

# Synopsis of *Leptostelma* (Asteraceae: Astereae)

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SEP 22 2008

NEW YORK  
BOTANICAL GARDEN

## Abstract

There is presented a synopsis of the genus *Leptostelma* D. DON and four new combinations from *Erigeron* to *Leptostelma* are proposed: *L. camposportoi* (CABRERA) A. TELES & SOBRAL, *L. catharinense* (CABRERA) A. TELES & SOBRAL, *L. meyeri* (CABRERA) A. TELES and *L. tucumanense* (CABRERA) A. TELES. A key to species of *Leptostelma* and commentaries about geographical distribution of the species are provided.

## Resumen

Se presenta una sinopse del género *Leptostelma* D. DON y se propone cuatro nuevas combinaciones de *Erigeron* para *Leptostelma*: *L. camposportoi* (CABRERA) A. TELES & SOBRAL, *L. catharinense* (CABRERA) A. TELES & SOBRAL, *L. meyeri* (CABRERA) A. TELES y *L. tucumanense* (CABRERA) A. TELES. Una clave para las especies de *Leptostelma* y comentarios sobre la distribución geográfica de las mismas son presentados.

## Introduction

*Leptostelma* D. DON was described in 1830 to accommodate one single species, *Leptostelma maxima* D. DON. Later, BENTHAM (1873) considered *Leptostelma* as a section of *Erigeron* L. [*Erigeron* L. sect. *Leptostelma* (D. DON) BENTH. & HOOK.], in which he was followed by BAKER (1882) in the *Flora Brasiliensis*. NESOM (1989) accepted *Erigeron* as a big genus with 20 sections [including the sections *Leptostelma* and *Trimorpha* (CASS.) DC.] and over 400 species, but few years later treated *Leptostelma* provisionally in the generic rank (NESOM 1994c). Recently HIND & NESOM (2002) formally reinstated *Leptostelma* at the generic level with a new combination, *Leptostelma tweediei* (HOOK. & ARN.) D. J. N. HIND &

G. L. NESOM. The last generic treatment of the Astereae recognized *Leptostelma* belonging to subtribe Conyzinae, with five species (NESOM & ROBINSON 2007).

BAKER (1882) considered the Brazilian *Erigeron* as belonging to two sections, *Leptostelma* and *Caenotus* NUTT., the first section with ray florets with ligules larger than tubular florets (with the same length in *Caenotus*), usually arranged in one series (several in *Caenotus*) and receptacle alveolate with short projections (fimbriate) (smooth in *Caenotus*). Based on these characters CRONQUIST (1943) transferred all species of sect. *Caenotus* to *Conyza*.

*Erigeron* occurs predominantly in continental North and Central America, with some species in the Old World, West Indies and South America (NESOM 1994c), where it is restricted to the Andes and contiguous regions (NESOM 1994c). Considering this phytogeographical distinction and some morphological differences such as the length of ray florets and receptacle type, all other species of *Erigeron* sect. *Leptostelma* need validation under *Leptostelma* at generic level. These species belong to the subtribe Conyzinae and are closely associated with *Apopyros* G. L. NESOM, *Hysterionica* WILLD. and *Neja* D. DON, forming a natural group marked by a geographic range primarily in southeastern South America, and three-nerved phyllaries (NESOM 1994a, b, c). NOYES (2000) showed from ITS sequence data that the southeastern South American taxa *Leptostelma* (treated as a section of *Erigeron*), *Apopyros*, *Hysterionica* and *Neja* are closely related, supporting the hypothesis of NESOM (1994c). According to this author, South American Conyzinae are derived from North American *Erigeron*, and this subtribe is most closely related to North American Astereae.

### Taxonomic Treatment

*Leptostelma* D. DON, in SWEET, Brit. Flow. Gard., ser. 2. 1: 38. 1831. Type: *Leptostelma maximum* D. DON, in SWEET, Brit. Flow. Gard., ser. 2. 1: 38. 1831.

Perennial herbs. Leaves alternate, basal leaves rosulate or all cauline, entire, serrate, toothed or lobed. Capitulescence corymbiform. Heads pedunculate, heterogamous, radiate; involucre hemispheric or campanulate; phyllaries narrow, 1–3-seriate, 3-nervate; receptacle flat or slightly convex, alveolate, and fimbriate; ray florets pistillate, corolla liguliform, white or yellow, 1–2-seriate; disk florets perfect, corolla tubulose, yellow, 5-lobed. Cypselae flattened, 2-ribbed; pappus of numerous capillary bristles, 1-seriate.

