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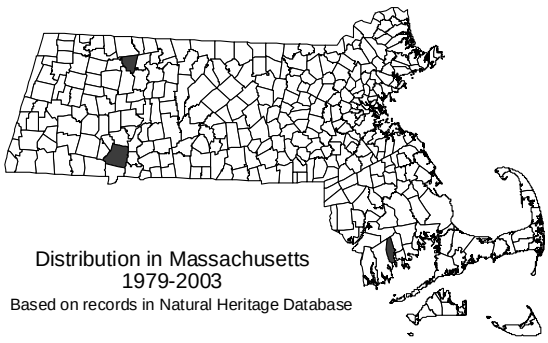
# American Clam Shrimp

*Limnadia lenticularis*

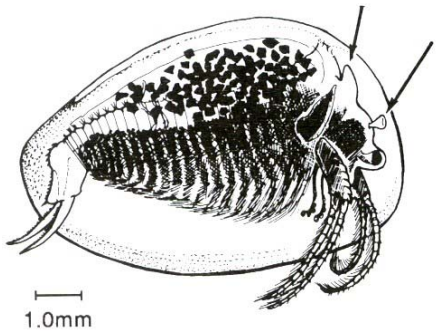
State Status: **Special Concern**
Federal Status: **None**

**Description:**
The American Clam Shrimp, also known as the Euroamerican Clam Shrimp, is a small crustacean from the class Branchiopoda that resembles a mollusk at first glance because it is enclosed in a bivalved structure called a carapace. The egg-shaped carapace is transparent, consists of two shell-like valves that are connected by a fold, each with 7 to 18 growth lines. The valves enclose the American Clam Shrimp's head and eyes, body, and feathery appendages. Like all clam shrimps, this species swims with the fold of its carapace pointing up and its appendages pointing down to aid in locomotion, respiration, and feeding. Massachusetts specimens average 10 mm in length. Identification is difficult because knowledge of clam shrimp anatomy is required.

**Habitat:**
The American Clam Shrimp inhabits ephemeral (vernal) pools. These ponds are present during the late winter and spring, but dry at other times of the year. Small numbers of the American Clam Shrimp have been recorded from three Massachusetts habitats: a flooded depression in an old pasture field, a flooded hay field depression, and the weedy shoreline of an Atlantic white cedar swamp. Biologists monitored the population in the hayfield depression, which fills with snowmelt and rainfall in the spring. The depression held water for about 3 weeks, was 1 acre in size, with a maximum depth of ~3 feet. Once dried, the habitat showed no evidence of the pool but clam shrimp bodies were found in the moist soil (Smith 1995). Elsewhere, this species has been found in small, shallow, isolated depressions in hardwood forests with dark-colored, acidic waters and short wet periods of 2 to 3 months (Battle and Golladay 2002; DiBiase and Taylor 2003).



Distribution in Massachusetts
1979-2003
Based on records in Natural Heritage Database




Thorp, J.H. and Covich, A.P. (Eds.) Ecology and Classification of North American Freshwater Invertebrates. 2nd Edition. Academic Press. 2001.

**Life History/Behavior:**
When environmental conditions are right, the young American Clam Shrimp hatch from resting eggs. The eggs are actually developing embryos with a covering for protection from heat, freezing and periodic drying. Through successive molts, the young reach maturity in 4 to 11 days. Both males and females are found in a population, although males are rare. Reproduction is by parthenogenesis (egg development occurs without fertilization). Females carry resting eggs between the body and the fold of the carapace, and they are shed as the adult female molts.

The American Clam Shrimp has a short life cycle, usually producing only one generation per wet period. The life span is designed to meet the ephemeral nature of their habitat. Shortly before the pool dries, adults begin to die or they become stranded and die. Once the pool dries, the resting eggs remain dormant until the appropriate wet conditions resume, which could take years. The American Clam Shrimp is not found consistently year after year in the same shallow pool. Its presence fluctuates depending on environmental conditions.

The American Clam Shrimp swims, using a paddling motion created by the second antennae. If they cease to paddle they tip on their side. They are most often found moving along the pool bottom in vegetation (Thorp and Covich 2001). This species is a filterer-collector and feeds by drawing water into the carapace using its feathery appendages to collect food particles.

**Threats:**
Pools that support the American Clam Shrimp are usually dry many months of the year, making these habitats easy to overlook. Losses of these pools to development, draining, filling, or contamination from pesticides or toxic substances have the potential to threaten this species. Hydrologic alterations may interfere with length and timing of habitat inundation and could cause local population extinction.

**Range:**
This species is known from scattered locations in Massachusetts, the Atlantic Coastal Plain Province of South Carolina, Florida, and southwest Georgia.

**Population Status in Massachusetts:**
Little is known regarding the population status of the American Clam Shrimp in Massachusetts. Small numbers of American Clam Shrimp have been recorded from scattered locations in Massachusetts. It is very rare in eastern North America and is listed under the Massachusetts Endangered Species Act as a Species of Special Concern. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In addition, listed animals are specifically protected from activities that disrupt nesting, breeding, feeding, or migration.

**Similar Species:**
Two other species of clam shrimp are quite similar to the American Clam Shrimp. The more commonly encountered Holarctic Clam Shrimp (*Lynceus brachyurus*) from the order Laevicaudata is light orange in color, without growth lines on the carapace, and has a smaller, more rounded appearance. It is found in larger, more persistent ephemeral freshwater habitats. Agassiz's Clam Shrimp (*Eulimnadia agassizii*) from the order Spinicaudata is also translucent in color, more narrow and oval, with 4 or 5 growth lines, and is smaller averaging ~6 mm. Identification guides illustrate the differences between these three species (Smith 2000).

**References:**

Battle, J.M., and S.W. Golladay. 2002. Aquatic invertebrates in hardwood depressions of southwest Georgia. Southeastern Naturalist 1(2): 149-158.

DiBiase, A.E., and B.E.Taylor. 2003. New reports of fairy shrimps (Crustacea: Anostraca) and clam shrimps (Crustacea: Laevicaudata and Spinicaudata) from South Carolina. Southeastern Naturalist 2(2): 207-216.

Smith, D.G. 2000. Keys to the Freshwater Macroinvertebrates of southern New England. Published by author. Sunderland, MA. 243 pp.

Smith, D.G. 1995. Notes on the status and natural history of limnadiid clam shrimp in southern New England. Anostracan News 3(2): 3-4.

Thorp, J. H., and A. P. Covich, Eds. 2001. Ecology and Classification of North American Freshwater Invertebrates Second Edition. Academic Press.


Updated August 2008