

## Brittlescale

(*Atriplex depressa*)

### Legal Status

Federal: None

State: None



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*Global and State Conservation Status:* 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; State Rank, S2 = Same as global rank but only for the range of the taxa in California.

*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

Brittlescale (*Atriplex depressa*) is a grayish, annual herb in the goosefoot family (Chenopodiaceae) that grows up to 20 cm (8 in) tall (USDA 2004). Its stems grow flat along the ground and may turn upwards near their tips. Its flowers are inconspicuous. The staminate (male) and pistillate (female) flowers are mixed and located within the leaf axils (Preston pers. comm.). Unlike many *Atriplex* species, the densely white-scaly leaves, 4 to 8 mm (0.2 to 0.3 in) long and ovate to heart-shaped, may be opposite each other. Species of *Atriplex* are most easily identified when the plants are bearing fruit (Taylor and Wilken 1993). The seeds are approximately 1 to 1.5 mm (0.04 to 0.06 in) in length and are reddish in color (Taylor and Wilken 1993).

This species was cited in Jepson (1925) and in Abrams and Ferris (1960) as a synonym of the Parish's brittlescale (*Atriplex parishii*); but it is treated in the current Jepson Manual as a distinct species, where it was separated from Parish's brittlescale by having stems merely glabrous (hairless and smooth) to densely scaly near the tips, versus woolly near the tips in the Parish's brittlescale (Taylor and Wilken 1993). Parish's brittlescale is presumed extinct (Taylor and Wilken 1993). Very little is known about the biology and germination patterns of the species; however, some annual *Atriplex* are known to produce long-lived seed banks that germinate in response to soil disturbances (EDAW 2004, Witham 2005, Witham unpublished data).

## Habitat Requirements and Ecology

Throughout California, brittlescale is found in shadscale scrub, valley grassland, and alkali sink plant communities (CalFlora 2000). Brittlescale grows in relatively barren areas with alkaline clay soils within chenopod scrub, meadows, playas, vernal pools, and valley and foothill grassland. Occasionally, it is found in riparian marshes. Brittlescale blooms from May through October, depending on local environmental conditions (CNDDDB 2005, Munz and Keck 1973). In Yolo County, brittlescale occurs with palmate-bracted bird's-beak (*Cordylanthus palmatus*), San Joaquin spearscale (*Atriplex joaquiniana*), saltgrass (*Distichlis spicata*), alkali heath (*Frankenia salina*), and smooth tarplant (*Centromadia pungens*) (USFWS 1998).

## Species Distribution and Population Trends

### *Distribution*

Brittlescale is endemic to California and its distribution, as defined by Calflora 2007, is based on 108 observations. The range of brittlescale extends from Kern County in the south to Butte and Glenn Counties in the north and from Alameda County in the west to Madera and Tulare Counties in the east. It has been extirpated from Stanislaus County and has not been reported in Sacramento or San Joaquin Counties (CNPS 2005).

Historically, brittlescale has been collected in the Central Valley from Glenn and Butte Counties south to Fresno County (CNDDDB 2005). It has also been collected in the inner North Coast Ranges in Glenn County and in the hills of Alameda and Contra Costa Counties (CNDDDB 2005). In the Sacramento and San Joaquin delta, it has been collected in, or adjacent to, salt marshes in Solano County (CNDDDB 2005). Brittlescale remains extant at many of these areas. In Yolo County, brittlescale is extant on the City of Woodland Preserve, on City Regional Park properties, and on a fallow agricultural field north of Davis (CNDDDB 2005, EIP Associates 2003, Foothill Associates 2002, Showers 1996). In 1965, brittlescale was collected along Kentucky Avenue in Woodland and in two other locations east of Woodland; however, these sites no longer support this species (Witham pers. comm.).

According to the CNDDDB (2005), brittlescale is found on a range of alkaline or saline soils in the Sacramento Valley and in the inner North Coast Ranges. Suitable saline or alkaline soils occur near springs and seeps in the Blue Ridge and the Capay Hills (Schaal *et al.* 1994) and may support populations of brittlescale.

### *Population Trends*

Taylor and Wilken (1993) state that brittlescale is a rare species. However, data related to population trends of the species is lacking. According to the CNPS (2005), occurrences of brittlescale in California are limited and the species is at risk throughout its range.

## Threats to the Species and Other Conservation Issues

Intensive agriculture, development, and invasive species are the primary threats. The creation of waterfowl habitat may also lead to habitat losses (CNDDDB 2005, CNPS 2005, Showers 1996). Research should be directed towards invasive species control methods and techniques for establishing the appropriate hydrological regime to maintain 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.

## Contributors to this species account:

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## References

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### Personal Communications

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- Carol Witham. President, California Native Plant Society, e-mail correspondence: December 28, 2004.