

BEFORE THE SECRETARY OF THE INTERIOR

**PETITION TO DELIST THE SNAIL DARTER
UNDER THE ENDANGERED SPECIES ACT**



USFWS, Richard Biggins

Center for Biological Diversity

James D. Williams, Ph.D.

Zygmunt Plater, J.D., S.J.D.



Notice of Petition

The Hon. David Bernhardt, Secretary
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July 16, 2019

Dear Mr. Bernhardt:

Pursuant to Section 4(b) of the Endangered Species Act (“ESA”), 16 U.S.C. §1533(b); 50 C.F.R. §424.14(a); and Section 553(e) of the Administrative Procedures Act, 5 U.S.C. § 553(e), the Center for Biological Diversity, James Williams, Zygmunt Plater, and Tierra Curry hereby formally petition the Secretary of the Interior, through the United States Fish and Wildlife Service (“FWS”, “the Service”) to delist the Snail Darter (*Percina tanasi*) from the Endangered Species Act. After 40 years of intensive good faith official and lay efforts in mitigation of the loss of the major natural population of the darter in the Little Tennessee River, the sustainable health of the darter’s populations in diverse locations allows us now to declare a victory for the ESA: the law worked as it was supposed to, protective rehabilitative efforts have proved successful, the threat of extinction no longer exists, and much good science has been learned. The U.S. Fish and Wildlife Service has jurisdiction over this petition. According to the terms of the ESA regulation for petitions, this formal petition sets in motion a specific process, placing definite response requirements on FWS. Specifically, FWS must issue an initial finding as to whether the petition “presents substantial scientific or commercial information indicating that the petitioned action may be warranted.” 16 U.S.C §1533(b)(3)(A). FWS must make this initial finding “[t]o the maximum extent practicable, within 90 days after receiving the petition,”

before initiating the de-listing rulemaking process. We will be pleased to offer any assistance that might be of help to the Service in its official investigations, if useful in bringing to bear information not readily available to the staff.

On behalf of all petitioners, respectfully submitted,



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Petitioners

The Center for Biological Diversity is a national, nonprofit conservation organization with more than 1.4 million members and supporters dedicated to the protection of endangered species and wild places. At the Center for Biological Diversity, we believe that the welfare of human beings is deeply linked to nature — to the existence in our world of a vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, we work to secure a future for all species, great and small, hovering on the brink of extinction. We want those who come after us to inherit a world where the wild is still alive. <http://www.biologicaldiversity.org>

James Williams, Ph.D., is a freshwater biologist who worked in the U.S. Fish and Wildlife Service Office of Endangered Species in Washington D.C. from 1974–1987. He wrote the endangered species listing package for the Snail Darter in 1975, in the process of undertaking scientific analyses and preparing agency decisions on more than 35 potential candidate endangered and threatened fishes in locations throughout the United States. From 1987–2000 he served as Chief of the Biodiversity Branch of the U.S. Fish and Wildlife Service and U.S. Geological Survey Research Lab in Gainesville, Florida. Dr. Williams retired from the U.S. Geological Survey's Florida Integrated Science Center in January 2006 and worked with the Florida Fish and Wildlife Conservation Commission from 2008–2015. Since then he has worked as a pro bono research biologist. He is the author/coauthor of more than 100 research publications and books on freshwater fauna.

Zygmunt J. B. Plater is Professor of Law at Boston College Law School, teaching and researching in the areas of environmental protection, property rights, land use, and administrative agency law, and coordinates Boston College's Land & Environmental Law Program. He wrote the citizens' petition seeking Endangered Species Act protection for the Snail Darter in 1975, was co-plaintiff, and prepared and argued the legal case for protection of the Snail Darter up through the federal courts, representing the endangered fish, farmers, Cherokee Indians, and environmentalists in the Supreme Court, federal agencies, and congressional hearings. He coordinated the citizen input for the first Cabinet-level "God Committee" proceeding in 1979 that unanimously concluded that the Tellico Dam project was economically unsound, and that habitat protection with river-based development was economically far preferable in the public interest. He is the author of the book *The Snail Darter and the Dam*, published by Yale University Press, the story of the very small endangered fish's travels through the corridors of American power. Over the past 30 years he has been involved with multiple issues of teacher training, land use regulation, private property rights, and environmental protection.

