

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

Habitat (adapted from NatureServe 2010):

Northern riffleshell occurs in packed sand and gravel in riffles and runs in medium-sized to large rivers (USFWS 1994; Spoo 2008). As with most naiads, its current range is a remnant of its former distribution. The species is currently extant in only seven streams; the Green River in Kentucky, French and LeBoeuf creeks and the Allegheny River in Pennsylvania, the Detroit River in Michigan (possibly extirpated), and Big Darby Creek in Ohio (USFWS 1993), and recently discovered in at least one additional river in Ontario (Metcalf-Smith et al. 1998).

Current 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:

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

Predicted impact of land use changes designed to mitigate against climate change: Natural gas extraction in this region may alter water quality.

Dispersal 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).

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.

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 (e.g., increased siltation)

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).

References:

Metcalf-Smith, J.L., G.L. Mackie, S.K. Staton, and E.L. West. 1998. Current status of rare species of freshwater mussels in southern Ontario. Triannual Unionid Report, 14: unpaginated.

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

U.S. Fish and Wildlife Service (USFWS). 1993. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Northern Riffleshell Mussel (*Epioblasma torulosa rangiana*) and the Clubshell Mussel (*Pleurobema clava*) (Final Rule). Federal Register, 58(13): 5638-5642.

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