Brittlescale (*Atriplex depressa*)


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Status

Federal: None
State: None
CNPS: List 1B

Population Trend

Global: Unknown
State: Unknown
Within Inventory Area: Unknown

Data Characterization

The California Natural Diversity Database (2005) reports 58 occurrences of brittlescale (*Atriplex depressa*), but only 41 of the occurrences are brittlescale populations; 17 of the reported occurrences in central and southern San Joaquin Valley are based on misidentifications of lesser saltscale (*Atriplex minuscula*) populations (Preston pers. comm.). The records are dated from 1920 to 2004. Twenty-five of the occurrences were documented within the last 10 years. All of the occurrences are believed to be extant (California Natural Diversity Database 2005). Nine of the occurrences are within the inventory area. The occurrences were mapped with high precision and may be accurately located, including those within the inventory area.

Very little information is available on the ecology of brittlescale. 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) and in Jones & Stokes file records.

Range

Brittlescale 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 Range 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

Nine occurrences of brittlescale are present in the inventory area (California Natural Diversity Database 2005; Mundie & Associates and City of Antioch

2002). Four occurrences are on Contra Costa Water District lands at Los Vaqueros Reservoir or other public lands. One occurrence is on private lands near Antioch; all others are on private lands south and west of Byron.

Biology

Physical Description

Brittlescale is a diminutive annual herb that generally grows prostrate and rarely exceeds 20 centimeters in height (Hickman 1993).

Habitat

Brittlescale occurs on alkali soils of the Pescadero and Solano series. Brittlescale typically occurs in barren areas within alkali grassland, alkali meadow, and alkali scrub. It is occasionally found on the margins of alkali vernal pools.

Species Associated with Brittlescale	
Atriplex cordulata	heartscale
Atriplex coronata	crownscale
Atriplex fruticulosa	ball saltscale
Atriplex joaquiniana	San Joaquin spearscale
Centromadia pungens	common spikeweed
Distichlis spicata	saltgrass
Frankenia salina	alkali heath
Hordeum depressum	low barley
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley
Nitrophila occidentalis	western niterwort
Salicornia subterminalis	Parish's pickleweed
Spergularia macrotheca	large-flowered sand-spurry
Suaeda moquinii	bush seepweed

Threats

Brittlescale 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 brittlescale has been the historic conversion of much of the alkali grassland to agriculture. Present threats include flooding of alkali grassland to create waterfowl habitat, grazing,

trampling, and urban development (California Natural Diversity Database 2005, California Native Plant Society 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 brittlescale habitat impractical.

Species Distribution Model

Model Description

Model Assumptions

Suitable Habitat: All alkali grasslands and alkali wetlands on soils of the Pescadero or Solano soil series (Soil Conservation Service 1977).

Rationale

Brittlescale occurs on alkali soils of the Pescadero and Solano series. Brittlescale typically occurs in barren areas within alkali grassland, alkali meadow, and alkali scrub. It is occasionally found on the margins of alkali vernal pools. It occurs in the broad flood basins of the Central Valley floor and on alluvial fans associated with the major streams draining from the inner Coast Range foothills. It is generally found at low elevations but has been collected up to 1,055 feet above sea level.

Model Results

Figure 2 shows the modeled brittlescale habitat within the ECCC HCP/NCCP inventory area. The habitat is restricted to alkali soils in the southeastern region of the inventory area. Some suitable habitat is found in the Los Vaqueros Watershed and on the Byron Airport conservation easements. The majority of suitable habitat is found on private lands. The documented occurrences of this species are mostly consistent with the predicted suitable habitat in the model. Two occurrences fall outside modeled habitat and may occur on patches of alkaline soil not mapped by the Soil Conservation Service.

Literature Cited

California Native Plant Society (CNPS). 2005. Inventory of Rare and Endangered Plants (online edition, v6-05d). California Native Plant Society. Sacramento, CA. Accessed on Mon, Dec. 26, 2005 from http://www.cnps.org/inventory

California Natural Diversity Database. 2005. RareFind 3, Version 3.0.3 (September 30, 2005 update). California Department of Fish and Game, Sacramento, CA.

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Mundie & Associates and City of Antioch. 2002. *Draft environmental impact report*. Sand Creek specific plan and four associated development plans, Antioch, California. August. State Clearinghouse No. 2001122004.

Soil Conservation Service. 1977. Soil survey of Contra Costa County, California. Concord, CA.

Personal Communications

Preston, R. E. Botanist, Jones & Stokes. May 2001—visit to the University of California and Jepson Herbaria to examine *Atriplex* specimens.