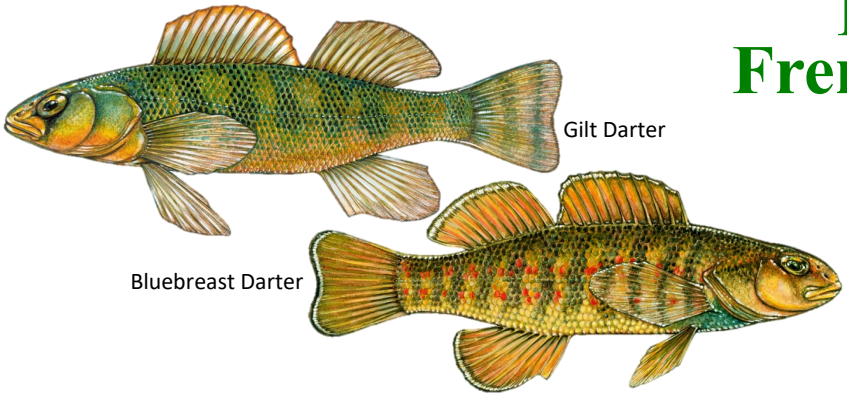
FRENCH CREEK VALLEY CONSERVANCY

FACTSHEET

Darters of French Creek



Gilt Darter

Bluebreast Darter

THE FRENCH CREEK watershed
A COMMUNITY TREASURE

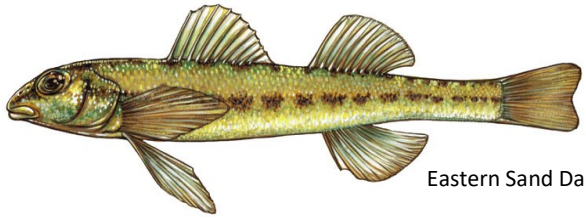
INTRODUCTION

A hidden world of fleeting color and swift movement lies beneath the flowing waters of French Creek. Here among the sand and rocks, intriguing little fish known as darters make their home. Darters usually rest on the bottom and when disturbed, they dart away quickly to a hiding place. Thus, aptly named, they dart from one spot to another seeking small aquatic insect larvae and microcrustaceans, such as midges, mayflies and caddisflies to eat. Or they dart off to avoid becoming prey for a larger fish. In darters, the swim bladder is small or absent, which explains their characteristic mode of locomotion. French Creek has a surprisingly diverse collection of these small fish with 15 species of darters inhabiting the watershed.

At least 25 darter species have been recorded in Pennsylvania, and are especially abundant in the Allegheny River watershed. The French Creek watershed boasts 15 species, with two of those listed as endangered including the **Iowa Darter** and the **Eastern Sand Darter** and two listed as threatened, the **Bluebreast Darter** and **Gilt Darter**.

Darters belong to the *Percidae* group of fishes, which includes over 250 species found throughout North America and includes several larger fish such as Yellow Perch, Walleye and Sauger. Darters in Pennsylvania are divided into three genera—*Ammocrypta, Etheostoma*, and *Percina* based on body type and similar characteristics. However, preferred habitat and reproduction methods can vary among species of the same genera.

Iowa Darter



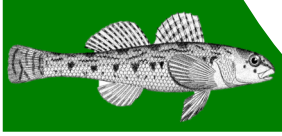
Eastern Sand Darter

RANGE & HABITAT

Darters are found throughout North America including the drainages of the Great Lakes, Hudson Bay, the Atlantic, and Pacific coasts. No matter their geographical location, most darters require clean running water which provides an abundant food supply of aquatic insects.

However, darter freshwater habitats vary among species along water depth, flow speed, substrate size, and temperature. Darters occupy various microhabitats depending on species preference ranging from sandy pools to fast-flowing rocky riffles and from deep sand raceways to vegetation-filled springs.

Therefore, depending on what type of habitat within French Creek you may be looking in, you will find different types of darters. The most abundant of the darter species in French Creek are the **Banded, Rainbow** and **Greenside darters.**



UNIQUE UNTO THEMSELVES

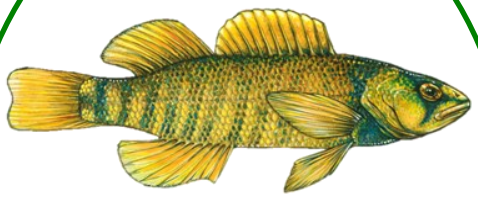
The lone *Ammocrypta* genus—the **Eastern Sand Darter** (*Ammocrypta* pellucida) has very unique characteristics compared to other darters. *Ammocrypta* means “sand dweller” and pellucid means “clear,” which describes the Eastern Sand darter very well.

