



U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Species Account
WHITE-RAYED PENTACHAETA
Pentachaeta bellidiflora



CLASSIFICATION: Endangered
Federal Register Notice 60:6671; February 3, 1995
http://ecos.fws.gov/docs/federal_register/fr2779.pdf
(125 KB)

STATE LISTING STATUS AND CNPS
This species was listed as endangered by the California Department of Fish and Game in June 1992. The California Native Plant Society has placed it on List 1B (rare or endangered throughout its range).

CRITICAL HABITAT: Not designated

RECOVERY PLAN: Final
Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area; September 30, 1998.
http://ecos.fws.gov/docs/recovery_plan/980930c_v2.pdf (22 MB)

5-YEAR REVIEW: Started March 25, 2009
<http://www.fws.gov/policy/library/E8-4258.html>

DESCRIPTION



White-Rayed Pentachaeta
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White-rayed pentachaeta is a small annual plant of the aster family (Asteraceae). It has one or a few branches that bear narrow, linear leaves. Each flower head has numerous yellow disk flowers (flowers in the center portion of the head of a member of the aster family) and 5 to 16 white to purplish ray flowers. Fruits are tawny, coarse-haired achenes (dry one-seeded fruits).

Related species in the San Francisco Bay Area, *Pentachaeta exilis* ssp. *Exilis* (meager pentachaeta) and *P. alsinoides* (tiny pentachaeta), differ from *P. bellidiflora* in that they have no ray flowers.

See Hickman (1993) in General Information about California Plants, below, for a detailed description of these species.

The species flowers from March to May. It may be visited by the federally threatened bay checkerspot butterfly (*Euphydryas editha bayensis*). The butterfly may incidentally pollinate the plant, but the primary pollinators are unknown. Given that the seeds apparently do not over-



White-Rayed Pentachaeta
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winter well, the species may have a limited soil seed bank. Detailed data on the reproductive biology of the species are not available.

SERPENTINE SOIL PLANTS:

Serpentine soils are formed from weathered volcanic (ultramafic) rocks such as serpentinite, dunite, and peridotite. These soils provide a harsh environment for plant growth. Several factors contribute to the inhospitability of serpentine soils to plant growth

- 1) Low calcium-magnesium ratio;
- 2) Lack of essential nutrients such as nitrogen, potassium, and phosphorous; and
- 3) High concentrations of heavy metals (mineral toxicity).

However, serpentine plant species have adapted to serpentine soils and require them to survive.

See the [recovery plan](#) (above) for more information about serpentine soil species.

Contact the Coastal Branch of our office (formerly the Coast-Bay-Delta Branch) at 916-414-6625 for consultations concerning serpentine soil species.

The Bay Checkerspot Butterfly [PDF](#) | [RTF](#) is an insect that depends on serpentine soil plants, primarily dwarf plantain (*Plantago erecta*).

DISTRIBUTION

Pentachaeta bellidflora historically ranged from Main County to Santa Cruz County. Three populations in Mann County and two in San Mateo County were destroyed by urbanization. One Main County occurrence was destroyed by off road vehicles. Two sites in Santa Cruz County no longer support the species.

U.S. Geological Survey 7.5 Minute Quads: Soquel (387B)* 3612188, Castle Rock Ridge (408A)* 3712221, Big Basin (408B)* 3712222, Davenport (408C)* 3712212, Felton (408D)* 3712211, Woodside (429A) 3712243, San Francisco South (448B)* 3712264, Montara Mountain (448C)* 3712254, San Mateo (448D)* 3712253, San Quentin (466B)* 3712284, San Rafael (467A)* 3712285, Point Bonita (467D)* 3712275. (*Believed extirpated)

THREATS

White-rayed pentachaeta is threatened by urbanization, recreation and competition from nonnative plant species. This competition becomes a problem when the soils are disturbed. The species is also extremely vulnerable to random events. The single remaining population was bisected by Interstate 280 in the late 1960's. The largest portion of the population occurs in the Triangle, on land administered by the San Francisco Water Department. A small remnant of this population is located to the east of Interstate 280, on Edgewood County Park.

In the Triangle/Edgewood location the species is threatened by recreational development. Although public access was restricted in the past, the Triangle portion of the population is now part of a recreational easement

REFERENCES FOR ADDITIONAL INFORMATION

[General references about California plants](#)

www.fws.gov/sacramento/es/plant_spp_accts/plant_references.htm

Kruckeberg, A.R. 1984a. California serpentines: Flora, vegetation, geology, soils, and management problems. University of California Press, Berkeley, California. 180 pp.

_____. 1984b. The flora on California's serpentine. *Fremontia* 11(5): 3-10.

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