

San Joaquin Woolly-Threads (*Monolopia congdonii*)

Legal Status

State: Not state listed

California Rare Plant Rank: 1B.2, Rare, threatened, or endangered in California and elsewhere, fairly endangered in California.

Federal: Endangered (55 FR 29370, July 19, 1990)

Critical Habitat: No critical habitat has been designated for this species.

Recovery Planning: *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998)

Notes: No status changes proposed or anticipated during the permit term.

Taxonomy

San Joaquin woolly-threads was initially described as *Eatonella congdonii* by (Gray 1883:20), based on a specimen collected by Joseph Congdon along Deer Creek, in southern Tulare County. Greene (1891:441) later placed the species in its own genus, *Lembertia*. Baldwin (1999), using data from DNA markers, found that San Joaquin woolly-threads was closely related to species of *Monolopia*, from which it differs by the inconspicuous ray florets. Based on the similarity of the species morphology and DNA markers to *Monolopia* species, he reclassified the species as *Monolopia congdonii*. *Monolopia congdonii* is the accepted name in the most recent taxonomic treatments of the genus (Johnson 2006, 2012).

Descriptions of San Joaquin woolly-threads' physical characteristics and discussions of how the species can be distinguished from other *Monolopia* species can be found in Johnson (2006, 2012).

Distribution

General

San Joaquin woolly-threads is endemic to California. Its range includes the west side of the San Joaquin Valley from Fresno County to Kern County, the southern end of the San Joaquin Valley near Bakersfield, the Carrizo Plain in San Luis Obispo County, and the Cuyama Valley in Santa Barbara County (California Department of Fish and

Game 2012). Of a total of 92 known occurrences, 25 are reported to be possibly extirpated and another 12 occurrences were last observed prior to 1990 (California Department of Fish and Game 2012).

Distribution and Occurrences within the Study Area

Historical

San Joaquin woolly-threads historically appear to have been present throughout the San Joaquin Valley in northwestern Kern County. Eleven occurrences are known from the study area, nine of which are possibly extirpated (California Department of Fish and Game 2012).

Recent

Two occurrences of San Joaquin woolly-threads are still present in the study area. One occurrence (EO #61) is located in the former Strand Oil Field on lands that are currently managed by the Kern Water Bank Authority under a habitat conservation plan/natural community conservation plan. This occurrence consisted of 100 plants in 2009. A second occurrence (EO #65) is located at the southeast edge of the former Strand Oil Field on lands owned by the City of Bakersfield. The second occurrence consisted of 25 plants in 2010 (California Department of Fish and Game 2012).

Natural History

Habitat Requirements

San Joaquin woolly-threads is an annual species associated with Allscale (*Atriplex polycarpa*) scrub and grasslands dominated by red brome (*Bromus madritensis* subsp. *rubens*) and red-stemmed filaree (*Erodium cicutarium*) (Mazer and Hendrickson 1993; California Department of Fish and Game 2012). Other species commonly found with San Joaquin woolly-threads include Mediterranean grass (*Schismus arabicus* and *S. barbatus*), annual fescues (*Festuca* spp.), goldfields (*Lasthenia* spp.), fiddlenecks (*Amsinckia* spp.), winged combseed (*Pectocarya pusilla*), redmaids (*Calandrinia ciliata*), peppergrass (*Lepidium* spp.), tarweeds (*Deinandra* spp.), and Hoover's eriastrum (*Eriastrum hooveri*). It generally occurs on loam soils (sandy loam, loam, and clay loam) that are slightly acid to moderately alkaline and well-drained to somewhat excessively well-drained¹. Most populations are found between 300 and 2,400 feet elevation, although the lowest occurrence is

¹ Soils information determined by overlaying the occurrence locations over SSURGO soils maps using SoilWeb (California Soil Resources Lab 2012).

at 190 feet and the highest occurrence is at 2,750 feet (California Department of Fish and Game 2012).

Table 1. Habitat Associations for San Joaquin Woolly-Threads

Land Cover Type	Habitat Designation	Habitat Parameters	Rationale
Annual grassland	Primary	Below 2,400 feet in loam soils	California Department of Fish and Game (2012)
Allscale scrub	Primary	Below 2,400 feet in loam soils	

Notes: Cajon, Excelsior, Wasco, Milham, and Kimberlina soil series

Reproduction

San Joaquin woolly-threads appear to be self-pollinating, with pollinators not required for seed set. About 85% of the flowers set seed, and up to 24 seeds per flowering head are produced. Seeds have an innate dormancy mechanism, suggesting that San Joaquin woolly-threads have a soil seed bank. Seedlings are rare in years with below-normal rainfall, but in years with normal to above-normal rainfall, seedlings are abundant and have high survivorship (Mazer and Hendrickson 1993).

