



U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Species Account
VERNAL POOL FAIRY SHRIMP
Branchinecta lynchi



CLASSIFICATION: Threatened
Federal Register 59-48136; September 19, 1994
http://ecos.fws.gov/docs/federal_register/fr2692.pdf

On October 9, 2007, we published a [5-year review](#) recommending that the species remain listed as threatened.



CRITICAL HABITAT: Designated
Originally designated in [Federal Register 68:46683](#); August 6, 2003.
The designation was revised in FR [70:46923](#); August 11, 2005.
Species by unit designations were published in [FR 71:7117](#) (PDF), February 10, 2006.

RECOVERY PLAN: Final
Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, December 15, 2005.
http://ecos.fws.gov/docs/recovery_plan/060614.pdfhttp://ecos.fws.gov/docs/recovery_plan/060614.pdf

DESCRIPTION

The vernal pool fairy shrimp (*Branchinecta lynchi*), is a small crustacean in the Branchinectidae family. It ranges in size from ½ to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus.

Fairy shrimp are aquatic species in the order Anostraca. They have delicate elongate bodies, large stalked compound eyes, no carapaces, and eleven pairs of swimming legs. They glide gracefully upside down, swimming by beating their legs in a complex, wavelike movement that passes from front to back.

The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre. These are most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp have been collected from early December to early May.

Female fairy shrimp carry their eggs in a ventral brood sac. The eggs either are dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. They remain in the dry pool bed until rains and other environmental stimuli hatch them.

Resting fairy shrimp eggs are known as *cysts*. They are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen. (Eriksen and Belk 1999)

DISTRIBUTION

The vernal pool fairy shrimp was identified relatively recently, in 1990, and there is little information on the historical range of the species. However, the vernal pool fairy shrimp is currently known to occur in a wide range of vernal pool habitats in the southern and Central Valley areas of California, and in two vernal pool habitats within the "Agate Desert" area of Jackson County, Oregon.

THREATS

Habitat loss and fragmentation is the largest threat to the survival and recovery of vernal pool species. Habitat loss generally is a result of urbanization, agricultural conversion, and mining.

Habitat loss also occurs in the form of habitat alteration and degradation as a result of changes to natural hydrology, invasive species, incompatible grazing regimes, including insufficient grazing for prolonged periods; infrastructure projects (e.g., roads, water storage and conveyance, utilities), recreational activities (e.g., off-highway vehicles and hiking), erosion, climatic and environmental change, and contamination.

REFERENCES FOR ADDITIONAL INFORMATION

There is a special [vernal pool fairy shrimp species account](#) for 4th, 5th and 6th grade students. California Dept. of Fish & Game, [California Vernal Pool Assessment, Preliminary Report](#)

Eriksen, C.H., and D. Belk. 1999. Fairy shrimps of California's puddles, pools, and playas, Mad River Press, Eureka, CA.

Holland, R.F. 1978. The geographic and edaphic distribution of vernal pools in the Great Central Valley, California. California Native Plant Society, Special Publication 4:1-12.

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U.S. Fish & Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; [Determination of Endangered Status](#) for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and the Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp. Portland, Oregon.

U.S. Fish and Wildlife Service. 2003. Endangered and Threatened Wildlife and Plants; [Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon Vernal pool crustaceans and plants in California and Oregon](#). Portland, Oregon.

U.S. Fish and Wildlife Service. 2005. Endangered and Threatened Wildlife and Plants; [Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation of Economic Exclusions From August 2003 Final Designation; Final Rule](#). Portland, Oregon.

U.S. Fish and Wildlife Service. 2006. Endangered and Threatened Wildlife and Plants: [Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants; Final Rule](#). Portland, Oregon.

U.S. Fish and Wildlife Service. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon.

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