

Recent Indiana Fish Collections With Notes on Five New or Rare Species

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Temporal changes in a state's ichthyofauna are to be expected in view of natural selection and Man's own interference with Nature. The discovery of new or rare forms within a geographical entity generally shows a correlation with the intensity of collecting. It would seem logical that the greater the number of collectors and collections of fish, the greater the probability of new forms being uncovered. In fact, this premise is so fundamentally simple that we tend to forget that it is true only if certain basic considerations are met.

The first requirement is of such an elementary nature that we often overlook it—simply that a new species must be collected by a person capable of recognizing it as such, and with an inclination to report the capture. It is quite probable that members of unreported species have been impaled on fishermens' hooks. More than one state prototype may have lured old *Micropterus* to his doom and *Latimeria* itself seemed to have been no atavistic specter to native African fishermen. Further, should a new form fall into the hands of that rare fisherman who is as conversant with dichotomous keys as with "Sports Afield," it is still rather unlikely that he will record it for the avid eyes of posterity's taxonomists.

The second qualification concerns the coverage or distribution of the collections. Considering like numbers of collections, the discovery of new forms is generally more probable if collections, though of lower spatial density, are spread throughout most of the drainage of the state. Shoemaker (8) collected fish from 41 sites in Wayne County, Indiana. Gerking (2) in his state-wide distributional study, collected at 412 sites. Shoemaker (8) found 57 species in his 41 collections. However, Gerking's first 41 sites, chiefly in north-central Indiana, yielded 72 species. McReynolds (7) collecting in the Muscatatuck River drainage, records 68 species from 96 sites; Gerking lists 45 species after collections at 12 sites in this drainage. Yet Gerking's first 96 widely-scattered sites produced 91 species.

During his tenure at Indiana University in the late 1800's, David Starr Jordan, along with his colleagues and his students, made an appreciable number of collections in Indiana. However, between 1900 and 1955 there were only two significant contributions to the state's ichthyologia. These were the aforementioned series of 41 collections by Hurst Shoemaker in Wayne County (1942), and 412 collections by Shelby Gerking (1940-1943) in his distributional study. Since 1955 there has been a mild renaissance of the Jordanian period of scientific collecting.

With the initiation of the Ohio River Sanitation Commission studies, in 1957, Dr. Louis Krumholz (5), University of Louisville, began a fish faunal sampling program as a portion of the Ohio River Sanitation Commission studies. While many of his collections were made in the

Ohio River itself, still other samples were taken in the lower portions of tributary streams. Though a variety of collecting gear was used in the main stream, rotenone was generally used in taking tributary samples. The author and his crew assisted Dr. Krumholz on three of the Indiana streams—Laughery, Tanners, and Indian-Kentuck creeks.

In the Laughery Creek collection (No. 25, August 13, 1957), the first authenticated Indiana specimen of the shorthead redhorse (*Moxostoma breviceps*) was captured. This specimen weighed 0.14 pounds. Two days later (August 15, 1957) three other individuals of this species were taken in Collection No. 29 from the Big Blue River near Leavenworth. The combined Blue River specimens weighed .08 pounds. Jordan (4) lists *M. breviceps* in a collection from the West Fork of the White River at Spencer, Indiana. However, Jordan himself admits to much doubt concerning the validity of this identification. After listing the specimen(s) as *Moxostoma breviceps*, Jordan comments: "This is the species called *Moxostoma crassilabre* by Jordan, Man. Vert., ed. 5. It is probably not *M. crassilabre* (Cope). It may be *M. conus* (Cope), and is probably Cope's *M. breviceps*, though the latter may really be *Placopharynx carinatus* (*Moxostoma carinatum*). This species is found in the great lakes in abundance, and it is not improbable that it is *Moxostoma leseuri* (Richardson)." Amidst all this confusion, it seems most likely that Jordan's specimen(s) are either *carinatum* or *aureolum* (= *macrolepidotum*).

