

Species Status Assessment

Common Name: Mossy valvata

Date Updated: February 2025

Scientific Name: *Valvata sincera*

Minor Edits By: DEC Wildlife Diversity Section

Class: Gastropoda

Family: Valvatidae

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

The mossy valvata, also known as the boreal turret snail, is a northern species. It is found from the Arctic Circle southward to Connecticut and westward to Minnesota (see Jokinen 1992); New York is at the southern extent of its range. The mossy valvata lives in cold water and is limited to lakes and large streams, in which it can live at considerable depths; it is associated with submerged aquatic vegetation (Clarke 1981). Mossy valvata occurs at four known locations in the St. Lawrence River watershed (Jokinen 1992); new locations were documented in 2012 and 2013 in Oneida Lake and Cayuga Lake.

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:** Special Concern

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S1 **Tracked by NYNHP?:** Yes

Other Ranks:

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

-IUCN Red List: Least Concern

-Northeast Regional SGCN: not listed

-American Fisheries Society (AFS): Currently stable

Status Discussion:

Cordeiro and Perez (2011) call the North American distribution of mossy valvata “widespread and abundant.” This snail’s current presence in southern New England and New York is likely a relict of a broader Holocene distribution (Smith 1987, Strayer 1987). Mossy valvata is common within its distribution in Oneida, Erie and Cayuga Lakes (Expert meeting). It is listed as a SGCN in Vermont. Kart et al. (2005) note that the freshwater snails group in the Vermont State Wildlife Action Plan, which

includes mossy valvata, range from extirpated to declining to rare. There are three records in Vermont, all in the Lake Champlain Valley (Kart et al. 2005).

Mossy valvata is listed as endangered in Massachusetts where it is considered to be locally rare and possible extirpated. Recent surveys did not detect mossy valvata at historical sites (McLain 2003 in Massachusetts Division of Fisheries and Wildlife 2005).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Stable	Stable			-
Northeastern US	Yes	Declining	Declining			-
New York	Yes	Unknown	Unknown		SC	Yes
Connecticut	Yes	Declining	Declining		SC	Yes
Massachusetts	Yes	Declining	Declining	Since 1980	Endangered	Yes
New Jersey	No	-	-			-
Pennsylvania	Yes	Unknown	Unknown		Not listed	No
Vermont	Yes	Declining	Declining		Not listed	Yes
Ontario	Yes	Stable	Stable		Not listed	-
Quebec	Yes	Unknown	Unknown		Not listed	-

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*):

Strayer (1987) notes that although only a few records of mossy valvata exist for the Hudson basin, the presence of the species in postglacial deposits suggest that it may have been more widespread in the basin historically.

Two sites in the Hudson basin that were visited during three survey periods from the late 1800s through 1985, had mossy valvata during the more recent surveys (1973 to 1985) and not during the earlier surveys (Strayer 1987).

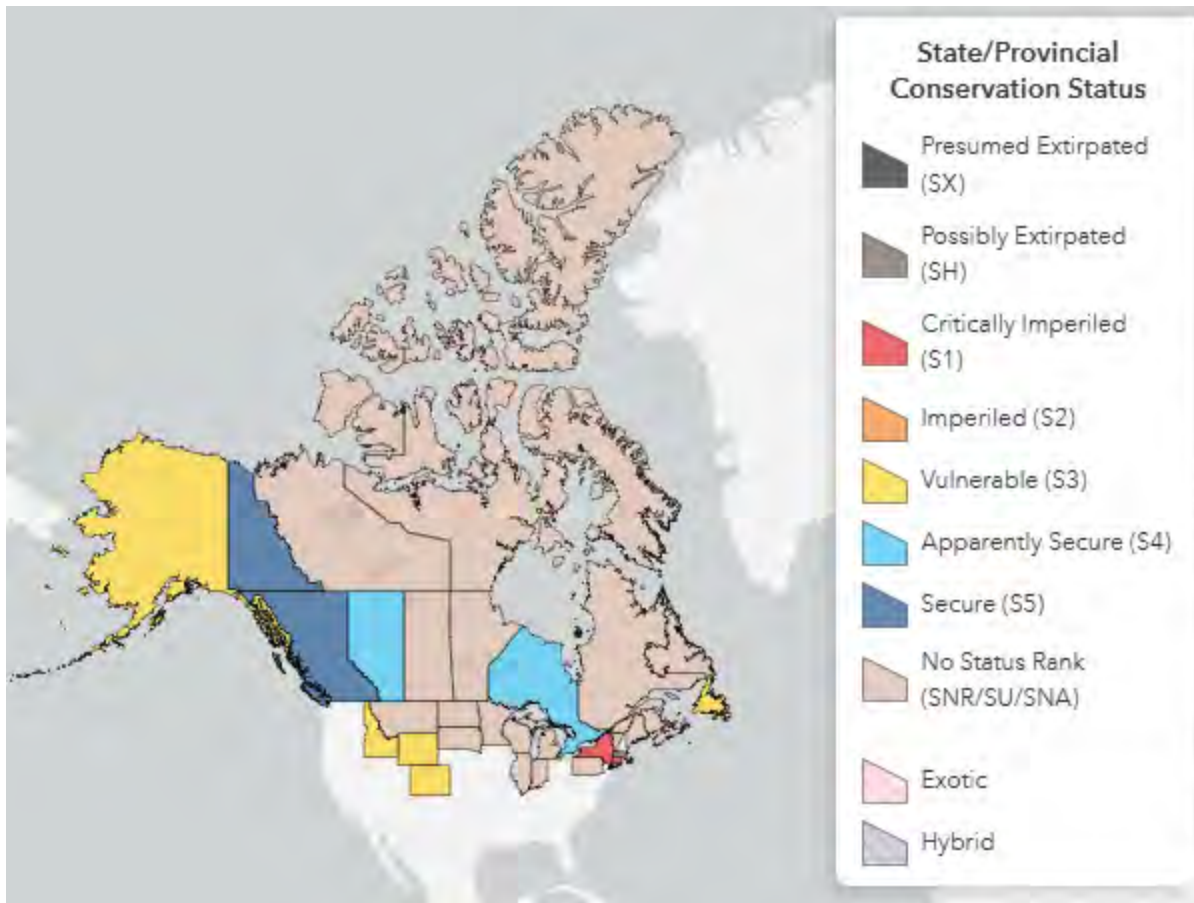


Figure 1. Conservation status of mossy valvata in North America (NatureServe 2025).

