

San Joaquin Spearscale

(*Atriplex joaquiniana*)

Legal Status

Federal: None

State: None



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Global and State Conservation Status: G2S2.1: 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; 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. S2.1 = Very 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

San Joaquin spearscale was first described in 1904 by A. Nelson (Nelson 1904). San Joaquin spearscale (*Atriplex joaquiniana*) is a 10- to 100-cm (4- to 30-in) tall herbaceous annual plant in the goosefoot family (Chenopodiaceae) (Taylor and Wilken 1993). The species is also known as “San Joaquin saltbush” and “San Joaquin orache” (Taylor and Wilken 1993, CalFlora 2000). It has erect stems, with many branches, which spread out as the plant ascends. The twigs are dense and finely scaled, becoming glabrous (hairless and smooth). The ovate to triangular-shaped leaves measure 10 to 70 mm (0.5 to 2.75 in) (Taylor and Wilken 1993). The leaves are finely gray-scaled and may be green above. They are also generally irregularly wavy-toothed, with the base truncated and tapered in form (Taylor and Wilken 1993). The staminate inflorescence is spike- or panicle-like, which refers to branched clusters of flowers in which the branches are racemes. The seeds are approximately 1 to 1.5 mm (0.04 to 0.06 in) in length and are dark brown (Taylor and Wilken 1993). Very little is known about the biology and germination patterns of the species; however, San Joaquin spearscale is known to produce a long-lived seed bank that germinates in response to soil disturbances and can exist in weedy grasslands dominated by exotic species (EDAW 2004, Witham 2005, Witham unpublished data).

Habitat Requirements and Ecology

San Joaquin spearscale occurs within chenopod scrub, meadows, playas, valley grassland, and foothill grassland habitats that include alkaline soils. In the Central Valley of

California, it appears to be restricted to alkaline soils along the rims of alkaline basins and the edges of clay bottom vernal pools (CNDDDB 2005). It is also found in alkaline and saline soils near creeks and seeps of the eastern flank of the inner North Coast Ranges (CNDDDB 2005, Taylor and Wilken 1993). Suitable saline or alkaline soils occur near springs and seeps in Blue Ridge and Capay Hills (Schaal *et al.* 1994) and may support populations of San Joaquin spearscale. In many instances, the species occurs with, or is found near, populations of brittlescale (*Atriplex depressa*) and palmate-bracted bird's-beak (*Cordylanthus palmatus*) (CNDDDB 2005).

Species Distribution and Population Trends

Distribution

Endemic to California, San Joaquin spearscale historically has been collected in the Central Valley from Glenn County south to Merced County (CNDDDB 2005, Silveira 2000). Specimens have also been collected in the inner North Coast Ranges in Glenn County and in the ranges of Alameda, Contra Costa and San Benito Counties (CNDDDB 2005, Silveira 2000). The species has been collected in, or adjacent to, salt marshes in Napa, Sacramento, San Luis Obispo, and Solano Counties and on the shore of a small lake in Solano County (CNDDDB 2005). Populations remain extant at many of the collection sites. Of 94 observations of the distribution of San Joaquin spearscale in California, seven occurred in Yolo County (CNDDDB 2005, CalFlora 2000). In Yolo County, San Joaquin spearscale has been collected on, and adjacent to, alkaline soils north of Davis, east of Woodland, the McClellan AFB Davis Communications Facility site, the CDFG Tule Ranch Preserve, and near Dunnigan (Showers 1996, EDAW 2004, CNDDDB 2005, ESA 2005, Dean 2007).

Population Trends

Population trends of San Joaquin spearscale have not been suitably evaluated. According to the CNPS (2005), occurrences of San Joaquin spearscale in California are limited and at risk throughout its range, although it may have been more abundant historically.

Threats to the Species and Other Conservation Issues

Development, intensive agriculture, waterfowl management, and exotic plant species are considered to be the primary threats to the species (CNDDDB 2005, EDAW 2004, Showers 1996). All of these impacts lead to loss of habitat and degradation of the specific soils the plant requires to survive. Research should be directed towards invasive species control methods and techniques for establishing the appropriate hydrological regime to maintain the saline and alkaline soils. Additional research on the pollination ecology, germination requirements, seed dispersal mechanisms and response to disturbance regimes would aid in formulating appropriate adaptive management strategies.

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