

Recent Fish Collections from Blue River, Washington County, Indiana

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Introduction

During the summer of 1977, Dr. James Gammon of DePauw University (in a conversation with the senior author) mentioned a situation that led to the present study. Dr. Gammon, interested for years in the systematics and distribution of Indiana fishes, asked McReynolds if he were aware that Indiana Department of Natural Resources had reported the capture of the white shiner, *Notropis albeolus*, in its Blue River survey in 1972. McReynolds, also with a long term interest in the distributional pattern of the Indiana ichthyofauna, had been living out of the State at that time, and was unaware of this record.

If the white shiner record were a valid one, this would appear to be the most extraordinary find of a new fish species in Indiana history. Only two species of true fishes have displayed significant gaps between their previously known range and the locality of their subsequent discovery in Indiana. Heretofore, the most curious occurrence has been Shelby Gerking's collection (1) of the studfish, *Fundulus catenatus*, in Shelby and Bartholomew counties, with an intervening gap of 150-200 airline miles from its previously most northern occurrence in south-central Kentucky. This distributional "flier" has never been adequately explained.

The other anomaly was the identification of a burbot, *Lota lota*, by McReynolds from the Whitewater River, Franklin County, in the late 1950's. However, further investigation and subsequent sporadic occurrences throughout Indiana indicated that these were escapes from fee-fishing lakes ("pay ponds") whose owners were being sold burbot by Minnesota fish haulers under the more attractive misnomer of "Canadian catfish." Among the agnathid fishes, the occurrence of a sea lamprey, *Petromyzon marinus*, in the Mississippi River drainage (Tippecanoe system) has never been explained. This puzzling record apparently was not the result of a misidentification, since both Shelby Gerking and Vernon Applegate verified the identification (2).

The range of *Notropis albeolus* is basically eastern coast drainages, with its only occurrence in the Ohio River drainage being in the upper Kanawha System (New River) in Virginia, West Virginia, and possibly North Carolina. Therefore, the discovery of the white shiner in Indiana would not only add a new species, but would also be a spectacular distributional event. On the basis of this interesting situation, the senior author contacted the junior author, Joseph Janisch, who had made the 1972 Blue River survey. A review of the field data indicated that 36 specimens assigned to *N. albeolus* had been taken at 3 sites.

In this review of the field records, another interesting occurrence was noted. The popeye shiner, *Notropis ariommmus*, was recorded from several collection sites in the upper Blue River. There have been no documented records of this species in Indiana since the late 1800's (although there is an unsubstantiated report of this species from a recent collection), and some taxonomists have speculated that it has been extirpated from Indiana. Interestingly, the clear upper Blue River tributaries are the type of habitat in which one might expect to find *N. ariommmus* if it still exists in this State. At the suggestion of Janisch, and the concurrence of Chief of Fisheries Robert Hollingsworth, the authors decided to jointly re-sample selected Blue River sites.

We picked one of the upper tributary sites from which both *albeolus* and *ariommmus* had been recorded in the original survey (3). This was a section of the Middle Fork of Blue River in Township 1 North, Range 4 East northwest quarter of the northeast quarter of Section 3. At 10:00 a.m. on September 28, the authors, with the assistance of DNR fisheries biologists Larry Lehman and Robin Knox, applied an emulsified rotenone formulation to this stretch of stream. The stream at this point is a medium-sized creek with a low to moderate current. It is rocky with much sand and gravel bottom, and at the time of the collection was quite clear. The stream has produced only an intermediate degree of entrenchment below its surrounding flood plain, possibly due to the bedrock strata upon which it is based (perhaps the Harrodsburg Limestone?). Habitat-wise, the Middle Fork appears to be a smallmouth bass-rock bass creek, although largemouth bass were also collected in the sample.

Results

Collection of dead and dying fish continued at the site until 2:00 p.m. Many specimens bearing a resemblance in the field to *albeolus* and to *ariommmus* were picked up. We had previously determined that the species most likely to be confused with *albeolus* was *Notropis chrysocephalus* and that the species closest to *ariommmus* was *Notropis boops*. Although additional replicate collection stations had been planned, numerous specimens of the two target species were taken and we saw no need for further collections. We were confident that these were the two species which had been called *albeolus* and *ariommmus* in the original survey.

