

# Striking Gold: The Eastern Starhead Topminnow, *Fundulus escambiae*

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by

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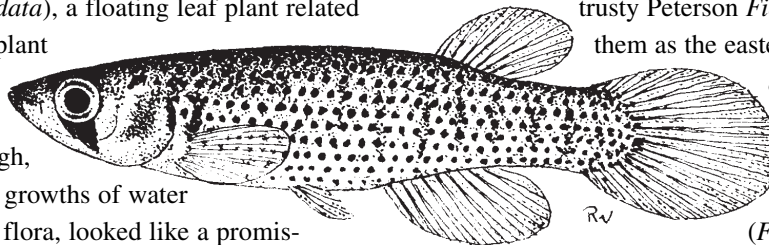
I first encountered the Eastern starhead topminnow (*Fundulus escambiae*) in the Florida panhandle, while searching the backroads of Bay and Washington counties in November of 1995. It was a totally unexpected discovery; the road we were traveling on bisected a wetland area, or what the locals might call a slough. My friend Mike Quispe and I were looking for the small floating heart (*Nymphiodes cordata*), a floating leaf plant related to the familiar banana plant (*N. aquatica*) of the aquarium trade. The dark waters of the slough, which supported dense growths of water lilies and other aquatic flora, looked like a promising habitat for *N. cordata*, but we came up empty. Before moving on, we decided to break out our nets and sample the resident fishes.

The water was deeply stained with tannic acids, giving it the color of iced tea. Its odor was pungent, almost antiseptic, much like the “cedar waters” of the New Jersey Pine Barrens where I had collected blackbanded sunfish, or the habitat of bluespotted sunfish in southern Maryland. The pH was low, 5.6 to 6.0, and the water minimally hard, making this a harsh environment for fish. Yet the slough was teeming with fish life. The familiar mosquitofish (*Gambusia affinis*) and its tiny cousin *Heterandria formosa* (see p. 39) were the most abundant fishes, followed by a rather fleet, skittish species of topwater killifish with a bright, iridescent, greenish-golden spot in the middle of their heads.

My first sweep of the dip net brought up a thrashing juvenile alligator gar, which we released, followed by plenty of mosquitofish and “hets.” We also caught a few small sunfish which we later determined to be young dollar sunfish (*Lepomis marginatus*). But it was those dazzling little killies that really caught our attention. The first two specimens were hard to come by. With our trusty Peterson *Field Guide*, we identified them as the eastern starhead—*Fundulus escambiae*! They were very beautiful fish, rivaling even the more familiar golden ear topminnow (*Fundulus chrysotus*) that we had caught elsewhere on our trip.

With much difficulty, we caught a total of six specimens before darkness descended. Later examination revealed that we had collected at least two males and a female, along with three sub-adults.

The eastern starheads proved to be very adaptable fish. Many of the other fishes I collected on that trip did not survive due to a fungus infection, an ailment to which wild-caught fish from Florida seem very susceptible. The three adult *F. escambiae* made the adjustment to my water quite well, thriving on a diet of live and frozen food, and of all things, flake food! Because this species tolerated acidic water well, it was a promising candidate as a summertime resident in my garden pond which already supported a mixed community of tannic water fishes. My pond even has many of the same features that made the slough from which they came such a great



*Fundulus escambiae*. Illustration by Rudolf H. Wildekamp, from *A World of Killies: Atlas of Oviparous Cyprinodontiform Fishes. Volume III*. © 1996 The American Killifish Association.

place for them—soft water with a pH of about 6.4 to 6.8 and plenty of lily pads, which these topminnows seem to prefer for cover.

Since my first three specimens took well to the pond after being wintered indoors, I decided that I had to return to Florida for more. In early September 1997, I returned to that same slough, better prepared for collecting fish. We caught a total of 32 (mostly sub-adults), and this time maintained them in a large translucent plastic crate with aeration, generous feedings of live brine shrimp, and frequent water changes. (Luckily, there was a nice clean lake with similar water chemistry in a wildlife refuge near the place we were staying.) The fish fared well during a trip from the Tallahassee region to Orlando. There they were bagged with oxygen and sent via Delta Air cargo to meet me again in Pittsburgh a day later.

All 32 eastern starheads subsequently adapted to pond water and then to tap water. They were split between four 10-gallon tanks with gravel bottoms and a few plastic plants for cover. Mortality was much lower this time because of the better handling and prophylactic treatment given upon arrival for fungal infections. All specimens were feeding well—they took to flake food almost right away. In early May, I moved a half dozen eastern starheads to my pond. The remainder were conditioned for spawning in separate tubs to ensure better success than might be possible in the competitive environment of the pond. But I may have underestimated the competitive potential of this species. For while the fish in the smaller tubs did well, I did not get many offspring from them. But the fish left to their own devices in the main pond spawned prolifically!

Again, it appears that my pond is an ideal habitat for this fish because they bred successfully with minimal intervention on my part. A natural diet of indigenous pond life and stranded insects, supplemented by feedings of flake food and live brine shrimp from a local pet shop, seemed to do the trick. The fish in the 50-gallon stock tanks received similar treatment, but in those confined quarters most of the spawn ended up being eaten by the parents. Typical of killies, *F. escambiae* are egg scatterers that spawn in fine-leaved plants. In addition to the offspring collected from my main pond, a few fry turned up in one of my satellite ponds where I had thrown some surplus plants that apparently had spawn in them. (I also had northern redbelly dace and golden shiner fry hitchhike to another pool in similar fashion.)

*F. escambiae* fry, which began to appear sporadically in my pond in early July, were dipped out for rearing in stock tanks. They initially fed on the infusoria content of my pond water, then quickly graduated to newly hatched mosquito larvae and baby brine shrimp. Within a month they were eating bigger items, including finely crushed flake food. I have not done a detailed inventory of this season's spawning results, but I estimate that my population is now double the original number.

Earlier this year I made a trip with NANFA member Mark Binkley to collect the closely-related northern starhead topminnow (*Fundulus dispar*). This proved an interesting experience and an excellent opportunity to compare the behavior of the two species. For a while I maintained a trio of the northern species in my pond and observed their interaction with the eastern starhead.

I tend to favor the eastern starhead over the northern starhead. The latter continues to do well in one of my smaller ponds, but did not breed successfully despite the fact that several of the females were gravid when I caught them back in May. I think the fish from this particular population which was caught in an alkaline midwestern lake may not like the acidic water as much as does *F. escambiae*, which hail from tannic water biotypes of northern Florida. Also, *F. escambiae* appear to be a more aggressive, faster-moving fish, making them better able to evade predators and hold their own in the large pond. *F. dispar* are very docile in comparison.

This may be more of a personal bias, but I also favor the eastern starhead over its midwestern counterpart on the grounds of aesthetics. The females tend to have a reddish cast and stouter body which sets them apart from the more streamlined and greenish males. The eastern starheads appear quite attractive when cruising near the surface of the pond—I love the iridescent greenish-gold star on the crown of their heads.

When it comes to ease of propagation, hardiness and sheer beauty, the eastern starhead wins all categories and has secured itself a place in my pond community. Everytime I see them on the move between the lily pads I cannot help but think of the slough where Mike and I first found them a few years ago. And to think the encounter was purely accidental! It goes to show the value of serendipity: to strike gold while digging for worms (or in our case, a plant).

As for the floating heart, *N. cordata*, I have a feeling that we will find it eventually. After experiencing the beauty of the Florida panhandle, I can hardly wait to go back!