

Species Status Assessment

Common Name: Lance aplexa

Date Updated: February 2025

Scientific Name: *Aplexa elongata*

Minor Edits By: DEC Wildlife Diversity Section

Class: Gastropoda

Family: Physidae

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

The lance aplexa occurs in a wide distribution from the District of Columbia northward to James Bay and arctic Alaska, and southward to Idaho (Jokinen 1992). This snail is found in temporary pools, ditches, ponds, and swampy meadows as well as in intermittent streams; it prefers hard water (Jokinen 1992).

Historic records exist for 16 counties across New York from 1856 to 1977, but this snail is now known from only two locations: the St. Lawrence drainage and the Hudson River drainage (Jokinen 1992). It was not detected in the Hudson Valley during surveys by Strayer (1987).

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:** S2 **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:

Lance aplexa is thought to have been extirpated from nine watershed basins in New York (NYSDEC 2005). Jokinen (1992) noted that potential habitats were undersurveyed.

Lance aplexa is ranked as Imperiled in Connecticut, Pennsylvania, and New York. It is ranked as Secure in Ontario and Apparently Secure in Massachusetts. No rank (SNR) has been assigned across the balance of the extensive range.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.
Northeastern US	Yes	Unknown	Unknown			Choose an item.
New York	Yes	Unknown	Unknown		Not listed	Choose an item.
Connecticut	Yes	Declining	Declining		Not listed	No
Massachusetts	Yes	Stable	Stable		Not listed	No
New Jersey	Yes	Unknown	Unknown		Not listed	No
Pennsylvania	Yes	Declining	Declining		Not listed	No
Vermont	Yes	Unknown	Unknown		Not listed	No
Ontario	Yes	Stable	Stable		Not listed	Choose an item.
Quebec	Yes	Unknown	Unknown		Not listed	Choose an item.

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*):

Jokinen (1992) notes that the lance apaxa's habitats were under-sampled during four survey periods ranging from 1978 to 1991, but it was detected in two sites. Strayer (1987) notes that numerous museum specimens indicate the presence of this snail in the lower Hudson River watershed.

Although there have been few repeated surveys of gastropods in New York that would allow a population trend analysis, Strayer (1987) was able to conclude that there has been little change in the composition of the molluscan fauna of the tidal Hudson River over the previous 100 years. Strayer (1987) also noted that even without good historical records from other parts of the Hudson basin, it was clear that human activities had devastated the mollusk fauna of some streams including the Wallkill River in Orange County and the Fishkill Creek in Dutchess County.

