

Species: Eastern Hellbender (*Cryptobranchus a. alleganiensis*)

Global Rank: G3G4

State Rank: S3

State Wildlife Action Plan: Pennsylvania Immediate Concern and Responsibility Species

Climate Change Vulnerability: Extremely Vulnerable

Confidence: Very High

Habitat:

Eastern hellbender is found in medium and large streams, with a preference for cold, shallow, moderate to fast-flowing water and areas with gravel and sandy substrate and an abundance of large flat rock slabs (Hulse et al. 2001). The range of the species extends from southern New York south to northern Georgia and west to Missouri (NatureServe 2010).

Threats:

Principle threats to the species are degradation of habitat and overexploitation by collection and illegal or unintentional harvest (NatureServe 2010).

Main Factors Contributing to Vulnerability Rank:

Distribution relative to natural topographic or geographic habitat barriers: Eastern hellbenders are an aquatic stream species and as such, are limited in their ability to move with changing climate conditions only within their currently occupied watersheds.

Predicted micro sensitivity to changes in temperature: The species is dependent on streams towards the cooler end of the temperature spectrum.

Physical habitat specificity: The species is moderately to highly specialized in its physical habitat requirements. As adults, eastern hellbenders require stream bottoms with boulders and large, flat rocks (Hulse et al. 2001).

Dietary versatility: Eastern hellbender is not versatile in its dietary requirements. Adults eat a diet that is mainly crayfish (although small fish and invertebrates may be taken opportunistically) (Hulse et al. 2001).

Migrations and movements: Eastern hellbender is nonmigratory and populations do not regularly make substantial (> 100km) distributional shifts in response to changing environmental conditions.

Measured genetic variation: There is little genetic variation across the entire range of the species (Routman 1993; Routman et al. 1994).

Literature Cited:

- Hulse, A.C., C.J. McCoy, and E. Censky. 2001. Amphibians and reptiles of Pennsylvania and the Northeast. Comstock Publishing Associates. Cornell University Press, Ithaca. 419 pp.
- NatureServe. 2010. NatureServe Central Databases. Arlington, Virginia. USA.
- Routman, E. 1993. Mitochondrial DNA variation in *Cryptobranchus alleganiensis*, a salamander with extremely low allozyme diversity. Copeia 1993:407-416.
- Routman, E., R.Wu, and A.R. Templeton. 1994. Parsimony, molecular evolution, and biogeography: the case of the North American giant salamander. Evolution 48:1799-1809.