

Where the Killifish Aren't: A Pictorial Essay on How the Growth of Downtown Huntsville, Alabama, Destroyed the Habitat of the Now-Extinct Whiteline Topminnow, *Fundulus albolineatus*

Bruce Stallsmith

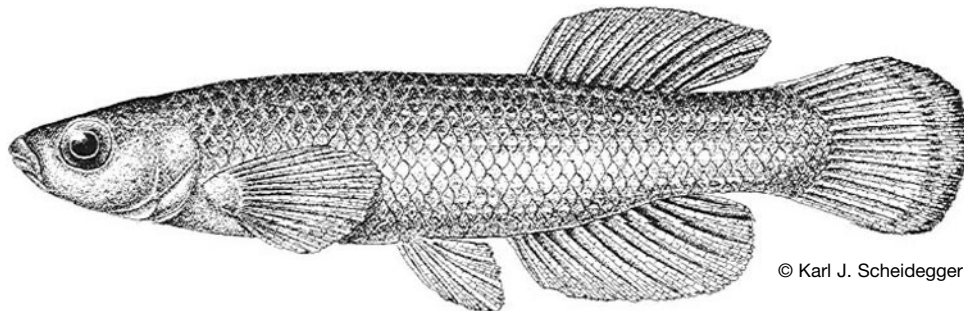
801 Wells Ave., Huntsville, AL 35801
fundulus@hotmail.com

Huntsville today is famous as the Rocket City, the birthplace of America's space program at the Redstone Arsenal, starring Wernher von Braun and his merry band of (ex-Nazi) rocket scientists. But Huntsville should also be known for another first not shown on this historic marker—the first human-induced extinction of a freshwater fish species in North America, the whiteline topminnow, *Fundulus albolineatus*.

We know this fish only from a few badly



preserved specimens; it hasn't been seen alive since 1889. It's possible that *F. albolineatus* was the same species as a still-extant fish, the Barrens topminnow, *F. julisia*, itself in jeopardy and currently restricted to a handful of spring streams on the Barrens Plateau in Tennessee not too far from Huntsville. Both are typical *Fundulus* species, with elongated bodies, moderate sexual dimorphism, and a maximum adult size of about 85 mm.