Comments. *Leptostelma* comprises six species, occurring in Argentina, Bolivia, Brazil, Paraguay and Uruguay. The genus is closely related to *Apopyros*, *Hysterionica* and *Neja*, differing from *Apopyros* by the radiate heads (vs. disciform in *Apopyros*), from *Hysterionica* by the uniseriate pappus (vs. biseriate

in *Hysterionica*) and from *Neja* by the 2-ribbed cypselae (vs. 7–10-ribbed in *Neja*).

1. *Leptostelma camposportoi* (CABRERA) A. TELES & SOBRAL, **comb. nov.**  
 Basionym: *Erigeron camposportoi* CABRERA, Arch. Jard. Bot. Rio de Janeiro 15:  
 75. 1957. Type: Brazil, estado do Rio de Janeiro, Serra dos Órgãos, in silva, 1800  
 m alt., CABRERA 12294, 12 Jul 1956 (holotype LP, photo seen; isotypes GH, not  
 seen, RB, not found).

Geographical distribution. Brazil, Rio de Janeiro (Serra dos Órgãos and Serra do  
 Itatiaia).

2. *Leptostelma catharinense* (CABRERA) A. TELES & SOBRAL, **comb. nov.**  
 Basionym: *Erigeron catharinensis* CABRERA, Arch. Jard. Bot. Rio de Janeiro 15:  
 75. 1957. Type: Brazil, Santa Catarina, Campo dos Padres, Bom Retiro. 2000  
 m.s.m., 15 Feb 1948, REITZ 2341 (holotype LP, not seen; isotype US, photo  
 seen).

Geographical distribution. Brazil, Santa Catarina, in altitudes ranging from 1200  
 to 2000 m above sea level, in the municipalities of Bom Jardim da Serra, Bom  
 Retiro, Campo Alegre, Lauro Müller, Orleans and Santo Amaro da Imperatriz.

Comments. SOLBRIG (1962) regarded *Erigeron catharinensis* as a synonym  
 of *Erigeron* (= *Leptostelma*) *maximus* (D. DON) DC., and commented on the  
 morphological variation of this species. However, we analysed several  
 collections in Brazilian herbaria [SMITH, L. B. 7753 (RB); REITZ, R. 6106 (RB);  
 REITZ, R. 7425 (RB); REITZ, R. 7673 (RB); REITZ, R. 8688 (RB)] and saw many  
 populations in the field, and we could verify that the population found in Santa  
 Catarina (described by CABRERA as *Erigeron catharinensis*) is distinct from those  
 growing in southeast Brazil. The differences are the ovate, petiolate leaves (the  
 petioles winged); involucre 5–6 mm long, glabrous, and ligule 3–5 mm long (vs.  
 lanceolate to oblong-lanceolate, sessile leaves; involucre 12–14 mm long, hirsute,  
 and ligules 12–15 mm long in *L. maxima*).

3. *Leptostelma maxima* D. DON, in SWEET, Brit. Flow. Gard., ser. 2. 1: 38. 1831.  
*Aster maximus* (D. DON) LESS., Syn. Gen. Compos. 182. 1832. *Erigeron maximus*  
 (D. DON) OTTO ex DC., Prodr. 5: 284. 1836. *Erigeron maximus* (D. DON) OTTO ex  
 DC. var. *minor* BAKER, in MARTIUS, Fl. Bras. 6(3): 28. 1882. *Erigeron maximus*  
 (D. DON) OTTO ex DC. var. *palustre* BAKER, in MARTIUS, Fl. Bras. 6(3): 28. 1882.  
 Type: ?

= *Erigeron sulcatus* DC., Prodr. 5: 284. 1836. Type: In Brasiliae pacois  
 uliginosis, LUND (G-DC?, not seen).

= *Erigeron alpestre* GARDNER, in HOOKER, London J. Bot. 4: 123. 1845. Type: Brazil, Rio de Janeiro, Organ Mountains, GARDNER 5787 (type US, photo seen).

= *Erigeron palustre* GARDNER, in HOOKER, London J. Bot. 4: 123. 1845. Type: Brazil, Rio de Janeiro, Organ Mountains, GARDNER 507 (type BM, not seen).

= *Erigeron scaberrimus* GARDNER, in HOOKER, London J. Bot. 7: 80. 1848. Type: Brazil, in marshy Campos near Villa do Principe, Province of Minas Gerais, Aug. 1840, GARDNER 4923 (type BM, not seen).

Geographical distribution. Southeastern and southern Brazil (Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul), Argentina (Misiones) and Paraguay (Caaguazú, Paraguari) (SOLBRIG 1962, SORIA & ZARDINI 1995).