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EXECUTIVE SUMMARY

The Snail Darter (*Percina (Imostoma) tanasi* Etnier 1976) is a 3-inch long fish named after its primary food source, small riverine mollusks. Its species name, *Tanasi*, derives from the name of a village of the Cherokee Nation located on the western bank of the Little Tennessee River, upstream of the shoals where the species was discovered in 1973; (that village also ultimately gave its name to the State of Tennessee and the Tennessee River).

The Snail Darter was protected under the Endangered Species Act (“ESA,” “the Act”) in 1975 because the impending construction of the Tellico Dam on the Little Tennessee River threatened to destroy its entire known range (40 FR 47505). Despite a Supreme Court victory in *Tennessee Valley Authority vs. Hill* upholding the intent of the Act to preserve species large and small -- and an unprecedented Cabinet-level “God Committee” providing economic scrutiny that unanimously concluded that the dam project was economically unsound -- under political pressures from the congressional appropriations committees, the ill-conceived Tellico Project was exempted from Endangered Species Act compliance in 1979. The completion of the dam threatened the darter with extinction, condemned prime farmland that had been cultivated for generations, and inundated sites of cultural importance to the Cherokee Nation (Plater 2013).

In a last ditch effort to prevent its extinction, scientists salvaged Snail Darters from the Little Tennessee River and introduced them into the Hiwassee, Nolichucky, and Holston Rivers in Tennessee and into the Elk River in Alabama. The range of the Snail Darter expanded and new or relict populations were later found in the Paint Rock River in Alabama and in Sewee Creek, South Chickamauga Creek, and the Sequatchie River in Tennessee. The snail darter was downlisted from “endangered” to “threatened” status in 1984 (49 FR 27510).

Following significant improvements in oxygenation and management of water releases at TVA dams that have restored substantial stretches of clean benthic habitat conditions (TVA 2004), Snail Darter populations have since been confirmed in the Little, French Broad, and Ocoee Rivers in Tennessee (USFWS 2013), in the Flint River in Alabama (Simmons and Matthews 2018), and in Bear Creek in Alabama and Mississippi, and the Tennessee main stem, Elk River, and Shoal Creek in Alabama (Shollenberger 2019). The best available information indicates that the Snail Darter is now found in Tennessee drainage streams in Tennessee, Alabama, Georgia, and Mississippi, and the fish is reproducing in and dispersing via the main stem of the Tennessee River (Simmons and Matthews 2018, Shollenberger 2019). Given the darter’s expanded range and ability to tolerate impounded conditions under appropriate dam management if consistently maintained, the Snail Darter should now be considered recovered and removed from Endangered Species Act protection.

SPECIES BACKGROUND

Description

Dr. David Etnier of the University of Tennessee Department of Biology discovered the Snail Darter in 1973 and published its formal description in 1976. It can attain 85 mm in total length with four dark brown saddle-shaped patches against a tan background with faint traces of green and yellow. It differs morphologically from the similar stargazing darter (*P. uranidae*) in body width, paired fin length, saddle width, nuptial tubercle pattern, pigmentation, and number of anal and caudal fin rays (Etnier 1976). Dr. Wayne Starnes' 1977 University of Tennessee dissertation The Ecology and Life History of the Endangered Snail Darter, *Percina (Imostoma) tanasi* Etnier provides extensive details of the physical and ecological characteristics of the darter and its habitat requirements.

Range

Recent surveys have identified Snail Darters outside of their known range in Alabama and Tennessee, and researchers believe the darter is reproducing in and dispersing via the main stem of the Tennessee River (Simmons and Matthews 2018, Shollenberger 2019).

In the 1970s Snail Darters were introduced into the Hiwassee, Nolichucky, Holston, and Elk Rivers. In the early 1980s Snails Darters were found in the Little, Paint Rock, and Sequatchie Rivers and in Big Sewee Creek and South Chickamauga Creek. In the 1990s Snail Darters were found in more than 22 miles of the French Broad River and in the Ocoee River (Ashton and Layzer 2008). In 2007 a Snail Darter was found in Citico Creek more than 2 miles above the Tellico impoundment, and in 2012 a Snail Darter was discovered in the Flint River in Alabama (USFWS 2013, Simmons and Matthews 2018).

In 2015 Snail Darters were discovered in Bear Creek, a tributary to the lower Tennessee River in Mississippi and Alabama, and in the Elk River, which also drains into the lower Tennessee. The Flint River detection is 152 river miles from the nearest Bear Creek collection site and 108 river miles from the Elk River site. Distances between the Elk River and Bear Creek locations are more than 128 river miles apart and separated by two large reservoirs (Simmons and Matthews 2018).

