises about 70 species widely distributed in South America, but mostly concentrated in southeastern Brazil. The members of the genus are shrubs or small trees having thyrsoid inflorescences, with individual branches cymose to corymbose (Robinson, 1992). *Vernonanthura* is characterized by tricolporate, subechinolophate pollen grains and a continuous microperforate tectum, with depressions delimited by irregular ridges. This pollen form, named type "A" (Keeley and Jones, 1979), clearly separates the genus from other members of the *Lepidaploa* complex, which present pollen grains with discontinuous tectum (Robinson, 1999).

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Like some other South American Vernonieae, *Vernonanthura* is characterized cytologically by the presence of the basic chromosome number x = 17 (Robinson, 1992; Dematteis, 2002). However, this number distinguishes *Vernonanthura* from certain members of the subtribe Vernoniinae, such as *Lessingianthus* H. Rob., *Lepidaploa* Cass., and *Chrysolaena* H. Rob., which present respectively basic numbers x = 16, x = 14–16 and x = 10 (Dematteis, 2002).

The generic limits of *Vernonanthura* are clear and no major problems in its circumscription are available. However, there are still some species presently included in *Vernonia* that should be revised. The present study deals with two species of the tribe occurring in cerrado vegetation of the Brazilian central highlands. These entities were initially determined as new species by J. G. Baker on herbarium specimens deposited at the University of Copenhagen (C), but they remained unknown until Eugene Warming (1890) published a species list of Lagoa Santa (Minas Gerais). However, both species were published only as a name, without a valid description according to the ICBN (Greuter et al., 2000). A detailed examination of the specimens collected by Warming showed that one of them constitutes a hitherto undescribed species, while the remaining represents a later name for *Vernonanthura laxa* (Gardner) H. Rob. Therefore, the main objectives of this paper are (1) to describe *Vernonanthura warmingiana* as a new species and (2) to include *Vernonia thyrsoidea* Baker ex Warm. under the synonymy of *V. laxa*.

**Vernonanthura warmingiana** Dematteis, **sp. nov.** TYPE: BRAZIL. Minas Gerais: Lagoa Santa, 27 Jul 1865, *E. Warming 2540* (HOLOTYPE: C). (Fig. 1)

*Vernonia griseola* Baker ex Warm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 1890: 185. 1890 [1891], nomen nudum.

Haec species *Vernonanthurae laxae* (Gardner) H. Rob. similis sed laminis foliorum minoribus et phyllariis acutis differt. Frutex erectus 0.5–1 m altus, caulibus striatis purpureis dense foliatis. Folia 3.5–5.5 cm longa 1.2–1.7 cm lata, elliptica vel lanceolata, denticulata, revolta, basi cuneata, superne hispida, inferne lanata, utrinque glanduloso-punctata. Capitula pedicellata, glomerata vel raro solitaria, ad inflorescentiam corymbosam 10–15 cm longa disposita.

Erect shrub 0.5–1 m heigh, stems striate, purple, white-tomentose, densely leafy at the inflorescence, internodes 0.5–2 cm long. Leaves alternate, sessile to subsessile, coriaceous. Leaf blades 3.5–5.5 × 1.2–1.7 cm, elliptic to lanceolate, denticulate, revolute at the margin, acute at the apex, basally cuneate, hispid above, sparsely lanate beneath, glandular dotted on both faces, pinnatinervate, secondary veins 10–13, slightly curved, prominent beneath. Inflorescence 10–15 cm long, terminal, paniculiform, individual branches corymbose, bracts greatly reduced or absent. Capitula shortly pedicellate, disposed in pedicellate glomerules or rarely solitary. Pedicels 2–6 mm long, densely tomentose. Involucre campanulate, 6–7 mm high, 6–8 mm diam. Phyllaries 6 or 7 seriate, loosely imbricate, mucronate, purple at the apex, outer phyllaries 1.8–3.5 × 1–1.5 mm, triangular to ovate, sparsely tomentose, often extending down the pedicel, the inner ones 5–7 × 1–1.8 mm, ovate-lanceolate, acute. Florets 15–20. Corollas 6–7 mm long, violet, glabrous, lobes lanceolate, 1.5–1.8 mm long. Anthers 3–3.5 mm long, basally sagittate. Stylus 8–9 mm long, densely pilose, branches linear, 2.4–2.7 mm long. Cypselas 1.6–2 mm long, ribbed, sparsely sericeous-pubescent. Pappus yellowish, biseriate, outer scales 0.6–0.9 mm long, linear-lanceolate, fimbriate, inner bristles 4–5 mm long.

