

***Conyza bonariensis* (L.) Cronquist (Asteraceae)**
Flax-leaved Fleabane, Hairy Fleabane

Description. Annual herbs, from stout taproots. Stems 10-100 cm tall, stiffly erect, moderately pubescent, the lateral branches elongated, sometimes overtopping the central axis. Leaves alternate, 5-10 cm long, cauline, oblanceolate to linear or oblong, short-petioled or tapered at the base, sparsely to moderately pubescent. Heads arranged in a panicle, leafy near the base, the involucre 4-6 mm long, the phyllaries imbricated, glabrous to short-pubescent, narrowly lanceolate to linear-oblong. Flowers mostly tubular, pistillate, the outer series pistillate, 70-200 per head. Pappus composed of capillary bristles, tan to reddish tinged. Fruit an achene, 1-1.5 mm long. In California, flowering from April to November. (Barkley 1986, Cronquist 1943, 1976, Fernald 1950, Ferris 1960, Keil 1993, Munz 1959).

The closely related species, *C. canadensis* (horseweed), differs by having a shorter involucre (3-4 mm long) composed of nearly glabrous phyllaries, having only 25-40 pistillate flowers per head, and with ligulate marginal flowers. Lateral inflorescences do not exceed the length of the uppermost one. *Conyza canadensis* shows geographic variation throughout North America; variation in California suggests that more than one geographical race may be present. Plants with pubescent stems and leaves are referable to var. *canadensis*; plants with almost glabrous stems and leaves are referable to var. *glabrata* (A.Gray) Cronquist (Cronquist 1943, 1994, Fernald 1950).

Geographic distribution. *Conyza bonariensis* and *C. canadensis* are generally believed native to South America and eastern North America respectively (Cronquist 1994, Clapham et al. 1962, Guillermin et al. 1990, Munz 1959, Robbins 1940). *Conyza canadensis* is believed to be one of the most widely introduced species in the world (Grau 1977, Thebaud and Abbott 1995).

Conyza bonariensis (under the name *Erigeron linifolium* Willd.) was first reported from California (Santa Barbara and Bakersfield) in the period 1893-1896 (Eastwood 1896); it was known to occur elsewhere in southern California by 1940 (Robbins 1940). *Conyza canadensis* (as *Erigeron canadense* L.), was first reported in 1876 as widespread and "having the aspect of an introduced weed" (Brewer et al. 1876).

Naturalized populations of *Conyza bonariensis* occur on all the Channel Islands except for San Miguel (Junak et al. 1997), and have been reported from most counties west of the Sierra Nevada (Anonymous 1998). *Conyza canadensis* is found on all the Channel Islands (Junak et al. 1997), and has been reported from most counties in the state (Anonymous 1998, Keil 1993).

Ecological distribution. Throughout their native geographic range, both species of *Conyza* occur on open sites in abandoned fields, waste areas, vineyards, railways and roadsides, and disturbed sites in natural communities. (Barkley 1986, Fernald 1950, Ferris 1960, Cronquist 1994, Munz 1959, Thebaud and Abbott 1995).

Reproductive and vegetative biology. Although not studied in detail, both species are self-compatible, and apparently are not actively pollinated by insects (at least in Europe), suggesting either autogamy or wind-pollination (Thebaud et al. 1996). Reproductive capacity is high relative to total plant biomass and the small, light seeds and a relatively large large pappus confer a

relatively high level of dispersability (Anderson 1992). Most species of *Conyza* produce basal rosettes prior to bolting and flowering, although the rosettes of *C. bonariensis* and *C. canadensis* are relatively short-lived than those in the perennial taxa (Thebaud and Abbott 1995). The former species generally takes 14-22 weeks to flower in European populations. *Conyza canadensis* does not compete well under conditions of high plant densities and cover, but is recruited and becomes well established under disturbed conditions (Thebaud et al. 1996).

Weed status. Flax-leaved fleabane and horseweed are not considered noxious weeds in agricultural or horticultural practice, at least at a global level (not listed by Holm et al. 1977), nor is it considered a noxious weed by the State Dept. of Food and Agriculture (Anonymous 1996). *Conyza canadensis* (under *Erigeron*) was treated as a weed by Lorenzi and Jeffery (1987).

Fungal and insect pathogens. No literature pertinent to fungal or insect pathogens was found.

Herbicide control. Herbicides used for the control of horseweed in crop fields include atrazine, alachlor, cyanazine, and metolachlor (Buhler 1992), triazine (de Prado et al. 1989), paraquat (Vaughn and Vaughan 1989 among others), cyanazine, 2,4-d, chlorimuron, imazaquin, linuron, and metribuzin (Moseley and Hagood 1990). 2,4-D, combined with rotational grazing or improvement of vegetative cover, was recommended for rangelands by Lorenzi and Jeffery (1987). Buhler (1992) and Bruce and Kells (1990) reported success with herbicides only in tilled fields; horseweed survived herbicide treatments in untilled cropfields. Wiese et al. (1995) evaluated combinations of glyphosate, metsulfuron, and 2,4-d in the control of several weeds, including horseweed, in fallow fields. Control of horseweed in container plants was successful using pre-emergents, including oryzalin, isoxaben, metolachlor, and simazine (Skroch et al. 1994).

Evolution of strains resistant to triazine was reported by de Prado et al. (1989) and to paraquat by several researchers (Vaughn and Vaughan 1989, Fuerst and Vaughn 1990, Amsellem et al. 1993, Lehoczki et al. 1992, Norman et al. 1993). Resistance to paraquat is apparently due to a single gene (Amsellem et al. 1993, Norman et al. 1993, Yamasue et al. 1992).

Other control methods. Varying results in controlling horseweed, using mulch and reduced tilling in different crop fields, were reported by Brown and Whitwell (1988), Keeling et al. (1989), and Kapusta and Krausz (1993).

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