In Gerking's survey he took some specimens of *aureolum* from Big Walnut Creek about 5 miles southwest of Greencastle, Indiana. Dr. James Gammon (1) of De Pauw University has recently collected moxostomids from the same area in the Big Walnut Creek basin from which Gerking reported *aureolum*. Gammon's specimens seem to fall inconclusively between *breviceps* and *aureolum*. Should further studies of Gammon's and Gerking's specimens establish them as actually *breviceps*, Gerking's specimens would chronologically pre-empt the present consideration of the Laughery Creek specimen as the first Indiana occurrence of *breviceps*.

On August 16, 1957, in the Little Blue River (ORSANCO Collection No. 30), Krumholz captured another species which had not previously been reported from Indiana. This was the threadfin shad (*Dorosoma petenense* [= *Signalosa petenensis*]) and but one specimen, weighing 0.03 pounds, was taken. While the presence of the threadfin shad in Indiana waters is based on a single specimen, there is little doubt that collecting in Ohio River tributaries would turn up other individuals of *S. petenense*. Krumholz found this fish in Ohio River collections at least as far upstream as the Louisville area. In addition, ORSANCO Collection No. 68 was made by rotenoning Ohio River Navigation Lock No. 44, adjacent to the Indiana shore at Leavenworth, Indiana. In this collection alone 1,962 threadfin shad were captured. The threadfin shad is a southern species, quite common in the lower reaches of the Ohio River, which apparently is expanding its range upstream in this system. Intensive collecting in the lower Wabash River should substantiate its presence there, also.

Although not new state records, the capture of two other species in an Indiana ORSANCO collection is noteworthy. At Indian-Kentuck Creek

(ORSANCO Collection No. 32) the river redhorse (*Moxostoma carinatum*) was reported for the first time since 1909. Its last reported Indiana occurrence was near Mitchell (Hahn, 1909). Perhaps even more surprising than its reappearance, was the number of specimens of *carinatum* captured in Indian-Kentuck Creek. Krumholz lists 27 specimens with a combined weight of 13.41 pounds for this collection! This might lead one to suspect that in large streams rarity of collections rather than the paucity of the species is responsible for our failure to encounter the largewater inhabitants more often. Though I feel that this is generally true, there is little support for such a supposition in this particular instance, since Krumholz found only 13 other specimens of *carinatum* at only 3 other sites in the entire Ohio basin.

In the same Indian-Kentuck Creek collection, the occurrence of two specimens of the silverstripe shiner (*Notropis illecebrosus*) is recorded. This minnow was first reported in Indiana by Dr. Karl Lagler (6) from the Wabash River in Posey County. It was not captured by Gerking and this appears to be the second occurrence in Indiana waters.

The Indiana Division of Fish and Game grants collectors' permits to those individuals who intend to capture fish in the pursuit of scientific studies. For the past several years Dr. Phillip Smith (9) of the Illinois Natural History Survey has made collections in a number of Indiana streams. In his very thorough 1964 annual report to the Division, I noted that he listed the capture of a species not previously taken in Indiana waters. In his Little Pigeon Creek, Warrick County collection of October 30, 1964, Dr. Smith records three specimens of the ribbon shiner (*Notropis fumeus*). Although this shiner occurs in Illinois and western Kentucky, within my knowledge no one has previously reported its existence in Indiana. Dr. Smith submitted the specimens to me for examination and they appeared to be *fumeus*. For a definite identification of these notropids, they were sent to Dr. Reeve Bailey, Curator of Fishes, University of Michigan Museum of Zoology. Dr. Bailey gave a positive identification as *Notropis fumeus*, thus establishing this as a new species on the state list.

Gerking (3) lists 172 species as occurring in Indiana and adds to these 11 subspecies for a total of 183 reported forms. Bailey (personal communication) questions the validity of several of these trinomials until more exhaustive studies are made. This present paper lists three new forms (*Moxostoma breviceps*, *Dorosoma petenense*, and *Notropis fumeus*, bringing the state species total to 175.

Literature Cited

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