

# SERENDIPITY

## THE *NOTHONOTUS WAPITI* STORY



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In 1963 John Ramsey, then a Ph.D. student with R. D. Suttus at Tulane University, New Orleans, collected a single juvenile of what he thought to be an undescribed darter in the genus *Etheostoma*, subgenus *Oligocephalus*, from Elk River at Fayetteville, Lincoln Co., TN. This “undescribed species” was subsequently known to southeastern ichthyologists as *Etheostoma (Oligocephalus) wapiti* ms, after the Cherokee name for the American Elk. The abbreviation “ms” means manuscript species, or names lacking a formal description (*nomina nuda*, or “naked names”). Prior to a recent change in the Rules of Zoological Nomenclature, if a naked name appeared in a publication, that name was unavailable for future use.

While visiting the wonderful fish collection at Tulane University in the 1970s, Jim Williams and I decided to have a look at the above specimen, and quickly realized it was in subgenus *Nothonotus*, not *Oligocephalus*. For our 1978 description of *Etheostoma (Nothonotus) aquali*, Coppercheek Darter, from the Duck and Buffalo river systems in middle Tennessee, we examined this specimen plus two additional juveniles from the nearby Shoal Creek system. Both of those were collected by Gilbert and Swain in 1884 (USNM 36670) and had been identified as *Etheostoma rufilineatum*. They were re-identified by Raney and Zorach (1967) as *Etheostoma microlepidum*, a species currently considered to be confined to the Cumberland River drainage. Jim and I agreed that these three specimens probably represented the same unknown species of the *E. maculatum* Species Group of subgenus *Nothonotus*. No species of that group was known from the middle or lower portions of the Tennessee River drainage except for *E. aquali*, confined to the Duck and Buffalo river systems, well downstream from the mouths of both Elk River and Shoal Creek.

The change in subgeneric status from *Oligocephalus* to *Nothonotus* demanded a change in our collecting strategy, since *Nothonotus* darters tend to be confined to swift riffles with coarse substrates of rubble, boulder, and bedrock. *Oli-*

*gocephalus* species tend to occupy the weaker currents of pool areas. The 1963 Elk River capture was much more recent than the 1884 Shoal Creek specimens, so the University of Tennessee (UT) group directed our collection efforts to that river system.

During this era, TVA biologists were actively collecting and preserving fishes from throughout the Tennessee River drainage, and many were being deposited in the collection at UT. Charles F. Saylor, fish expert at TVA, noticed some juvenile darters from the lower main channel Elk River that he couldn't identify, thought they were in subgenus *Nothonotus*, but that they were neither Bluebreast nor Redline darters, the only *Nothonotus* then known from the Elk. They certainly appeared to be identical to the three juvenile *Nothonotus* that Jim and I had been puzzling over.

So, whatever it was, the mystery darter was still present (but apparently quite rare) in the Elk River system in Tennessee. In May 1981 a UT Regional Faunas class captured an adult female and juvenile from a deep, swift, boulder-strewn riffle area in lower Richland Creek, a major tributary to Elk River with its mouth near where Charley Saylor had taken the two juveniles from the main channel Elk River. But the question was not answered. Darters in the *E. maculatum* Species Group of *Nothonotus* are differentiated primarily on the basis of the spectacular breeding colors



Male Boulder Darter.

of the adult males. We returned to the Richland Creek site in June 1982, presumably during the onset of the breeding season, for the mystery darter, and collected 20–30 specimens. Five adult males and two adult females were preserved, and the other specimens were released, as the apparent rarity of the species and our collecting in what might easily have been one of its only breeding sites demanded caution.

The big surprise was that breeding males completely lacked the bright red spots on their sides that are prevalent in most *Nothonotus* males, and are strikingly present in males of all known species in the *E. maculatum* Species Group. We subsequently encountered a few other populations in main channel Elk River habitats where natural boulders or concrete debris from previous mill dams or bridges was present and associated with fast current. These collections contained a few subadult males, which had visible but diffuse red spots on their sides. Jim Williams and I described the species as new in 1989 as the Boulder Darter, and chose to use John Ramsey's manuscript name of *Etheostoma wapiti* as the scientific name. *Nothonotus* was later elevated to generic status by Near and Keck (2005).

End of story—not quite. Our appreciable efforts in suitable habitats in the Shoal Creek system failed to locate additional populations. Our surveys of the entire Elk River system below Fayetteville for additional suitable habitats found a single natural site in the main channel just above the Alabama border, and fewer than five concrete debris sites in the remainder of the system that contained Boulder Darters. This was a species that had nearly “slipped through the cracks” into extinction. That it did not make that slip prior to its recognition as a new and very rare species certainly seems serendipitous. What if John Ramsey's 1963 specimen had been discarded as just another Rainbow Darter (*E. caeruleum*), or that specimen had not made it into the Tulane University collection, or if Jim and I had not known it was there? What if Charley Saylor's two ju-

veniles had not made it into the UT collection and had not been available for Jim and I to examine? Where could Conservation Fisheries Inc. (CFI) of Knoxville justify an attempted transplant into a new river system if the two 1884 specimens collected by Gilbert and Swain in the Shoal Creek system had dried out, rotted, or had been discarded? They had been expertly curated by the staff at the US National Museum in Washington, DC, and were available for Tim Zorach, and subsequently Jim and I, to examine. And CFI could hardly justify attempting to bolster populations in Elk River if TVA had not agreed to alter water release strategies from Tim's Ford Reservoir to have a flow and temperature regime more suitable for Boulder Darters (J. T. Baxter, personal communication).

Currently, transplanted Boulder Darters in Shoal Creek are breeding successfully and have expanded their range. Their breeding range in Elk River, thanks to CFI and TVA, now extends to above Fayetteville (J. R. Shute, CFI, personal communication). Perhaps it is best for endangered fish species to be lucky, since they are certainly not warm and cuddly.

#### Literature Cited

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Female Boulder Darter.



Elk River.