Morrison's Jewelflower

(Streptanthus morrisonii ssp. morrisonii)

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Legal Status
Federal: None
State: None

Global and State Conservation Status: G2T2S2.2: G2S2.2: Global rank, G2 = Imperiled: At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors; T-Rank, T2 = Same as global rank but related only to the status of the subspecies throughout its range; State Rank S2 = 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, S2.2 = threatened.

CNPS List: 1B.2; 1B: Rare, threatened, or endangered in California and elsewhere. 0.2: Fairly endangered in California.

Recovery Plan: None.

Species Description and Life History

Morrison's jewelflower (*Streptanthus morrisonii* ssp. *morrisonii*) is a biennial 50-120 cm tall member of the mustard family (Brassicaceae) (Hickman 1993). It has a reduction in leaves farther up the stem, branches only above, and has an entire stigma and fused filaments (Hickman 1993). Morrison's jewelflower is part of the *Streptanthus morrisonii* F.W. Hoffman complex (Hoffman 1952), a group of narrowly distributed serpentine endemics composed of two species including *Streptanthus morrisonii* and *Streptanthus brachiatus* (Dolan 1995). This species was originally described within the Euclisia section, but later placed in Biennes, due to the biennial life form and a distinct rosette of leaves (Kruckeburg and Morrison 1983). *Streptanthus morrisonii* has four recognized subspecies with subspecies *morrisonii* having the most widespread distribution (Dolan 1995). This taxonomic complex is difficult to study because of lack of access to many populations (Dolan 1995). Morrison's jewelflower has green, unmottled leaves and mostly glabrous yellowish sepals, which distinguishes it from the other subspecies in the group (Hickman 1993; Dolan 1995).

Habitat Requirements and Ecology

Morrison's jewelflower occurs on rocky serpentine and siltstone soils and rock outcrops within chaparral habitat from 120 to 585 m (393 to 1,919 ft) in elevation (CNPS 2001; CDFG 2007; CCH 2007). This species blooms from May to September (CNPS 2001).

Species Distribution and Population Trends

Distribution

Morrison's jewelflower is endemic to California and its distribution, as defined by Calflora 2007, is based on seven observations. Three populations of the *Streptanthus morrisonii* complex have been identified within Yolo County, but they have been presumed to be *S. m.* ssp. *kruckebergii* (CDFG 2007). Appropriate habitat is present within Yolo County, and because the taxonomic interpretation of these subspecies is difficult, these populations have the potential to be Morrison's jewelflower (*S. morrisonii* ssp. *Morrisonii*). Other confirmed occurrences of Morrison's jewelflower have been identified in the Austin Creek area of Sonoma County and one specimen was collected from Bartlett Springs Road in Colusa County (CDFG 2007; Calflora 2007). The type locality of Morrison's jewelflower consists of approximately 10,000 individuals located at the headwaters of Big Austin Creek at Layton Chromite Mine in Sonoma County (Dolan 1995). With the exception of the Colusa County record, the remaining populations are located in serpentine areas along the tributaries of East Austin Creek in Sonoma County (Dolan 1995; CDFG 2007).

Population Trends

Population trends of Morrison's jewelflower have not been documented. It is unclear whether this species is in decline. According to the CNPS (2001), occurrences of Morrison's jewelflower in California are highly limited and the species is at risk throughout its range.

Threats to the Species and Other Conservation Issues

The primary threat to Morrison's jewelflower is the loss of serpentine habitat within the range of the species through mining, off-road vehicle activity, and geothermal energy production (Dolan 1995). Morrison's jewelflower occurs on infertile serpentine and siltstone soils and exists within landscapes where wild fire and soil erosion are important disturbance agents. Roadside vegetation control may impact this species where populations occur adjacent to roads. Research should address the role of disturbance regimes and competition, dispersal vectors and the role of dispersal in maintaining the populations, seed bank dynamics and the possibility of fire acting as a germination cue, and plant breeding system and pollinator requirements.

Contributors to this species account:

Cathy Little, HT Harvey & Associates
John Gerlach, TAIC

References

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Calflora: Information on California plants for education, research and conservation. (web application). 2007. Berkeley, California: The Calflora Database (a non-profit organization). Available: http://www.calflora.org/.

California Department of Fish and Game (CDFG). 2005. Knoxville Wildlife Area Management Plan. Approved by the California Department of Fish and Game, Central Coast Region.

California Department of Fish and Game (CDFG). 2007. Rarefind. California Natural Diversity Data Base (CNDDB). Electronic Database.

California Native Plant Society (CNPS). 2001. Inventory of Rare and Endangered Plants of California (6th edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California.

Consortium of California Herbaria (CCH). 2007. Data provided by the participants of the Consortium of California Herbaria (ucjeps.berkeley.edu/consortium/). Accessed August 7, 2007.

Dolan, R. W. 1995. The rare, serpentine endemic *Streptanthus morrisonii* (Brassicaceae) species complex, revisited using isozyme analysis systematic. Botany: 20 (3): 338-346.

Hickman, J.C. (ed.). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, CA.

Hoffman, F.W. 1952. Studies in Streptanthus: A new Streptanthus complex in California. Madrono: 11(6): 221-233.

Kruckeberg, A.R. and J.L Morrison. 1983. New *Streptanthus* taxa (Cruciferae) from California. Madrono 30: 230-244.