

A SURVEY OF THE GREATER REDHORSE  
IN  
THE VERMILION RIVER

Prepared for

Illinois Department of Conservation  
Springfield, Illinois

Prepared by

Greg Seegert  
EA Engineering, Science, and Technology  
444 Lake Cook Road, Suite 8  
Deerfield, Illinois 60015

August 1991

## INTRODUCTION

Historically, the greater redhorse (Moxostoma valenciennesi) was known from Illinois on the basis of a single specimen collected in Salt Creek (DuPage County) in 1901 (Smith 1979). It was considered extirpated from Illinois until a specimen was collected in 1985 from the Illinois River at River Mile 249 (Seegert 1986). On the basis of this record, the greater redhorse was listed as an endangered species. Biologists with EA Engineering, Science, and Technology collected another specimen from the Illinois River at RM 270 in 1989. Biologists with Illinois Department of Conservation (IDOC) collected a single specimen in 1990 from Mud Creek, a tributary to the Vermilion River. In 1986 (Seegert 1986), I speculated that the specimen I collected from the Illinois River was a waif and suggested that the population center for this species might be located in either the Vermilion or Fox Rivers. This study was initiated to determine if the Vermilion River actually did harbor such a population.

## METHODS

Fish were collected on 9 and 10 July 1991 from five locations on the Vermilion River and two of its tributaries (Table 1). At Locations 1, 2, 5 and 6 fish were collected using a 3-phase AC electrofishing boat. At Locations 3, 4 and 7 fish were collected using a Coefelt VVP2C electrofisher placed in a pram and powered by a 1500 watt generator. During shocking, red-tailed redhorse were typically the only large fish that were retrieved; however, a list of other large species observed was compiled. Small species (i.e., most minnows and darters) were not retrieved except for a short period near the end of each collecting run. Thus, the species totals reported here are undoubtedly somewhat lower than would have been the case if all fish had been retrieved. I estimate that 80-90% of the species shocked were recorded and are reported herein.

## RESULTS

Greater redhorse were found at three of the seven locations sampled (Table 2). At Humiston Woods (Location 1), 8 were collected. Two were collected at Location 2 and 8 were collected from lower Rooks Creek (Location 7). A voucher specimen was retained from each of these three locations. Although measurements were not made, specimens ranged in total length from about 300 to 550 mm indicating that several age classes were present. Because the river is pooled for about half the distance between Pontiac and Streator, greater redhorse may be limited to a short section of the Vermilion between Pontiac and the area I refer to as Location 2, plus Lower Rooks Creek.

River redhorse (Moxostoma carinatum), a threatened species in Illinois, was also collected at three locations; two were collected

at Location 1, five at Location 2, and one at Location 3. River and greater redhorse occurred together at Locations 1 and 2.

Greater redhorse were not found at the three locations sampled downstream of the dam in Streator. However, access to this portion of the river is limited and difficult and it may occur there. A single river redhorse was collected downstream of the dam in Streator indicating that it does occur downstream of the dam but is more abundant upstream of it. The Streator dam seems to act as a significant divide between fishes in the lower and upper Vermilion River. Species that occurred only downstream of the dam (but upstream of the mouth [i.e., Location 5]) were flathead catfish, shorthead redhorse, gizzard shad, river carpsucker, black buffalo and bigmouth buffalo. Although access is limited and difficult, further sampling of the Vermilion downstream of the Streator dam is needed as well as some of the larger tributaries.

All locations except Location 4 had good to excellent species richness (Table 2). For unknown reasons, fewer fish and fewer species were present at Location 4 even though the habitat was good. Location 5 had a good big river fish fauna with all three carpsucker species and all three buffalo species being present, as well as silver chub, emerald shiner, white bass, longnose and shortnose gar, and sauger. Species richness was particularly high (30 species) in Rooks Creek. The true total in Rooks Creek was certainly even higher as little effort was expended retrieving small species; other large species like white sucker and highfin carpsucker were probably also present. With a fauna of >30 species, including a good population of greater redhorse, Rooks Creek ranks among the best streams I've surveyed in northern Illinois.

Further sampling of Rooks Creek is appropriate to determine how far upstream greater redhorse are found. IDOC has reported only shorthead redhorse (Moxostoma macrolepidotum) from Rooks Creek. It will be useful to know whether this species replaces greater redhorse in the upper portion of the Rooks Creek as the IDOC data suggest. I did not find shorthead redhorse at any of the four locations I sampled upstream of the dam in Streator.