This very slender, elongated darter is almost translucent with a light yellowish cast, but are otherwise whitish or silvery and exhibit small long dark horizontal blotches. They are habitat specialists requiring clean sandy or fine gravel substrate. They frequently bury themselves in the sand, sometimes completely but often with the head exposed. It is thought that this behavior helps to camouflage from predators, conserves energy, and is useful for ambushing passing prey.

Because its habitat is rare, the Eastern Sand Darter is only found in a few places in Pennsylvania including; Lake Erie, French Creek, as well as a few of its tributaries. As a result it is listed as an endangered species. In fact, this species was thought to have disappeared from French Creek until in 1991 when Robert Criswell rediscovered the species.

Darters of French Creek

THAT'S ABOUT THE SIZE OF IT



Tippecanoe Darter

Darters can be as small as 1.5 inches (4 cm) long and rarely get longer than 7 inches (18 cm). The Eastern Sand Darter and Tippecanoe Darter are the Smallest in Pennsylvania and the Logperch and Greenside Darter are the largest.

BODY DESCRIPTION

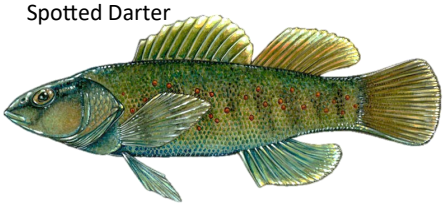
These small relatives of the yellow perch and walleye range in size from one and a half inches to not more than seven inches long. Coloration, as well as numbers and shapes of blotches and bars on the body, are also useful to identify darters. One of the main distinguishing characteristics of darters is from early spring till late summer during mating season, males develop extraordinary coloration patterns rivaling even the most colorful coral reef fish of the tropics. Some males are colorful all year while others then return to a subtler camouflaged motif following breeding season. Females are usually more subdued and drabber in color. Distinctively colored and marked, each species is unique in appearance, giving rise to such descriptive names as **Banded Darter, Greenside Darter and Rainbow Darter.**

Like other members of the *Percidae* family, darters are somewhat elongated and possess two dorsal fins, an anterior spinous fin and a posterior rayed fin that may be separate or adjoin slightly. The anal fin includes one to two spines and there is a single spine on each pelvic fin. In the *Percina* genus, the darters are usually larger, are marked by a row of enlarged specialized scales on the underside of the belly and have functional air bladders. The *Etheostoma* genus lack these specialized scales and unlike their larger cousins, the air bladder and teeth are greatly reduced or absent.

REPRODUCTION

The typical lifespan of darters varies from one to four years. Most reach sexual maturity at one year of age with some at two. Darter spawning habits vary. Some species scatter or bury their eggs and abandon them; in other species, the males establish nests and guard the eggs until hatched.

Spotted Darter



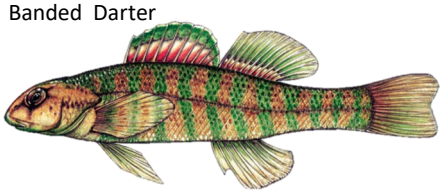
For example, female **Spotted Darters** deposit adhesive eggs in a sticky mass under rocks in quiet riffles which are then guarded by the male. **Bluebreast Darter** females excavate into the gravel substrate laying a partially buried egg mass which will hatch in 7-10 days. **Iowa Darters** migrate to deeper water to breed. The males establish a semicircular territory over mats of roots or on gravel or sand in absence of vegetation and then defend the territory from members of their own species. Females deposit 3-7 eggs per spawning visit and will visit other territories and spawn with other males.

Fantail Darter males establish territories in slower riffle areas with larger individuals claiming the best sites. Males develop fleshy knobs on the ends of their dorsal fins which resemble darter eggs to help attract females. After females lay hundreds of eggs in the shallow nest cavities under rocks, males actively defend and care for the nest by cleaning and brushing the eggs as they rub them with their knobby dorsal fins. **Tippecanoe Darter** males excavate a nest cavity by using their caudal and anal fins. One or more females will bury themselves during egg-laying while the male remains above them.

