

ORANGEFIN DARTER

by Raymond S. Katula, Modesto, California

One of the bonuses of maintaining native fishes is that sometimes there are areas of their life histories yet to be revealed. The average hobbyist can make life aspects known by simply keeping fish from local streams. Tropical-fish enthusiasts can and have made many important revelations also; but overall, by the time the average hobbyist obtains some new and rare fish, chances are that breeding and life history have already been well documented by an expert in that particular group of fish. (Please note: I enjoy keeping tropicals also.) With the rich North American ichthyofauna, much is still waiting to be learned. Recent books on the darters consolidate known information on the group, but the books also note many voids in knowledge about numerous species. In communication with other NANFA members, it's really amazing the recent amount of work being accomplished, especially concerning darters.

Most darters are not really that difficult to induce spawning in, and the darters of the subgenus Nothonotus appear particularly easy to breed. The simple fact that few people have attempted to breed them is perhaps the reason that many darter species retain their secrets.

The subject of this article is the spawning mode of the Orangefin Darter (Etheostoma bellum). The fry, however, were not raised past the post-yolk-absorption stage, as a later part of this article will discuss.

In late April, 1988, I received six male and two female Orangefin Darters by mail. They all arrived in apparently excellent condition one Wednesday, despite the fact that they had been swimming in the currents of Trammel Fork of Kentucky's Barrens River that previous Saturday.

Two females and two of the best-colored males were introduced promptly into a previously set-up 10-gallon breeding tank. The other males adjusted comfortably to a 55-gallon community tank. Their aggressive tendency was obvious, as with their close cousins, the Redline Darter (Etheostoma rufilineatum). In their initial week of captivity, one female succumbed to unknown causes and perished. The others all settled down nicely and readily consumed live brine shrimp and live tubifex worms.

As their name indicates, they had beautiful orange fins, thin blue-black margins on the unpaired fins, and essentially a light-brown body color. Portions of the head and belly showed an orange color, a turquoise breast beautifully apparent. Running down its sides were about 14 thin horizontal lines and four or five indistinct vertical bars. The females' fins were clear or straw-colored. The body lacked any color and was primarily tan mottled with black.

The Orangefin Darter reproduces in a fashion very similar to that of its cousins, the Redline Darter and the Bluebreast Darter (E. camurum). Those two species, however, prefer to deposit their eggs in adhesive clumps at the base of large rocks, something my Orangefins did not do.

The Orangefins' courtship is typical of most darters, with the male circling a receptive female, making fin displays, and quivering. In spawning males, the colors become more pronounced, the thin horizontal lines fade, and the vertical bars become much more distinct. When the female is ready to spawn, she buries herself almost completely; only the caudal fin is visible. The male then mounts her, head to head, and quivers, stroking her caudal regions. Actual spawning takes 15 seconds to a minute. The male takes long breaks in between spawnings, and the female remains buried for extended periods--up to half a hour. As noted, there was no affinity for depositing eggs close to the bases of rocks. Eggs were instead buried in adhesive clumps primarily in more open gravel areas and occasionally near the undergravel uplift tube. Three fungused clumps I counted numbered 33, 20, and 16 eggs. Viable eggs were not handled or counted. Some eggs both viable and fungused were found singly.

The eggs contained the typical orange oilspot, and in size appeared slightly smaller than those of the Bluebreast Darter. Incubation period could not be determined exactly, but an 11-to-14-day period at 72°-74°F seemed very probable. Spawning took place in June and July and, as of this writing, shows sign of continuing into August. The pH of the water was quite alkaline--8.3.

Inducing darters to produce eggs in aquaria is really easy, but raising fry into active feeding past yolk-absorption is the difficult part. The Orangefin fry absorbed their yolk sacs and then seemed to die or starve to death. In past experiences with raising Bluebreast and Redline fry, it appears that the main culprit may have been the small tank. Redline and Bluebreast Darters raised in both smaller (10-gallon) and larger (25-gallon) aquariums showed diverse success rates. Larger tanks allow the pelagically-swimming fry to swim in a slow current without bumping into gravel or glass. In small tanks they tend to get trapped between the gravel granules; careful observation with a magnifying glass shows indications of mouth fungus on the fry, which may explain lack of eating.

When these species were raised in a small aquarium, no pelagic swimming was noted past yolk-absorption, whereas in the large aquarium, both species swam pelagically for one month past hatching. The similar Orangefin probably suffered the same fate. More work needs to be done to determine this correlation accurately.

In conclusion, it is apparent that Orange-fin Darters spawn in a fashion typical of their subgenus, Nothonotus. Whether or not they naturally prefer to spawn at the base of large rocks like the others can only be accurately determined by future aquaristic and scientific field observations.

The fry did not accept infusoria, baby brine shrimp, or microworms. Breeding and attempts to cultivate the fry in larger aquaria are underway.

References

Kuehne, Robert A., and Roger W. Barbour. The American Darters (Lexington, Ky.: University Press of Ky.), 1983.

Page, Lawrence M. Handbook of Darters (Neptune City, N.J.: TFH Publications), 1983.

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BREEDING OF FINESCALE SADDLE DARTER (Etheostoma osburni) AND STIPPLED DARTER (E. punctulatum)

Ray Katula had a spawning of the Finescale Saddle, and located two bunches of fungused eggs in the gravel. Ray notes that he's read nothing about the spawning habits of this species, but "Not surprisingly, they must bury their eggs as is typical of the saddle darters." In a previous NANFANEWS, we carried Ray's inquiry about blue vs. green on the sides of various males. He now notes, "The blue color of Missouri Saddled Darters occurs in some individual breeding males. The normal green turns blue, only at immediate breeding time."

He's now bred a second generation of Stippled. He "recently noticed an affinity, unnoticed by me before, to lay their eggs in portions of the tank where pebbly rocks are intermixed with the gravel."

Ray also has reached this startling conclusion about darters: "Tank-raised darters (generally) have better color, probably due to reduced stress and the selective breeding possible in the home aquarium. Variability is very prominent even among fry with the same parents." He promises to write or comment further in the future.

Ray has contributed similar brief observations to these columns before, and they are of considerable ichthyological significance.

"I just feel," he writes, "that this information should be presented and recorded somehow so it is available to any inquiring scientist or aquarist." Just so. That's what all of us should use AC for. Your new info may not be sufficient for more than a sentence or two, let alone a formal article, but it is significant. Let AC know whenever you observe something you hadn't seen or known of before, including new locations, patterns of colors and markings, and patterns of behavior.