

Species Status Assessment

Class: Osteichthyes (bony fishes)
Family: Cyprinidae (minnow)
Scientific Name: *Lythrurus umbratilis*
Common Name: Redfin shiner

Species synopsis:

The redfin shiner occurs in the Great Lakes and Mississippi River Basin, western New York to Minnesota, and south to Louisiana and Gulf drainages west to Texas. Several tributaries on the north shore of Lake Erie contained this species, and it has been classified as rare in Ontario (Noltie 1989). It lives in small to medium low-gradient streams with clean gravel and some submerged aquatic vegetation. It is native to 4 of 18 watersheds in western and central New York but has declined to levels below detection in the Oswego watershed and there are also major declines in tributaries in the Ontario watershed. Its distribution mimics that of northern sunfish because both species use the same nesting sites. Despite declines, it retains a limited distribution in the Ontario, Erie, and Allegheny watersheds.

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:

Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Not at Risk (01Apr1988)

Status Discussion:

The global rank for the redfin shiner is Secure because it occupies a wide distribution with a large number of subpopulations; it appears to be secure in the majority of its range. The New York rank is Imperiled (NatureServe 2012) and it is listed as threatened in Wisconsin.

II. Abundance and Distribution Trends

a. North America

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Time frame considered: Based on G5 NatureServe rank

b. Regional

i. Abundance

declining increasing stable unknown

ii. Distribution:

declining increasing stable unknown

Regional Unit Considered: Region 5 - Northeast

Time Frame Considered: _____

c. Adjacent States and Provinces

CONNECTICUT Not Present X No data _____
MASSACHUSETTS Not Present X No data _____
NEW JERSEY Not Present X No data _____
QUEBEC Not Present X No data _____
VERMONT Not Present X No data _____

ONTARIO Not Present _____ No data _____

i. Abundance

____ declining ____ increasing ____ stable ____ unknown

ii. Distribution:

____ declining ____ increasing ____ stable ____ unknown

Time frame considered: Last reviewed in 2004

Listing Status: Not at Risk (S4)

PENNSYLVANIA Not Present _____ No data _____

i. Abundance

____ declining ____ increasing ____ stable ____ unknown

ii. Distribution:

 X declining ____ increasing ____ stable ____ unknown

Time frame considered: Lost from 1 historic drainage; now limited to 2 streams

Listing Status: Endangered SGCN? Yes

d. NEW YORK

No data _____

i. Abundance

___ declining ___ increasing ___ X stable ___ unknown

ii. Distribution:

___ X declining ___ increasing ___ stable ___ unknown

Time frame considered: Since 1977_____

Monitoring in New York.

Monitoring programs carried out by the NYSDEC Rare Fish Unit, 1998-2012.

Trends Discussion:

In New York, redbfin shiner has historically been found in 4 waters (now in 4) and is declining (or gone or dangerously sparse) in 3 of the 4 watersheds. The population appears stable in very small areas of three streams, and the status in areas like the Niagara River and Twelvemile Creek is unknown. This trend causes concern.

The differences in frequency occurrence in comprehensive stream surveys from these watersheds shows no evidence of decline, and there were low levels in all watersheds, usually <2%.

The distribution of this species among sub-basins (HUC 10) within the 4 watersheds has changed in a more obvious pattern, with records from fewer units in the recent period. Overall there are records from 9 of the units for all time periods, and from recent times there are 4 units, or a loss of its former range. Statewide, the number of individual site records for this species has been 54 for all time periods, 27 in the last 30 years, and 26 since 1993.

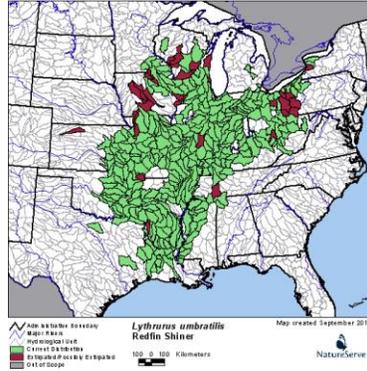


Figure 1. U.S. distribution of redfin shiner by watershed (NatureServe 2012).