Additional specimens examined: **BRAZIL. MINAS GERAIS:** Lagoa Santa, 27 Jul 1865, *Warming 2679* (C). **SÃO PAULO:** Mogi-Mirim, 15 Aug 1827, *Burchell 5139* (P); Mogi-Guaçu, Fazenda Campininha, 3–3.2 km NNW de Padua Sales, 20 Sep 1960, *J. R. Mattos & N. F. Mattos 8253* (SP).

In the last treatment for the New World Vernonieae, Robinson (1999) suggested that *Vernonia griseola* could be a possible synonym of the widespread *V. ferruginea* (Less.) H. Rob. However, *Vernonanthura warmingiana* differs considerably from this taxon, not only in habit, but also in arrangement of the inflorescence, shape, and size of the leaves and floret number (Table I). *Vernonanthura ferruginea* is a small tree with sessile heads, leaf blades widely oblong, crenate at the margin, apically rounded, and presents 20

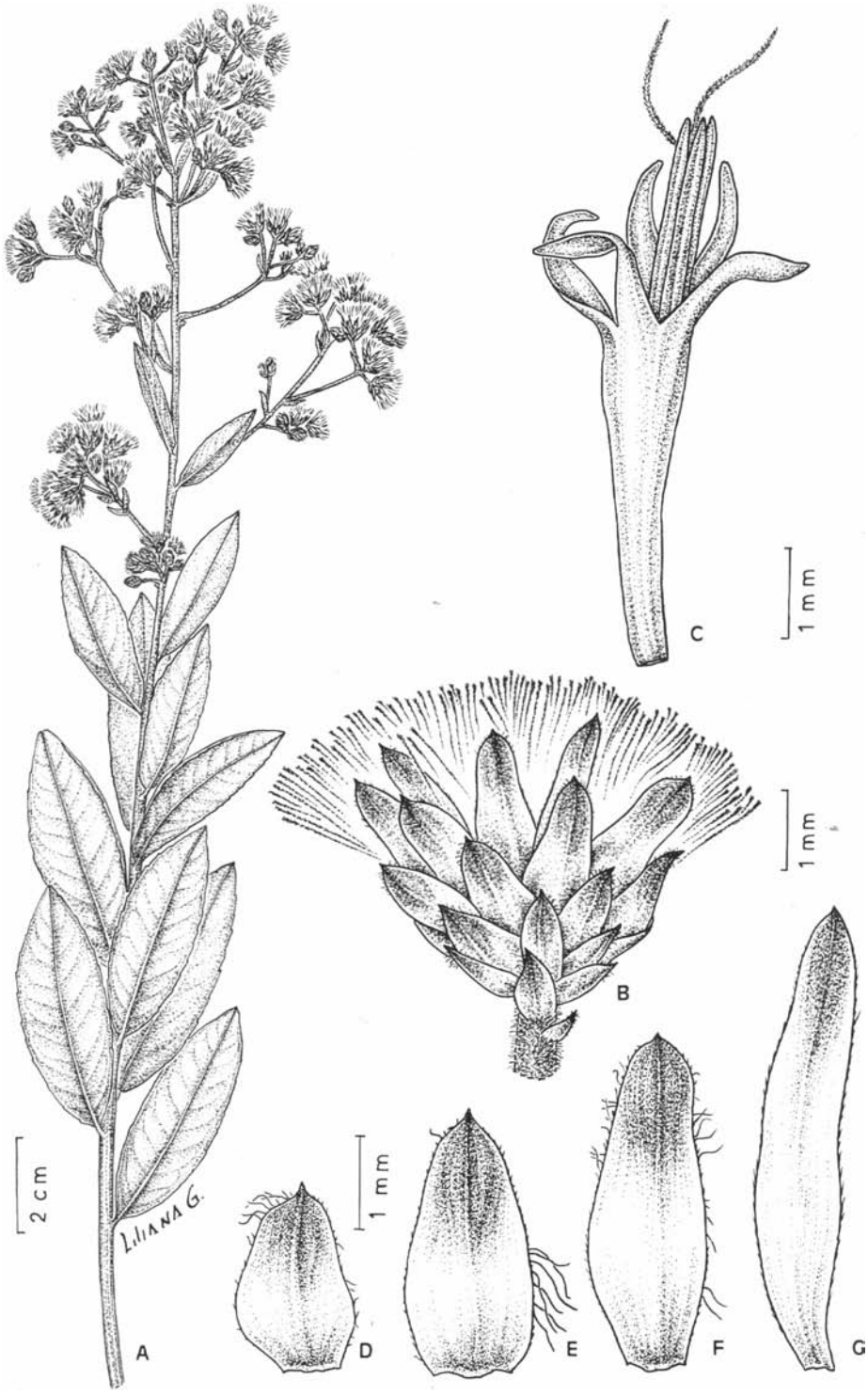


**Fig. 1.** *Vernonanthura warmingiana*. **A.** Inflorescence. **B.** Capitula. **C.** Corolla showing anthers and style. **D.** Outer phyllary. **E, F.** Middle phyllaries. **G.** Inner phyllary. (From the holotype.)

TABLE I
MORPHOLOGICAL COMPARISON OF *V. warmingiana* AND RELATED SPECIES.

| Character | *V. warmingiana* | *V. ferruginea* (Less.) H. Rob. | *V. laxa* (Gardner) H. Rob. | *V. cuneifolia* (Gardner) H. Rob. | *V. mucronulata* (Less.) H. Rob. |
|---|---|---|---|---|---|
| Plant height | 0.5–1 m | 2–4 m | 1–1.5 m | 0.6–1.5 m | 1–1.5 |
| Internode length | 5–20 mm | 15–40 mm | 40–60 mm | 5–10 mm | 4–8 mm |
| Leaves size | 3.5–5.5 × 1.2–1.7 cm | 8–14 × 3–4 cm | 4–10 × 1.3–2.5 cm | 4–6.5 × 2–3.6 cm | 2.5–6 × 1.5–2.5 cm |
| Leaf shape | elliptic to lanceolate | widely oblong | oblanceolate to lanceolate | obovate | elliptic to ovate |
| Leaf apex | acute | rounded | acute | rounded | mucronate |
| Leaf base | cuneate | rounded | attenuate | cuneate | cordate to rounded |
| Inflorescence branching | corymbose | seriate-cymose | corymbose | corymbose | corymbose |
| Pedicel length | 2–6 mm | 0 mm | 3–14 mm | 2–5 mm | 1–3 mm |
| Inner phyllaries | acute | mucronate | obtuse | obtuse to rounded | acute |
| Floret number | 15–20 | 20–30 | 10–16 | 9–10 | 6–10 |