#### REFERENCES

- Seegert, G. 1986. Rediscovery of the greater redhorse (Moxostoma valenciennesi) in Illinois. Trans. Ill. Acad. Sci. 79:293-294.
- Smith, P. 1979. The Fishes of Illinois. U. of Illinois Press. Urbana, Illinois 314 p.

TABLE 1. VERMILION RIVER DRAINAGE SAMPLING LOCATIONS

---

Location 1	Vermilion River at Humiston Woods; Livingston Co., IL T29N, R4E, S36SW
Location 2	Vermilion River approximately one mile downstream of Rt 23
Location 3	Vermilion River at Rt 18 in Streator, IL
Location 4	Vermilion River at LaSalle Co Rd 5
Location 5	Vermilion River approximately one mile upstream of Rt 71
Location 6	Mud Creek at mouth, Livingston Co
Location 7	Rooks Creeks at Livingston County Rd 2250

TABLE 2. FISHES COLLECTED FROM THE VERMILION RIVER DRAINAGE, 9-10 JULY 1991.

Species	Vermilion River					Mud CK	Rocks CK
	1	2	3	4	5		
<u>Lepisosteus osseus</u>					X		
<u>L. platyrhincus</u>					X		
<u>Dorosoma cepedianum</u>			X		X		
<u>Campostoma anomalum</u>			X				X
<u>Cyprinella lutrensis</u>		X	X	X		X	X
<u>C. lutrensis</u> x <u>C. spilopterus</u>							X
<u>Cyprinus carpio</u>	X	X	X	X	X	X	X
<u>Luxilus chrysocephalus</u>	X						X
<u>Macrhybopsis storeriana</u>					X		
<u>Nocomis biguttatus</u>		X				X	X
<u>Notropis atherinoides</u>					X		
<u>Notropis rubellus</u>							X
<u>Notropis stramineus</u>		X					X
<u>Phenacobius mirabilis</u>							X
<u>Pimephales notatus</u>	X	X	X	X		X	X
<u>P. promelas</u>							X
<u>Semotilus atromaculatus</u>							X
<u>Carpiodes carpio</u>			X		X		
<u>Carpiodes cyprinus</u>	X	X	X	X	X		X
<u>Carpiodes velifer</u>	X				X		
<u>Catostomus commersoni</u>						X	
<u>Hypentelium nigricans</u>	X	X		X	X		
<u>Ictiobus bubalus</u>					X		
<u>Ictiobus cyprinellus</u>				X	X		
<u>Ictiobus niger</u>			X		X		
<u>Moxostoma carinatum</u>	2	5	1				
<u>Moxostoma duquesnei</u>	X	X	X				X
<u>Moxostoma erythrurum</u>	X	X	X	X	X	X	X
<u>Moxostoma macrolepidotum</u>			X	X	X		
<u>Moxostoma valenciennesi</u>	8	2					8
<u>Ameiurus natalis</u>	X						X
<u>Ictalurus punctatus</u>	X	X					X
<u>Noturus flavus</u>							X
<u>Pylodictus olivaris</u>			X				
<u>Fundulus notatus</u>							X
<u>Morone chrysops</u>					X		
<u>Ambloplites rupestris</u>	X		X				X
<u>Lepomis cyanellus</u>	X	X	X	X	X	X	X
<u>Lepomis humilis</u>		X					
<u>Lepomis macrochirus</u>					X		X
<u>Lepomis megalotus</u>	X	X	X	X	X	X	X
<u>Miropterus dolomieu</u>	X	X	X	X	X		X
<u>Micropterus salmoides</u>	X				X		X
<u>Pomoxis annularis</u>	X						X
<u>Pomoxis nigromaculatus</u>					X		
<u>Etheostoma caeruleum</u>							X
<u>Etheostoma spectabile</u>							X
<u>Etheostoma zonale</u>							X
<u>Percina phoxocephala</u>			X				X
<u>Stizostedion canadense</u>					X		
<u>Stizostedion vitreum</u>					X		
<u>Aplodinotus grunniens</u>	X	X	X	X	X		

Total Species 19 17 19 12 25 8 30