

Species Status Assessment

Common Name: Campeloma spire snail

Date Updated: February 2025

Scientific Name: *Cincinnatia integra*

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 Campeloma spire snail, also referred to as the midland snail, is a midwestern species that probably entered the Hudson basin through the Erie Canal. Its distribution ranges from New York and Pennsylvania west to southern Manitoba, southern Saskatchewan, North Dakota and Utah, and south to Texas, Kansas, and Kentucky. There has been a long term decline in NY since the 1900s but three new locations were discovered at Cayuga Lake in 2013 (Expert meeting).

Authors have determined that *Paludina integra* (Say 1821) is actually *Cincinnatia cincinnatiensis*, and most consider *Cincinnatia integra* (Say 1821) a synonym of *Cincinnatia cincinnatiensis* (Jokinen 1992, NatureServe 2013).

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; SGCN

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: not listed

-Northeast Regional SGCN: not listed

Status Discussion:

The Campeloma spire snail is ranked Secure globally due to its wide distribution, presumed large population, occurrence in a number of protected areas, tolerance of a broad range of habitats, tolerance to habitat modification, lack of substantial immediate threats, and because it is not in decline or is unlikely to be declining fast enough to qualify for listing in a more threatened category (NatureServe 2013). In New York this species was found during 2013 at Cayuga Lake, after more than 30 years with no records.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Stable	Stable			-
Northeastern US	Yes	Declining	Declining			No
New York	Yes	Unknown	Unknown	1970s-2013		Yes
Connecticut	No	-	-			-
Massachusetts	No	-	-			-
New Jersey	No	-	-			-
Pennsylvania	Yes	Unknown	Unknown		Not listed	Yes
Vermont	Yes	Unknown	Unknown		Not listed	No
Ontario	Yes	Unknown	Unknown		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*):

Short and long-term trends for this species are unknown. The last records in New York are from the 1970s, but museum data indicates it was once locally abundant.

