

Species: Eastern Pearlshell (*Margaritifera margaritifera*)

Global Rank: G4

State Rank: S1

State Wildlife Action Plan Priority: High Concern Species

CCVI Rank: Extremely Vulnerable

Confidence: Very High

Habitat:

Eastern Pearlshells are generally found in cold, nutrient-poor, unpolluted trout streams and smaller rivers with moderate flow rates. Benthic substrate is usually sand, fine gravel, or a sand-gravel mix where mussels can bury themselves (Spoo 2008).

Threats:

Impacts to water quality from coal mining have eradicated the Eastern Pearlshell from all but a very few locations in Pennsylvania. Other threats include: degradation of water quality, alteration of pH, eutrophication, and temperature increases in streams (PA Bulletin, Doc # 05-1675).

Main Factors Contributing to Vulnerability Rank:

Distribution relative to anthropogenic barriers: Several dams are located upstream of the few known locations where this species is found in Pennsylvania and will most likely hinder possible establishment of metapopulations upstream of known occurrences (PA Bulletin, Doc # 05-1675).

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

Predicted micro sensitivity to changes in temperature: Since Eastern Pearlshells inhabit cold water trout streams, likely temperature increases due to climate change may alter habitat availability.

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 Eastern Pearlshell populations by altering water/habitat quality and/or fragmenting populations. Strong bottom currents may redistribute individual mussels downstream from population.

Dependence on other species for propagule dispersal: Eastern Pearlshells depend on a few salmonid fish to serve as glochidial hosts (Spoo 2008).

Migration and movements: As adults, Eastern Pearlshells 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:

NatureServe. 2010. NatureServe Central Databases. Arlington, Virginia. USA.

New York Natural Heritage Program. 2010. NYNHP Conservation Guide – Eastern Pearlshell

PA Bulletin, Doc# 05-1675

Spoor, A. 2008. The pearly mussels of Pennsylvania. Coachwhip Publications. Landisville, Pennsylvania. 210pp.