

SOFT BIRD'S-BEAK

Chloropyron molle ssp. *molle* (formerly *Cordylanthus mollis* ssp. *mollis*)

USFWS: Endangered

CDFG: Rare

CNPS: List 1B

Species Account

Status and Description. Soft bird's-beak (*Chloropyron molle* ssp. *molle* [formerly *Cordylanthus mollis* ssp. *mollis*]) was federally-listed as endangered on November 20, 1997 (62 FR 61916) and state-listed as rare in July, 1979. It is on CNPS' List 1B. Critical habitat was designated for this species on April 12, 2007 (Federal Register Volume 72, Number 70). Soft bird's-beak is an annual, 10 to 40 cm tall herb in the orobanche family (Orobanchaceae). Its gray-green foliage, often tinged with purple, is covered with soft hairs. The whitish flowers in a spike-like inflorescence are partially hidden by lobed bracts that are densely soft-hairy. The soft hairs distinguish soft bird's-beak from the stiff-bristly hispid bird's-beak (*C. molle* ssp. *hispidum*), which occurs in alkaline areas in Solano County (Baldwin et al 2012, USFWS 2010).



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Range and Distribution. This species is endemic to the North Bay marshes and is known from 19 occurrences throughout its natural range (CNDDDB 2011). The range of soft bird's-beak used to include the counties bordering the Sacramento-San Joaquin river-delta, Suisun and San Pablo Bays, and the Marin and Sonoma counties' coasts. It is now believed extirpated from Marin, Sacramento, San Joaquin, and Sonoma counties, and extant in salt marshes in Napa, Solano, and Contra Costa counties (CNDDDB 2011, CNPS 2011). Contra Costa occurrences include populations at Point Pinole, McAvoy Marsh, and on the Concord Naval Weapons Station property adjacent to Hastings Slough (California Department of Water Resources 1994).

Habitat and Ecology. Soft bird's-beak grows in coastal salt marshes, commonly in the marsh/upland transition zone with pickleweed (*Salicornia virginica*), jaumea (*Jaumea carnosa*), alkali heath (*Frankenia salina*), gumplant (*Grindelia stricta*), and saltgrass (*Distichlis spicata*). Habitats include seasonally flooded areas in hypersaline or euryhaline environments (CDWR 1996). A natural hydrologic connection to a tidal slough system is an important habitat requirement for this species. Diked seasonal wetlands which are isolated from natural, year round tidal cycle hydrology do not appear to support this species (California Department of Water Resources 1994). Soft bird's-beak, like many other *Chloropyron* species, is a hemiparasite; it is partially dependent on other plants for mineral nutrients and water. It blooms July through November, depending on environmental conditions (Baldwin et al 2012, CNDDDB 2011, CNPS 2011).

Population Levels and Occurrence in Plan Area. Soft bird's-beak is associated with Coastal Marsh vegetation within the Coastal Marsh Natural Community of the Plan Area. There are currently thirteen (13) reported occurrences of soft bird's-beak that are presumed extant in Solano County. Two additional known occurrences are considered extirpated or possibly extirpated

(CNDDDB 2011). This species is found at sites throughout Suisun Marsh (Grizzly Island, Joice Island, Montezuma Slough, Luco Slough, Hill Slough), and as far north as Highway 12. It has also been found in Southampton Marsh in Benicia and in Dutchman's Slough, north of Mare Island. Recorded population sizes range from a few plants to 141,000 plants, covering several acres of Suisun Marsh, south of Hill Slough. Population sizes can fluctuate substantially from year to year at the same site; a population north of Joice Island had 1,000 plants in 1991, 7,650 plants in 1993, only 150 plants in 1999, and 3,076 plants in 2000 (CNDDDB 2011).

The Hill Slough (525 acres), Rush Ranch/Joice Island (1,181 acres), and Southampton Marsh (164 acres) population areas are designated as critical habitat for this species.

Threats to the Species. One of the main causes of the decline of soft bird's-beak from a locally common to very rare plant was the historical diking of almost all of Suisun Marsh and the conversion of extensive tidal brackish marsh to non-tidal wetlands (USFWS 2010). Although habitat loss through development and agricultural conversion still occurs, most of the large marshes are now parts of preserves or are in highly restrictive development zones. Now, rapid invasion of brackish tidal marsh by *Lepidium latifolium* is a very significant threat to the persistence of soft bird's-beak colonies (USFWS 2010). *Lepidium latifolium* can readily invade both diked and tidal brackish marshes with low salinity during the growing season. Other current threats to soft bird's-beak include erosion, alteration of hydrology, trampling from cattle (CNPS 2011, CNDDDB 2011), as well as water pollution, mosquito abatement activities (including off-road vehicle use) (USFWS 2003), oil spills (Suisun Ecological Workgroup 2001), and habitat fragmentation in general.

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