

FAIRY SHRIMP (CRUSTACEANS)

Fairy shrimp have delicate long bodies, large-stalked compound eyes, no shells, and 11 pairs of swimming legs. They swim or glide gracefully upside down by wave-like movements of the legs that pass from head to toe. Nearly all fairy shrimp feed on algae, bacteria, protozoa, rotifers, and bits of dead debris.

Fairy shrimp are not known to occur in permanent bodies of water, and are dependent upon seasonal changes in their habitat, such as absence or presence of water during specific times of the year. All vernal pools (a short-lived freshwater habitat found within Valley grasslands habitats) are filled by winter and spring rains and may contain water until summer.

Females carry eggs in an oval or elongate brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. Resting (summer) eggs are known as cysts and are capable of withstanding heat, cold, and prolonged dry periods. Cysts in the soil may be from several different years of breeding. As the vernal pools, in which fairy and tadpole shrimp live, refill with rainwater, in the same or subsequent seasons, some of the cysts may hatch. Early stages of fairy shrimp develop rapidly into adults. These non-dormant populations often disappear early in the season, long before the pools dry up.

**CALIFORNIA LINDERIELLA FAIRY SHRIMP
(LINDERIELLA OCCIDENTALIS)***Description*

A small fairy shrimp (17-100 mm long) with 11 pairs of legs, a light grey-white body and distinctive red eyes. All other fairy shrimps (Anostraca) have black eyes.

Habitat

It typically resides in fairly large, deep, vegetated vernal pools in the grasslands. It occurs in a variety of geological substrates, mainly at elevations between 40-168 meters. It often co-occurs with vernal pool fairy shrimp (*Branchinecta lynchi*).

Range/distribution

California fairy shrimp range from Redding in the north to Fresno County in the south, mainly east of the Sacramento and San Joaquin rivers. In the project area, they have been observed in Contra Costa, Alameda, Stanislaus, San Joaquin Merced, Madera, and Fresno counties.

References

Center for Conservation Biology, Dept. of Biological Sciences, Stanford University, URL: <http://ccb.stanford.edu/sunri/cl1-1.html>, accessed September 9, 2002.

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

**CONSERVANCY FAIRY SHRIMP
(BRANCHINECTA CONSERVATIO)**

Federal/California status: Endangered/--

Adult conservancy fairy shrimp range in size from 0.5 to 1 inch (1.5 to 2.5 cm) in length. Some people refer to fairy shrimp as water monkeys.

The Conservancy fairy shrimp inhabits vernal pools with highly turbid water. The species is known from six populations. Within the project area, it is known to occur in Tehama, Glenn, and Merced counties.

**LONGHORN FAIRY SHRIMP
(BRANCHINECTA LONGIANTENNA)**

Federal/California status: Endangered/--

The longhorn fairy shrimp ranges in size from 0.5 to about 1 inch (1.5 to 2.5 cm) in length. This species has been observed from late December through late April. The longhorn fairy shrimp can be found in clear to turbid grass-bottomed vernal pools in grasslands and clear-water pools in sandstone depressions.

This species is known from only four populations. Within the project area, the species occurs in Merced County.

**VERNAL POOL FAIRY SHRIMP
(BRANCHINECTA LYNCHI)**

Federal/California status: Threatened/--

Adult vernal pool fairy shrimp are 0.5 to 1 inch (1.5 to 2.5 cm) in length. Some people call fairy shrimp "water monkeys."

The vernal pool fairy shrimp inhabits vernal pools with clear to tea-colored water, most commonly in grass or mud-bottomed swales in unplowed grasslands. It has been collected from early December to early May.

There are 32 known populations of the vernal pool fairy shrimp. Within the project area, they are found in Fresno, Glenn, Madera, Merced, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Tehama, and Tulare counties.

**VERNAL POOL TADPOLE SHRIMP
(LEPIDURUS PACKARDI)**

Federal/California status: Endangered/--

In general, tadpole shrimp have compound eyes, a hard outer covering over most of the body, 35 to 71 pairs of appendages, and two long filament-like appendages near the end of the abdomen. Adult vernal pool tadpole shrimp may reach a length of 2 inches (50 mm).