

# The possibility of listing the rush darter to the endangered species list



The North American freshwater bodies are a habitat of small fishes known as darters. These endemic fishes belong to the genus *Etheostoma*; the name coined from the assemblage of two Greek words *etheo* meaning “to strain” and *stroma* referring to “mouth”, and was described further by Rafinesque (1819) as having “various mouths” but might be intended to imply as *Heterostoma* according to Jordan and Evermann (Eschmeyer “*Etheostoma*”). The genus belongs to the class of ray-finned fishes or Actinopterygii, and under order Perciformes that include around 40% of all fish species and are the largest of all vertebrate orders.

Most of the darters excrete Schreckstoff substances, which are actually pheromones that serve as a warning to nearby fishes in events of attack. The substance is produced from the goblet cells in the skin and is released upon mechanical damage to the fish. One of the recent species of concern regarding the species members under the *Etheostoma* genus are the *Etheostoma phytophilum* Bart and Taylor, commonly known as rush darters. The species name is coined from the Greek words *phyto* meaning “plant or vegetation” and *philo* meaning “to love” or “loving”.

It is a member of the subgenus *Fuscatelum* (Bart and Taylor).

Morphologically, rush darters are perch-like in appearance and grow at around 2 to 3 inches in length. Its color is khaki in life (light yellowish brown) to golden brown with a pattern of gray-brown pigment overlaying a yellowish to golden ground color. There are also diffuse brown pigments of the body that give the sides a brown cast or producing a dense mottling of brown that dissipates on the back and the abdominal area (Bart and Taylor).

The species is also rare and was actually not distinctly classified since it was mistaken to be a northern variant of the goldstripe darter (*Etheostoma parvipinne*) (Connell). The distinct gold-stripe typical of *E. parvipinne* is never developed in the rush darter (Bart and Taylor). A very narrow strip maybe depigmented along the anterior portion of the lateral line, above the midlateral dashes. In terms of habitat and behavior; rush darters are benthopelagic, meaning that they dwell on the mid-level to the bottoms of waters specifically in small streams and spring runs.

They also feed on benthic and free-swimming organisms (Eschmeyer "*Estheostoma Phytophilum*"). Most of the study species were collected from the root masses of emergent vegetation, such as rushes, dock, and a variety of Graminae grass, in shallow waters in the periphery of the spring-fed streams (Bart and Taylor). It thrives in temperate climate with high resilience; the minimum population doubles in less than 15 months (Eschmeyer "*Estheostoma Phytophilum*").

Today, this fish species is endemic in only two places in the world, both of which located in the State of Alabama: a population in an unnamed spring run of the Turkey Creek drainage off Alabama 79 in Pinson, and another in the Wildcat Branch of the Clear Creek drainage in Winston County (Connell). Historically, three geographically separated water-shed areas have been known to be the home of the rush darters (Drennen). Aside from the two previously mentioned locations, the other one was found in the Little Cove Creek system in Etowah Country.

But according to Bart and Taylor, the rush darter is actually endemic to upland portions (Appalachian Plateau and Valley and Ridge provinces) of the Black Warrior River system in the same state, Alabama. What adds to the rarity of the rush darter is that not only that it is only present in the two mentioned locations, but it is also found in very low numbers. Moreover, the majority of the rush darter population can be located on private lands and in near metropolitan Birmingham (ASP). Hence, the conservation status of the fish species is on critical watch recently.

In the United States, particularly in the Pinson community of Jefferson County in Alabama, the rush darter, along with the vermilion darter and watercress darter, is now threatening to be endangered due to excessive sedimentation of the stream in the said area (Drennen). Excessive sedimentation is brought about activities in the developed lands such as construction activities and storm water drainages. As a consequence, excessive sedimentation can disrupt the normal habitat of darters as well as other fish species by making the streams and lakes in these urban areas inappropriate for feeding and reproduction.

Not only these species activities are affected but also the depression of their growth and survival brought about by the grazing and suffocation of the organisms that dwell and attach to the underwater substrates such as rocks, vegetation and leaf litters. According to Section 4 of the Endangered Species Act of 1973, a species can be qualified as endangered if it satisfies any of the five (5) factors identified, and one of these is “ the present or threatened destruction, modification, or curtailment of its habitat or range” (The Endangered Species Act).

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Specifically, the biggest threat of the sedimentation activities in the said area to the rush darters is the destruction of their habitat, since one of the type localities of the rush darters is in a roadside ditch on a highway running in Pinson and the Tapawingo/Penny Springs area. One grave event on the area could easily destroy the mentioned rush darter habitat, considering that there are only two habitats known as of today. However, it does only consider only one of the two areas that possibly could be destructed in one demolishing event.

That unspecified event can be prevented by establishing safety and conservation measures as regards with the conservation of the species and preservation of their habitat. The rush darter population in the roadside ditch on a highway running in Pinson and the Tapawingo/Penny Springs area can also be relocated in other safe but suitable for living habitat that can be far away from any possible wipe-out or harm on the population.

Since there are still also numerous species that have been reported in the two areas where the rush darters are located and this could be capitalized in breeding and propagation of the species population. But ample and necessary studies on such procedure should be undertaken. With these possible measures, the wipe-out and endangerment of the rush darters can be prevented. Hence, there is no urgent need for the rush darter to be listed in the endangered species list but conservation and protective measures should be formulated by concerned agencies to prevent endangerment and even extinction of the species.