

San Joaquin Spearscale (*Atriplex joaquiniana*)

Status

Federal: None
State: None
CNPS: List 1B

Population Trend

Global: Unknown
State: Unknown
Within Inventory Area: Unknown



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Data Characterization

The location database for San Joaquin spearscale (*Atriplex joaquiniana*) includes 50 data records dated from 1891 to 2003 (California Natural Diversity Database 2005). All of the occurrences are presumed to be extant, but 5 occurrences are historic and have not been surveyed to determine whether the populations are still present. Most of the occurrences are of high precision and may be accurately located, including those in the inventory area.

Very little information is available on the ecology of San Joaquin spearscale. The literature on the species pertains primarily to its taxonomy. The main sources of general information on this species are the *Jepson Manual* (Hickman 1993) and the California Native Plant Society (2005). Specific observations on habitat and plant associates, threats, and other factors are summarized in the California Natural Diversity Database (2005).

Range

San Joaquin spearscale occurs along the western side of the Great Valley from Glenn County to Merced County and in the small valleys of the inner Coast Ranges, including the Livermore Valley. It occurs in the broad flood basins of the valley floor and on alluvial fans associated with the major streams draining from the inner Coast Ranges foothills. It is generally found at low elevations, but has been collected up to 1,055 feet above sea level.

Occurrences within the ECCC HCP/NCCP Inventory Area

Thirty-three occurrences of San Joaquin spearscale are found within the inventory area (California Natural Diversity Database 2005; Jones & Stokes Associates 1989; Mundie & Associates and City of Antioch 2002, Lake 2004). Most of the occurrences are within the Los Vaqueros Watershed. Some occurrences are on private lands in the central portion of the inventory area,

including within the Sand creek watershed, Lone Tree Valley, Briones Valley, and the Brushy Creek watershed south of Byron.

Biology

Physical Description

San Joaquin spearscale is an annual herb between 1 and 3 feet tall (Hickman 1993). It blooms from April to October (California Native Plant Society 2005).

Habitat

San Joaquin spearscale typically occurs in alkali grassland and alkali meadow, or on the margins of alkali scrub. It occurs on clay soils, often in areas of high alkalinity.

Species Associated with San Joaquin Spearscale

<i>Allenrolfea occidentalis</i>	iodine bush
<i>Atriplex coronata</i>	crownscale
<i>Atriplex depressa</i>	brittlescale
<i>Centromadia pungens</i>	common spikeweed
<i>Cordylanthus palmatus</i>	palmate bird's-beak
<i>Distichlis spicata</i>	saltgrass
<i>Frankenia salina</i>	alkali heath
<i>Hordeum depressum</i>	low barley
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley
<i>Lolium multiflorum</i>	Italian ryegrass
<i>Nitrophila occidentalis</i>	western niterwort
<i>Salicornia subterminalis</i>	Parish's pickleweed
<i>Spergularia macrotheca</i>	large-flowered sand-spurry
<i>Suaeda moquinii</i>	bush seepweed

Threats

San Joaquin spearscale is known from only a limited number of occurrences and is endangered in a portion of its range (California Native Plant Society 2005). Population trends are unknown (California Natural Diversity Database 2005), but are likely stable or declining. The principal threat to San Joaquin spearscale has been the historic conversion of much of the alkali grassland to agriculture. Present threats include habitat conversion to urban use, overgrazing, and impacts

associated with road and utility line construction and maintenance (California Natural Diversity Database 2005).

Conservation and Management

Areas with alkali soils are prepared for agriculture by treating the soils with gypsum or other substances that allow sodium salts to be leached from the soil by irrigation. This practice alters the soil chemistry, making restoration of former San Joaquin saltscale habitat impractical.

This species is being closely monitored at five locations in the Los Vaqueros Watershed every other year (Bainbridge 1999, 2000). Plant density, cover, fruit production, and seed production are assessed each survey period in order to determine the potential effects of livestock grazing and other factors on this species.

Species Distribution Model

A species distribution model was developed that had the same assumptions as the model developed for brittlescale (all alkali grasslands and alkali wetlands on soils of the Pescadero or Solano soil series [Soil Conservation Service 1977]). Many occurrences, however, fell outside of the modeled habitat. Comparison with detailed mapping of San Joaquin spearscale populations in the Los Vaqueros Watershed (Jones & Stokes Associates 1989) showed that this species is not restricted to soils of the Solano and Pescadero soil series. Other soil series on which the species was found were too widespread to provide a useful prediction of the species' distribution in the inventory area. Therefore, the original species model was discarded. If feasible, a habitat distribution model for San Joaquin spearscale should be developed during the early phases of Plan monitoring and adaptive management.

Literature Cited

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