

# Species Status Assessment

**Common Name:** Piedmont groundwater amphipod

**Date Updated:**

**Scientific Name:** *Stygobromus tenuis tenuis*

**Updated by:**

**Class:** Malacostraca

**Family:** Crangonvctidae

**Species Synopsis** (a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):

The Piedmont groundwater amphipod is a regionally endemic subspecies of *Stygobromus tenuis*, and may also be referred to as the slender stygobromid. Its distribution ranges from central Connecticut southwestward to the Maryland peninsula with a large disjunction occurring between New York and Maryland. The distribution and status of this species in New York are unknown; it has not been reported in the state since the mid-20<sup>th</sup> century. This tiny crustacean occurs in shallow groundwater habitats including wells, seeps, and springs, therefore groundwater contamination and loss of wetlands are likely threats to populations.

DEC is not aware of any additional data or new information on population trends or threats to this species since the last SWAP revision in 2015. This species was listed as SPCN in 2015, but with the removal of this status in the 2025 revision it has been changed to SGCN.

## I. Status

### a. Current legal protected Status

i. **Federal:** Not listed **Candidate:** No

ii. **New York:** Not listed

### b. Natural Heritage Program

i. **Global:** G4T4

ii. **New York:** SNR **Tracked by NYNHP?:** Yes

### Other Ranks:

-New York 2025 SGCN status: Species of Greatest Conservation Need

-IUCN Red List: not listed

-Northeast Regional SGCN: not listed

### Status Discussion:

The Piedmont groundwater amphipod is a rare, regionally endemic subspecies with six known historic localities in Connecticut, Massachusetts, and Maryland (NatureServe 2013). Although it has a fairly large range, there is a large disjunction between populations.

## II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown			-
New York	Yes	Unknown	Unknown			Yes
Connecticut	Yes	Unknown	Unknown		SC	Yes
Massachusetts	Yes	Unknown	Unknown		SC	Yes
New Jersey	No	-	-			-
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No	-	-			-
Quebec	No	-	-			-

Column options

**Present?:** Yes; No; Unknown; No data; (blank) or Choose an Item

**Abundance and Distribution:** Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item

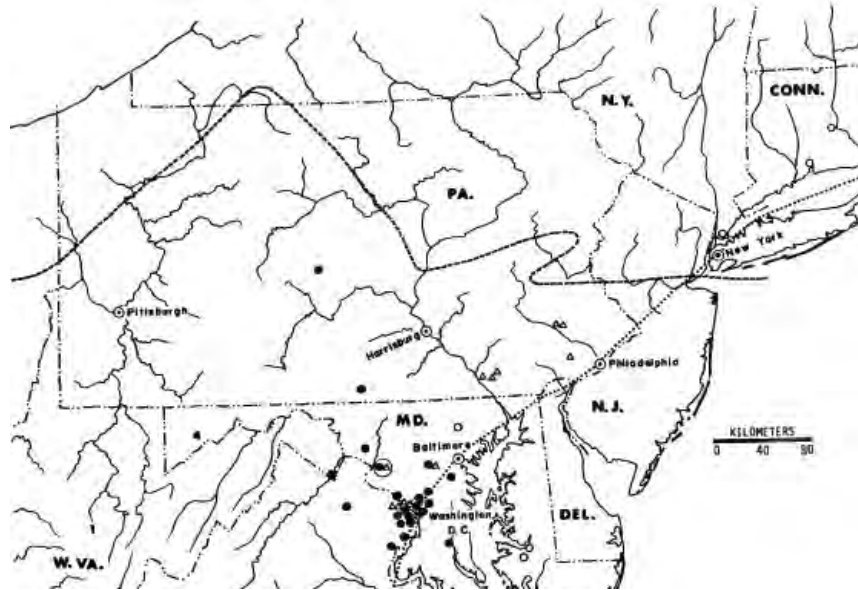
**SGCN?:** Yes; No; Unknown; (blank) or Choose an item

**Monitoring in New York** (*specify any monitoring activities or regular surveys that are conducted in New York*):

None.

**Trends Discussion** (*insert map of North American/regional distribution and status*):

Short and long term trend information for the piedmont groundwater amphipod is not available. Individuals were found at two locations in Massachusetts in 1982, extending the range farther northwest than was previously. Surveys were also conducted in Canaan, Connecticut but no individuals were found at that time. Smith (1984) noted that these findings in MA are significant because the occupied habitat is unlike that described for the species anywhere else in its range. Historical records are from shallow groundwater environments near the coast in southern New England, New York, and Maryland, but there are no habitat descriptions for New York occurrences.



**Figure 1.** Distribution of *Stygobromus tenuis tenuis* in the eastern United States (Holsinger 1978). Open circles are *S.t. tenuis*, closed circles are *S.t. potamacus*.

**III. New York Rarity** (provide map, numbers, and percent of state occupied)

**Details of historic and current occurrence:**

Historical records are from the High Allegheny Plateau, Lower New England Piedmont, and Great Lakes eco regions in the following five basins: Delaware, SE Lake Ontario, Lower Hudson-Long Island Bays, Susquehanna, and Upper Hudson River (NYSDEC 2005). The piedmont groundwater amphipod is an extremely rare endemic subspecies known from only six historic localities (NatureServe 2013).

