

# Species Status Assessment

**Common Name:** Canadian duskysnail **Date Updated:** February 2025

**Scientific Name:** *Lyogyrus walkeri* **Minor Edits By:** DEC Wildlife Diversity Section

**Class:** Gastropoda

**Family:** Amnicolidae

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

The distribution of the Canadian duskysnail ranges across the St. Lawrence River and Great Lakes drainages, upper Mississippi drainage, through the Canadian interior basin in the Albany and Winnipeg River systems, and in Lake Winnipeg. In the United States, it occurs from central New York west to Wisconsin and south to the upper Mississippi River Basin, with an extant population in Lake St. Catherine, Vermont. In 1991 the Canadian duskysnail was elevated from the status of a subgenus of *Amnicola* to full generic rank, and is now placed in the genus *Lyogyrus* (NatureServe 2013). Old records show its presence in scattered areas of the state, with the earliest populations recorded in 1843 from Cayuga Lake, Cayuga, Seneca and Tomkins Counties, and from streams entering Lake Champlain, Clinton County. No living snails were found in Jokinen's 1978-1991 surveys and the last record was from 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; SGCN

### b. Natural Heritage Program

i. **Global:** G3G4

ii. **New York:** SNR **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

### Status Discussion:

The Canadian duskysnail is globally ranked Vulnerable by NatureServe due to its limited distribution and lack of recent population records. It is in decline in Manitoba and there are only a few widely scattered records in western and northern Michigan. In Vermont, it is only known from Lake St. Catherine. Although it has not been state ranked in New York, there are no records after 1971.

## II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining			-
Northeastern US	Yes	Declining	Declining			No
New York	Yes	Unknown	Unknown	1970-2013		Yes
Connecticut	No	-	-			-
Massachusetts	No	-	-			Choose
New Jersey	No	-	-			-
Pennsylvania	Yes	Unknown	Unknown		Not listed	Yes
Vermont	Yes	Unknown	Unknown		Not listed	Yes
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 the Canadian dusksnail are unknown. Populations are declining throughout much of its range or have disappeared from some locations.



**Figure 1.** Conservation status of the Canadian dusksnail in North America (NatureServe 2024).

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

**Details of historic and current occurrence:**

Old records from scattered areas in the state document the presence of *L. walkeri*, then known as *Amnicola lustrica*. The earliest record is from De Kay (1843) who reported populations from Cayuga Lake, Cayuga, Seneca and Tompkins Counties, and from streams entering Lake Champlain, Clinton County. Lewis (1860, 1872) noted this species in the Erie Canal, Mohawk River, Little Lakes and Smiths Pond, Herkimer County; and in Schuyler Lake, Otsego County. Additional early records are from Chautauqua Lake, Chautauqua County (1898 and 1928); Onondaga County (1886); Niagara River, Niagara County (1909); Upper Cassadaga Lake, Canandaigua County (1936); Sodus Bay, Wayne County; and Little Sodus Bay, Cayuga County; Lake Ontario; and South Pond, Oswego County (1939).

Harman and Berg (1971) found three populations: two from the western Otsego drainage and one from the Genesee River watershed. No living snails were found in Jokinen’s surveys during 1978, 1981, and 1984-1991 of 346 aquatic habitats in New York State and parts of Lake Champlain in Vermont.

Rarity in New York is unknown due to lack of recent occurrence records.

**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
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1-25%	Core	
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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. Oligotrophic Pond
- c. Large/Great River
- d. Canal
- e. Summer-stratified Monomictic Lake
- f. Marl Pond

**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:**

This species lives in sluggish streams and quiet ponds where dead aquatic plants have accumulated. Populations occur in a range of lentic habitats, including oligotrophic lakes and marl ponds. Mackie et al. (1980) reported that this species is most common in dense masses of aquatic macrophytes and also is present in open areas protected from strong wave action and currents. 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 about species-specific life history information for the Canadian dusksnail. As a member of the subclass Prosobranchia and the clade Caenogastropoda, the Canadian dusksnail 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).

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

<b>Threat Level 1</b>	<b>Threat Level 2</b>	<b>Threat Level 3</b>	<b>Spatial Extent</b>	<b>Severity</b>	<b>Immediacy</b>	<b>Trend</b>	<b>Certainty</b>
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 wastewater)	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 Canadian dusksnail.

Threats to the Canadian dusksnail are not discussed in the literature, but high imperilment rates to 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 dams, impounded reaches, development of riparian areas, channelization, erosion, excess sedimentation, groundwater withdrawal and associated impacts to 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 species live in 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 snail 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 the 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 Freshwater Wetlands Act provides protection for regulated wetlands greater than 12.4 acres in size under Article 24 of the NYS Environmental 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 Conservation Law. However, these laws may not provide the necessary protection of required microhabitat conditions necessary to sustain Canadian dusksnail populations.

**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 Canadian dusksnail.

## VII. References

- American Fisheries Society (AFS). 2013. Conservation status of freshwater gastropods (snails) of Canada and the United States by the Gastropod Subcommittee (Endangered Species Committee). *Fisheries* 38(6): 247-282.
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Zaranko, D.T., D.G. Farara, and F.G. Thompson. 1997. Another exotic mollusk in the Laurentian Great Lakes: the New Zealand native *Potamopyrgus antipodarum* (Gray 1843) (Gastropoda, Hydrobiidae).

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