

Species Status Assessment

Class: Osteichthyes (bony fishes)
Family: Catostomidae (sucker)
Scientific Name: *Moxostoma duquesnei*
Common Name: Black redhorse

Species synopsis:

The black redhorse occurs throughout the central part of the upper Mississippi basin, the southern Great Lakes basin and in southeastern Minnesota, Iowa, Missouri, Oklahoma, and Arkansas, as well as southern Ontario. Black redhorse live in larger-sized streams with clean gravel and are native to 3 of 18 watersheds in the western third of the state. In recent stream surveys of the Allegheny watershed, it was caught about seven times more frequently than during surveys from the 1930s (Carlson et al. 2009). It also is more frequently encountered in the Erie watershed but no longer found in the Genesee watershed.

I. Status

a. Current and Legal Protected Status

i. **Federal** Not Listed **Candidate:** No
ii. **New York** Special Concern, SGCN

b. Natural Heritage Program Rank

i. **Global** G5
ii. **New York** S2 **Tracked by NYNHP** Yes

Other Rank:

COSEWIC: Threatened (05May2005)

Status Discussion:

The black redhorse is globally ranked as Secure because it is represented by a large number of subpopulations and locations. Its New York state rank is Imperiled due to its extirpation from the Genesee watershed and likely Lake Ontario as well (NatureServe 2012).

II. Abundance and Distribution Trends

a. North America

i. Abundance

___ declining ___ increasing X stable ___ unknown

ii. Distribution:

___ declining ___ increasing X stable ___ unknown

Time frame considered: _____

b. Regional

i. Abundance

___ declining ___ increasing X stable ___ unknown

ii. Distribution:

___ declining ___ increasing X stable ___ unknown

Regional Unit Considered: Region 5 - Northeast

Time Frame Considered: _____

c. Adjacent States and Provinces

CONNECTICUT	Not Present <u> X </u>	No data _____
MASSACHUSETTS	Not Present <u> X </u>	No data _____
NEW JERSEY	Not Present <u> X </u>	No data _____
QUEBEC	Not Present <u> X </u>	No data _____
VERMONT	Not Present <u> X </u>	No data _____

Monitoring in New York.

There are monitoring programs carried out by the Rare Fish Unit (1998-2012).

Trends Discussion:

In New York, black redhorse have historically been found in 12 waters (now in 10) and their range is declining or gone in only 1 of the 3 watersheds. This species is abundant in the Allegheny watershed, is still present in all previously known tributaries of Lake Erie, but is extirpated from the Genesee.

The differences in frequency occurrence in comprehensive stream surveys from these watersheds show no evidence of decline between the 1930s and 2000s, and there were significantly higher levels in the Allegheny in the later surveys.

The distribution of this species among sub-basins within the Allegheny and Erie watersheds (HUC 10) has changed, with a doubling increase in the number of the units since 1977 compared to that before 1977 (Table 1). This is countered with a complete loss in the Genesee. Statewide, there are 195 records for this species since 1926, and 104 of these are since 1977. Since 1993 there have been 57 records and most have been from the Allegheny, resulting from extensive sampling in this watershed.

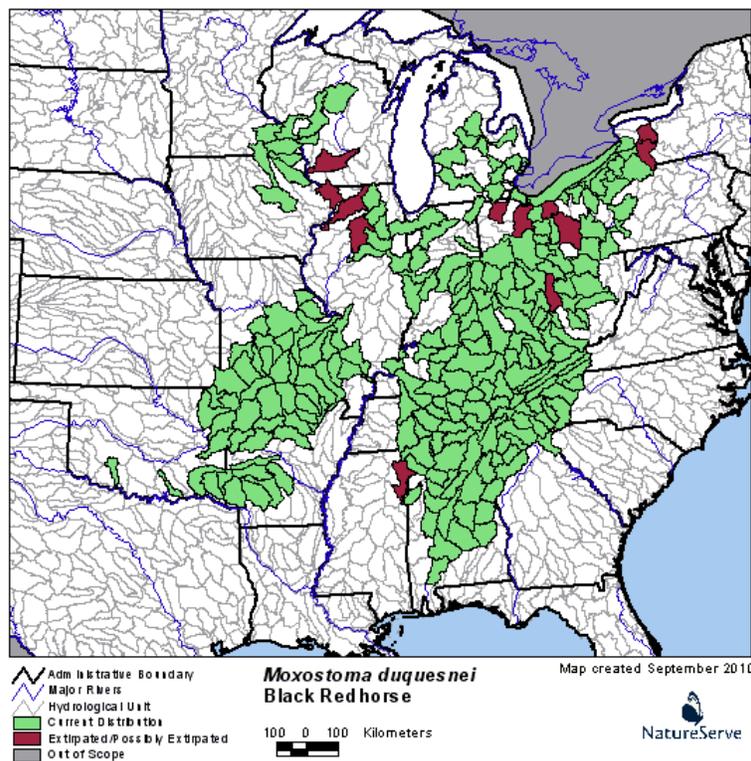


Figure 1. U.S. distribution of black redhorse by watershed (NatureServe 2012).

