



Portrait of *Percina tanasi*, the snail darter.

Big battle over a tiny fish

by Alex Rose, images by Derek Wheaton •

"The recovery of the snail darter is a remarkable conservation milestone that tells a story about how controversy and polarization can evolve into cooperation and a big conservation success. By protecting even the smallest creatures, we show who we are as a country; that we care about our environment and recognize the interconnectedness of our lands, wildlife, and people."—U.S. Secretary of the Interior, Deb Haaland.

It's not every day that a cabinet secretary makes a strong public statement about a little brown fish native to the Tennessee River watershed, but that's exactly what happened this past fall. On October 4, 2022, the U.S. Fish and Wildlife Service (USFWS), alongside its many

conservation partners, celebrated the delisting of the snail darter, *Percina tanasi*, at Seven Islands Birding State Park in Kodak, TN. The recovery and removal of this species from the Federal List of Threatened and Endangered Wildlife was a major accomplishment nearly five decades in the making.

Before we dive into the long history of controversy surrounding this fish, let's have a quick look at the species itself. First discovered in 1973 by David A. Etnier and Robert A. Stiles, and officially described by Etnier in 1976, *P. tanasi* is a small darter from the family Percidae, subfamily Etheostomatinae. The specific name refers to the settlement of Tanasi in Monroe County, TN, which was the capital of the Cherokee Nation until 1725 and is the origin of the name Tennessee.

The Snail Darter

Percina tanasi is a strictly benthic species that is principally associated with large river gravel shoal habitats where it feeds on gastropods and insects. The snail darter is morphologically adept at maintaining its position in swift currents, and it has also evolved an effective pattern of protective coloration complete with a strongly developed set of dorsal saddles that help to camouflage it against the gravel-sand substrate.

Snail darters live for two to four years and can reach adult sizes ranging from 2.2–3.5 inches (55–90 mm) standard length. There is little sexual dimorphism, but the male's anal fin is longer, and color pattern intensity varies greatly during spawning activities. Spawning occurs in early February through April when water temperatures range from 53.5–55.5°F (12–13°C). Females produce up to 600 eggs that drift downstream; it appears that larval drift is a highly significant event in the life history of this fish.



Dark saddles provide camouflage to the snail darter.

Legal Hoops

When efforts were first made to determine the population range of *P. tanasi* back in the 1970s, they were only identified in the lower portion of the Little Tennessee River, and this is where its contentious story begins. The Endangered Species Act (ESA) became law in 1973 with the goal of protecting critically imperiled species from extinction as a “consequence of economic growth and development untimpered by adequate concern and conservation.” Meanwhile, the impoundment location for the Tennessee Valley Authority’s (TVA) Tellico Dam of the Little Tennessee River near Lenoir City directly threatened the existence of the only known snail darter habitat, prompting this species to be listed as Federally Endangered in 1975. This designation provided the foundation necessary to bring a lawsuit against the TVA to stop the dam from being completed and save the snail darter’s environment.

Hank Hill, a second-year law student at the University of Tennessee, filed a citizen’s suit claiming that the TVA was in violation of the ESA (1976). The judge presiding over the case conceded that the Tellico Dam would eliminate the snail darter’s habitat, but still refused to halt the completion. A year later, the Sixth Circuit Court of Appeals reversed this decision and issued an injunction forbidding completion of the dam.

This was the first ESA case (*Tennessee Valley Authority v. Hill*, 1978) to reach the Supreme Court. An official statement by Thomas Kleppe, then U.S. Secretary of the Interior, established the significance of the dam to the habitat of the snail darter: “[T]he snail darter occurs only in the swifter portions of shoals over clean gravel substrate in cool, low-turbidity water. Food of the snail darter is almost exclusively snails which require a clean gravel substrate for their survival. The proposed impoundment of water behind the proposed Tellico Dam would result in total destruction of the snail darter’s habitat.”

The court ruled in favor of protecting the snail darter, with the majority opinion (6–3) asserting that the ESA is extremely clear in its wording and that it affirmatively commands that all actions carried out by federal or federally funded agencies must not jeopardize the existence of an endangered species either directly or through habitat alterations. The dissenting opinion argued that wasting tens of millions of federal dollars already spent constructing the dam and denying the people of the Tennessee Valley region, an economically depressed area, the benefits meant to be provided by the reservoir, was unreasonable, even if to save a species.

The same year the Supreme Court ruled in favor of the snail darter, Amendments were introduced to the ESA, one of which formed the Endangered Species Committee, a panel of seven senior officials who would have the power to exempt federal agencies from adhering to ESA provisions. This committee reviewed the Tellico Dam project, and unanimously denied exemption based on economic factors. Determined to have the Tellico Dam completed, two politicians from Tennessee who personally objected to this decision quietly added a provision to the Energy and Water Development Appropriations Act in July 1979 that was signed by President Jimmy Carter, ultimately allowing the TVA project to be completed later in the year (Murchison, 2007).

Race to Action

Once it had become clear that, despite the Supreme Court ruling, the protection of *P. tanasi* would not take precedence over the construction of the dam, major efforts were enacted to collect snail darters from their imperiled environment and relocate them into nearby waterways with the hope that they would establish secondary populations. Through various joint efforts spanning several years (1975–1980), this massive effort included transporting over 1,700 snail darters into new waters (USFWS, 1982; Etnier and Starnes, 1993).



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Dr. David Etnier received a USFWS lifetime achievement award at the snail darter's delisting ceremony.

These successful translocations and the subsequent discovery of other natural populations in other stream systems prompted the USFWS to downlist the snail darter from Endangered to Threatened in 1984. At the same time, the USFWS removed the critical habitat designation of the lower Little Tennessee River, as the habitat was no longer deemed essential to the conservation of the snail darter.

In 1991, the TVA began implementing strategies to improve habitat and water quality conditions associated with their dams, which inadvertently benefitted the snail darter. Further bolstering TVA's environmental cleanup actions were a variety of ongoing watershed level conservation efforts implemented by The Nature Conservancy, the Natural Resources Conservation Service, and a wide range of local partners in the Tennessee Valley region.

After a recent and extensive review of the best scientific and commercial information available, the USFWS found that the snail darter is no longer in danger of extinction, now or in the foreseeable future. "As we approach the 50th anniversary of the Endangered Species Act in 2023, this little fish is emblematic of what partnerships can do to protect even the most initially controversial species, showing the ultimate importance of the ESA in preserving species for future generations," said USFWS Director Martha Williams.

While the last half-century of legal and environmental snail darter struggles resulted in a positive outcome, if it hadn't been for the endless tenacity and exhaustive efforts of local organizations and individuals, things would have turned out differently for this little fish. The

October 4th de-listing celebration also coincided with Dr. Etnier, the co-discoverer of *P. tanasi*, receiving a USFWS lifetime achievement award. Evan Poellinger of Conservation Fisheries, Inc. expressed, "It is hard to explain the depth and breadth of his influence on the field, but if one of the most important things we can do as lovers of the natural world is to plant the seeds of that passion in others, then Dr. Etnier has sown a forest." This is the perfect sentiment to recognize not just Dr. Etnier, but all those who work to preserve and protect the precious biodiversity of our natural world.

Thank you to Conservation Fisheries, Inc. for inspiring us to look deeper and cover this story in AMAZONAS and for the wonderful work they do to preserve the aquatic biodiversity in our rivers and streams. Visit www.conservationfisheries.org to learn more about this organization. 🐟

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After decades-long conservation efforts, the snail darter is no longer considered to be threatened with extinction.