



# Eastern Sand Darter

by Rob Criswell  
photos by the author

It's an elegant, elongate gem, gleaming like translucent crystal. Its length is accented by a thin ribbon of glittering gold and adorned with dainty ovals of onyx, and it shimmers in the sunlight as brilliantly as any diamond. But, you will not buy this jewel in any store, nor from any vendor. It may be found only in a few barren, watery places—for it's a living member of our native fauna and a fish.

While most fish seek out the safety and comfort of boulders, snags, weed beds and undercut banks, the eastern sand darter is content to find a frugal existence on and in a few sandbars in the northwest corner of the state. There, where the current is strong enough to keep these gritty beds clean and silt-free, but not so aggressive as to wash them away, this slim bottom dweller enjoys little competition for its favorite table fare—midge larvae and other small aquatic insects.

Even though these barren sand beds are little more than deserts with water placed on top, this darter has adapted well to life here, as its scientific name clearly implies. Its genus, *Ammocrypta*, means "hidden in sand." Its species name, *pellucid*, means "to shine through." With no structure to break up the water's flow, this 2- or 3-inches long darter would waste precious energy if constantly exposed to the current and would be vulnerable to predators 24 hours a day/7 days a week if it had nowhere to hide. Although, the eastern sand darter's cryptic coloration makes it difficult to see over a sandy background. To defeat both of these enemies it rises slightly into the water column and dives headlong into the sand, burying itself completely for many hours at

a time. It will occasionally poke its head above the sand while resting, but in areas with a good number of these sand darters, the number completely buried usually far exceeds those that are exposed. The submerged status also provides relief during low flow periods, allowing these darters to beat the heat when the water becomes excessively warm.

Most sand darters spawn during June and July. The female releases 30 to 170 eggs per spawning, and the hatchlings are little more than 5 millimeters long at birth. They are short-lived. An extensive Ohio study found none that reached three years of age.

The eastern sand darter was historically much more widespread than it is today. In 1869, naturalist Edward Drinker Cope reported collecting eastern sand darters from the Youghiogheny River. Biologists from Indiana University working in the Pittsburgh area in 1886 reported that they were "common everywhere in suitable places" in the Monongahela River and a tributary, Pigeon Creek. There were also records from Lake Erie and from French Creek, Crawford County.

But, pollution that accompanied the industrialization of southwestern Pennsylvania took its toll on waterways and fishes. In 1909, Dr. A. E. Ortmann, a curator of zoology at Carnegie Museum, stated that at Pittsburgh "the Allegheny and Monongahela are as badly polluted as they can possibly be." He continued that the Monongahela and Youghiogheny "drain the most important coal regions of the state, and there are, in this whole region, only a few streams left which have clear water." Eastern sand darters have never been taken from



these rivers since. Given the spotty and infrequent fish surveys and collecting work that occurred in western Pennsylvania during the nineteenth and first part of the twentieth century, we can only speculate about how many other eastern sand darter populations were wiped out without ever being detected and how widespread they once were.

But, Ortmann also noted that “in contrast to most of the streams mentioned so far, French Creek and its tributaries are generally clear and possess a wonderfully rich fauna.” This statement is still true today. French Creek has retained nearly all of its historically known fish and mussel species, including the eastern sand darter. In fact, although it occurs at relatively few places in this small river, it is nevertheless the stronghold for this species in Pennsylvania.

Although the eastern sand darter hasn't been reported recently from the Pennsylvania portion of Lake Erie, where it occurred on clean, sandy shoals, it is possible that it is still present. However, there can be no doubt that the crush of alien invaders like the zebra mussel and round goby, freeloaders introduced into the lake from the ballast of cargo ships, have had a serious impact and may have doomed the species at this location.

The fact that it has been reduced to a fraction of its former range in Pennsylvania, along with its very limited extent of occurrence and its vulnerabilities to siltation and other forms of pollution, have resulted in the eastern sand darter being listed as an endangered species by the Pennsylvania Fish & Boat Commission (PFBC). Surveys outside of the Keystone State have shown that eastern sand darters have, in fact, declined throughout their range.

The French Creek population, although small, seems relatively healthy now. But, there is considerable concern about its future. Chris Urban, Chief, PFBC Natural Diversity Section, worries most about the potential for habitat loss, especially as a result of development of the Utica Shale-Gas play, which underlies all of the French Creek drainage. Gas recovery activity has already begun in Crawford County and is expected to expand. The potential threats from this activity could impact many aquatic species and communities.

It will take diligence and a continued commitment to conservation by government officials, private conservation organizations and the public if we are to ensure the continued survival of this aquatic gem. ☐



*The eastern sand darter buries itself in the sand for many hours at a time.*