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Craig P. Anderson

University of Minnesota, Minneapolis

James E. Erickson

University of Minnesota, Minneapolis

Jon Ross

University of Minnesota

James C. Undershill

University of Minnesota, Minneapolis

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Revised Distribution Records of Some Minnesota Fishes

CRAIG P. ANDERSON,* JAMES E. ERICKSON,** JON ROSS,*** JAMES C. UNDERSHILL****

ABSTRACT-Recent collections of fishes from Minnesota have resulted in the addition of one species, *Fundulus sciadicus* (Cyprinodontidae), to the state's inland faunal list. Additional information on the distribution of 12 other species (*Notropis topeka*, *Notropis spilopterus*, *Ictiobus cyprinellus*, *Carpiodes cyprinus*, *Moxostoma valenciennesi*, *Noturus flavus*, *Morone chrysops*, *Lepomis megalotis*, *Stizostedion canadense*, *Percina shumardi*, *Etheostoma caeruleum*, and *Cottus bairdi*) is presented. These new records are the result of field work in the Missouri River, Red River, and Lake Superior drainage systems of Minnesota.

Although Eddy and Underhill (1974) present updated records of the distribution of fishes in Minnesota, recent collections by Ross, Heberling, and Leuben in the Missouri drainage, Anderson and Erickson in the Red River drainage, and Minnesota Department of Natural Resources personnel have produced new distribution records and one addition to the faunal list.

Fundulus sciadicus Cope, the plains top minnow, was collected in the southwestern corner of Minnesota in 1973 and 1974 from the Rock River, Pipestone county, and in 1974 from Kanaranzi Creek, Rock county (fig. 1). While *F. sciadicus* has not been previously collected in Minnesota, Harlan and Speaker (1956) report collections from south eastern South Dakota. The distribution of *F. sciadicus* includes eastern Wyoming and Colorado, Nebraska, south-eastern South Dakota, and the Missouri River drainage of northwestern Iowa. Isolated populations have been reported from Missouri (Pflieger, 1975) and northeastern Oklahoma (Miller and Robison, 1973). Our recent collections extend the range northward to include southwestern Minnesota.

The Topeka shiner, *Notropis topeka* Gilbert, was found in 18 collections from 17 locations in the Rock River watershed of the Missouri drainage system (Fig. 4). The number of individuals in the collections varied from 1 to 54. The Topeka shiner has been reported from only two previous collections in Minnesota (Eddy and Underhill, 1974). This fish has a restricted and unique distribution which includes South Dakota, Iowa, Nebraska, Kansas, Missouri and southwestern Minnesota (Minckley and Cross, 1959). *Notropis topeka* is reported to be formerly abundant but now rare in South Dakota (Bailey and Allum, 1962), and nowhere common in Iowa (Harlan and Speaker, 1956). As we did not collect *N. topeka* from other areas of southern Minnesota, the present distribution of this species appears to be confined to the Missouri River drainage in Minnesota.

The spotfin shiner, *Notropis spilopterus* (Cope), has been known to exist in the North Dakota portion of the Red River drainage since 1895 when it was first collected by Woolman in the Sheyenne River. Further collections have been made in that state by Hankinson (1929), Tubb et al. (1965), and Copes and Tubb (1966). In Minnesota, however, the spotfin shiner had not been collected in the Red River drainage (Eddy and Underhill, 1974). It is a

common species in the St. Croix River both above and below Taylors Falls, in the Mississippi River above and below St. Anthony Falls, as well as in the Minnesota River and its tributaries. *N. spilopterus* was collected in three different tributaries of the Red River in Minnesota during the summer of 1976. Specimens were obtained from one locality on the Sand Hill River, Polk county, four localities from the Wild Rice River, Norman county, and five localities on the Otter Tail River, Wilkin and Otter Tail counties. (Fig. 1). The collections from the Wild Rice River and Sand Hill River extend the known range of this minnow further northward in the Red River drainage than has previously been reported.

Two bigmouth buffalo, *Ictiobus cyprinellus* (Valenciennes), were recently taken from two sites on a tributary of the Red River in Wilkin county (Fig. 2). One specimen was taken on 4 August, 1976 near the mouth of the Otter Tail River at Breckenridge. This species had previously been reported from the headwaters of the Bois de Sioux River, a major tributary of the Red River (Phillips and Underhill, 1971). The Otter Tail River specimens extend the known range of the bigmouth buffalo approximately 80 km northward in the Red River drainage in Minnesota. It has been reported from five North Dakota tributaries of the Red River (Copes and Tubb, 1966); and, although abundant in the Qu'Appelle River drainage in Saskatchewan, it is rare to absent in the Red and Assiniboine rivers in Manitoba (Scott and Crossman, 1973).

