Bent-Flowered Fiddleneck

(Amsinckia lunaris)

© Doreen L. Smith

Legal Status
Federal: None
State: None

CNDDB Rank: G2S2.2: Global Rank, G2 = Imperiled: At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors; State Rank S2 = Same as global rank, but only for the range of the taxa in California. State ranks in California often also contain a threat designation attached to the S-rank, S2.2 = threatened.

CNPS List: 1B.2; 1B: Rare, threatened, or endangered in California and elsewhere. 0.2: Fairly endangered in California.

Recovery Plan: None.

Species Description and Life History

Bent-flowered fiddleneck (*Amsinckia lunaris*) is a less than 60 cm tall annual herb in the Borage family (Boraginaceae) (Hickman 1993; ESCTP 2006). It is distinguished by its partially asymmetric flowers, number of calyx lobes, and nutlet size (Ray and Chisaki 1957; Hickman 1993). Bent-flowered fiddleneck flowers from March to June and has five calyx lobes, a bent bilateral 10-veined orange corolla with two red-orange patches on the limb and 2-4 mm nutlets (Hickman 1993; CNPS 2001; ESCTP 2006). Bent-flowered fiddleneck is heterostylic, sometimes only displaying the form with two stamens attached at or below the middle of the corolla tube and three attached to the throat (Ray and Chisaki 1957). It has been shown that this species has a mixed mating system of self-pollinating and outcrossing (Schoen *et al.* 1997). It is often overlooked because it looks similar to common fiddleneck (*Amsinckia menziesii* var. *intermedia*) (ESCTP 2006), which has a radial flower with zero or five red-orange marks on the flower limb (Hickman 1993).

Habitat Requirements and Ecology

Bent-flowered fiddleneck occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland from 3 to 500 m (9 to 1641 ft) in elevation (CNPS 2001). There were no associate species listed for the Yolo County bent-flowered fiddleneck population (CDFG 2007). Some of the associate species listed for populations in nearby counties include dovefoot geranium (*Geranium molle*), bicolor lupine (*Lupinus bicolor*), sand

fringepod (*Thysanocarpus curvipes*), slender tarweed (*Madia gracilis*), yarrow (*Achillea millefolium*), Chinese houses (*Collinsia heterophylla*), Ithuriel's spear (*Triteleia laxa*), and vernal pool blue dicks (*Dichelostemma capitatum*) (CDFG 2007).

Species Distribution and Population Trends

Distribution

Bent-flowered fiddleneck is endemic to California and its known distribution, as defined by Calflora 2007, is based on 148 observations. The exact location of a historic occurrence that may have been in Yolo County is unknown, but it was described in 1938 as located along a grade on Rumsey-Arbuckle Road (CDFG 2007). Bent-flowered fiddleneck has been collected as far north as Humboldt County and as far south as Monterey County (Calflora 2007). Specimens have been collected in Sonoma, Marin, San Mateo, Santa Cruz, Colusa, Lake, Yolo, Napa, San Benito, Merced, Santa Clara, Alameda, and Contra Costa counties (Calflora 2007).

Population Trends

Population trends of bent-flowered fiddleneck have not been well documented. According to the CNPS (2001), occurrences of bent-flowered fiddleneck in California are limited and the species is at risk throughout its range, however it is unclear whether this species is in decline. Documented occurrences have not been confirmed in recent years (CNPS 2001) and its wide distribution may indicate that this species is readily overlooked and warrants more fieldwork (ESCTP 2006).

Threats to the Species and Other Conservation Issues

The primary threats to bent-flowered fiddleneck are the loss of grassland and woodland habitats through development (CNPS 2001). A first priority is to more accurately determine its current distribution in the County and identify potential land use factors (e.g., grazing or dry-farmed grain production) that might explain its distributional patterns. Because wild fires are also a common disturbance in the vegetation types with which this species is associated, and because some species of fiddleneck produce large populations in the year or two immediately following wild fires, bent-flowered fiddleneck's response to wild fire should be investigated. Other factors that should be studied include, seed bank dynamics, seed dispersal, and self-compatibility and self-incompatibility of breeding systems within and between populations.

Contributors to this species account:

Cathy Little, HT Harvey & Associates
John Gerlach, TAIC

References

Photo Credit: Copyright © 2003 Doreen L. Smith

Calflora: Information on California plants for education, research and conservation. (web application). 2007. Berkeley, California: The Calflora Database (a non-profit organization). Available: http://www.calflora.org/.

California Department of Fish and Game (CDFG). 2007. Rarefind. California Natural Diversity Data Base (CNDDB). Electronic Database.

California Native Plant Society (CNPS). 2001. Inventory of Rare and Endangered Plants of California (6th edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California.

Elkhorn Slough Coastal Training Program (ESCTP). 2006. Elkhorn Slough Coastal Training Program Factsheet for *Amsinckia lunaris*. Accessed August 7, 2007. http://www.elkhornsloughctp.org/factsheet/factsheet.php?SPECIES_ID=44.

Hickman, J.C. (ed.). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, CA.

Ray, P.M. and H.F. Chisaki. 1957. Studies on Amsinckia. I. A synopsis of the genus, with a study of geterostyly in it. American Journal of Botany 44(6): 529-536.

Schoen, D.J., M.O. Johnston, A. L'Heureux, J.V. Marsolais. 1997. Evolutionary History of the Mating System in Amsinckia (Boraginaceae). Evolution 51(4):1090-1099.