

Flat Shoals plus 136 Years

Michael Wolfe

Regional Outreach Coordinator

Board of Directors

North American Native Fish Association

michael.wolfe@nanfa.org

We do not arrive early to the parking lot, paved and clearly lined, and it is more than half full with the vehicles of the bicyclists, runners and walkers who left them to follow the similarly paved and lined pathway along the river. The makes and models of the vehicles, and the logos on the shirts and shoes of those that get out of them, tell us much about these denizens of pavement. The signs between the path and the water clearly indicate the urban nature of the river and we are the only ones that dare to venture past them to make our way to the water. Seines in hand, we stride down the loose sandy slope, hike through the weeds, and find our way into the shallow riffles, 100 yards or so below the shoals. It is not long before we are re-enacting history created by one of the greatest ichthyologists of all time, David Starr Jordan.

The material on which the present paper is based was obtained by the writer and his assistant, Mr. Charles H. Gilbert, during the past summer (1876), in... a week's seining in the South Fork of the Ocmulgee River at Flat Rock, Dekalb Co., Georgia... (From Jordan 1877b)

The South River flows out of Atlanta to the southeast and falls over the solid granite shoals and under the highway not far out of town. We are not that far from Stone Mountain, and this shoals is no doubt part of that greatest of all granite outcroppings. Some things might change in 136 years, but granite is not one of them.

Our collections in this stream were made in the South Fork, or South River, at Flat Shoals (Flat Rock P. O.), in Dekalb Co., some 16 miles south-east of Atlanta. At this point the river flows down an inclined plane on a bed of granite, and as its banks have been cleared in the immediate neighborhood of the "Shoals," it offers excellent advantages for small seining. Our work was confined to one point, as the river is thickly wooded above and below, and therefore full of snags. (From Jordan 1877b)

Towns come and go, post offices can be closed, and even a Fork can become a River, but the water and the granite still dance together to create the shoals. The Flat Rock Post Office has been closed for almost a hundred years. But not far from here there is Flat Shoals Road, and not far from that, the Flat Rock Archive which preserves the history of the community that was once here. All the clues were there to lead us back to the same water, the same granite, and hopefully the same fishes all these years later.

All the species obtained here were exceedingly pale in color, probably owing in some way to the character of the water or the bottom... Of course the sixteen species which we obtained form but a small part of the number of fishes which occur in the basin of the Ocmulgee. (From Jordan 1877b)

With a back pack electro fisher and only a few hours we began the attempt to recreate what had taken the great ichthyologist and a group of students a week to accomplish. Very shortly, we were pleasantly surprised to find that the warning signs on the paved and lined path were not

indicative of the conditions beneath the water. Much to our delight we obtained the following 18 species:

Campostoma pauciradii, the Bluefin Stoneroller is native to the Ocmulgee, Oconee, and Chattahoochee Rivers in North Georgia and was relatively abundant on this day.

Cyprinella callisema, the Ocmulgee Shiner was also abundant at this, its type locality. Even this late in a hot summer there were colored and tuberculate males. Like many *Cyprinella*, this fish has been assigned first to one genus and then another. The great ichthyologist first described the species from individuals captured at this location from the summer trip in 1876.

EPISEMA CALLISEMA. Sp. nov.

Coloration brilliant; clear dark blue above, sides and below abruptly silvery ; a blue lateral streak... bounding the blue of the upper parts, the white pigment of the lower parts looking as if painted on over the blue. Dorsal with a large black spot on its last rays above ; dorsal, anal, and caudal with the usual satin-white pigment at their tips ; these fins otherwise of a bright clear ferruginous orange, characteristic of this species. ...Very abundant in the South Fork of the Ocmulgee. One of the handsomest of our Minnows, both in form and coloration. (From Jordan 1877b)

CODOMA CALLISEMA Jordan.

This species, one of the most elegant of the genus, is very abundant in the South Fork of the Ocmulgee. (From Jordan and Brayton 1878)

Cyprinella lutrensis, the Red Shiner, is an introduced species that we were rather disappointed to find here mixed in with the native *Cyprinella*. Today, unfortunately, they were present in abundance.