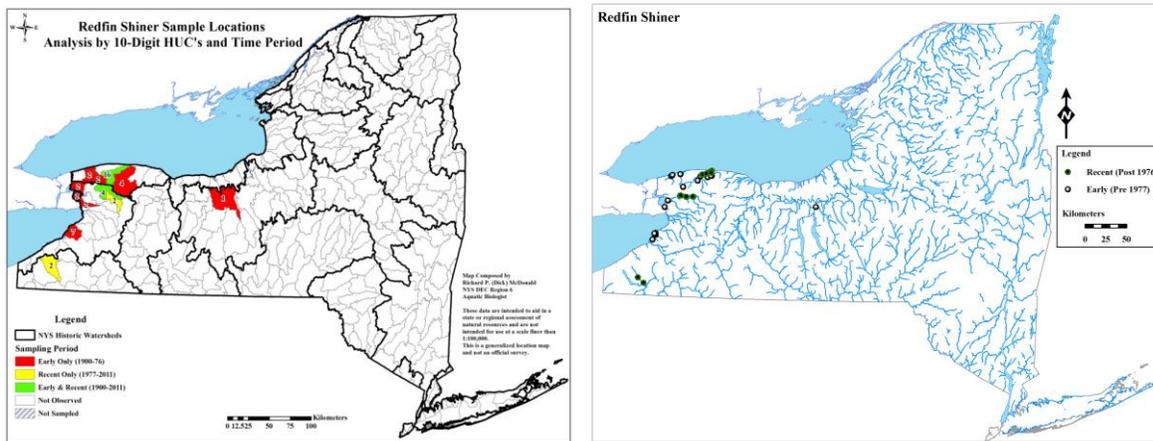


Figure 2. Redfin shiner distribution in New York, depicting fish sampled before 1977 and from 1977 to current time, shown with the corresponding HUC-10 units where they were found and the number of records.

Watershed name	Total # HUC10	Early only	Recent only	both	Watershed status
Allegheny	1	0	1	0	First-time record 2005
Erie-Niagara	3	1	1	1	
Ontario	4	3	0	1	
Oswego	1	1	0	0	loss
sum	9	5	2	2	

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) to consider loss and gains. 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>27</u>	<u>4/18 watersheds</u>
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

In the 1920-30s this species was rare in New York and known from only eight waters. Tributaries of Lake Ontario included the Barge Canal near Lockport, Carlton Lake or part of Oak Orchard River, Eighteenmile Creek, Twelvemile Creek, Johnson Creek, and tributaries of Lake Erie included Muddy and Little Sister creeks near Angola. Smith reported this species from a Lake Erie tributary near Sturgeon Point in 1949. Montezuma Marsh also contained this species prior to 1900.

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
(since 1977)	_____	<u>27</u>	<u>3/18 watersheds</u>

Details of current occurrence:

The only catches since the 1970s were in Tonawanda Creek near Millersport (2003), Murder Creek (1999 & 2003), Johnson Creek (1999 & 2003), Cassadaga Creek (2005) the Niagara River (1975) and Hadley's report from Twelvemile Creek (1975). The earliest Allegheny watershed record was 2005 and it is assumed they were there earlier but were below detection levels.

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>500 mi</u>

IV. Primary Habitat or Community Type:

1. Small River, Low-Moderate Gradient, Moderately Buffered, Neutral, Warm

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:

Redfin shiner lives in small to medium-sized streams in a variety of ecological settings, from a slow-flowing bay to high-gradient upland reaches. It is typically found in pools, but also prefers moderate or low-gradient streams with sand and gravel bottoms with some vegetation.

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:

This species has a relatively short life span, seldom exceeding 3 summers in Wisconsin, 1.5 years in Mississippi. Sexual maturity is reached usually in the second or third summer in Wisconsin and in 1 year in Mississippi. Spawning occurs in spring and summer (Becker 1983, Matthews and Heins 1984).

VI. Threats:

The species is not highly sensitive to environmental change in other parts of its range, but it is listed as threatened in Wisconsin. In Iowa it has been used as a bait minnow and in central Missouri it is the most common minnow (Scott and Crossman 1973, Pflieger 1997). The loss of quality habitats when Montezuma Marsh was drained in the early 1900s was poorly documented, but this elimination of species was echoed with bigeye chub, pugnose shiner and sauger from the same areas.

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Conservation Actions	
Action Category	Action
Land/Water Protection	Resource/Habitat Protection
External Capacity Building	Alliance & Partnership Development

categorized in the table below.

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, non-trout supporting waters and those classified as Class C and below are not subject to Article 15 regulation. Additionally, agricultural activities are exempt from article 15 regulation.

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

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

Habitat Research:

- Inventory and assess losses of habitat and of this species in tributaries of Western Lake Ontario. This would be followed by considering remediation efforts.

Population Monitoring:

- Its status in New York needs to be determined. The circumstance of one of the recent records for both the redbfin shiner and the longear sunfish being from the same locations, Tonawanda Creek near Millersport and Johnson Creek near Kuckville, deserves further study.

VII. References

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

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.

Lee, D.S., et al. 1980. Atlas of North American freshwater fishes, North Carolina State Mus. of Nat. His. 867 pp. Matthews, M.M., and D.C. Heins. 1984. Life history of the redbfin shiner, *Notropis umbratilis* (Pisces: Cyprinidae), in Mississippi. Copeia 1984:385-390.

Matthews, M.M. and D.C. Heins. 1984. Life history of the redbfin shiner, *Notropis umbratilis* (Pisces: Cyprinidae), in Mississippi. Copeia 1984:385-390.

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 9, 2012).

Noltie, D.B. 1989. Status of the redbfin shiner, *Notropis umbratilis*, in Canada. Can. Field-Nat. 103:201-215.

Pflieger, W.L. 1997. The fishes of Missouri (revised edition). Missouri Dept Conservation, Jefferson City. 372pp.

Scott, W.B., and E.J. 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 Environmental Conservation. Albany, NY. 522 pp.

Smith, P.W. 1979. The fishes of Illinois. Univ. Illinois Press, Urbana. 314 pp.

Trautman, M.B. 1981. The fishes of Ohio. Ohio State Univ. Press, Columbus. 782 pp.

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