



## Natural Heritage & Endangered Species Program

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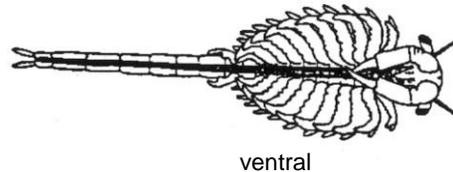
Massachusetts Division of Fisheries & Wildlife

## Intricate Fairy Shrimp *Eubbranchipus intricatus*

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

**DESCRIPTION:** The Intricate Fairy Shrimp, also known as the Smoothlip Fairy Shrimp, is a small, elongated crustacean. It is distinctly segmented with a series of paired, flattened, leaf-like appendages that resemble legs and are used for respiration and locomotion. This species is reddish-yellow or orange and as it matures, the orange color gets darker and the extremities become yellowish white. The head is enlarged with stalked compound eyes. The abdomen is long and tipped with two distinct tail-like structures. The adult reaches a length of 12 to 15 mm when fully grown. Males possess enlarged second antennae as well as a pair of long antennal appendages used for holding females during mating. Females lack the long appendages but they possess an obvious abdominal brood pouch where eggs are carried.

**SIMILAR SPECIES:** Two other species of fairy shrimp, the Springtime Fairy Shrimp (*Eubbranchipus vernalis*) and the Knobbedlip Fairy Shrimp (*E. bundyi*), are known from Massachusetts and are quite similar to the Intricate Fairy Shrimp (*E. intricatus*). The primary



ventral

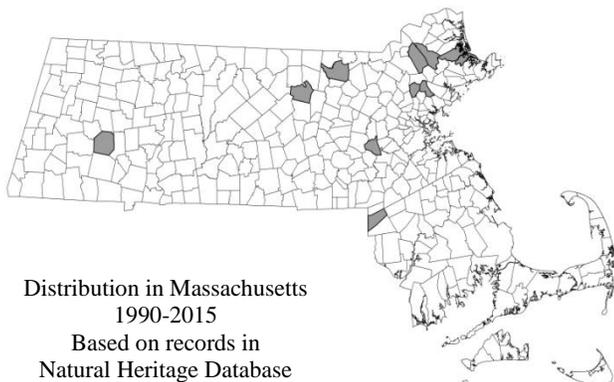


lateral

modified from Sars, 1896

differences between each of the three species are found in the antennal appendage. The Intricate Fairy Shrimp is most similar to the Knobbedlip Fairy Shrimp in that it possesses elongate antennal appendages. Both the Intricate Fairy Shrimp and the Springtime Fairy Shrimp have been found together in the same vernal pool. Descriptive accounts (Hartland-Rowe 1967, Kenney and Burne 2000) and identification guides (Smith 2000; Brtek and Mura 2000) sufficiently illustrate the differences among these species.

**HABITAT:** In Massachusetts, this species is known as an inhabitant of ephemeral (vernal) ponds. These ponds are present at least during the late winter and spring, but usually dry at other times of the year. Such environments cannot support fish populations year round and are used by mole salamanders, wood frogs, and other animals for breeding purposes. The Intricate Fairy Shrimp is typically found in deeper, less temporary, and more bowl-shaped pools than the more often encountered Springtime Fairy Shrimp (*Eubbranchipus vernalis*; D.G. Smith, personal communication 2003).



Distribution in Massachusetts  
1990-2015  
Based on records in  
Natural Heritage Database

**A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan**

## Massachusetts Division of Fisheries & Wildlife

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Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

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**LIFE HISTORY/BEHAVIOR:** The Intricate Fairy Shrimp hatches from resting eggs. The resting egg is actually a developing embryo. The egg is enclosed in a dark covering designed to protect the embryo from heat, freezing, and periodic drying of the ponds. Once hatched, the young undergo rapid changes and growth through several molts until the adult stage is reached. Adults molt several times and fertilization takes place just after the adult female molts. The brood pouch has a pore through which the male injects sperm. Once the eggs are fertilized they are enclosed in a dark covering and the adult female carries them for a short period. The female releases the eggs, allowing her to mate again and produce several clutches during her lifespan (Smith 2000).

The Intricate Fairy Shrimp is a filter feeder. It feeds on its back, filtering with rhythmic movements of its legs as it swims through the water. It is sensitive to vibration and light and will swim away from a person walking up to the edge of a pond.

**THREATS:** Ponds that support the Intricate Fairy Shrimp and other fairy shrimp species are ephemeral and are usually dry many months of the year, making these aquatic habitats easy to overlook. Loss of ephemeral ponds due to development is the most obvious threat to this species. Changes in hydrology that interfere with the length and timing of pool inundation are threats to existing populations. Pollutants moving through groundwater in the vicinity of temporary ponds also represent possible threats to the Intricate Fairy Shrimp. Forest cutting, intentional stocking of fish during wet periods, and excavations of basins containing vernal pools are additional concerns.

**RANGE:** The Intricate Fairy Shrimp range is recorded from several localities in Canada, but in the United States it is known only from Massachusetts and Montana. The few Massachusetts records are scattered throughout the state.

#### **POPULATION STATUS IN MASSACHUSETTS:**

Little is known regarding the status of the Intricate Fairy Shrimp in Massachusetts. It is the rarer member of its genus 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. Prior to 1977, there were only two records for Intricate Fairy Shrimp in Massachusetts. To date, small numbers have been recorded from several vernal pool locations. More information on the distribution of this species would help in its preservation.

#### **REFERENCES:**

- Brtek, J., and G. Mura. 2000. Revised key to families and genera of the Anostraca with notes on their geographic distribution. *Crustaceana* 73 (9): 1037-1088.
- Kenney, L., and M. R. Burne. 2000. *A Field Guide to the Animals of Vernal Pools*. Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program & Vernal Pool Association. Westborough, MA. 73 pp.
- Hartland-Rowe, R. 1967. *Eubranchipus intricatus n. sp.*, a widely distributed North American fairy-shrimp, with a note on its ecology. *Canadian Journal of Zoology* 45: 663-666.
- Smith, D.G. 2000. Keys to the Freshwater Macroinvertebrates of southern New England. Published by author. Sunderland, MA 243 pp.

Updated 2015

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