**New York’s Contribution to Species North American Range:**

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Core	

Column options

Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item

Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

**IV. Primary Habitat or Community Type** (from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):

- a. Caves and Tunnels
- b. Spring
- c. Headwater/Creek

## Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Yes	No	Unknown	

*Column options*

**Habitat Specialist and Indicator Species:** Yes; No; Unknown; (blank) or Choose an item

**Habitat/Community Trend:** Declining; Stable; Increasing; Unknown; (blank) or Choose an item

### Habitat Discussion:

The Piedmont groundwater amphipod is found in shallow groundwater habitats including wells, caves, small streams, seeps, and small springs (NatureServe 2013).

Individuals found recently in Massachusetts occurred in habitat unlike that described for this species elsewhere in its range; it was found in upland karst terrain, which is a limestone area with underground caverns and streams, and springs connected to deep aquifers in the extreme southern Taconic Mountains of southwestern Massachusetts (Smith 1984).

## V. Species Demographics and Life History

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/Catadromous?
Yes	-	-	Yes	Yes	-

*Column options*

**First 5 fields:** Yes; No; Unknown; (blank) or Choose an item

**Anadromous/Catadromous:** Anadromous; Catadromous; (blank) or Choose an item

### Species Demographics and Life History Discussion *(include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):*

Little is known about the life history of this species or most others in the genus *Stygobromus*. Holsinger (1978) reported that ovigerous females of other *Stygobromus* species are generally observed during the summer and fall months, and females lay a small number of eggs (1-2 per brood) into a ventral brood pouch (Holsinger 1978).

**VI.Threats** (from NY 2015 *SWAP* or newly described)

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
7. Natural System Modifications	7.2 Dams & Water Management/Use	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7. Natural System Modifications	7.3 Other Ecosystem Modifications	(wetlands loss)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.1 Invasive Non-Native Plants & Animals	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.1 Domestic & Urban Wastewater	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

**Table 1.** Threats to Piedmont groundwater amphipod.

Because the distribution of the piedmont groundwater amphipod is unknown, the immediate threats remain unknown; however, water pollution from various sources and loss of wetlands are likely to be primary threats to this species. Lack of habitat management will endanger existing populations and habitat alteration due to sedimentation is a threat caused by any activities or development that disturb groundcover, potentially changing cave habitat, blocking recharge sites, or altering flow volume and velocity (Lewis 2001). Impoundments may also affect cave species by creating changes in stream flow that may cause siltation and drastic modification of pool habitats and riffles (Lewis 2001).

**Are there regulatory mechanisms that protect the species or its habitat in New York?**

Yes: \_\_\_\_\_ No:  \_\_\_\_\_ Unknown: \_\_\_\_\_

**If yes, describe mechanism and whether adequate to protect species/habitat:**

**Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:**

Surveys of aquatic caves in waters that are part of its historic range are needed. If individuals are found, critical habitat needs and the impacts of modified flow regime on this species life cycle should also be evaluated (NYSDEC 2005).

Action Category	Action	Description
C.8 Research and Monitoring	C.8.1.1.0 Field Research	Survey aquatic caves in historic range

**Table 2.** Recommended conservation actions for Piedmont groundwater amphipod.

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for freshwater crustaceans, and for the Piedmont groundwater amphipod in particular.

**Habitat monitoring:**

- \_\_\_\_\_ Investigate the degree of alteration to natural flow regime of waters containing the species.
- \_\_\_\_\_ The immediate threats to these populations need to be determined.

**Habitat research:**

- \_\_\_\_\_ The critical habitat needs of both species need to be evaluated.

**Life history research:**

- \_\_\_\_\_ Investigate the impacts of modified flow regime on species life cycle.

**Population monitoring:**

- \_\_\_\_\_ Inventories need to be conducted in their respective historical ranges.

## VII. References

- Holsinger, J.R. 1978. Systematics of the subterranean amphipod genus *Stygobromus* (Crangonyctidae), part II: species of the eastern United States. Smithsonian Contributions to Zoology 266: 144p.
- Lewis, J.J. 2011. Conservation assessment for greenbrier cave amphipod (*Stygobromus emarginatus*). USDA Forest Service, Eastern Region. 10p.
- NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. Arlington, Virginia. Available <http://www.natureserve.org/explorer>. Accessed: 22 May, 2013.
- New York State Department of Environmental Conservation. 2005. New York State Comprehensive Wildlife Conservation Strategy. <http://www.dec.ny.gov/index.html>
- Smith, D.G. 1984. The occurrence of the troglobitic 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. 1997. An annotated checklist of Malacostracans (Crustacea) inhabiting southern New England fresh waters. Journal of Freshwater Ecology 12(2): 217-223.
- Hoff, Samantha. 2013. Piedmont groundwater amphipod Status Assessment for the 2015 New York State Wildlife Action Plan. NYSDEC. Albany, New York.