

Ferris' Milk-Vetch

(*Astragalus tener* var. *ferrisiae*)

Legal Status

Federal: None

State: None



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CNDDDB Rank: G1T1S1.1: Global Rank, G1 = Critically Imperiled: At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors; T-Rank, T1 = Same as global rank but related only to the status of the subspecies throughout its range; State Rank, S1 = 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. S1.1 = very threatened.

CNPS List: 1B.1; 1B: Rare, threatened, or endangered in California and elsewhere. 0.1: Seriously endangered in California.

Recovery Plan: Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005).

Species Description and Life History

Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*) is a 6 to 26 cm (2.5 to 10 in) tall, delicate, annual plant in the pea family (Fabaceae). Ferris' milk-vetch has been distinguished from alkali milk-vetch (*Astragalus tener* var. *tener*) by the morphology of its fruit (Liston 1990). Ferris' milk-vetch has longer (2.7 to 5 cm; 1 to 2 in), strongly incurved fruits with a pseudostipe (Liston 1990; UCANR 2001). The pinnately compound leaves of Ferris' milk-vetch are 2 to 6 cm (1 to 2.5 in) long, with 7 to 15 leaflets (Hickman 1993). The inflorescence consists of 3 to 12 pink-purple, pea-like flowers.

Ferris' milk-vetch is an annual herb that flowers from April to May (CNPS 2001). Life history traits such as seed germination requirements, pollinators, and demographic attributes for Ferris' milk-vetch are largely unknown (USFWS 2005). Pollinators are not known for certain, however, it is presumed that the plants are pollinated by butterflies due to the flower morphology (USFWS 2005, Liston 1992).

Habitat Requirements and Ecology

Ferris' milk-vetch is found in the Central Valley on subalkaline flats in vernal mesic meadows, valley grassland, claypan vernal pools, fallow rice fields, and vernal marshes (CNDDDB 2007; CNPS 2001; USFWS 2005; Witham 2003). At the Tule Ranch Vernal Pools site in Yolo County, Ferris' milk-vetch was found growing in mesic grassland on the edge of a playa pool on Capay-Clear Lake soil with some Pescadero Clay (Witham 2003). During a drier year, in 2007, there were thousands of plants growing on the edge and throughout this playa pool (Witham pers. com. 2007). Species growing in association with this plant have generally not been documented (USFWS 2005), but at the Tule Ranch site, associated plants included smooth goldfields (*Lasthenia glabrata* ssp. *glabrata*), annual ryegrass (*Lolium multiflorum*), clustered evax (*Heperevax caulescens*), and Sacramento pogogyne (*Pogogyne zizyphoroides*) (Witham 2003; CNDDDB 2007).

Species Distribution and Population Trends

Distribution

Ferris' milk-vetch is endemic to California and was rediscovered in 1989 by V. Oswald in Butte Sink (CNPS 2001). There are nine occurrences reported in CNDDDB that are presumed extant, but only two have been confirmed since 1996 (USFWS 2005). Three of these CNDDDB occurrences are located in Yolo County, one of which is a confirmed population and is located at the Tule Ranch Vernal Pools Site described above. The two other Yolo County populations were observed growing in agricultural fields in 1926 and 1934 (Dean 2007) and have likely been extirpated. The other confirmed occurrence is located at the Gray Lodge Waterfowl Management Area in Butte County (USFWS 2005).

The range of Ferris' milk-vetch extends from Glenn and Butte counties in the north to Solano County in the south, and from Colusa and Yolo counties in the west and Sutter County in the east and is based on 46 Calflora (2007) observations and 18 historical CNDDDB occurrences (USFWS 2005).

According to the California Natural Diversity Database, Ferris' milk-vetch is found on subalkaline flats on overflow land in the Central Valley, usually on dry, adobe soil (CDFG 2007).

Population Trends

Population trends of Ferris' milk-vetch have not been documented and it is unclear whether this species is in decline, but if populations are similar in pattern to alkali milk-vetch (*Astragalus tener* var. *tener*), then plants may germinate at sites where it was previously documented after soil disturbance which stimulates germination from the seed bank (USFWS 2005). According to the CNPS (2001), occurrences of Ferris' milk-vetch in California are highly limited and the species is at serious risk throughout its range.

Threats to the Species and Other Conservation Issues

Habitat conversion to agriculture is considered to be the primary threat to Ferris' milk-vetch (CNPS 2001). Intense agriculture, over-grazing, and weed competition are threats to the populations identified in Yolo County (USFWS 2005; CNDDDB 2007). Permanent flooding for waterfowl habitat is considered a threat to Ferris' milk-vetch in wildlife management areas (USFWS 2005).

This species occurrence in Yolo County is entirely within vernal pool complexes and alkali sinks so surveys should be conducted in these natural communities and habitats to update occurrence data. The current known populations in Yolo County are grazed and any management recommendations to alter the grazing regime should include studies to determine if the change in management would have any potential impacts on Ferris' milk-vetch. Additional research on the pollination ecology, germination requirements, seed dispersal mechanisms and response to disturbance regimes would aid in formulating appropriate adaptive management strategies.

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Photo Credit: Jennifer Buck, CNPS, 2007

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