Table 2. Key Seasonal Periods for San Joaquin Woolly-Threads

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering			✓	✓								
Seed Set			✓	✓								
Seedlings	✓	✓										✓

Source: Cypher 1994.

Notes:

Ecological Relationships

San Joaquin woolly-threads are subject to grazing by native and nonnative herbivores, including cattle and kangaroo rats (Mazer and Hendrickson 1993; Cypher 1994). Grazing does not typically result in mortality, as plants can continue to produce new stem after being grazed (Cypher 1994). Trampling by cattle can result in substantial damage or mortality, especially to seedlings, but not always (Mazer and Hendrickson 1993; Cypher 1994). Whether or not grazing of the nonnative annual grass associates has a positive effect on San Joaquin woolly-threads is unclear. San Joaquin woolly-threads growing within some kangaroo rat precincts or on some grazed plots produced more stems and flowering heads than outside

kangaroo rat precincts or on ungrazed plots, but not at all sample sites (Cypher 1994). Mazer and Hendrickson (1993) found that weeding did not appear to have a beneficial effect on San Joaquin woolly-threads, at least at the level of vegetation cover present in their sample plots.

Population Status and Trends

Global: Of 92 known occurrences of San Joaquin woolly-threads, 25 have been extirpated, and 12 are known only from historic records (before 1990). Fifty-five occurrences have been revisited or discovered since 1990. The population status is good to excellent for 28 occurrences (30.4%) and fair to poor for 23 occurrences (25%). The population status of 16 occurrences is unknown. Population trends are not known for most occurrences; one occurrence is reported to be declining (California Department of Fish and Game 2012).

State: Same as above

Study Area: One of the two recurved larkspur occurrences in the study area is reported to be in good condition, and the other is reported to be in fair condition. Population trends for the occurrences in the study area are unknown; however, the number of reported plants was extremely low for both occurrences (California Department of Fish and Game 2012).

Threats and Environmental Stressors

The primary threat to San Joaquin woolly-threads has been habitat conversion to agriculture and urbanization (55 FR 29370, July 19, 1990; California Department of Fish and Game 2012). Other environmental stressors on San Joaquin woolly-threads include overgrazing, road maintenance, off-road vehicle traffic, sand mining, activities associated with oil and gas extraction, and competition from exotic plant species (55 FR 29370, July 19, 1990; California Department of Fish and Game 2012).

Conservation and Management Activities

Most conservation efforts for San Joaquin woollythreads have focused on preserving existing stands (U. S. Fish and Wildlife Service 1998). Under the San Joaquin Valley Operations and Maintenance HCP, Pacific Gas and Electric Company implements avoidance and minimization measures to protect Bakersfield cactus during operations of its facilities and routine maintenance activities (Jones and Stokes 2006). Several other HCPs address effects on San Joaquin woollythreads in the study area (U. S. Fish and Wildlife Service 2013), although these HCPs were not reviewed during preparation of this species account.

Data Characterization

Information on the habitat requirements of San Joaquin woolly-threads appears to be adequate for modeling the species distribution in the study area and is likely to be adequate to address species management or other conservation measures for San Joaquin woolly-threads.

Management and Monitoring Considerations

The current population status and habitat condition are currently unknown for the occurrences in the study area. Effective management measures cannot be determined until the populations have been surveyed to determine these parameters. Some general measures that are likely to be applicable would be fencing to manage the effects of grazing and trampling by livestock and removal or control of invasive plant species. Because San Joaquin woolly-threads produce abundant seeds, it may be possible to establish new populations by translocating seeds to other locations, provided that this does not adversely affect the existing populations (Mazer and Hendrickson 1993).

Predicted Species Distribution in Study Area

Model Description

Model Assumptions

Primary Habitat: Annual grassland and allscale scrub, below 2,400 feet elevation, on the following soil series: Cajon, Excelsior, Wasco, Kimberlina, and Milham.

Secondary Habitat: Annual grassland and allscale scrub, below 2,400 feet elevation, on the following soil series: Tennco, Panoche, Garces, McFarland.

Model Rationale

San Joaquin woollythreads is associated with annual grasslands and allscale scrub. generally occurs on loam soils (sandy loam, loam, and clay loam) that are slightly acid to moderately alkaline and well-drained to somewhat excessively well-drained and in the study area this includes soils in the Cajon, Excelsior, Wasco, Kimberlina, and Milham series. Other soil series associated with these soils include Panoche, Garces, McFarland, and Tennco (U.S. Department of Agriculture, Soil Resources Survey 2012a, 2012b, 2012c).