to 30 florets per capitula. Additionally, *Vernonanthura ferruginea* has individual branches of the inflorescence with the capitula disposed in seriate cymes, while *V. warmingiana* presents corymbose branches. The new species is superficially similar to *Vernonanthura laxa*, but differs in having smaller leaves, 15 to 20 florets per capitula, blades elliptic to lanceolate, and inner phyllaries acute at the apex.

*Vernonanthura warmingiana* shows also certain resemblance to *V. mucronulata* (Less.) H. Rob. However, the latter entity presents six to ten florets per head and leaf blades apically mucronate, cordate to rounded at the base. Both species can be also separated by the margin of the leaves, which is denticulate in *Vernonanthura warmingiana* and crenate-serrulate in *V. mucronulata*.

The group of species related to *Vernonanthura warmingiana* can be distinguished by the following key, that is based on the key to *Vernonia* subsect. *Chamaedrys* by Stutts (1988).

1. Inflorescence laxly paniculate; leaves strigose-pubescent or scabrous above, 4–10 cm long; internodes 40–60 mm length . . . . . *V. laxa*
1. Inflorescence densely paniculate; leaves glabrous to hispid above, 2.5–6.5 cm long; internodes 5–40 mm long.
   2. Leaf blades elliptic, rarely ovate to oblanceolate, apically acute to mucronate; inner phyllaries acute at the apex.
      3. Leaf blades cordate to rounded at the base, apically mucronate; capitula with 6–10 florets . . . . . *V. mucronulata*
      3. Leaf blades cuneate at the base, acute at the apex; capitula with 15–20 florets . . . . . *V. warmingiana*
   2. Leaf blades obovate, rounded at the apex; inner phyllaries obtuse to rounded at the apex . . . . . *V. cuneifolia*

VERNONANTHURA LAXA (Gardner) H. Rob., Phytologia 73(2): 71. 1992. *Vernonia laxa* Gardner, London J. Bot. 5: 214. 1846. *Cacalia laxa* (Gardner) Kuntze, Revis. Gen. Pl. 2: 970. 1891. TYPE: BRAZIL. Minas Gerais: Near Formigas, 3 to 5 feet, florets purple, Jul 1840, *G. Gardner 4802* (HOLOTYPE: BM, ISOTYPES: G, K, P, W). (Fig. 2)

*Vernonia thyrsoidea* Baker ex Warm., Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 1890: 185. 1890 [1891], nomen nudum.

