

## NOTA BREU

***Erigeron blakei* Cabrera (Asteraceae), an alien species confirmed for the Iberian Peninsula*****Erigeron blakei* Cabrera (Asteraceae), espècie al·lòctona confirmada a la península Ibèrica**

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***Erigeron blakei* Cabrera [= *Conyza blakei* (Cabrera) Cabrera]**

GIRONES: Vilablareix, gardened areas and waysides, 31TDG8244, 99 m, 8-VII-1999, L. Vilar (HGI 16281); ibidem, 10-VII-2021, L. Vilar (HGI 24227). Figure 1.



Figure 1. *Erigeron blakei* Cabrera (HGI 24227): Habit of a flowering plant (left); lower stem leaf with lobes (above right); detail of the secondary inflorescence (bottom right).

Eight alien *Erigeron* L. species formerly included in *Conyza* Less. are present in Europe and the Mediterranean basin according to Euro+Med PlantBase (Euro+Med, 2006-2021): *Erigeron bilbaoanus* (J. Rémy) Cabrera; *E. blakei* Cabrera; *E. bonariensis* L.; *E. canadensis* L.; *E. daveauanus* (Sennen) Greuter; *E. floribundus* (Kunth) Sch. Bip.; *E. primulifolius* (Lam.) Greuter and *E. sumatrensis* Retz. However, in recent taxonomic treatments two of the species accepted in Euro+Med PlantBase are usually considered synonymous with other taxa or have an uncertain taxonomic value. This is the case of *E. bilbaoanus*, included in the synonymy of *E. floribundus* [= *Conyza floribunda* Kunth] (Stace, 2010; Pyke, 2020; Liendo *et al.*, 2021) and *E. daveauanus*, morphologically close to *E. sumatrensis* [= *Conyza sumatrensis* (Retz.) E. Walker] (Pyke, 2020) or included in the synonymy of the latter species (Stace, 2010; Nesom, 2018; Liendo *et al.*, 2021).

In Europe, these alien species of *Erigeron* formerly included in *Conyza* usually occur in strongly disturbed habitats (waste places, roadsides, railways, gardens and cultivated fields) but also in more or less disturbed areas of native vegetation such as sand dunes or grasslands (Thébaud & Abbott, 1995; Liendo *et al.*, 2021; Verloove, 2021).

*Erigeron blakei* [*Conyza blakei* (Cabrera) Cabrera] is a species native to South America, from South Brazil to North Argentina (POWO, 2021). It is naturalized and established in Southern France (Tison & de Foucault, 2014; Tison *et al.*, 2014; Euro+Med, 2006-2021). The presence of this species in other European countries has been ruled out or is uncertain (Liendo *et al.*, 2021). *Erigeron blakei* was found for the first time in Europe in the late 1960s (Jovet & Vilmorin, 1975) and started to spread rapidly in southeastern France in late 20th-century (Kerguelen *et al.* 1987), invading mainly old fields and vineyards (Thébaud & Abbott, 1995).

According to Laínz (2002) and Pyke (2020) *E. blakei* was reported in error for the Iberian Peninsula by several authors

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(Malagarriga, 1965; Casasayas, 1989; Bolòs & Vigo, 1996). These reports are mainly due to confusion with *E. floribundus* (Kunth) Schultz-Bip. On the other hand, *E. blakei* was neither included in *Flora iberica* (Morales, 2019) nor in a recent revision of the alien *Erigeron* species in central-northern Spain (Liendo *et al.*, 2021), although the latter authors suggested that its present (or future) occurrence in northern Spain cannot be ruled out.

*Erigeron floribundus* and *E. blakei* are closely related species (Thébaud & Abbott, 1995; Tison & Foucault, 2014; Tison *et al.* 2014; Nesom, 2018). Both taxa are annual or short-lived perennial, have reduced vestiture of the stems and leaves (subglabrous to sparsely hirsute), lower stem leaves dentate or narrowly lobed, small capitulae (c. 3-4 mm long), glabrous or almost glabrous involucre bracts, inner (tubular) florets mostly 5-lobbed and ligules absent or rudimentary, not exceeding involucre. Plants of *E. floribundus* are distinct in their relatively broad leaves (rachis usually > 3 mm wide, see Tison & de Foucault, 2014 and Tison *et al.*, 2014), middle and upper stem leaves lanceolate, with visible secondary venation and the secondary inflorescences are broadly paniculate, whereas those of *E. blakei* have narrow lower stem leaves (rachis up to 3 mm wide and lobes up to 5 mm long in our specimens) middle and upper stem leaves linear, with a single vein visible and the secondary inflorescences are cylindrical or subcylindrical. *Erigeron blakei* has also an appearance similar to *E. canadensis*, a rather variable species with several infraspecific taxa described (Sell & Murrell, 2006; Pyke, 2020; Verloove, 2021). Both species share cylindrical or subcylindrical secondary inflorescences (conical in *E. canadensis* var. *glabratus* A. Gray, according to Pyke, 2020) and small capitulae. However, *E. canadensis* has not hirsute stems, inner (tubular) florets mostly 4-lobbed (4 or 5-lobbed in *E. canadensis* var. *glabratus* A. Gray, according to Pyke, 2020) and ligules always present, distinctly exceeding involucre. Furthermore, our observations indicate that the plants here referred to *E. blakei*, can be short-lived perennial, whereas *E. canadensis* is annual (Thébaud & Abbott, 1995; Diez de Ulzurrun *et al.*, 2018). Main morphological characters differentiating *Erigeron blakei*, *E. canadensis* and *E. floribundus* are summarised in Table 1.

Spontaneous plants of *Erigeron blakei* were recently found in 2021 at the edge of garden in an urban area in Girona province (HGI 24227). The population consists of few

plants occupying an area of about 10 square meters. Interestingly, our recent revision of the materials of *Erigeron* formerly included in *Conyza* deposited at HGI, has revealed that *E. blakei* was already collected in the same locality in 1999 (HGI 16281). In addition, one of us (LV) remembers seeing this plant more than 35 years in the same locality. Therefore, *E. blakei* could be considered locally naturalized.

The presence of *E. blakei* in northeastern Iberian Peninsula is not surprising, since it is naturalized in Southern France (Tison *et al.*, 2014) and should be expected in disturbed areas in northeastern Catalonia.

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Table 1. Morphological comparison among *Erigeron blakei*, *E. canadensis* and *E. floribundus*.

	<i>E. blakei</i>	<i>E. canadensis</i>	<i>E. floribundus</i>
Lower stem leaves	Dentate or narrowly lobed; rachis usually $\leq$ 3 mm wide	Entire to dentate	Dentate or narrowly lobed; rachis usually > 3 mm wide
Upper stem leaves	Linear, < 1.5 mm wide	Linear to oblanceolate, usually > 2 mm wide	Linear to lanceolate, > 2 mm wide
Secondary inflorescences	Cylindrical or subcylindrical	Subcylindrical to conical	Broadly paniculate
Ligules	Rudimentary, or absent, not exceeding involucre, <0.4 mm long	ligules always present, distinctly exceeding involucre, usually 0.5-1.5 mm long	Rudimentary, or absent, not exceeding involucre, < 0.4 mm long
Inner tubular florets	mostly 5-lobbed	mostly 4-lobbed	mostly 5-lobbed

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