

Species: Yellow Lampmussel (*Lampsilis cariosa*)

Global Rank: G3G4

State Rank: S3S4

State Wildlife Action Plan Priority: Immediate Level Concern Species

CCVI Rank: Extremely Vulnerable

Confidence: Very High

Habitat:

Yellow Lampmussels can be found in different aquatic habitats but appears to prefer the shifting sands downstream from large boulders in relatively fast flowing, medium to large streams and medium-sized rivers (Spoo 2008; NatureServe 2010).

Threats:

A major cause of the decline of freshwater mussels during the last century is the degradation and destruction of habitat by siltation, dredging, channelization, impoundments, and pollution (NYNHP 2010). Declining water quality and the introduction and establishment of zebra mussels have also contributed to the dramatic decline in mussel populations (Nalepa and Schloesser 1993; Metcalfe-Smith et al. 2000, 2003; Fisheries and Oceans Canada 2009).

Main Factors Contributing to Vulnerability Rank:

Distribution relative to anthropogenic barriers: Dams are located upstream of some locations of this species in Pennsylvania which could possibly hinder the establishment of new populations upstream from known occurrences.

Predicted impact of land use changes designed to mitigate against climate change: Waterways where the species occurs may be suitable for future placement of hydropower plants.

Predicted macro sensitivity to changes in precipitation, hydrology, or moisture regime: Considering the range of the mean annual precipitation across the species' range in Pennsylvania, the species has experienced slightly lower than average precipitation variation in the past 50 years.

Predicted micro sensitivity to change in precipitation, hydrology, or moisture regime: Climate models suggest a likely increase in precipitation amount and patterns for Pennsylvania that may likely reduce the species' distribution, abundance, and habitat quality.

Dependence on specific disturbance regime likely to be impacted by climate change: More intense flooding events, likely associated with climate change in Pennsylvania, may affect Yellow Lampmussel populations by altering water/habitat quality and/or

fragmenting populations. Strong, bottom currents from floods may redistribute individual mussels downstream from current populations.

Dependence on other species for propagule dispersal: Yellow Lampmussels depend on a few fish (yellow perch and white perch) to serve as glochidial hosts.

Migration and movements: As adults, Yellow Lampmussels are mostly non-migratory with only limited vertical movement and possibly passive movement due to flood events (NYNHP 2010). "Migration" may occur in the glochidial stage when juveniles are transported by host fish but this distance is probably under 10km (NatureServe 2010).

Literature Cited:

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Nalepa, T.F. and D. Schloesser. (Eds). 1993. *Zebra mussels: biology, impacts, and control*. CRC Press, Boca Raton, 810pp.

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