The quillback, *Carpiodes cyprinus* (LeSueur), was reported to have a disjunct distribution in Minnesota that included Lake of the Woods and the southern third of the state (Phillips and Underhill, 1971). Although this species was apparently abundant enough to support a Red Lake fishery (Surber, 1920), there are no extant specimens from the Red River drainage in Minnesota. Two specimens were taken on 5 August, 1976 from the Otter Tail River 4.8 km east of Breckenridge, Wilkin county, and an additional specimen was taken from the same river 10 km southwest of Fergus Falls, Otter Tail county, on 11 August, 1976. A single specimen was also taken on 10 August, 1976 from the Wild Rice River 11.3 km southeast of Hendrum, Norman county. These records complement existing records for the tributaries of the Red River in North Dakota (Feldmann, 1963; Copes and Tubb, 1966) and the Red and Assiniboine rivers and the tributaries of Lake Winnipeg in Manitoba, Canada (Hinks, 1943; Keleher and Kooyman, 1957).

A single large specimen of the greater redhorse, *Moxostoma valenciennesi* Jordan, was collected by Professor John Peterka in the Red River below the South Dam, Fargo, North Dakota, in 1974. The specimen was taken by electrofishing

*CRAIG P. ANDERSON, **JAMES E. ERICKSON, are graduate students in the Department of Zoology at the University of Minnesota, Minneapolis.

***JON ROSS is a graduate student in the Department of Biology, University of Minnesota.

****JAMES C. UNDERSHILL is a professor in the Department of Zoology, University of Minnesota, Minneapolis.



Fig. 1. Distribution records of the spotfin shiner, *Notropis spilopterus* (closed circles), mottled sculpin, *Cottus bairdi* (open square), longear sunfish, *Lepomis megalotis* (closed triangle), and plains topminnow, *Fundulus sciadicus* (closed squares), in Minnesota.



Fig. 2. Distribution records of the stonecat, *Noturus flavus* (closed circles), bigmouth buffalo, *Ictiobus cyprinellus* (open squares), quillback, *Carpionodes cyprinus* (closed squares), and greater redhorse, *Moxostoma valenciennesi* (closed triangles), in Minnesota.

and represents the first large individual seen by us. Anderson and Erickson took several specimens from the Otter Tail River 10 km north of Fergus Falls in the summer of 1976 (Fig. 2). The latter specimens were so large they could not be preserved. Phillips and Underhill (1971) have discussed the known distribution of the greater redhorse in Minnesota.

The stonecat, *Norurus flavus* Rafinesque, has recently been collected from two tributaries of the Red River in Minnesota. Two specimens were taken from a moderately fast riffle in the Sand Hill River at Climax, Polk county, on 28 July, 1976. On the same day nine more specimens were taken from a swift, rubble riffle on the Sand Hill River at Beltrami, Polk county (Fig. 2). Two additional specimens were taken from a swift, rubble riffle on the Wild Rice River, 1.5 km east of Twin Valley, Norman county, on 10 August, 1976. These collections constitute the first authentic records of this species from the Red River drainage in Minnesota. In light of these new Minnesota records, the presence of this species in the Red River near Winnipeg, Manitoba (Stewart and Lindsey, 1970), is most likely the result of an ancient invasion from the Minnesota River and not an accidental introduction. Due to a lack of rubble riffle habitat in the tributaries of the Red River in Minnesota, the stonecat will probably continue to be rare and sparsely distributed in this drainage.

The white bass, *Morone chrysops* (Rafinesque), is known in Minnesota from the Minnesota and St. Croix rivers and the Mississippi River drainage below St. Anthony Falls (Eddy and Underhill, 1974). A single specimen collected from the Otter Tail River at Breckenridge, Wilkin county, on 4 August, 1976 extends the known range of this species in Minnesota into the Red River drainage (Fig. 3). It is not known whether the presence of this species in the Otter Tail

River is the result of a natural invasion via the Minnesota River or whether it gained access to the Otter Tail River via the Red River from North Dakota, where it has been introduced (Copes and Tubb, 1977). A specimen from Manitoba was presumed to have gained access to Lake Winnipeg via the Red River from North Dakota (Scott and Crossman, 1973).

The longear sunfish, *Lepomis megalotis* (Rafinesque) was collected from Hustler Lake in northern St. Louis county in 1974 by a survey crew of the Minnesota Department of Natural Resources (Fig. 1). Crossman (1976) reported this species from nine localities in the Quetico region, Ontario, adjacent to the Minnesota border. Previous records for Minnesota include those of Cox (1897) and Little Rock Lake, Morrison county, but none of the specimens are extant (Eddy and Underhill, 1974).