Comments. *Leptostelma maxima* is a very common species in wetlands of southeastern and southern Brazil. It is morphologically close to *L. catharinense* but easily distinguished by the shape of the leaves and the size of the heads. In the protologue of the species DAVID DON cited: "A native of Mexico; a plant of which was obtained by Mr. HUNNEMANN, in the autumn of 1827 from the Berlin Botanic Garden, for ROBERT BARCLAY". We believe that the type must have been deposited in the herbarium of Berlin (B) and probably destroyed during the second world war. According to SOLBRIG (1962) the reference to Mexico is incorrect, but the same author did not make comment on the native place of the species. In our opinion, the plant is native to South America.

4. *Leptostelma meyeri* (CABRERA) A. TELES, **comb. nov.** Basionym: *Erigeron meyeri* CABRERA, Notas Mus. La Plata, Bot. 19: 198. 1959. Type: Argentina, Prov. Chaco, MEYER 2234 (holotype LP, photo seen; isotype LIL, not seen).

Geographical distribution. Argentina, Chaco and northwestern of Entre Rios (CABRERA 1974).

5. *Leptostelma tucumanense* (CABRERA) A. TELES, **comb. nov.** Basionym: *Erigeron tucumanensis* CABRERA, Notas Mus. La Plata, Bot. 19: 196. 1959, "tucumanense". Type: Argentina, "Tucumán, Dept. Chichigasta, Las Pavas, 2,500 m", VENTURI 4745 (holotype LP, photo seen; isotypes GH, not seen; LIL, not seen; US, photo seen).

Geographical distribution. Known only from the type locality.

6. *Leptostelma tweediei* (HOOK. & ARN.) D. J. N. HIND & G. L. NESOM, Kew Bull. 57(2): 478. 2002. Basionym: *Erigeron tweediei* HOOK. & ARN., Companion Bot. Mag. 2: 50. 1836. *Leucopsis tweediei* (HOOK. & ARN.) BAKER, in MARTIUS, Fl. Bras. 6(3): 9. 1882. *Leucopsis tweediei* var. *pilosa* BAKER, in MARTIUS, Fl. Bras. 6(3): 9. 1882. *Haplopappus tweediei* (HOOK. & ARN.) MALME, Ark. Bot. 24(A-6):

42. 1931. Type: Uruguay, Maldonado, in boggy ground, TWEEDIE 1058 (holotype K, not seen).

= *Erigeron seneciiformis* S. F. BLAKE, Proc. Biol. Soc. Washington 36: 51. 1923. Type: Bolivia, hacienda Rosaria, near Reyes, 4 Nov. 1921, WHITE 1206 (holotype US, photo seen; isotype K, not seen).

Geographical distribution. Brazil (Bahia, Distrito Federal, Goiás, Mato Grosso, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul), northeastern Argentina (Chaco, Corrientes, Entre Ríos, Formosa, Jujuy and Misiones), Paraguay (Caaguazú and Carapeguá), southern Bolivia (Santa Cruz) and Uruguay (Montevideo and San José). (SOLBRIG 1962, CABRERA 1974).

Comments. *Leptostelma tweediei* is morphologically close to *L. maxima* and differs mainly by the shorter and yellow ray florets.

### Key to the species of *Leptostelma*

1. Basal leaves rosulate.
  2. Ray florets yellow .....6. *Leptostelma tweediei*
  2. Ray florets white .....4. *Leptostelma meyeri*
1. Basal leaves not rosulate, leaves all cauline.
  3. Leaves auriculate; ray florets 1-seriate, ligules yellow.....5. *Leptostelma tucumanense*
  3. Leaves not auriculate; ray florets 2-seriate, ligules white.
    4. Involucre glabrous, 5–6 mm; ligules 3–9 mm.
      5. Leaves sessile, oblanceolate, attenuate at the base, margin serrate-lobed; ligules 3–5 mm .....1. *Leptostelma camposportoi*
      5. Leaves petiolate (petiole winged), ovate, sagittate or auriculate at the base, margin toothed or serrate; ligules 8–9 mm .....2. *Leptostelma catharinense*
    4. Involucre hirsute, 12–14 mm; ligules 12–15 mm .....3. *Leptostelma maxima*

### Acknowledgements

We thank SUSANA FREIRE, Curator of the family Asteraceae of the Herbarium LP for sending digital images of some types and GUY NESOM for encouraging us to publish the combinations. We are also grateful to EMILY WOOD, Curator of the Herbarium of Harvard University, for bibliographic assistance, and CAPES and CNPq for the scholarship and grant to the first and last author, respectively.

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