



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

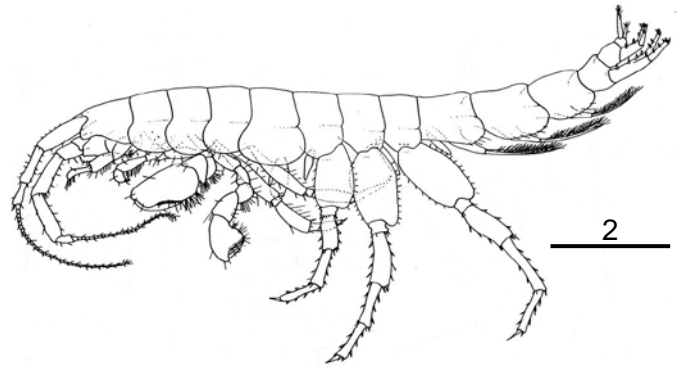
Piedmont Groundwater Amphipod *Stygobromus tenuis*

State Status: **Special Concern**

Federal Status: **None**

DESCRIPTION: The Piedmont Groundwater Amphipod is one of two subterranean crustaceans in Massachusetts. This amphipod looks like a small flat shrimp; it has no eyes, and is whitish, creamy, or straw-colored. Adults in Massachusetts range in size from 5.5 mm to 9.5 mm (Smith 2000). In general, amphipods have a complex structure making identification difficult without knowledge of the morphological characters of the animal.

SIMILAR SPECIES: The Piedmont Groundwater Amphipod can be confused with the Taconic Cave Amphipod (*Stygobromus borealis*), which can also be found in springhouses of the southern Taconic Mountains in Massachusetts. The Taconic Cave Amphipod is the only other subterranean amphipod known from Massachusetts. Both amphipods have no eyes or pigment. Identification guides sufficiently illustrate differences among the species based on adult body length and characteristics of spines found on an appendage of the thoracic segments (Smith 2000).



Smith, D. G. 1984. Selected freshwater invertebrates proposed for special concern status in Massachusetts, Part II. Mass. Dept. of Env. Qual. Engineering, Div. of Wat. Pollut. Control. Westborough, MA.

RANGE: In Massachusetts, the known range of this species is limited. It is only found at one site in the extreme southern Taconic Mountains in southwestern Massachusetts. Historically, it is known only from groundwater habitats in eastern Maryland, extreme southeastern New York, and south-central Connecticut.

HABITAT: The Piedmont Groundwater Amphipod is found in upland karst terrain, which is a limestone area with underground caverns and streams. This species is found in springs connected with deep aquifers in the extreme southern Taconic Mountains in southwestern Massachusetts (Smith 1986). This habitat is unlike that described for this species elsewhere in its range (Holsinger 1967, 1978), where it is found in shallow groundwater habitats including wells, seeps, and small springs.

LIFE HISTORY/BEHAVIOR: Little is known about the life history of this species. Adults are present year round. Females produce a few large ovoid-shaped eggs (Smith 1986).

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

Massachusetts Division of Fisheries & Wildlife

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THREATS: Potential threats to the Piedmont Groundwater Amphipod are groundwater contamination and use. For example, springhouses where rare species have been found are often on private property and subject to owner discretion. If the spring outlets were dammed to create a pond for irrigation, livestock, or aesthetic reasons, this hydrologic alteration could be detrimental to the rare species population.

POPULATION STATUS IN MASSACHUSETTS:

The status of the Piedmont Groundwater Amphipod population in Massachusetts is uncertain. The karst habitat where it is found is uncommon in Massachusetts. This amphipod is rarely encountered 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. More information on the distribution, life history, and habitat requirements of this species would help in its preservation.

REFERENCES:

- Holsinger, J.R. 1978. Systematics of the subterranean amphipod genus *Stygobromus* (Crangonyctidae), part II: Species of the eastern United States. *Smithsonian Contributions Zoology*. No 266. 144 pp.
- Holsinger, J.R. 1972. The freshwater amphipod crustaceans (Gammaridae) of North America. *In* Biota of Freshwater Ecosystems. United States Environmental Protection Agency. Identification Manual 5: 1-89.
- Holsinger, J.R. 1967. Systematics, speciation, and the distribution of the subterranean amphipod genus *Stygonectes* (Gammaridae). *Bulletin United States National Museum* 259: 1-176.
- Smith, D.G. 1986 (1984-1985). The occurrence of the troglolithic amphipod, *Stygobromus tenuis tenuis* (Smith) (Crangonyctidae) in the Taconic Mountains of southwestern Massachusetts (USA): a case for the existence of a subterranean refugium in a glaciated region. *International Journal of Speleology* 14: 31-37.
- Smith, D.G. 2000. Keys to the Freshwater Macroinvertebrates of southern New England. Published by author. Sunderland, MA. 243 pp.

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