Cyprinella xaenura, the Altamaha Shiner was represented by only a single individual on this day, which was very disappointing. This state threatened species was also first described from specimens captured here at the shoals that summer in 1876. The great ichthyologist placed this fish in first one genus and then another and another before it was ultimately placed in *Cyprinella*.

Minnilus xaenurus, Jordan, sp. nov.

Hab. South Fork of the Ocmulgee River, at Flat Shoals, DeKalb Co., Georgia.

This species is one of the most beautiful of the Cyprinidae. The long anal fin and the presence of rows of tubercles on the caudal peduncle are striking characters. The latter feature suggests the specific name (xaino, to scratch). (From Jordan 1877a)

PHOTOGENIS XAENURUS.

Minnilus xaenurus Jordan, Proc. Phil. Ac. Sci., 1877, 79.

This beautiful species is fully described in the paper above cited. It is the most abundant species in the Ocmulgee River, and we obtained hundreds of specimens. The males are provided with rows of quite large tubercles along the sides of the caudal peduncle—one on each scale—in addition to those which are found upon the head and neck. The bases of the pectorals, ventrals, and anal, are filled with white pigment, as are the tips of the dorsal and caudal. (From Jordan 1877b)

CODOMA XAENURA Jordan.

Minnilus (Photogenis) xaenurus Jordan (1877), Proc. Ac. Nat. Sc. Phila. 79.

This beautiful fish is the most abundant species in the rapids of the Ocmulgee at Flat Shoals. (From Jordan and Brayton 1878)

Hybopsis rubrifrons, the Rosyface Chub was taken in several places, but only smaller specimens were seen, no large adults were taken here today. First described from this location, this this fine little chub, the most colorful of the *Hybopsis*, was first thought to be a *Nocomis* or maybe *Ceratichthys*.

NOCOMIS RUBRIFRONS Jordan.

This little fish we found quite abundant. It is possible that it is specifically different from the northern form. (From Jordan 1877b)

CERATICHTHYS RUBRIFRONS Jordan.

This handsome little fish was first described from the Ocmulgee River, where it is abundant. It is also common in the Oconee. (From Jordan and Brayton 1878)

Nocomis leptocephalus, the Bluehead Chub was well represented in most of the seine hauls across the riffles and runs. This is one of several fishes known locally as “hornyheads” because of the sharp tubercles on the male’s head during breeding season.

Notemigonus crysoleucus, the Golden Shiner was abundant beneath the shoals. This is a wide ranging species and regional variations have sometimes in the past resulted in different specific names being put forward, but all are now considered to be the same Golden Shiner, commonly offered in bait shops.

NOTEMIGONUS ISCHANUS. Sp. nov.

A species of this genus, for which the above name is proposed, is very abundant in still waters in the Ocmulgee River. It differs from N. americanus in the extreme compression of the body, and in the longer anal fin. ...excessively compressed, perhaps more so than in any other Cyprinoid whatever; the greatest thickness being less than the thickness of the head... My specimens are all extremely pale, which is, perhaps, a local peculiarity ; lower fins red in spring males. (From Jordan 1877b)

NOTEMIGONUS AMERICANUS (L.) Jor.

Very abundant everywhere in the Ocmulgee in still or deep waters. Adult specimens have the lower fins yellow, tipped with scarlet. (From Jordan and Brayton 1878)

Notropis hudsonius, the Spottail Shiner was very abundant over the sandy areas wherever the water slowed a bit. Numerous individuals were seen in all size classes. Another fish with some interesting former names, the Spottail Shiner is somewhat variable in coloration across its large natural range from Canada to Georgia.

HYBOPSIS HUDSONIUS.

Color uniform - very pale olive, becoming silvery; a silvery lateral band, a gilt vertebral line, and traces of a faint caudal spot. Habitat. South fork of the Ocmulgee River, very abundant. (From Jordan 1877b)

ALBURNOPS AMARUS (Grd.) Jordan.