In 2017 and 2018 TVA biologists using benthic trawls detected Snail Darters in sections of five Tennessee River reservoirs that span 272 river miles. Significantly, at least two age classes were collected in each reservoir, and flowing males and gravid females were collected in spring, indicating that reproduction is occurring in the Tennessee River (Simmons and Matthews 2018).

Prior to 2018, the Snail Darter's range in Alabama was thought to consist of a small yet stable population in the Paint Rock River, but it has now been found by eDNA detection in Bear Creek, Shoal Creek, and the Elk River (Shollenberger 2019).

The Snail Darter's range now includes portions of Tennessee, Alabama, Georgia, and Mississippi (Figure 1, USFWS 2019).

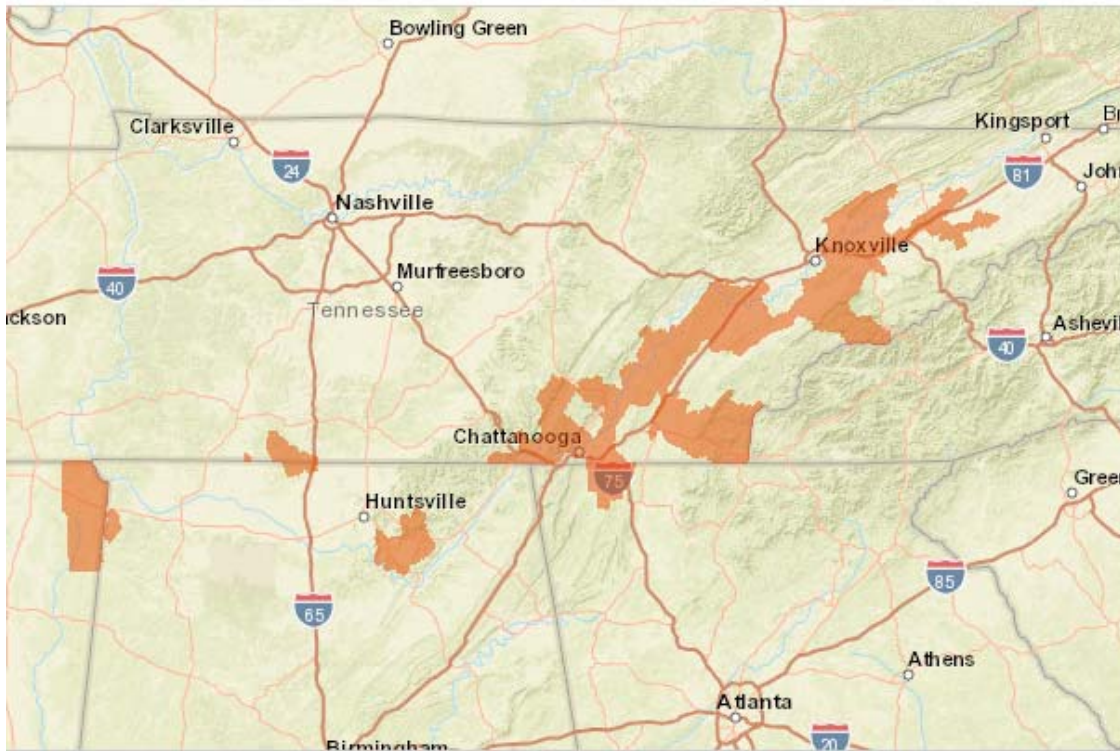


Figure 1. Current Snail Darter range. Downloaded from FWS Environmental Conservation Online System, available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E010>

Population Status and Trend

The extent of occurrence, area of occupancy, and number of subpopulations of the Snail Darter have increased in the past 40 years as a result of introductions, subsequent population expansion, and improved water quality and water release management below TVA dams. NatureServe (2012) ranks the Snail Darter as G2G3 globally, S2S3 in Tennessee, and S1 in Alabama, Georgia, and Mississippi. The International Union for Conservation of Nature (IUCN) ranks the Snail Darter's population trend as stable. While the Little Tennessee River population size was never determined, the informed best guess estimates were reported by FWS (1992) to be 5,000-20,000. The contemporary population sizes have not been estimated, but some have been anecdotally reported to rival the size of the original population.