Subsequent to the field collections, the specimens in question were examined in the laboratory. The specimens bearing a general resemblance to *Notropis albeolus* proved to have the faint parallel lines on the upper sides that form V-shaped markings. These lines are characteristic of the striped shiner, *Notropis chrysocephalus*, and are lacking on the white shiner, *Notropis albeolus*. Study of the specimens resembling *Notropis ariommmus* showed consistent counts of 8 anal rays. The bigeye shiner, *Notropis boops*, generally has 8 anal rays (occasionally 9, rarely 7). *N. ariommmus* generally has 9 anal rays (occasionally 8 or 10).

On the basis of these examinations, we felt that these had been misidentifications in the original survey. However, specimens were submitted to fish systematists for verification of our identifications. We sent the species in question to Drs. P.W. Smith, and Larry M. Page, Faunistic Studies Section of

the Illinois Natural History Survey. They verified our identifications of this recent collection. On the basis of these findings, we must presume that *Notropis albeolus* is not a member of the Indiana fauna, and that the fish identified as this species in the 1972 survey was actually *Notropis chrysocephalus*. Similarly, it would appear that we have not re-established—unfortunately—the presence of *Notropis ariommus* in Indiana. It is highly likely that the species mistaken for *ariommus* was *Notropis boops*, found also by Gerking in the upper Blue River (1).

Since it appears that the white shiner cannot be reasonably added to the list of Indiana species, some review of the numerical status of the State's ichthyofauna seems indicated.

Gerking's distributional study (1) lists 170 species and an additional 16 subspecific forms. A later Gerking paper (2) revises the State fish list to include 172 species and 11 subspecies. He settles on these figures in spite of the 174 species included in his actual key in this paper. (He deletes *Notropis dorsalis*, found in a routine Notre Dame class collection, since the collection site had not been recorded and is unknown. He did not include *Moxostoma breviceps* (although in his key) because there were no authentic Indiana records for this species at that time.)

McReynolds' 1966 paper (4) adds 3 new species to the State's fauna: *Dorosoma petenense*, *Notropis fumeus*, and *Moxostoma breviceps* (which Gerking had correctly presumed in 1955 to be present in Indiana waters). He lists 175 species but he did not give the number of subspecies he considered viable forms.

Omitted in Gerking's 1955 key, and subsequently in McReynolds' faunal total, was the white catfish *Ictalurus catus*, which was being trucked into the State from Virginia and sold to pond and lake owners. In the early 1960's, a Ripley County commercial hatchery was raising this catfish for sale and distribution throughout Indiana. On the basis of the rather widespread dispersal of this species, it would appear that the white catfish is probably still present in the State, and we have added it to the Indiana list.

Since 1966, several taxonomic and/or distributional changes have occurred. Foremost, has been the introduction and establishment of the Pacific salmon in Lake Michigan and northern Indiana. The coho salmon, *Oncorhynchus kisutch*, was the first species introduced, and its spectacular success instigated further introductions of the chinook salmon, *Oncorhynchus tshawytscha*, and the kokanee salmon, *Oncorhynchus nerka*. The first two species, at least, seem to be long term residents of Indiana waters and should be added to the State's fauna.

With the intentional introductions by the State of Arkansas and potential escapes from research ponds, the white amur, *Ctenopharyngodon idella*, is now a presumed member of the Indiana fauna. We may as well make this unfortunate addition to the list. Also, the two subspecies of *Notropis cornutus* have been given full specific status as *Notropis cornutus* (the common shiner) and *Notropis chrysocephalus* (the striped shiner). This taxonomic change adds *Notropis chrysocephalus* to the State's fauna. The Indiana Department of Natural

Resources stocked the striped bass (*Morone saxatilis*) several years ago in Brookville Reservoir. Since specimens have been captured by test netting and angling, it appears that this species may become established in the Whitewater system. We tentatively add this species to the Indiana fauna. The Atlantic salmon, *Salmo salar*, has been stocked in Great Lakes waters by the Michigan DNR, but within our knowledge has not yet been taken in Indiana waters.

Adding these new additions to the State fauna list, it would appear that 180 species of fish occur in (or have been recorded from) Indiana.

Literature Cited

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