Hybopsis hudsonius var. amarus Jordan (1877).

Very abundant in the South Fork of the Ocmulgee. (From Jordan and Brayton 1878)

Notropis lutipinnis, the Yellowfin Shiner was abundant only over the riffles approximately 50 yards or so above the inlet of a spring run tributary.

Maybe because we did not venture up the spring run tributary, but we saw no Creek Chubs, which Jordan identified as *Semotilus corporalis*, but is now identified as *Semotilus atromaculatus*.

SEMOTILUS CORPORALIS (Mitchill) Putnam.

A few small specimens from a little Spring run,—not found in the river. (From Jordan 1877b)

SEMOTILUS CORPORALIS (Mit) Putnam.

From a small brook, tributary to the Ocmulgee. In the South, this species is almost confined to the smaller creeks and spring runs. (From Jordan and Brayton 1878)

We saw no Chubsuckers on this day.

ERIMYZON OBLONGUS (Mitchill) Jordan.

This species occurs in the Ocmulgee in some abundance. (From Jordan 1877b)

Moxostoma collapsum, the Notchlip Redhorse was found immediately beneath the shoals. The large suckers that were captured in 1876 were identified as the V-Lip Redhorse which has since been determined to be similar, but does not occur in Georgia.

MYXOSTOMA PAPILLOSUM.

This marked and handsome species abounds in the Ocmulgee River, where it is known as the White Sucker. The papillose lips separate it sharply from all the other known species of this genus. (From Jordan 1877b)

Moxostoma rupiscartes, the Striped Jumprock was somewhat common. Medium sized individuals showed strong black margins on the dorsal and caudal fins. These margins would no doubt have led the great ichthyologist to believe they are the very similar Blacktip Jumprock. Some thirteen years later, however, Jordan described the Striped Jumprock as a new species.

MYXOSTOMA CERVINUM.

This very distinct species has been well described by Prof. Cope. My specimens all have 9 ventral rays, instead of 10, and the dorsal rays vary from I, 10, to I, 12. This species seems to be the smallest of all the Catostomidae. It abounds in the rapids and rock pools at the "Falls" at Flat Shoals. (From Jordan 1877b)

MYXOSTOMA CERVINUM (Cope) Jordan.

The little "Jump Rocks" is very abundant at the Flat Shoals of the Ocmulgee. (From Jordan and Brayton 1878)

Ameiurus brunneus, the Snail Bullhead was represented by only two individuals, both taken right beneath the shoals. We were very pleased to see this species still present here as it had been so long ago when found here and first described as a separate species.

AMIURUS BRUNNEUS Sp. nov.

A small Cat-fish from the Ocmulgee, was identified by me... is extremely abundant in the South Fork of the Ocmulgee, where we took great numbers of small specimens, but none over six inches in length. (From Jordan 1877b)

We saw no Channel Catfish on this day.

*ICTHILELURUS PUNCTATUS (Rafinesque) Jordan.
The Blue Cat, White Cat, or Channel Cat, is excessively abundant in the Ocmulgee. We obtained a great number of specimens, mostly small. They seem to be identical with the northern species, although their habits appear different. This species occurs only below the "Falls" or "Shoals." We were informed that all attempts to introduce it above have failed. (From Jordan 1877b)*

We saw no Chain Pickerel on this day.

*ESOX RETICULATUS Le Sueur, var. AFFINIS (Holbrook) Jordan.
A single large specimen of this species was taken. It is known locally as the Jack. (From Jordan 1877b)*

Gambusia sp. were only seen in a few seine hauls.

Lepomis auritus, the Redbreast Sunfish was abundant in the river wherever the flow and current were not too great. As long ago, it is still the target of many streamside anglers.

*LEPIOPOMUS AURITUS.
Many small specimens of this species were taken; and the remains of two or three large ones, thrown away by the fishermen, were seen. (From Jordan 1877b)*

We captured no Warmouth, now formally named *Lepomis gulosus*, potentially because we concentrated more of our efforts in the riffles and other flowing habitats. And although he thought them a distinct species, Jordan captured two that summer, and many more in other locations of this river system.