Erect shrub with xylopodia, 1–1.5 m height, stems striate, purple, ascending,


**Fig. 2.** *Vernonanthura laxa*. **A.** Inflorescence. **B.** Middle part of the stem. **C.** Capitula. **D.** Immature cypsela and corolla showing anthers and style. **E.** Outer phyllary. **F.** Middle phyllary. **G.** Inner phyllary. (From *Hatschbach et al. 68216*, CTES.)

glabrous, laxly leafy to the inflorescence, basal internodes 4–6 cm long. Leaves alternate, subsessile, coriaceous. Leaf blades 4–10 × 1.3–2.5 cm, oblanceolate to lanceolate, denticulate, acute at the apex, basally attenuate, scabrous and glandular dotted above, tomentose below. Inflorescence laxly paniculate, 5–15 cm long, with individual branches corymbose, bracts reduced or absent. Capitula shortly pedicellate, pedicels 3–14 mm long. Involucre turbinate, 6–7 mm high, 6–7 mm diam. Phyllaries 5 or 6 seriate, densely imbricate, outer phyllaries 3–3.5 × 2–2.4 mm, ovate, acute at the apex, inner phyllaries 5–7 × 2.5–3 mm, ovate-lanceolate, apically obtuse. Florets 10–16. Corollas 6–7 mm long, violet, glabrous, lobes lanceolate, 1.8–2.3 mm long. Anthers 2.5—3 mm long, sagittate at the base. Stylus 7–8 mm long, branches linear, 1.8—2.2 mm long. Cypselas 2.7–3 mm long, glandular dotted, sparsely sericeous-pubescent. Pappus yellowish, outer scales 0.5–0.7 mm long, inner bristles 5–6 mm long.

Additional specimens examined: **BRAZIL. Bahía:** Mun. Abaira, Bom Querer, 3 Sep 1992, *Ganev 1007* (CTES, K, SPF); Mun. Mucugê, Estrada Mucugê-Barra da Estiva, km 2, 23 Aug 1981, *Coradin & Silva s. n.* (SPF); Mun. Rio de Contas, Campos da Pedra Furada, proximo ao Rio Agua Suja, 7 Aug 1993, *Ganev 2037* (SPF). **Minas Gerais:** Serra do Caraça, campo de Fora, 10 Oct 1882, *Glaziou 13997* (P, R); Mun. Gouveia, 3–5 km NO de Gouveia, 24 Jul 1998, *Hatschbach et al. 68216* (C, CTES, MBM); Diamantina, 5 Jun 1955, *Pereira 1692* (M, RB), Jul 1934, *Brade 10568* (RB); Lagoa Santa, in campis, 27 Jul 1865, *Warming 2553* (P); Lagoa Santa, 16 Jul, *Warming 2563* (C, P).

Next to the name of *Vernonia thyrsoidea*, Warming (1890) indicated that the analyzed specimen is a "frutex campestris fere 1 m altus et paullo altior, paullo ramosus, in campis frequens, inprimis in cerrados." However, these observations cannot be considered a valid diagnosis according to the ICBN, since almost all the species of *Vernonia* s.l. are branched shrubs from 1 or more meters high and many species grow in cerrado vegetation. This text seems to be collection data of these specimens and clearly its citation is not intended as a validating description or diagnosis.

*Vernonanthura laxa* seems to be an uncommon species, because it is only known from a few collections from Minas Gerais and Bahía. Like many other species of the tribe, it occurs in campo cerrado and campo rupestre habitats.

As suggested by Robinson (1999), *Vernonia thyrsoidea* nom. nud. could be related to *Vernonanthura cuneifolia* (Gardner) H. Rob., a species widely distributed in southern Brazil and Paraguay. However, both species differ considerably in leaf shape, floret number, and inflorescence size. *Vernonanthura cuneifolia* presents leaf blades obovate, rounded at the apex, 9 to 10 florets per head, and a large pyramidal inflorescence. This taxon seems to be most closely related to *Vernonanthura warmingiana* from which it can be distinguished as indicated above.

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