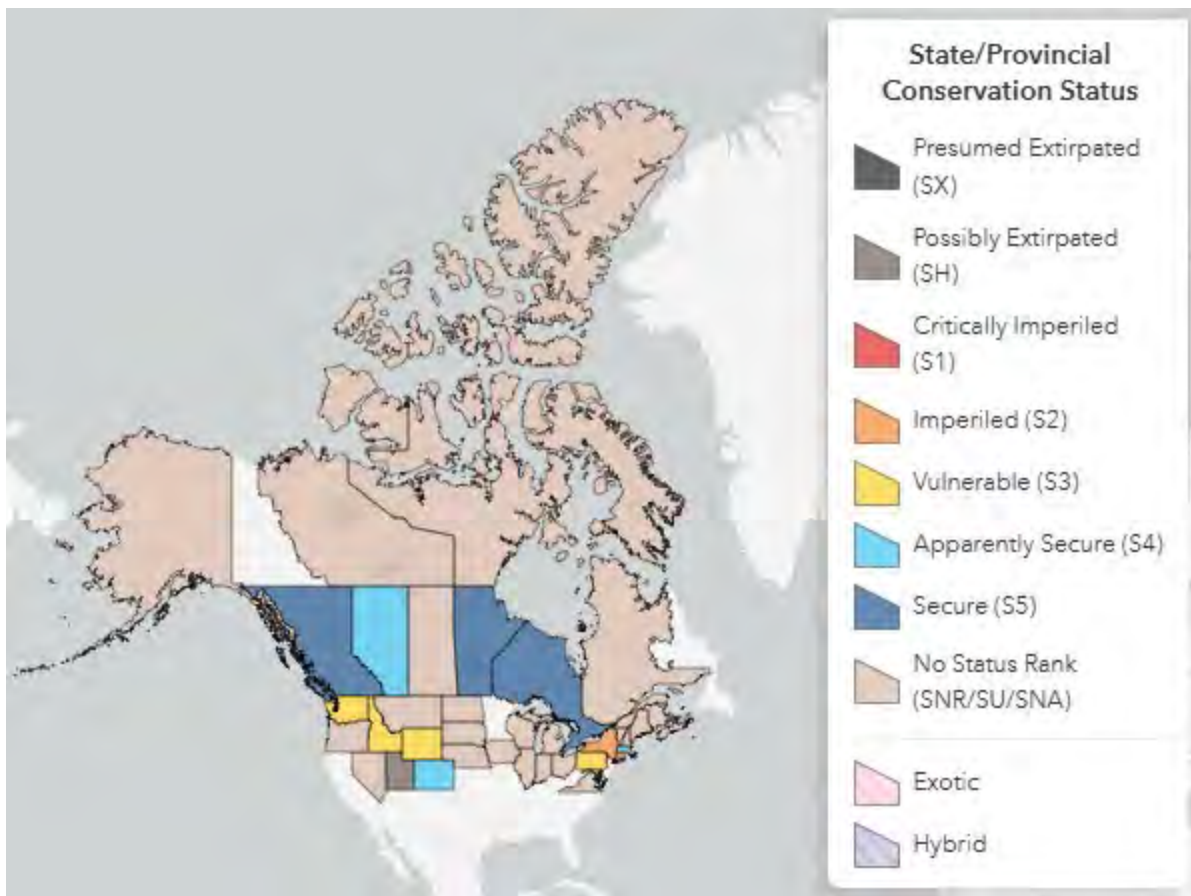


Figure 1. Conservation status of lance alexa in North America (NatureServe 2025)

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

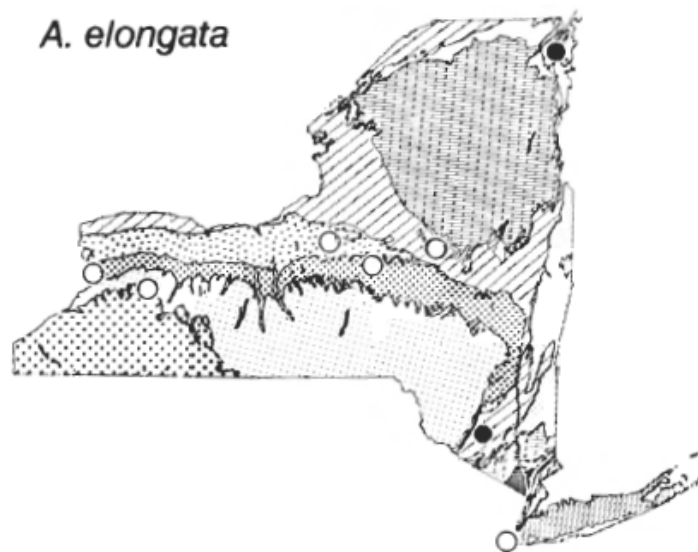


Figure 2. Records of *A. elongata* (lance alexa) in New York. Closed circles indicate records from Jokinen (1992) surveys, open circles indicate records from museum specimens (Jokinen 1992).

Details of historic and current occurrence:

Jokinen (1992) summarized the historic occurrence (1856 to 1977) in the following counties: Albany, Cattaraugus, Cayuga, Erie, Herkimer, Jefferson, Madison, Monroe, Niagara, Onondaga, Otsego, Rensselaer, Richmond, Suffolk, Warren, and Wyoming. During four survey periods ranging from 1978 to 1991, Jokinen (1992) found lance aplexa in two locations: Dead Creek in the St. Lawrence drainage in Plattsburgh, and an unnamed stream and vernal pool in Walkill, Hudson River drainage.

Lance aplexa is thought to have been extirpated from the following nine basins: Lake Champlain, Lake Erie, Lower Hudson – Long Island bays, NE Lake Ontario – St. Lawrence, SE Lake Ontario, Susquehanna, Upper Hudson River, and Allegheny (NYSDEC 2005). It is thought to still occur in the two locations where it was documented by Jokinen (1992) but no surveys have since been conducted.

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. Headwater/Creek
- b. Vernal Pool
- c. Ditch/Artificial Intermittent Stream
- d. Intermittent Stream

Habitat or Community Type Trend in New York

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

Lance aplexa are most successful in shallow, temporary pools with no predators (Turner and Montgomery 2009). They are found under in dried ponds, under moist leaves, in ditches, swampy meadows, swales, intermittent streams, and less frequently, lakes and ponds. Sediments range from mud to sand but usually include decaying vegetation (see Jokinen 1992). The lance aplexa is a detritivore (Brown 1982). It typically occurs in hard water (Jokinen 1992). At 17 sites in central New York, pH values at sites occupied by lance aplexa measured 6.8 to 8.1 (Harman and Berg 1971).

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*):

As a species of ephemeral habitats, lance aplexa is tolerant of thermal stress and periodic drying (Burch and Jung 1992) though it cannot withstand desiccation during the summer months.

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.
5. Biological Resource Use	5.3 Logging & Wood Harvesting	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	9.2.5 Mercury	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	(acid)	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 lance alexa.

*Any threat to vernal pools would affect this species.

Threats to lance aplexa are similar to those faced by many freshwater organisms in New York. These include loss of habitat due to water table drawdown, development, alteration of drainage and surface water flows, and change in aquatic vegetation. Threats also include use of pesticides and other chemicals either directly on habitat areas or from nonpoint source pollution. Competition from exotic species may also be a problem.

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).

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 Walkkill 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: 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 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 lance aplesa.

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