Fantail Darter

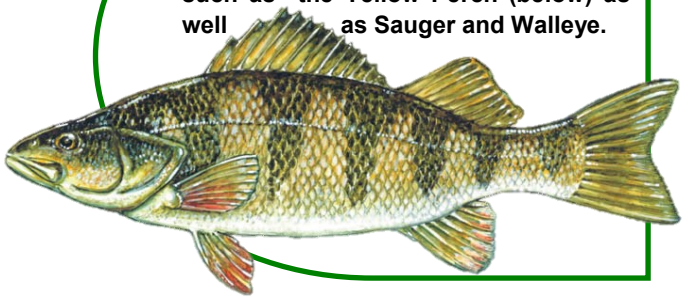
Banded Darters prefer rocky riffles with an abundance of algae and moss present to deposit one to two eggs at a time for multiple spawning bouts. **Johnny Darters** breed in pools, the slower sections of riffles and in the shallows of lakes. Males migrate to the spawning habitat in advance and establish territories which they vigorously defend. They clear a nest site under a rock, cleaning off the underside using upside-down movements. Spawning occurs in an inverted position under the rock as females lay eggs singly in clutches of 30--200.

Banded Darter



RELATIVELY SPEAKING

All 146 species of darters are contained in the family Percidae. Although darters are small in size, this family also includes larger species such as the Yellow Perch (below) as well as Sauger and Walleye.



Darters of French Creek

DARTER DINING

Within the darter species, slight variations in head, jaw and mouth shape are present and often determine what they eat related to the method of prey capture and consumption. Most of the variation in head and jaw shape among darter species is subtle and is the result of differences in the size of the mouth and the length of the lower jaw. No matter which category they fit into, all darters consume small aquatic insect larvae and microcrustaceans, such as midges, mayflies and caddisflies. Larger darters can also eat snails and small crustaceans. Extreme lengthening or shortening of the lower jaw characterizes species into categories such as **the manipulator, the prober and the rock flippers** that fall within darter families.

FOOD SOURCES

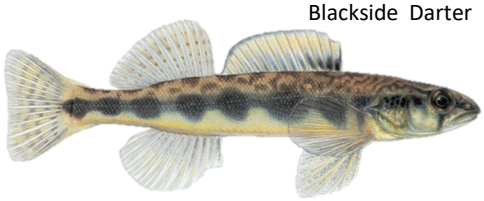
Mayfly, Midge and Caddisfly larva are major food sources for most Darter species.

Greenside Darter

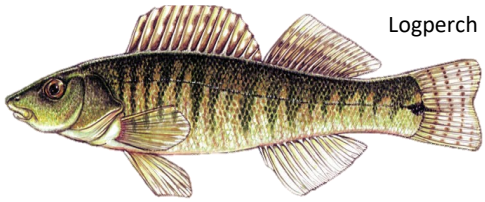
MANIPULATORS: Several species including the *Etheostoma blennioides* family exhibit the shortest jaws and tiniest mouths of all darter species. The characteristic blunt snout, small mouth, and highly protruding upper jaw allow for considerable back-and-forth movement which offer efficient removal of small prey from rock surfaces and the taking of very small prey from crevices within and between rocks.

PROBERS: *Percina* species exhibit a triangle-like shaped head when the individual is viewed from the bottom. They feed by inserting their long snout between rocks in search of prey. In addition, several rows of tiny, needle-like teeth facilitate seizure and extraction by providing extensive grasping surfaces.

Blackside Darter



Logperch



ROCK FLIPPERS: All of the *Percina* commonly called 'logperches' exhibit the rock flipper characteristics. They have a distinct bulbous snout that is broad and flat and bends at an angle of nearly 60 degrees and a circular, lower body-oriented mouth opening. Rock flippers swim just above the substrate, inserting the tip of its bulbous snout under one edge of a rock, lifting it up, moving or flipping it over. The fish will investigate and consume any newly exposed prey.

THREATS TO DARTERS

Darters, along with many other species in French Creek, are susceptible to pollution created by human activity. Sources can range from runoff from parking lots and roadways to pesticide applications or pollution associated with agriculture and urban development. However, the loss of habitat due to siltation—or the introduction of sediment into the creek is one of the biggest threats to darters and other aquatic species.

Siltation can cause changes in flow regimes resulting from draining, filling and ditching of small streams, erosion from fields, constructions sites and exposed streambanks within the watershed. Large amounts of silt can smother eggs, clog gills, reduce dissolved oxygen levels and stagnate water making it difficult for many species to survive.