Recovery Criteria

The Snail Darter's Recovery Plan was published in 1983 and determines that the species shall be considered recovered when any one of three alternatives is met and no present or foreseeable threats exist which could cause the species to become in danger of extinction throughout a significant portion of its range (USFWS 1983).

Alternative A: Suitable habitat areas of the Tennessee River within the area from the backwaters of Wheeler Reservoir upstream to the headwaters of Watts Bar Reservoir are inhabited by Snail Darter populations which can survive and reproduce independently of tributary rivers as evidenced by documented reproduction in Watts Bar Reservoir or some other Tennessee River reservoir.

There are nine dams on the main-stem of the river making conditions on the majority of the river more reservoir-like than river-like, and 68 dams in the Tennessee River system. Between 1973 and 1982, Snail Darters were collected on several occasions by SCUBA divers and small otter trawls at six localities in the main-stem of the Tennessee River between the upstream reaches of Wheeler Reservoir upstream into Watts Bar Reservoir. Collections and observations of the species have been primarily from Guntersville Reservoir, in the vicinity of the confluence of the Tennessee River and Sequatchie River, and from the headwaters of Watts Bar Reservoir.

Operational guidelines that resulted from TVA's 2004 Reservoir Operations Study – including oxygenation protocols and river-flow pulsing regimes -- likely resulted in the improved aquatic habitat and water quality in the main-stem and tributaries. The Environmental Impact Statement for the Reservoir Operations Study indicates that snail darters have been found in numerous reaches including Nickajack tailwater, Nickajack Reservoir to Raccoon Mountain, Chickamauga Tailwater, Watts Bar Tailwater, Fort Loudoun Tailwater, Ft. Loudoun Reservoir to Peter Blow Bend, Upper Fort Loudoun Reservoir, Elk River to Fayetteville, Hiwassee River to Ocoee River mouth, Hiwassee River– Ocoee to Powerhouse, Ocoee River mouth to Parksville Dam, Holston River to Nance Ferry, and French Broad River to Douglas Dam (TVA 2004).

In 2017 and 2018 TVA biologists using benthic trawls detected Snail Darters in sections of five Tennessee River reservoirs in river stretches immediately below dams utilizing enhanced flow pulsing regimes, in a span of 272 river miles. Significantly, at least two age classes were collected in each reservoir, and flowing males and gravid females were collected in spring, indicating that reproduction is occurring in the Tennessee River (Simmons and Matthews 2018).

In addition, recent surveys have identified Snail Darters outside of their known range in Alabama, and the species is believed to have dispersed via the main-stem Tennessee River (Shollenberger 2019).

In light of recent information from 2017-2019 on the reproduction and dispersal of Snail Darters in the main stem of the Tennessee River, Alternative A can be considered to have been met.

Alternative B: More Tennessee River tributary populations of the species are discovered and existing populations are not lost. The number of additional populations needed to meet this criteria would vary depending on the status of the new populations, but two populations similar to the Sewee Creek, South Chickamauga Creek, or Sequatchie River populations or one comparable to the Hiwassee River population would denote recovery.

Multiple new populations of Snail Darters have been discovered and Alternative B can be considered to have been met with Snail Darters now known to occur in multiple creeks and rivers in four states (Figure 2, Ashton and Layzer 2008, FWS 2013, Shollenberger 2019).

