Phalaris minor Retz (Poaceae)
Littleseed Canary Grass

Description. Annual, 1-9 dm tall, stems erect, glabrous. Leaves alternate, ligules 3-8 mm long, truncate, entire to lacerate, auricles present; sheaths glabrous to slightly scabrous; blades linear, flat to folded, 4-15 mm wide, glabrous to slightly scabrous. Inflorescence a dense, terminal spike, 1.5-5 cm long, somewhat ovoid. Spikelets 4-5 mm long; glumes 4-6 mm long, oblong to lanceolate, with a strongly winged keel, the apex obtuse to rounded and minutely toothed or notched; florets 3, the sterile ones 1-3 mm long, scale-like to linear, fertile lemma 3-4 mm long, ovate, silky-villous, apex acute, awnless. In California, flowering from March to June. (Anderson 1961, Holmgren and Holmgren 1977, Munz 1959, Tselev 1984, Tutin 1980).

Geographic distribution. A native of Mediterranean Europe and western Asia, it is considered a waif in Great Britain, but has been introduced and become naturalized in Australia, southern Africa, and Hawaii (Anderson 1961, Arnold and de Wet 1993, Chapman 1991, Clapham et al. 1962, Gibbs Russell et al. 1955, Hitchcock 1944, Munz 1959, Tselev 1984, Wagner et al 1990). *Phalaris minor* was first reported from southern California in the late 1880s, but may have become established eralier in north-central California (Robbins 1940). It is known from all four northern California Channel Islands and Santa Barbara Island (Junak et al. 1997) and occurs sporadically throughout most counties west of the Sierra Nevada (Anonymous 1998, Anderson 1993).

Reproductive and vegetative biology. Like most species of grasses, *Phalaris* spp. are wind-pollinated (Proctor et al. 1996). Most species of *Phalaris* are self-compatible, but the level of selfing versus outcrossing is unknown (Anderson 1961). Seed germination of *Phalaris minor* is enhanced by warm moist conditions, expecially when soils are shallowly cultivated in preparation for cereal crops (Okereke et al. 1981). However, it does not compete well under cultivated conditions, especially when fields are subject to irrigation and fertilizer treatments (Afentouli and Elefiherohorinos 1996, Iqbal and Wright 1997). Experimental studies have shown that seed germination is significantly reduced by aquaeous extracts derived from rice stubble, suggesting that tilling and removal of stubble may influence recruitment in rice fields (Tamak et al.
1994).

Ecological distribution. *Phalaris minor* tends to occur in both dry and moist sites of disturbed sites, roadsides, irrigation canals, and fallow fields (Anderson 1961, 1993, Clapham et al. 1962, Hitchcock 1944, Munz 1959, Wagner et al 1990).

Weed status. *Phalaris minor* is not considered a noxious weed in agricultural or horticultural practice, at least at a global level (not listed by Holm et al. 1977), nor is it considered noxious by the State Dept. of Food and Agriculture (Anonymous 1996). It is not listed for the United States in Lorenzi and Jeffery (1987). However, *Phalaris minor* has become a serious weed in cultivated fields in India and Pakistan (Shad and Siddiqui 1996).

Microbial pathogens. Several bacterial and fungal pathogens have been reported on *Phalaris*

minor in cultivated wheat fields, including *Azospirillum*, *Enterobacter*, *Helminthosporium*, *Sclerophthora*, and *Tilletia*. However, in most cases, pathogens do not appear to be species-specific, with *Phalaris* often serving as a host plant unaffected by the pathogen (Bilal et al. 1993, Singh and Mukerjee 1981, Singh et al. 1982).

Insect pathogens. No literature was found that reported *Phalaris* as a host of insect pathogens.

Herbicide control. Several kinds of herbicides have been used to control canary grass, including atrazine, diclofop-methyl, fenoxaprop-p-ethyl, triazine, Fenoxaprop-P, flupyrsulfuron-methyl, isoproturon, metsulfuron, tralkoxydim, and triazine, (Kumar and Singh 1997, Kumar et al. 1997, Malik and Singh 1984, Mirkamali 1987, Schonfeld et al. 1987, Singh et al. 1995b, Tewari et al. 1988, Yaacoby et al. 1986, Yadav et al. 1984).

The evolution of resistance to several herbicides, including atrazine, Fenoxaprop-P, flupyrsulfuron, isoproturon, and triazine, has been reported (Koeppe et al. 1997, Malik and Singh 1995, Singh et al. 1995a, Tal et al. 1996, Yadav et al. 1996, Yaduraju 1998). The use and efficacy of diclofop in controlling populations composed of herbicide resistant strains has been reported by Brar (1997).

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