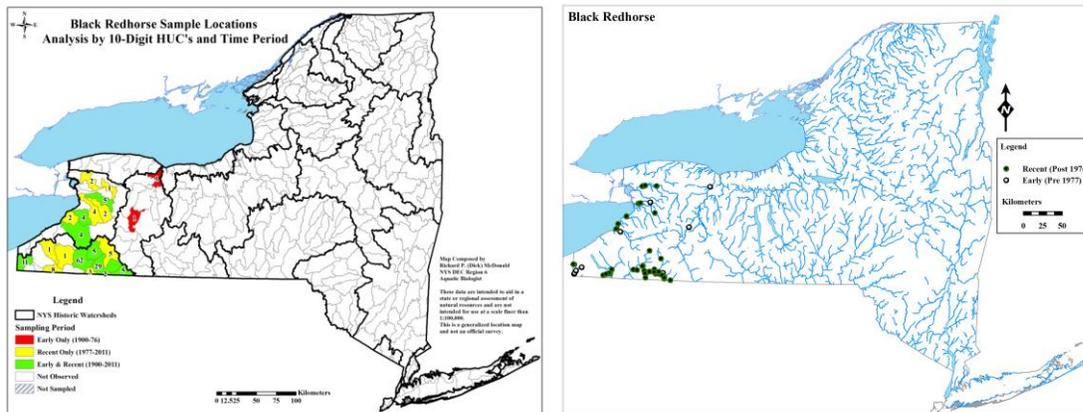


Figure 2. Black redhorse distribution in New York, depicting fish sampled before 1977 and from 1977 to the present. Number of records are shown with the corresponding HUC-10 units where they were found. Left map shows the New York range of black redhorse.

Watershed	Early Only	Recent Only	Early & Recent	watershed loss
Allegheny River	0	6	5	
Lake Erie - Niagara R	0	5	3	
Genesee River	2	0	0	loss
sum	2	11	8	

Table 1. Records of rare fish species in hydrological units (HUC-10) are shown according to their watersheds in early and recent time periods (before and after 1977). Further explanations of details are found in Carlson (2012).

III. New York Rarity, if known:

Historic	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1977	_____	<u>91 records</u>	<u>3/18 watersheds</u>
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

The black redhorse has been collected in the Lake Erie, the Genesee River and Allegheny River drainage basins. Only two records come from the Genesee and the most recent ones were from 1926 near Henrietta and below Portageville.

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
(since 1977)	_____	<u>104 records</u>	<u>2/18 watersheds</u>

Details of current occurrence:

The Allegheny River system, including French Creek, still contains black redhorse. They may even be the most common redhorse species in the Allegheny River (opinion of S. Eaton referenced by Daniels 1989), and sampling by Becker (1982) showed them to be among the dominant larger fish in the main river and tributaries (like Windfall Creek). Records by Daniels (1989) showed them also in Ischua Ck, Dodge Ck, Oswayo Ck, tributaries of Tunungwant Ck, and a tributary of Conewango Ck (Stillwater Ck). The French Creek population was judged as secure (Hansen and Gloss 1981). In the Erie watershed, this species was also in Buffalo Ck (in 1975, Smith 1985), Buffalo R. (in 2002-03), Eighteenmile Creek (2003) and Cattaraugus Creek (2003). Populations in Lake Erie and Lake Ontario are uncertain, and the records for Lake Ontario may have actually been part of that in the Genesee, where this species is now extirpated.

New York's Contribution to Species North American Range:

% of NA Range in New York	Classification of New York Range
<input type="checkbox"/> 100 (endemic)	<input type="checkbox"/> Core
<input type="checkbox"/> 76-99	<input checked="" type="checkbox"/> Peripheral
<input type="checkbox"/> 51-75	<input type="checkbox"/> Disjunct
<input type="checkbox"/> 26-50	Distance to core population:
<input checked="" type="checkbox"/> 1-25	<u>400 miles</u>

IV. Primary Habitat or Community Type:

1. Medium River, Moderate-High Gradient
2. Small River, Moderate-High Gradient
3. Headwater/Creek, Moderate-High Gradient

Habitat or Community Type Trend in New York:

Declining Stable Increasing Unknown

Time frame of decline/increase: _____

Habitat Specialist? Yes No

Indicator Species? Yes No

Habitat Discussion:

This species prefers clean, swift flowing creeks and rivers with gravel, rock or sand substrate and has a low tolerance for pollution, siltation or turbidity, as well as pools. It therefore serves as an indicator of clean water. The lower portions of tributaries to Lake Erie are important to this species, and there may be importance of connected habitats in Lake Erie. They are known to spawn in gravel and fine rubble runs and riffles in water about 0.2-0.6 m deep (NatureServe 2012).