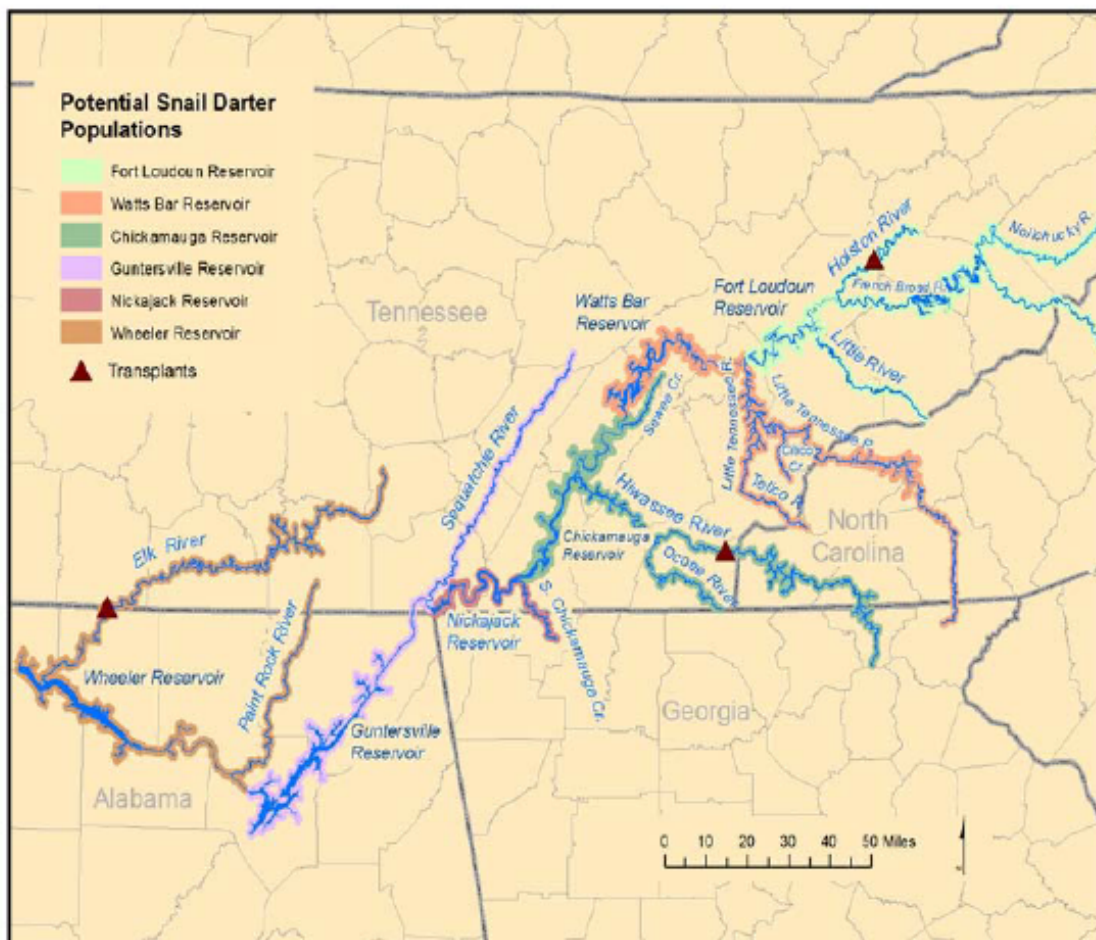


Figure 2. Snail Darter Populations from FWS 2013 Snail Darter Five-Year Review

Alternative C: Through maintenance of existing populations and/or by expansion of these populations, there exist viable populations of Snail Darter's in five separate streams such as Sewee Creek, Hiwassee River, South Chickamauga Creek, Sequatchie River, and Paint Rock River.*

— **Viable populations – Population monitoring over a ten-year period (biannual sampling) indicates that a Snail Darter is reproducing (at least two year classes present each year sampled) and that the population is either stable or expanding. For some populations, existing data may be used to meet this requirement.*

Snail Darter's have been observed in ten tributaries entering the upper reaches of the Tennessee River, including the Holston River, French Broad River, Little River, Citico Creek, Hiwassee River, Ocoee River, Sewee Creek, South Chickamauga Creek, Sequatchie River, and Paint Rock River (FWS 2013). The darters were recently detected in the Elk River and in Bear Creek, Cedar Creek, Rock Creek, and Shoal Creek in Alabama (Shollenberger 2019). Not all of these sites have been monitored for a ten-year period to determine the viability of populations, but it is apparent that the Snail Darter is surviving and expanding in at least five separate streams, enhancing the probability that Alternative C has likewise been achieved.

Thus at least two, and potentially all three of the 1983 Recovery Plan's alternatives for establishing reliable species sustainability – any one of which would be sufficient – have been achieved.

THREATS

Modification or Curtailment of Habitat or Range

The Snail Darter was protected under the Endangered Species Act due to the imminent modification of its habitat by the construction of the Tellico Dam on the Little Tennessee River. Scientists subsequently introduced multiple populations of the fish into other streams and rivers and these populations have now dispersed into waterways in Tennessee, Alabama, Georgia, and Mississippi.