The sauger, *Stizostedion canadense* (Smith), is known in Minnesota from Lake of the Woods, Rainy Lake, Lake Kabetogama, Lake St. Croix, the Minnesota River, and the Mississippi River south of St. Anthony Falls (Eddy and Underhill, 1974). A specimen taken from the Sand Hill River at Climax, Polk county, on 28 July, 1976 represents the first authentic record of the sauger from the Red River drainage in Minnesota (Fig. 3). It is abundant near the mouths of Red River tributaries in North Dakota (Copes and Tubb, 1966), and Eigenmann (1894) listed this species from the Red River at Winnipeg, Manitoba.

The river darter, *Percina shumardi* (Girard), is known from Lake of the Woods, the Rainy River, Lake St. Croix, and the tributaries of the Mississippi River below St. Anthony Falls (Eddy and Underhill, 1974). There are records of the river darter from the Red Lake River (Woolman, 1896; Olson, 1932) and from the Red River at Moorehead (Wool-

man, 1896) and Pembina, North Dakota (Hankinson, 1929): but, apparently, no Minnesota or North Dakota specimens from the Red River drainage are still extant (Eddy et al., 1972; Copes and Tubb, 1966). Eigenmann and Eigenmann (1892) first reported this species from the Red River at Winnipeg, Manitoba, and it is presently found in scattered localities in Manitoba and Ontario (Scott and Crossman, 1973). On 27 July, 1976 six specimens were taken from the mouth of the Red Lake River at East Grand Forks, Polk county. Two additional specimens were taken on the same day from the Red Lake River at Crookston, Polk county (Fig. 3). These records confirm the presence of this species in the Red River drainage of Minnesota as reported by the aforementioned investigators.

The rainbow darter, Etheostoma caeruleum Storer, has now been collected in the Red River drainage system of Minnesota. During the summer of 1974, Ross and Leuben collected three specimens from the Otter Tail River at Phelps, Otter Tail county. Since then, E. caeruleum has been collected in five other localities on the Otter Tail River (Fig. 3). All six collecting sites were located in the hummocky terrain between Fergus Falls and Otter Tail Lake. In this area the Otter Tail River flows between numerous lakes with relatively little agricultural pollution. Prior to this time, the distribution of E. caeruleum in Minnesota had been well documented in the lower Mississippi and Minnesota River tributaries as well as in the St. Croix River below Taylors Falls (Eddy and Underhill, 1974). It is regarded as one of the more common darter species in small streams in these areas.

This new distribution record poses some interesting questions as to how and when E. caeruleum migrated into the Red River drainage system. It seems unlikely that the

rainbow darter would be inadvertently transorted into the Otter Tail River by a bait dealer or fisherman since it is not normally used as bait. E. caeruleum may have extended its range while the southern outlet of glacial Lake Agassiz flowed south along the present course of the Minnesota River. If so, the migration from the Mississippi drainage into the Red River drainage occurred at least 9,200 years ago before the southern outlet of glacial Lake Agassiz was cut off (Wright, 1972). Alternatively E. caeruleum may be a recent arrival to the Red River drainage since its known distribution there is restricted to a single more southerly tributary.

One specimen of the mottled sculpin, Cottus bairdi Girard, was collected from the Otter Tail River just below the outlet to Otter Tail Lake on 17 August, 1976 (Fig. 1). This is the first recorded collection of C. bairdi from the Red River drainage of Minnesota. The mottled sculpin is the most common species of sculpin in Minnesota (Eddy and Underhill, 1974). It is also known to be common in Southern Manitoba and Lake Winnipeg (Kelcher and Kooyman, 1957).

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Fig. 3. Distribution records of the White bass, Morone chrysops (open square), sauger, Stizostedion Canadense (closed triangle), river darter, Percina shumardi (closed squares), and rainbow darter, Etheostoma caeruleum (closed circles), in Minnesota.

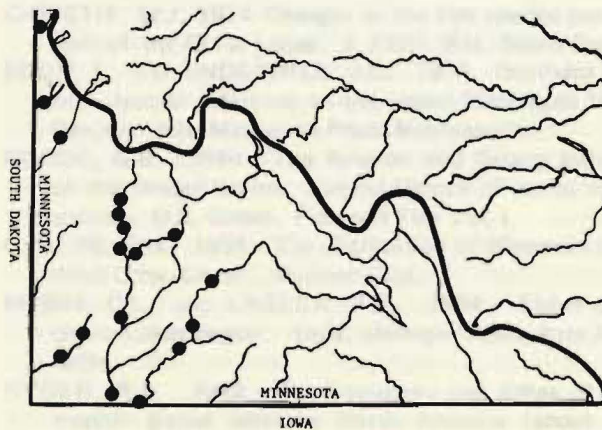


Fig. 4. Distribution records of the topeka shiner, Notropis topeka, in Minnesota.

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