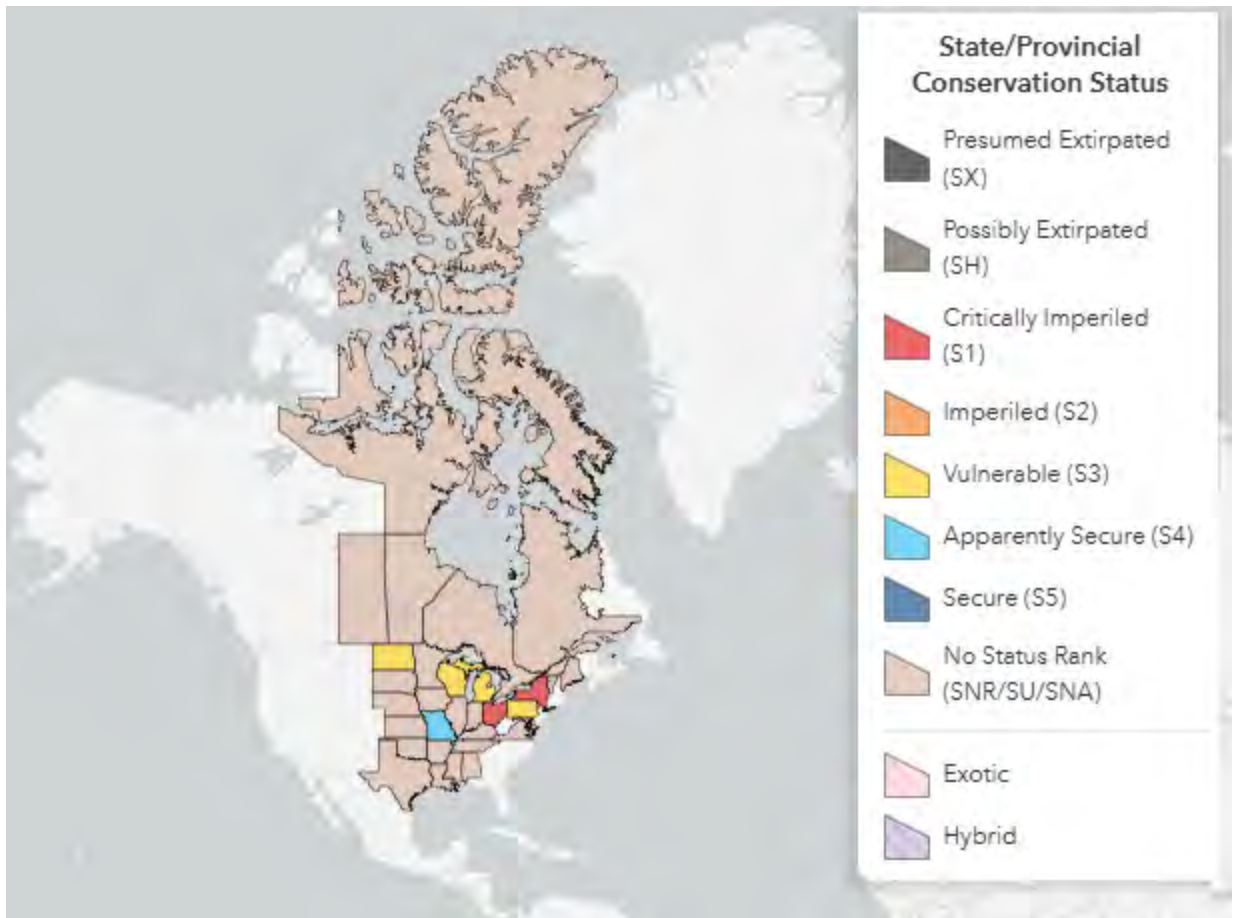


Figure 1. Conservation status of the *Campeloma spire* snail in North America (NatureServe 2025).

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

Details of historic and current occurrence:

Early records show that this species was found in the Erie Canal, Onondaga County (Beauchamp 1886); in the Canal and Mohawk River at Mohawk, Herkimer County (Lewis 1872, Marshall 1894); the “Mohawk basin”, Saratoga County (Aldrich 1869); Park Lake, Buffalo, Erie County (Letson 1909); as beach wash from Lake Ontario, Monroe County (Baker 1900); Sodus Bay, Lake Ontario, Wayne County; and the Salmon River, Oswego County (Burdick 1939) (Jokinen 1992). Museum lots contain dozens to hundreds of individuals, so it was at least locally abundant, and the New York State Museum has lots from the Erie Canal, Mohawk, Herkimer County, and from Ontario County (Strayer 1987, Jokinen 1992). Jokinen (1992) discusses populations that were found in the Oswego River drainage system in the 1970s. Shells, but no live animals, washed up in Canadarago Lake, Otsego County (Harman 1973). Additional populations were located in the Moose River, Lewis County; Kayuta Lake, Oneida County; inlet of Fifth Lake, Hamilton County, and two sites in Lewis County (Buckley 1977).

No populations were found during Jokinen’s surveys of 1978-1991 or Strayer’s 1985 survey. In September of 2013 Alexander Karatayev and Lyubov Burlakova found 7 individuals in 3 locations in Cayuga Lake (Y. Karatayev, personal communication).

Rarity in New York state is unknown due to lack of recent occurrence records, but museum records indicate it was once locally abundant.

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

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Yes	Yes	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 *Campeloma spire* snail lives on muddy ooze or sand in slow creeks and lakes with little aquatic vegetation. In North Dakota, populations are commonly associated with *Amnicola limosa*, and they inhabit large and small streams and permanent lakes and ponds. It has been noted in mesotrophic lakes as well as a deep littoral resident of large lakes with silt and detritus substrates. Reported habitat pH is 7.9-8.4, and it may be limited to high calcium habitats, but more information is needed to sustain this possibility (Jokinsen 1992).

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):*

Little is known regarding species-specific life history information of the Campeloma spire snail. As a member of the subclass Prosobranchia and the clade Caenogastropoda, the Campeloma spire snail is a long-lived dioecious species with internal fertilization and slow maturation (Dillon 2006, AFS 2013). They require at least a year to mature and have retained the ancestral gilled respiration (Dillon 2006). Females generally attach eggs to firm substrates in late spring and early summer (AFS 2013). Diatoms are its main food source (Berry 1943).

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.
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.
9. Pollution	9.1 Domestic & Urban Wastewater	9.1.1 Domestic wastewater (untreated sewage)	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	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 Campeloma spire snail

Species-specific threats are not discussed in the literature, however 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 loss include creation of 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, untreated sewage, agricultural runoff, pesticides/fertilizers), changes in aquatic vegetation, and invasion of exotic species (AFS 2013). Most gastropod species live in the shallows (depths less than 3 meters), where food abundance is greatest. As a result, drastic water fluctuations, such as draw-downs, may cause declines in small populations (Hunt and Jones 1972). Strayer (1987) concluded that human activities had destroyed much of the original mollusk fauna in some parts of the Hudson basin, but not in others. Channelization of farmed mucklands and industrial pollution from Beacon were noted as causes for the notably reduced biodiversity of mollusks in the Wallkill River of Orange County and Fishkill Creek of Dutchess County, respectively.

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.

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 *Campeloma spire* snail.

VII. References

- American Fisheries Society (AFS). 2013. Conservation assessment of freshwater gastropods (snails) from Canada and the United States by the Gastropod Subcommittee (Endangered Species Committee). *Fisheries* 38: 247-282.
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