V. New York Species Demographics and Life History

- Breeder in New York**
 - Summer Resident**
 - Winter Resident**
 - Anadromous**
- Non-breeder in New York**
 - Summer Resident**
 - Winter Resident**
 - Catadromous**
- Migratory only**
- Unknown**

Species Demographics and Life History Discussion:

Black redhorse reach sexually mature at age 2 to 6 and spawn during spring (NatureServe 2012). It may migrate up to at least 10 km to spawning areas. It mainly eats microcrustaceans, aquatic insects, detritus, and algae sucked up from the bottom.

VI. Threats:

Pollution, siltation or turbidity may be limiting some population densities. The species is otherwise quite durable in most parts of its range.

Black redhorse was classified as “presumed stable” to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program (Schlesinger et al. 2011).

Are there regulatory mechanisms that protect the species or its habitat in New York?

- No** **Unknown**
- Yes**

The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Conservation Law. However, not all streams are protected, and agricultural activities are exempted from the Part 661 regulations.

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Conservation actions following IUCN taxonomy are categorized in the table below.

Conservation Actions	
Action Category	Action
Land/Water Protection	Resource/Habitat Protection
Land/Water Management	Site/Area Management
Land/Water Management	Habitat/Natural Process Restoration
Law/Policy Actions	Legislation Change/Implementation

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for the black redhorse.

Habitat Research:

___ Inventory and assess losses of habitat and this species in the Genesee basin. This would be followed by considering remediation efforts

Population Monitoring:

___ Surveys should be done in the Buffalo River system and the Genesee River.

VII. References

Becker, G.C. 1983. Fishes of Wisconsin. Univ. Wisconsin Press, Madison. 1052 pp.

Becker, L.R. Jr. 1982. Fishes of the Allegheny River and its tributaries between Salamanca and Allegany, Cattaraugus County, New York. MS thesis, St. Bonaventure Univ., St. Bonaventure, NY.

- Bowman, M.L. 1970. Life history of the black redhorse, *Moxostoma dubuesnei* (Leseur), in Missouri. Trans. Am. Fish. Soc. 99(3):546-559.
- Carlson, D.M. 2001. Species accounts for the rare fishes of New York. N. Y. S. Dept. Env. Cons. Albany, NY.
- Carlson, D.M. 2012 (draft). Species accounts of inland fishes of NYS considered as imperiled, 2012. NYDEC Watertown, NY.
- Carlson, D. M., R. Morse, B. Weatherwax, and R. Daniels. 2009. State Wildlife Grant T-3, Job 2: Fish surveys of Conewango Creek sub-basin (PA-63). Annual Progress Report to USFWS. Albany, NY.
- Cooper, E.L. 1983. Fishes of Pennsylvania and the northeastern United States. Pennsylvania University Press. University Park.
- Daniels, R.A. 1989. Preliminary report, Allegheny River fish survey, 1989. New York State Museum, Albany.
- Eaton, S.W., R.J. Nemecek, and M.M. Kozubowki. 1982. Fishes of the Allegheny River above Kinzua Dam. New York Fish and Game Journal 29(2):189-198.
- Hansen, M.J. and S.P. Gloss 1981. Preliminary status survey of fishes in French Creek, New York. Cornell Univ. Ithaca, NY
- Hansen, M.J. and C.W. Ramm. 1994. Persistence and stability of fish community structure in a southwest New York stream. Am. Midl. Nat. 132(1):52-67.
- Jenkins, R.E. 1970. Systematic studies of the catostomid fish tribe Moxostomatini. Doctoral dissertation. Univ. Mich., Ann Arbor. 799 pp.
- Jenkins, R.E. and N.M. Burkhead. 1994. Freshwater fishes of Virginia. Am. Fish. Soc. Bethesda, MD
- Lee, D.S., et al. 1980. Atlas of North American freshwater fishes. North Carolina State. Mus. Nat. His., Raleigh 867 pp.
- NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: May 5, 2012).
- Parker, B.J. 1989. Status of the black redhorse, *Moxostoma duquesnei*, in Canada. Can. Field-Nat. 103:175-179.
- Pennsylvania Fish and Boat Commission. 2013. Pennsylvania Fishes. Available online at <http://fishandboat.com/fishes.htm>. Accessed July 30, 2013.

Schlesinger, M.D., J.D. Corser, K.A. Perkins, and E.L. White. 2011. Vulnerability of at-risk species to climate change in New York. New York Natural Heritage Program, Albany, NY.

Scott and Crossman. 1973. Freshwater fishes of Canada. Fish. Res. Bd. Can. Bull. 184. 966 pp.

Smith, C.L. 1985. The inland fishes of New York State. New York State Dept. of Environ. Cons. Albany, NY. 522 pp.

Date last revised: July 30, 2013