*CHAENOBRYTTUS VIRIDIS (Cuv. and Val.) Jordan.
Two specimens taken in the Ocmulgee River, respectively seven and three inches in length... Taken in the South Fork of the Ocmulgee River, where the species is known as "Bream" and "Red Eye." (From Jordan 1877b)*

*CHAENOBRYTTUS VIRIDIS (C. & V.) Jordan.
The "War-mouth Perch" is abundant in the Ocmulgee. (From Jordan and Brayton 1878)*

Lepomis macrochirus, the Bluegill Sunfish was taken rather commonly in the same habitat as the Redbreast above.

Lepomis microlophus, the Redear Sunfish was only taken once with a group of other sunfish.

We captured no Largemouth Bass although it was mentioned to us by a local fisherman that they were present a little farther down the river.

MICROPTERUS SALMOIDES (Lacepede) Gill.
Abundant; known as "Trout." (From Jordan 1877b)

Etheostoma inscriptum, the Turquoise Darter was rather commonly seen, as is its habit, wherever the current was fastest and roughest. It is interesting that Jordan described this species from the Upper Oconee but did not observe it here despite this also being part of its native range.

Percina nigrofasciata, the Blackbanded Darter was also rather commonly seen in its preferred habitat in association with woody debris and other organic cover. Jordan too saw this robust little darter which at the time was placed in a different genus.

HADROPTERUS NIGROFASCIATUS Agassiz.
Three large specimens taken in rapid water. (From Jordan 1877b)

We considered our morning well spent and productive. We had seen 10 of the 16 species that had been here 136 years ago, including all four of the species that were originally described from specimens collected at Flat Shoals. We also documented 8 more species not captured by Jordan. Granted we had a great assistance from technology. From the cars we arrived to the cameras we used to capture images of our quarry to the electro fisher that certainly increased our efficiency of capture, we took every advantage of our century. One hundred thirty-six years earlier, the ichthyologists had taken multiple trains to arrive at a rather remote location. We parked in the paved and clearly lined lot.

...based primarily on the collections made by the present writers, assisted by Mr. C. H. Gilbert, and a party of students from Butler University... in various streams...

*Ocmulgee River, South Fork, Flat Rock, De Kalb County, Georgia.
(Partly clear; a small falls, and a deep basin worn in granite rock; a fine stream for seining.) (From Jordan and Brayton 1878)*

Our catch this day shows remarkable similarity to the fishes documented by Jordan. The ones that we missed are not rare species but ones that occur more commonly in habitats that we did not target (e.g., deep pools or in tributary streams). The additional species we captured include some common generalists (e.g., Bluegill) but also some benthic species that require clean substrate for spawning (e.g., Turquoise Darter). The significant exception to this pattern was the non-native Red Shiner, which may be negatively impacting our native minnows through competition and/or hybridization. This is certainly a location that deserves more visits. Both to seine more vigorously along the edges on the banks to see if the Warmouth or Pickerel are still there and to explore the spring run tributary creek for Chubs and Chubsuckers. Or possibly, just to sit and admire the view of a beautiful flat rock shoal that shares history with a great North American ichthyologist.

Pertinent Literature:

Jordan, D. S. 1877a. On the fishes of northern Indiana. Proceedings of the Academy of Natural Sciences of Philadelphia v. 29:42-82.

Jordan, D. S. 1877b. A partial synopsis of the fishes of upper Georgia, with supplementary papers on fishes of Tennessee, Kentucky, and Indiana. *Annals of the Lyceum of Natural History of New York* v. 11:307-377.

Jordan, D. S. and A. W. Brayton. 1878. Contribution to North American ichthyology No. 3. A. On the distribution of the fishes of the Allegheny region of South Carolina, Georgia and Tennessee, with descriptions of new or little known species. *Bulletin of the United States National Museum* No.12:1-95.