

Fairy and Tadpole Shrimps - spp.

Abundance: Unknown

Status: NSSU

NatureServe: G5 SNR

Population Status: Unknown

Limiting Factor: Unknown

Comment: None

Introduction

Fairy shrimp (order Anostraca) are distributed throughout North America. They have translucent, elongate, delicate bodies (Dodson et al. 2010) without a carapace (Pearse and Buchsbaum 1987). Most species are between 1 to 6 cm (0.4 to 2.4 inches) in length, but two species can reach 18 cm (7 inches). Most are filter feeders but some are predatory and follow the distribution of their major prey species, often other fairy shrimps (Pearse and Buchsbaum 1987, NatureServe 2009). *Artemia* spp. eggs, nauplii, and adults are commonly sold as food for aquarium animals (Pearse and Buchsbaum 1987).

Tadpole shrimp (order Notostraca) are found west of the Mississippi River and in the Arctic of North America. They have a flat, broad carapace that covers the head and thorax (Dodson et al. 2010) lending them the appearance of an amphibian tadpole. They measure from 1 to 5.8 cm (0.4 to 2.3 inches) in length. Tadpole shrimp are omnivores and can be predatory (Pearse and Buchsbaum 1987).

The life histories of fairy and tadpole shrimp are similar. Generally, both complete one generation and produce resting eggs when temporary habitats are inundated with water. These thick-shelled eggs can endure harsh conditions such as drying and freezing. In fact, the eggs of many species require a dormant period before hatching. A release from this diapause is triggered by changes in temperature, daylight length, dissolved oxygen, or salinity. Eggs of tadpole shrimp can hatch when contacted by water after as much as 15 years (Pearse and Buchsbaum 1987). Depending on the species, development from egg to adult may take from a few days to a few weeks.

Fifteen species of fairy shrimp are known from Wyoming (NatureServe 2009), including *Branchinecta serrata* and *B. constricta* (Rogers 2006). Three tadpole shrimp are known from Wyoming, including *Lepidurus bilobatus* that is known from seven states in the northwestern United States (Rogers 2001; NatureServe 2009), and considered imperiled (NatureServe 2009).

Habitat

Both fairy and tadpole shrimp can live in temporary wetlands such as rock pools, vernal pools, seasonal wetlands, alpine pools, and alkali lakes. Some species can also live in permanent waters such as fishless lakes, salt lakes, wetlands that freeze solid in winter, or wetlands that are reduced to damp soil during dryer periods.

Problems

- h A lack of basic knowledge of the species that inhabit the state, their distributions and ecology precludes status assessments in Wyoming.

Conservation Actions

- h A general description of fairy and tadpole shrimp species distributions and ecology is needed in Wyoming.

Monitoring/Research

None.

Recent Developments

Three recently described species of fairy shrimp were found in Wyoming, including *Branchinecta constricta*, *B. serrata*, and *B. lateralis* (Rogers 2006). *B. lateralis* was subsequently collected in four western states. *B. constricta* is a species endemic to southeastern Wyoming, though it may be present in northern Colorado. Additionally, *B. serrata* is endemic to the Crook Mountains of Wyoming.

References

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- Pearse, V., J. Pearse, M. Buchsbaum, and R. Buchsbaum. 1987. Crustaceans. Pages 481-528 in *Living Invertebrates*, The Boxwood Press, Pacific Grove, California.
- Rogers, D. C. 2006. Three new species of Branchinecta (Crustacea: Branchiopoda: Anostraca) from the Nearctic. *Zootaxa* 1126:35-51.
- Dodson, S. L., C. E. Caceres, and D. C. Rogers. 2010. Cladocera and other Branchiopoda. Pages 773-827 in J. H. Thorp and A. P. Covich, editors. *Ecology and Classification of North American Freshwater Invertebrates*. Academic Press, New York.
- Rogers, D. C. 2001. Revision of the nearctic *Lepidurus* (Notostraca). *Journal of Crustacean Biology* 21:991-1006.

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SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: April 2010. Wyoming Game and Fish Department. A range map is unavailable for the taxa because distribution and ecology are poorly known in Wyoming.