

KELSO CREEK MONKEYFLOWER

Mimulus shevockii

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Management Status: Federal: None

California: S1.2, G1 (CDFG, 1998)

CNPS: List 1B, R-E-D Code 3-2-3 (Skinner and Pavlik, 1994)

General Distribution:

The distribution of the Kelso Creek monkeyflower is limited to the southern Sierra Nevada within the Kern River drainage in the Isabella Lake area. All ten known occurrences are in Kern County. The center of distribution for this plant is in the southwest region of Isabella Lake with nine occurrences in the Kelso Creek and Cortez Canyon area, all within an area 5 mi. (8 km) in diameter. One disjunct occurrence was located in 1983 in the Cyrus Canyon area, 13.5 mi. (22 km) northwest of the other populations.

Distribution in the West Mojave Planning Area:

Of the ten occurrences, nine are located within the planning area and are wholly or partially on BLM managed lands. Five of the nine populations in the planning area occur entirely on BLM managed lands. Two of these populations consist of thousands of plants, two consist of hundreds of plants, and one has an undetermined number of plants. The other four of the populations in the planning area are partially on private lands. Two of these consist of thousands of plants and two consist of hundreds of plants. Only one population is completely outside of the planning area and it is entirely on private lands and consists of thousands of plants.

Natural History:

The Kelso Creek monkeyflower (n=16) is a small annual herb (up to 4.75 in., 12 cm, tall) of the snapdragon family (Scrophulariaceae, sect. *Paradanthus*) and is covered with minute glandular-puberulent hairs. The lanceolate to ovate leaves (1-10 pairs) clasp the stem. They are somewhat fleshy with a purplish underside. The flowers are auxiliary from the nodes ascending to declinate with upturned apices on pedicels up to 0.8 in. (20 mm) long. The calyx is vase shaped with either reddish spots or is solid red. The corolla's tube, throat, and four upper lobes are maroon-purple. The slightly larger lower, bilobed lip is yellow and notched. The flowers appear in April and May (Thompson, 1993). The 0.25 in. (5-6 mm) capsule, with greater than 100 seeds, is dehiscent at the apex and along both sutures (Heckard and Bacigalupi, 1986; Thompson, 1993). Small bees may be responsible for pollination. It is not known whether this plant is self-sterile or self-fertile. Since the plant occurs in washes, water is one of the most likely seed dispersal mechanisms, but no observations have apparently been made at this point.

The Kelso Creek monkeyflower is similar in vegetative and pollen morphology to several other local *Mimulus* in the *M. rubellus* and *M. palmeri* groups (Grant, 1924;

Argue, 1980, 1985); such as Tehachapi monkeyflower (*M. androsaceus*), bearded monkeyflower (*M. barbatus* [=*M. montioides*]; Thompson, 1993), slender-stalked monkeyflower (*M. gracilipes*), and purple monkeyflower (*M. purpureus*). The Kelso Creek monkeyflower is easily distinguished from these species by its unusual corolla features (Heckard and Bacigalupi, 1986). *M. barbatus* is most similar in corolla color and has been confused with *M. shevockii* on herbarium specimens. However, corolla lobing between these two monkey flowers is quite different. It also grows in close proximity to *M. shevockii*, but it grows in meadow borders at higher elevations on the Kern plateau.

The Kelso Creek monkeyflower was not described until 1986. The type was a collection made in 1983 at Kelso Creek near Cortez Canyon. Subsequent searches of *Mimulus* collections in herbaria yielded unidentified/misidentified material dating back to 1932 that had been collected from the known locations (Heckard and Bacigalupi, 1986).

Habitat Requirements:

Kelso Creek monkeyflower predominantly occurs in the loamy, coarse sands of alluvial fans, dry streamlets, and deposits of granitic origin that are found in Joshua tree woodlands, pinyon-juniper woodlands, or their transition in the southern Sierra Nevada in the Kelso Creek drainage within the Kern River drainage (Heckard and Bacigalupi, 1986; CDFG, 1997). One disjunct population, however, occurs in finer soils developed from meta-sedimentary rocks (Heckard and Bacigalupi, 1986; CDFG, 1997). This plant is found at elevations from 2800-4300 ft. (860-1325 m) (Heckard and Bacigalupi, 1986; Thompson, 1993; CDFG, 1997). Major associates of this plant include pygmy poppy (*Canbya candida*), silver cholla (*Opuntia echinocarpa*), purple sage (*Salvia dorrii*), golden gilia (*Linanthus aureus*), Tehachapi monkeyflower (*Mimulus androsaceus*), Fremont's monkeyflower (*M. fremontii*), and cheesebush (*Hymenoclea salsola*; Heckard and Bacigalupi, 1986).

Population Status:

The Kelso Creek monkeyflower has ten known occurrences, nine that occur within an area of 5 mi. (8 km) in diameter and one disjunct population 13.75 mi. (22 km) to the NW. It occurs in a fairly restricted habitat, primarily in the loamy, coarse sands of alluvial fans, dry streamlets, and deposits of granitic origin associated with the washes in the Kelso Creek drainage in the Isabella Lake area. The creation of Isabella Lake caused the possible extirpation of at least one occurrence (CDFG, 1997).

Threats Analysis:

The Kelso Creek monkeyflower has probably always been a rare species with a very narrow distribution. Large scale human modification of the landscape has now begun to threaten its limited natural habitat. This includes mobile home development, grading of habitat, introduction of non-native plant species, and conversion of habitat to orchards.

The area it occupies is undergoing considerable development at the present time (CDFG, 1997). Of the ten occurrences nine are wholly or partially on BLM Ridgecrest Resource Area lands, four are partially on private lands, and one is entirely on private lands. While the occurrences on BLM lands are afforded a measure of protection, there are still documented threats to these populations (CDFG, 1997). Multiple threats have

been documented for eight of the ten occurrences. The main threat to this species is the present or threatened destruction, modification, or curtailment of its habitat or range. These threats place this plant in immediate danger of becoming extinct throughout a major portion of its range (USFWS, 1994). The extremely limited distribution of this plant also puts it at risk of stochastic extinction events.

Mobile home and subdivision developments either presently threaten or have already impacted seven of the ten occurrences. All of the populations on private land are at risk due to this threat. Populations located on BLM lands adjacent to private property are also affected by this threat. Highway and road maintenance affect populations on or adjacent to private property since an increase in development has resulted from improved access, and the resulting added traffic has created pressure to add or widen roads. At least one population has been bisected by one of these roads. Off highway vehicle (OHV) use directly impacts or threatens five of the ten occurrences. Threats from mineral exploration and development are unknown. Cattle grazing or trampling, or other agricultural activities, affect four sites with one occurring within a grazing allotment on BLM property. Water developments and impoundments are potential threats.

Biological Standards:

The most important aspect of maintaining the long term viability and evolutionary potential of Kelso Creek monkeyflower is to protect the known population sites from development and surface disturbance. It is also important to continue exploring other potential habitat in an attempt to identify additional populations. There is a significant amount of development occurring in the limited area that this plant occupies. This threat needs to be addressed immediately by determining what populations (if any) are on public lands in locations safe from disturbance by adjacent development activities. A significant portion of the range of the Kelso Creek monkeyflower could be lost in the not too distant future to development and this will further imperil the species. All of the populations could eventually be impacted by fragmentation of the habitat due to this development. There is an immediate need to secure the largest possible block of protected and completely undisturbed land. Additional surveys should also be conducted for the Kern River Valley Cemetery occurrence (EO #8; CDFG, 1997), which was last seen in 1932 in the area that is now Isabella Lake.

Literature Cited:

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