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

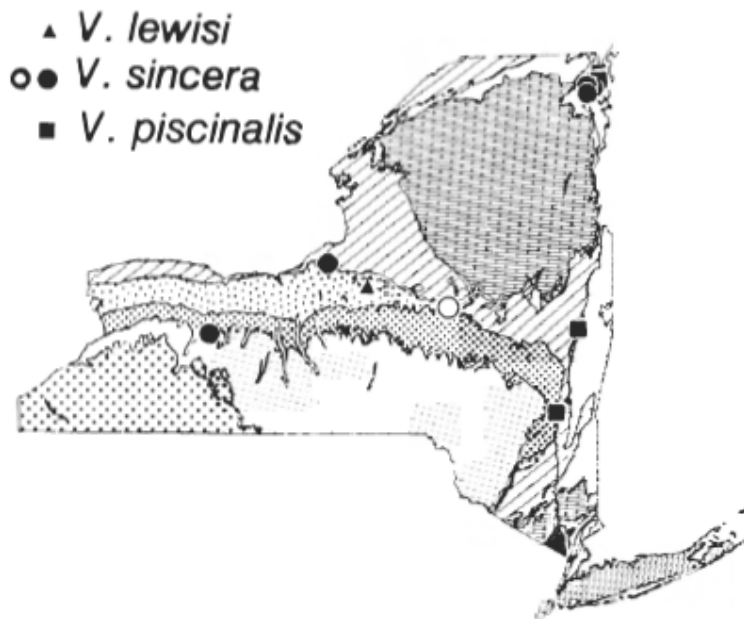


Figure 2. Records of *V. sincera* (mossy valvata) in New York. Closed circles indicate records from Jokinen (1992) surveys, open circles indicate records from museum specimens (Jokinen 1992).

Details of historic and current occurrence:

Jokinen (1992) provides details on historic records occurring in the following counties: Cayuga, Chautauqua, Clinton, Dutchess, Greene, Herkimer, Monroe, Onondaga, Otsego, Wayne. During four survey periods ranging from 1978 to 1991, Jokinen (1992) recorded living mossy valvata at four locations, all within the St. Lawrence River watershed: two locations in Dead Creek, a tributary of Lake Champlain; Lake Champlain; and the Oswego River. Shells were found at one additional site—Conesus Lake in Livingston County—but no living individuals were located.

In June of 2012 Alexander Karatayev, Vadim Karatayev, and Lyubov Burlakova found 105 individuals in 11 locations in Oneida Lake. In September of 2013 Alexander Karatayev and Lyubov Burlakova found 2 individuals in 2 locations in Cayuga Lake (A. Karatayev, personal communication).

The mossy valvata is common within its distribution in Oneida, Erie and Cayuga Lakes.

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%	Peripheral	

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. Summer-stratified Monomictic Lake
- b. Winter-stratified Monomictic Lake
- c. Headwater/Creek

d. Large/Great River

Habitat or Community Type Trend in New York

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

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:

This is a northern, cold water species that is typically associated with submerged aquatic vegetation (Clarke 1981). In southern New England and New York, mossy valvata is limited primarily to large lakes and rivers, though in Canada it is also found in muskeg pools (Clarke 1981). Of the five known sites in New York, one is a river, three are lakes, and the last is a marshy creek that feeds into Lake Champlain (Jokinen 1992). Habitats are typically high calcium, and pH ranges from 6.9 to 7.4 in the five sites sampled by Jokinen (1992). Habitats in Connecticut and New York are eutrophic (Jokinen 1992) but this snail is generally limited to oligotrophic and mesotrophic situations (Kart et al. 2005).

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):

Mossy valvata has an annual life cycle and individuals are hermaphroditic. Adults are present only in the summer. Egg capsules containing 2 to 6 eggs are attached to aquatic plants (Lang and Dronen 1970). Newly hatched individuals lay eggs during the following season and then die.

Both perch (*Perca flavescens*) and whitefish (*Coregonus clupeaformis*) feed on mossy valvata (Goodrich 1932, Clarke 1981).

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.
7. Natural System Modifications	7.2 Dams & Water Management/Use	7.2.1 Water level management using dams (channelization)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	(metals)	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.
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.
11. Climate Change	11.1 Habitat Shifting & Alteration	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to Mossy valvata.

Insufficient information to assess threats. Recognize any threats that cause water quality decline in large waterbodies could threaten this species in NY.

Jokinen (1992) notes that Conesus Lake (Livingston County), which was used as a reservoir for the Genesee Valley Canal, was subject to repeated drawdowns, and this could have destroyed the valvatids there. In Massachusetts, shoreline development, water level drawdowns, lake draining, increased nutrient input, and herbicides have been cited as threats to mossy valvata. The resulting loss in water clarity can prevent the growth of rooted aquatic vegetation in deeper waters, which may be essential for the survival of mossy valvata (Massachusetts Division of Fisheries and Wildlife 2005).

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: ü

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 mossy valvata.

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