

Rose-Flowered Larkspur (*Delphinium purpusii*)

Legal Status

State: Not state listed

California Rare Plant Rank: 1B.3, Rare or endangered in California.

Federal: Not federally listed

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

Recovery Planning: No recovery plan for this species.

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

Taxonomy

Rose-flowered larkspur was first collected by Dr. Carl Purpus in 1892 near Erskine Creek, southeast of Lake Isabella, and it was named for him by Townsend Brandegee (1899:444). Amos Heller (1905:35) subsequently described the same species as *Delphinium roseum*, based on his collection from near the mouth of the Kern River. The most recent treatments of *Delphinium* treat *D. roseum* as a synonym of *D. purpusii* (Warnock 1997:217; Koontz and Warnock 2012:1,141).

Descriptions of rose-flowered larkspur's physical characteristics and discussions of how the species can be distinguished from other similar larkspurs can be found in Warnock (1997) and Koontz and Warnock (2012).

Distribution

General

Recurved larkspur is endemic to the southern Sierra Nevada in California. It is found only in Kern County, primarily in the Kern River watershed, with a single occurrence in the Poso Creek watershed (Koontz and Warnock 2012:1,181; California Department of Fish and Game 2012). A total of 36 occurrences are documented (California Department of Fish and Game 2012).

Distribution and Occurrences within the Study Area

Three occurrences are known from the study area.

Historical

Two occurrences in the study area are known only from historical records. One occurrence (EO #22), located along the Kern River about 1 mile upstream from the mouth of the Kern River Canyon, was last seen in 1933. A second occurrence (EO #3), located 4 miles north of Highway 178 along Rancheria Road, was last observed in 1965. Both of these occurrences are presumed extant, as the habitat at both locations remains undeveloped.

Recent

Only one occurrence (EO #4) in the study area has been visited since 1990. This population, located at the mouth of the Kern River Canyon, has been sampled several time since its initial discovery in 1905, most recently in 1996. This occurrence is presumed extant, as the habitat remains undeveloped.

Natural History

Habitat Requirements

Rose-flowered larkspur is associated with dry habitats of the foothills and lower mountain slopes, between 800 and 6,200 feet elevation. It is associated with foothill pine woodland, pinyon-juniper woodland, Piute cypress forest, and chaparral habitats. It is often found in or around rock outcrops (Warnock 1990) in soils characterized as sandy to gravelly loams (California Department of Fish and Game 2012).

Table 1. Habitat Associations for Rose-Flowered Larkspur

Land Cover Type	Habitat Designation	Habitat Parameters	Rationale
Annual Grassland	Primary	On slopes, above 800 feet	California Department of Fish and Game 2012
Oak Woodland	Primary	On slopes, above 800 feet	
Notes:			

Reproduction

Little information on reproduction in rose-flowered larkspur is known. The species blooms from March to May (Warnock 1990:70). Larkspur species are self-compatible (capable of producing seeds by pollen from the same plant) (Lewis and Epling 1959; Waser and Price 1991; Bosch et al. 1998; Williams et al. 2001), but because larkspur flowers are protandrous (staminate and pistillate phases temporally separated, with pollen produced and shed before the stigmas become receptive) (Waser 1978;

Richter et al. 1994; Bosch et al. 1998), pollinators are required for seed set. The primary pollinators of larkspur species are bumblebees and hummingbirds, although other bee species, flies, and butterflies also visit the flowers (Macior 1975; Waser 1978; Richter et al. 1994; Bosch et al. 1998; Elliot and Erwin 2009).

Table 2. Key Seasonal Periods for Rose-Flowered Larkspur

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Germination	✓	✓									✓	✓
Blooming			✓	✓	✓							
Seed Dispersal					✓	✓						

Source: Warnock 1990.

Notes:

Ecological Relationships

Rose-flowered larkspur is probably pollinated by bumblebees, although other floral visitors may effect some pollination. Therefore, conservation and management of the pollinator fauna will also need to be part of the conservation strategy for recurved larkspur.

Population Status and Trends

Global: Of 36 known occurrences of rose-flowered larkspur, 20 are known only from historic records (before 1990). Fifteen occurrences have been revisited or discovered since 1990. The population status is good to excellent for four occurrences (11%) and fair for two occurrences (5.5%). The population status of 30 occurrences is unknown. Population trends are not known for any occurrences (California Department of Fish and Game 2012).

State: Same as above

Study Area: Population status and trends for the three rose-flowered larkspur occurrences in the study area are unknown.

Threats and Environmental Stressors

Two roadside occurrences of rose-flowered larkspur are threatened by road maintenance and construction activities (California Department of Fish and Game 2012). Environmental stressors to the remaining occurrences include deer and livestock grazing and trampling and competition from exotic plants (California Department of Fish and Game 2012).

Conservation and Management Activities

No conservation or management plans are known to have been prepared for this species.

Data Characterization

Information on the habitat requirements of rose-flowered larkspur appears to be adequate for modeling the species distribution in the study area. As with most plants, almost no specific information exists about the life history of rose-flowered larkspur. However, generalized information about the life history of larkspurs is available from studies of other larkspur species and is likely to be adequate to address species management or other conservation measures for rose-flowered larkspur.

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.

Predicted Species Distribution in the Study Area

Model Description

Model Assumptions

Primary Habitat: Annual grassland and oak woodland on hillslopes, above 800 feet, on Cieneba, Pleito, and Vista soil series.