Rainbow Darter

A fairly new threat to darters are Round Gobies. The Round Goby is a small bottom-dwelling fish originally from Eurasia that was introduced into the Great Lakes from ballasts of transoceanic ships. They are spreading inland through rivers and canal systems inadvertently through boaters and fishermen who carry them from one water body to the next in bait buckets, bilge water and on plant debris.

Round Gobies were recently found in the watershed; first in Lake LeBeouf, then LeBeouf Creek and finally in 2016, north of Cambridge Springs in French Creek. These aggressive small fish grow rapidly, reproduce profusely and will eat just about anything that fits in its mouth including eggs and young of native species. The impacts of these alien fish on our native fish are still poorly understood and represent a serious threat to the darters found in French Creek and the lakes within the watershed.

INVASIVE
Round Goby

Percina of French Creek: "Perch-Like"

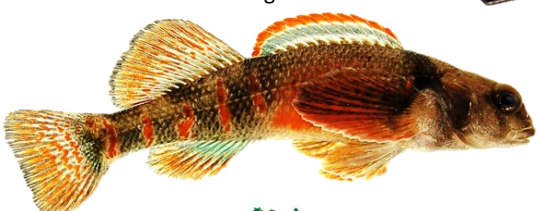
COMMON NAME	SCIENTIFIC NAME	PA STATUS	HABITAT	BODY DESCRIPTION
Blackside Darter	*P. maculate*	Stable	Pools of creeks with moderate current	Olive-colored with black spots: grows 4 inches
Longhead Darter	*P. macroephala*	Stable	Scattered rocky riffles in Allegheny River & French Creek	Brown, black & white: grows 5 inches
Gilt Darter	*P evides*	Threatened	Rocky riffles in French Creek & upper Allegheny River	Green with bright orange: grows 4 inches
Logperch	*P. caprodes*	Stable	Medium to large streams & lakes with vegetation	Tan with long/short brown bars on back & sides: grows to 7 inches

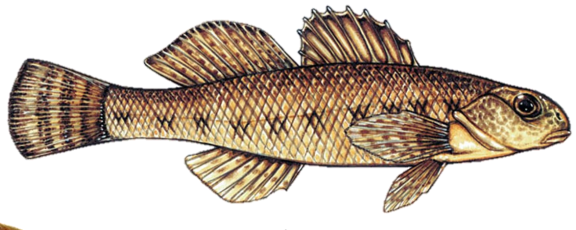
Etheostoma of French Creek: "Sieve Mouth"

COMMON NAME	SCIENTIFIC NAME	PA STATUS	HABITAT	BODY DESCRIPTION
Banded Darter	*E. zonale*	Stable	Rocky riffles of creeks & small to medium rivers	Yellow & green in color: grows to 3 inches
Bluebreast Darter	*E. camurum*	Threatened	Swiftly flowing waters-upper Allegheny River & French Creek	Blue-green body with blue breast & dark stripes: grows to 3 inches
Eastern Sand Darter	*E. pelludidum*	Endangered	Sandy bottoms of lakes, rivers & few places in French Creek	Pale yellow & sliver: grows to 3 inches
Fantail Darter	*E. fabellare*	Stable	Shallow riffles, along banks in fast or quiet water	Dull brown with striped tail: grows to 3 inches
Greenside Darter	*E. blennioides*	Stable	Rocky riffles of creeks & shores of large lakes	Yellow-green with green bars: grows to 6 1/2 inches
Iowa Darter	*E. exile*	Endangered	Slow flowing streams & glacial lakes	Red-orange, with dark spots: grows to 3 inches
Johnny Darter	*E. nigrum*	Stable	Sandy & muddy pools of creeks	Brown X's or W's on sides: grows to 3 inches
Rainbow Darter	*E. caeruleum*	Stable	Fine gravel riffles, very rarely found in standing water	Red, green & blue: grows to 3 inches
Spotted Darter	*E. maculatum*	Stable	Deep riffles in French Creek & upper Allegheny River	Dusky with small red spots: grows to 3 1/2 inches
Tippecanoe Darter	*E. tippecanoe*	Stable	Clear riffles of French Creek with gravel	Yellow/Orange with vertical bands: grows to 2 inches
Variegate Darter	*E. variatum*	Stable	Fast moving streams of medium to large size	Orange and green: grows to 4 1/2 inches

Longhead Darter

Variegate Darter





Johnny Darter

* Fish Illustrations by Ted Walke, PA Fish and Boat Commission

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