Species: Northern Riffleshell (*Epioblasma torulosa rangiana*)
Global Rank: G2
State Rank: S2
State Wildlife Action Plan Priority: Immediate Concern Species
CCVI Rank: Extremely Vulnerable
Confidence: Very High

Habitat:

Northern Riffleshell occurs in packed sand and gravel in riffles and runs in medium-sized to large rivers (Spoo 2008; USFWS 1994).

Threats:

Major threats leading to the decline of Northern Riffleshell include: siltation, impoundment, in-stream sand and gravel mining, pollutants, and competition by non-native mussels (USFWS 1994).

Main Factors Contributing to Vulnerability Rank:

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 a small 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 Northern Riffleshell 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: Northern Riffleshells depend on a few fish (brown trout and mottled sculpin) to serve as glochidial hosts (Spoo 2008).

Migration and movements: As adults, Northern Riffleshells 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

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

U.S. Fish and Wildlife Service. 1994. Clubshell (*Pleurobema clava*) and Northern Riffleshell (*Epioblasma torulosa rangiana*) recovery plan. U.S. Fish and Wildlife Service, Hadley, Massachusetts. 68 pp.