Model Results

Figure D-15 shows the modeled potential habitat for San Joaquin woollythreads within the study area. Most of the occurrences in the study area fall within the modeled habitat. Within the Plan Area, modeled habitat is located primarily in the central western portion.

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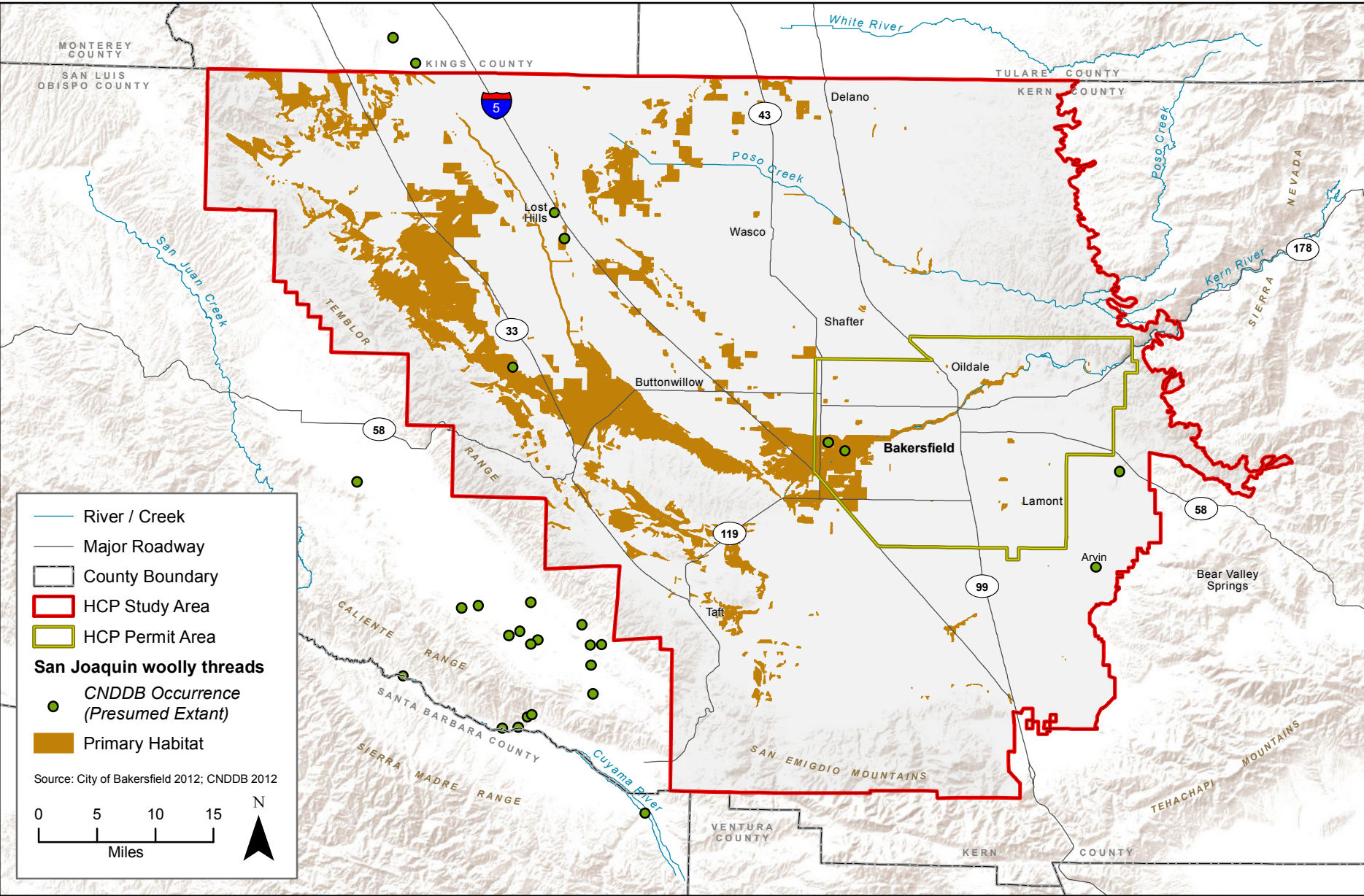
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Bakersfield Conservation Plan



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Figure D-15
San Joaquin Woolly Threads Modeled Habitat