Big Tarplant (*Blepharizonia plumosa*)


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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 location database for big tarplant includes 36 data records dated from 1916 to 2001 (California Natural Diversity Database 2005). Twenty-nine of the occurrences were documented within the last 10 years. Seven of the occurrences have not been observed for over 60 years, but all the other occurrences are believed to be extant (California Natural Diversity Database 2005). Most of the occurrences are of high precision and may be accurately located, including those within the inventory area.

Very little ecological information is available for big tarplant. The published 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

Big tarplant is endemic to the Mount Diablo foothills and is found primarily in eastern Contra Costa, eastern Alameda, and western San Joaquin Counties (Hoover 1937).

Occurrences within the ECCC HCP/NCCP Inventory Area

In the inventory area, big tarplant is known from 4 occurrences on Cowell Ranch, west of Brentwood, 7 occurrences on Roddy Ranch, south of Antioch, and one occurrence in Mount Diablo State Park, southeast of Clayton (California Natural Diversity Database 2005, Lake 2004). The historic occurrences in Antioch are likely to have been extirpated, although at least 1 population is present at Black Diamond Mines Regional Park (Preston pers. comm.). Big tarplant may also be present in the hills south of Pittsburg, where it was collected in 1937 and last seen in 1992 (Preston pers. comm.).

Biology

Physical Description

Big tarplant is an herbaceous annual that grows to between 1 and 3 feet tall. Seedlings appear in early spring, but the plants do not begin to bloom until mid-summer. The blooming period, during which the plants produce many heads with white flowers, generally occurs between August and October.

Two species of big tarplant are present in the inventory area: big tarplant and viscid big tarplant (*Blepharizonia laxa*). Viscid big tarplant is the more widely distributed species, ranging throughout most of the south Coast Ranges and reaching its northern limit in Contra Costa County. The two species, which often occur in adjacent populations, can be differentiated by their branching patterns, the amount and color of the simple and glandular hairs on the stems and leaves, the chemical compounds produced by the glands, and by genetic markers (Hickman 1993, Baldwin et al. 2001, Preston pers. comm.). The two species can hybridize, but the hybrids are infertile (Baldwin et al. 2001).

Habitat

Big tarplant occurs in annual grassland on clay to clay-loam soils, usually on slopes and often in burned areas, below 1,500 feet (California Natural Diversity Database 2005). In Contra Costa County, the occurrences are primarily on soils of the Altamont series.

Species Associated with Big Tarplant	
Avena species	wild oats
Bromus species	brome grasses
Epilobium brachycarpum	panicled willow-herb
Eriogonum angulosum	angle-stemmed wild buckwheat
Eriogonum gracile	slender woolly wild buckwheat
Grindelia camporum	Great Valley gumplant
Holocarpha obconica	San Joaquin tarplant
Holocarpha virgata	virgate tarplant
Lagophylla ramosissima	common hareleaf
Lolium multiflorum	Italian ryegrass
Nassella pulchra	purple needlegrass

Threats

Big tarplant occurs in only a few highly restricted populations and is endangered throughout its range (California Native Plant Society 2005). The primary threat to big tarplant has been habitat loss from conversion to urban development.

Ground disturbance and erosion caused by cattle grazing and competition from invasive exotics such as yellow star-thistle (*Centaurea solstitialis*) may also pose a threat to populations (California Natural Diversity Database 2005).

Conservation and Management

Big tarplant may require management of nonnative annual grasses for long-term population viability. Prescribed burns may be an effective method for managing grasslands in which big tarplant occurs. Such burns should be conducted under conditions that favor low-intensity fire because high plant mortality appears to result from high-intensity fires. Gregory and his colleagues (2001) found that disc seeds of big tarplant germinate at much higher frequencies than ray seeds, and advise that only disc seeds should be used in the creation of new populations.

Species Distribution Model

Model Description

Model Assumptions

Primary habitat: Annual grassland below 1,500 feet on the Altamont soil series (Soil Conservation Service 1977).

Secondary habitat: all other annual grassland below 1,500 feet.

Rationale

Big tarplant occurs in annual grassland on clay to clay-loam soils, usually on slopes and often in burned areas, below 1,500 feet (California Natural Diversity Database 2005). In Contra Costa County, the occurrences are primarily on soils of the Altamont series (Soil Conservation Service 1977).

Results

Figure 2 shows the modeled big tarplant habitat within the ECCC HCP/NCCP inventory area. The distribution of known occurrences is consistent with the predicted suitable habitat of the model.

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