

Species Status Assessment

Common Name: Watercress snail

Date Updated: February 2025

Scientific Name: *Fontigens nickliniana* **Minor Edits By:** DEC Wildlife Diversity Section

Class: Gastropoda

Family: Hydrobiidae

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

The watercress snail was formerly considered member of the genus *Hydrobia* (Jokinen 1992). It is found in spring-fed streams above and below ground, most frequently in association with watercress (*Nasturtium officinale* or *Rorippa nasturtium-aquaticum*). This tiny snail occurs in a patchy distribution from western New York through Wisconsin and southward through Virginia, with an extralimital population in Alabama (Jokinen 1992). If present in New York, watercress snail is likely limited to the westernmost portions of the state, though it was not documented during surveys by Jokinen (1992) or by Harman and Berg (1971).

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:** G5

ii. **New York:** S1S3 **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

-American Fisheries Society (AFS): Currently stable

Status Discussion:

Dillon et al. (2006) described watercress snail as the most widespread and common of the nine *Fontigens* species monographed by Hershler et al. (1990). It is ranked as Critically Imperiled in Pennsylvania. In New York, this species occurred historically in the Allegheny basin, and it is believed to have been extirpated from the Lake Erie basin and the Upper Hudson River basin (NYSDEC 2005).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Stable	Stable			-
Northeastern US	Yes	Unknown	Unknown			-
New York	Yes	Unknown	Unknown		Not listed	-
Connecticut	No	-	-			-
Massachusetts	No	-	-			-
New Jersey	No	-	-			-
Pennsylvania	Yes	Unknown	Unknown		Not listed (S1)	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*):

Watercress snail has been extirpated from two watersheds in New York and has not been documented during surveys by Jokinen (1992) or Harman and Berg (1971).



Figure 1: Conservation status of watercress snail in the United States (NatureServe 2025)

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

Details of historic and current occurrence:

The watercress snail is thought to have been extirpated from the Upper Hudson River basin and the Lake Erie basin. It occurred historically in the Allegheny basin, but there are no recent records (NYSDEC 2005). Jokinen (1992) summarized historical occurrence in the late 1800s in Herkimer and Chautauqua counties, and notes a museum specimen from Niagara County.

Watercress snail was not documented during surveys by Jokinen (1992) or by Harman and Berg (1971). Jokinen (1992) suggests that if watercress snail is present in New York, it is likely restricted to western portions.

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%	-	

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. Sprig-fed Creek
- b. Headwater/Creek
- c. Intermittent Stream

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Yes	Yes	-	

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:

Snails in this family are associated with springs and spring runs where watercress (*Nasturtium officinale* or *Rorippa nasturtium-aquaticum*) grows in thick mats (Jokinen 1992), as well as streams and pools inside caves (Dillon et al. 2006). Watercress snails require relatively cool, alkaline streams (Biggs et al. 2011). Evans (2004) found watercress snails in calcareous springs in Pennsylvania and stated that it would likely be found in the rich limestone valleys of the Central Appalachian Forest Ecoregion.

Dillon et al. (2006) noted that population densities become rapidly attenuated downstream, suggesting that this snail is dependent on constant temperatures, or another unique aspect of the spring environment.

Aquatic gastropods are frequently used as bioindicators because they are sensitive to water quality and habitat alteration (Callil and Junk 2001, Salanki et al. 2003).

V. Species Demographic, 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):

Sexes are separate in almost all Hydrobiidae. Eggs are laid singly and attached to solid substrates (Dillon et al. 2006).

Populations of watercress snail appear to maintain high densities year-round, suggesting that reproduction might be continuous (Dillon et al. 2006).

Most Gastropods belong to the clade Caenogastropoda, in which individuals mature slowly (requiring at least a year), are long-lived dioecious species with internal fertilization, and females generally attach eggs to firm substrates in late spring and early summer. Many species are narrow endemics associated with lotic habitats, often isolated in a single spring, river reach, or geographically restricted river basin (Johnson et al. 2013). In contrast, members of the clade Heterobranchia are hermaphroditic, mature quickly, and generally have shorter generation times (Johnson et al. 2013).

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

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	(habitat loss/degradation)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
3. Energy Production & Mining	3.2 Mining & Quarrying	(changes in hydrology due to gravel and limestone mining)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7. Natural System Modifications	7.2 Dams & Water Management/Use	7.2.7 Withdrawal of groundwater	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	8.1.3 Aquatic animals (New Zealand mud snail)	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	8.1.4 Aquatic plants (phragmites)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	(fertilizers)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to watercress snail.

High imperilment rates among freshwater gastropods have been linked to alteration, fragmentation and destruction of habitat and introduction of non-indigenous species. Causes of habitat degradation and gastropod species loss include dams, impounded reaches, development of riparian areas, channelization, erosion, excess sedimentation, groundwater withdrawal and associated impacts on surface streams (flows, temperature, dissolved oxygen), multiple forms of pollution (salt, metals such as Cu, Hg, Zn, untreated sewage, agricultural runoff, pesticides/fertilizers), changes in aquatic vegetation, and invasion of exotic species (Johnson et al. 2013).

The New Zealand mud snail (*Potamopyrgus antipodarum*) is a highly invasive species that was introduced in Idaho in the 1980s. It can have devastating consequences to aquatic ecosystems, reducing or eliminating native snail species (Benson et al. 2013). This snail was found established in Lake Ontario in 1991 (Zaranko et al. 1997) and in Lake Erie in 2005 (Levri et al. 2007).

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:

The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Environmental Conservation Law.

The Freshwater Wetlands Act provides protection for regulated wetlands greater than 12.4 acres in size under Article 24 of the NYS Conservation Law. The Adirondack Park Agency has the authority to regulate smaller wetlands within the Adirondack Park. The Army Corps of Engineers has the authority to regulate smaller wetlands in New York State, and the DEC has the authority to regulate smaller wetlands that are of unusual local importance. The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Environmental Conservation Law.

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

Basic biological information is lacking for most taxa of freshwater gastropods and there is a strong need for surveys and biological studies given the strong evidence of decline and extinction.

The following goals and recommended actions are provided in the NY Comprehensive Wildlife Conservation Strategy (NYSDEC 2005):

- Conduct surveys to determine distribution and population trends
- Identify habitat requirements for all life stages
- Develop specific plans for each listed species (or appropriate suite of species) that details status, threats, and actions necessary to reverse declines or maintain stable populations
- Develop fact sheets for each listed species for paper and online distribution

Action Category	Action	Description
B.3 Outreach	B.3.1.4.3 Fliers and Brochures	
C.6 Design and Plan Conservation	C.6.5.0.0 Conservation Planning	
C.8 Research and Monitoring	C.8.1.5.0 Literature Search and Analysis	
C.8 Research and Monitoring	C.8.1.5.1 Species Monitoring	
C.8 Research and Monitoring	C.8.1.5.3 Analyzing Threats or their impacts	

Table 2. Recommended conservation actions for watercress snail.

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Originally Prepared by: Kimberely Corwin (June 2013)

Latest Revision by: Samantha Hoff (February 2014)