Secondary Habitat: Annual grassland and oak woodland on hillslopes, above 800 feet, on Tollhouse, and Auberry soil series.

Model Rationale

Rose-flowered larkspur most often occurs on rocky hillslopes in annual grassland and oak woodlands (California Department of Fish and Game 2012). It generally occurs on sandy loam to gravelly loam soils, some of which have a clay-rich horizon, that

are well-drained to somewhat excessively-drained¹. It occurs most often (including EOs#4 and 22 in the study area) on Cieneba soils, which are associated with Tollhouse, Vista, and Auberry soils (U. S. Department of Agriculture, Natural Resources Conservation Service 2012a). One occurrence in the study area (EO# 3) occurs on the Pleito-Vista soils complex.

Model Results

Figure D-13 shows the modeled potential habitat for rose-flowered larkspur within the study area. Most of the modeled habitat occurs in a narrow band along the eastern edge of the study area. All six occurrences of rose-flowered larkspur in the study area fall within the modeled habitat. The model also predicts that areas on the north slope of the San Emigdio Mountains are potential habitat for rose-flowered larkspur. However, this area is outside of the range of rose-flowered larkspur and does not provide suitable habitat for the species.

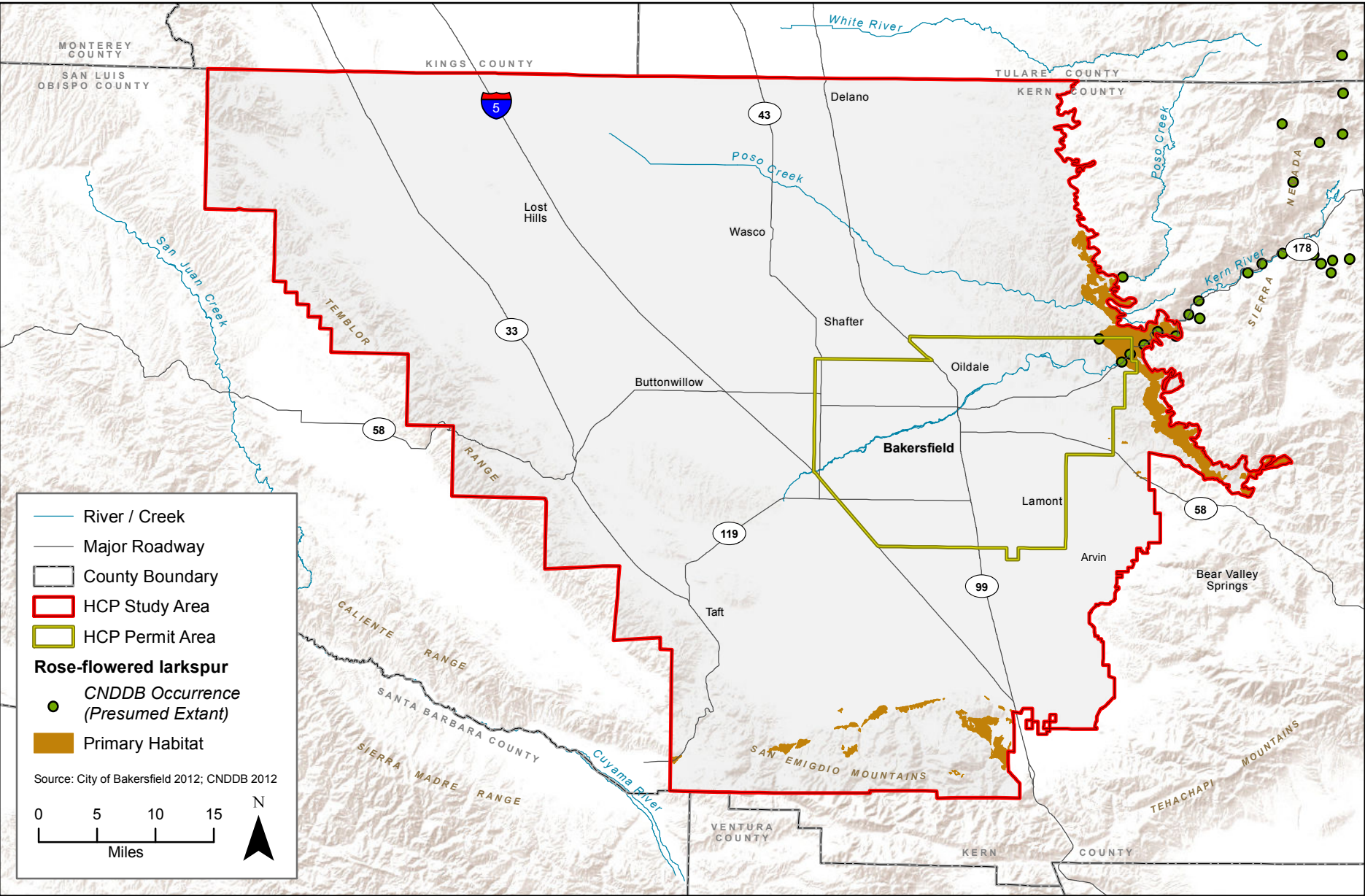
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¹ Soils information determined by overlaying the occurrence locations over SSURGO soils maps using SoilWeb (California Soil Resources Lab 2012).

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Bakersfield Conservation Plan



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Figure D-13
Rose-flowered larkspur Modeled Habitat