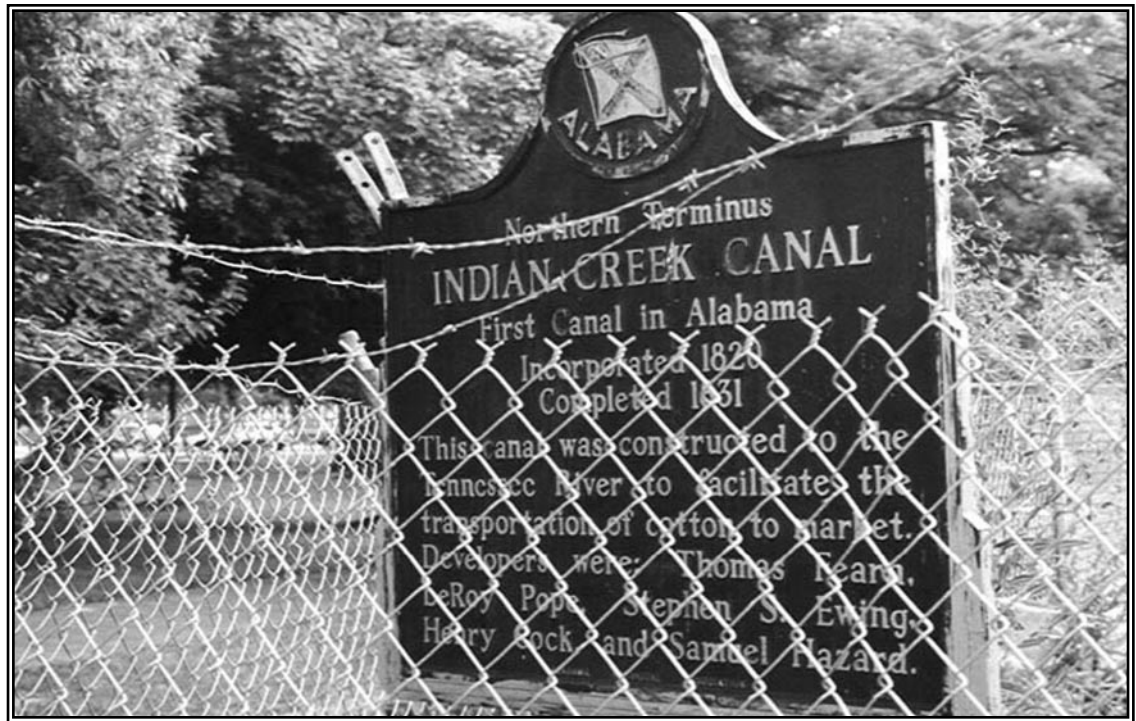


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▲ Huntsville was built around Big Spring (shown here) in the early 1800s. Northern Alabama sits on karst formations, a limestone rock with many springs seeping out. Previous to European settlement this area was used by the Cherokee Indians as a seasonal camp. Big Spring today is the focal point of a large downtown park. As far as is known, *F. albolineatus* was only found in the spring run (creek) between Big Spring and where this system runs into the Tennessee River about 20 km south of Big Spring. The Big Spring system has been heavily modified by human activities in the last 190 years. ▼ In this larger view of the head of the Big Spring system as it exists today, the spring is in the middle behind the trees, and downtown Huntsville is immediately behind and above the spring. The spring run is neatly channelized into a concrete gutter, which is true of most of its journey to the Tennessee River.





▲ Early on, Indian Creek (also known as Spring Creek), which flows out of Big Spring, was largely converted into a canal for moving cotton to market as noted in this sign. This was an early form of the stream channelization still common in the South (and a major bugaboo to the author!). Habitat alteration of this type would have created a warmer, siltier environment in the water compared to the free-flowing creek. ▼ The dominant (only?) fishes in Indian Creek today as it flows through Big Spring Park are goldfish, koi, and striped shiner (*Luxilus chrysocephalus*). Striped shiner are a native minnow that thrive in disturbed stream habitats. Both the spring itself and Indian Creek are also full of various water weeds, as shown here. I admittedly haven't asked, but I don't think city park planners are hugely concerned with the establishment and maintenance of the creek's original biota.



If *F. albolineatus* was like its living near relative *F. julisia*, it would have preferred heavily vegetated springs and stream pools and spawned over filamentous algae. And like other *Fundulus* species, it would have had a preferred diet of aquatic invertebrates including insect larvae and microcrustaceans.

▼ Indian Creek emerges from buried tunnels as it exits Big Spring Park after crossing beneath Monroe Street. The cars at the top of the picture are parked by Huntsville's civic center, the von Braun Civic Center (I kid you not). The creek joins another formerly free-flowing creek and continues . . .

Photos and text © 2000 by Bruce Stallsmith. Any errors are those of the author alone. Information about the biology of *Fundulus albolineatus* is from the excellent *Fishes of Alabama and the Mobile Basin* by M. F. Mettee, P. E. O'Neil and J. M. Pierson.



. . . across Huntsville as the water flows towards the Tennessee River. This form of stream channelization is very common in north Alabama, because it is still considered to be a form of flood control. Streams within city limits typically have these steep concrete banks, little gravel or sand on the bottom, and without a lot of trees or brush lining the banks are fully exposed to the sun. ►

The only fish found in these channelized systems are striped shiners. The extreme habitat modification of a channelized stream (or canal) seems to have been too much for *F. albolineatus* to have survived or adapted to.

There is still some slight hope that previously unknown populations of *F. albolineatus* will be found somewhere around the Tennessee Valley. I hope they are found, but it's way too late to think about reintroducing them in Huntsville. ◀