The Snail Darter has also established populations in the Tennessee River despite nine impoundments on the main-stem. TVA began a Reservoir Release Improvement Program in 1991 to provide pulses and minimum flows and to oxygenate releases from selected dams. This program has enhanced habitat conditions in the French Broad, Holston, Hiwassee, Ocoee, and Tennessee Rivers. In 2004 TVA made additional improvements to its Reservoir Operations System that have benefitted the Snail Darter and other freshwater organisms including macroinvertebrates (TVA 2004, Bednarek and Hart 2005). Improved management practices likely allowed the darter to occupy previously uninhabitable reaches in the main-stem river (USFWS 2013).

As long as TVA continues to follow dam management practices that aid freshwater organisms, including but not limited to the darter, habitat modification resulting from the dam system appears to have been successfully mitigated for the Snail Darter.

Overutilization

Overexploitation is not a documented threat to the Snail Darter.

Disease and Predation

Disease is not a documented threat to the Snail Darter.

Other Factors Affecting Its Continued Existence

No other factors are currently known to be threatening the species' continued existence.

Inadequacy of Existing Regulatory Mechanisms

Dam operation guidelines resulting from TVA's 2004 Reservoir Operations Study have resulted in improved aquatic habitat and water quality in the Tennessee River system. Best management practices to improve dam operations and minimize sedimentation should continue to ensure the long-term viability of the Snail Darter.

Delisting the Snail Darter is unlikely to end the improved management regime, which includes water pulsing to ensure minimum flows and various measures to increase oxygen levels, because the agency must still ensure that it does not jeopardize the continued existence of other federally protected species in the river system such as the Pink Mucket (*Lampsilis abrupta*) and other listed mollusks, other listed species of fish (TVA 2004 ROD and Appendix D6), as well as species under consideration for ESA listing such as Lake Sturgeon (*Acipenser fulvescens*) and hellbender (*Cryptobranchus alleganiensis*). The improved management measures have now been incorporated into the agency's operating manuals. In addition, the improved flows and oxygen levels have led to the establishment of a "Blue Ribbon" Smallmouth Bass (*Micropterus dolomieu*) fishery that is widely advertised, popular, and lucrative.

The expansion of the Snail Darter's range was also facilitated by improvements to water quality as the result of the Clean Water Act and reduced point-source emissions and these regulations remain in place.

REFERENCES

Ashton, M.J., and J.B. Layzer. 2008. Distribution of the threatened Snail Darter (*Percina tanasi*) in the upper Tennessee River drainage. *Journal of the Tennessee Academy of Science* 83(3-4): 52-56.

Etnier, D.A. 1976. *Percina tanasi*, a new percid fish from the Little Tennessee River, Tennessee. *Proceedings of the Biology Society of Washington* 88(44): 469-488.

International Union for Conservation of Nature Red List (IUCN). 2013. Snail Darter profile. Available at: <https://www.iucnredlist.org/species/16595/19033649>. Accessed July 9, 2019.

NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available at: <http://explorer.natureserve.org>. Accessed: July 9, 2019.

Plater, Z.J.B. 2013. *The Snail Darter and the dam: how pork-barrel politics endangered a little fish and killed a river*. Yale University Press.

Shollenberger, K. 2019. Current distribution and habitat use of the threatened Snail Darter (*Percina tanasi*) in Alabama. Auburn University master's thesis.

Simmons, J.W., and D.C. Matthews. 2018. Going with the flow- discovery of the Snail Darter *Percina tanasi* throughout the mainstem Tennessee River. Abstract from Southeastern Fishes Council, McCormick, South Carolina. Available at: http://www.sefishescouncil.org/resources/Abstracts/SFC_2018_Abstracts.pdf Accessed: July 9, 2019.

Starnes, Wayne C. 1977. *The Ecology and Life History of the Endangered Snail Darter, Percina (Imostoma) tanasi* Etnier. PhD dissertation, University of Tennessee. Available at: https://trace.tennessee.edu/utk_graddiss/2545 Accessed July 10, 2019.

Tennessee Valley Authority (TVA). 2004. Reservoir Operations Study Programmatic Environmental Impact Statement. Available at: https://www.tva.gov/file_source/TVA/Site%20Content/Environment/Environmental%20Stewardship/Environmental%20Reviews/River%20Operations%20Study/ROS%20Final%20Environmental%20Impact%20Statement.pdf Accessed: July 12, 2019.

U.S. Fish and Wildlife Service (USFWS). 1983. Snail Darter recovery plan. Asheville, North Carolina.

U.S. Fish and Wildlife Service (USFWS). 1992. Snail Darter species account in Endangered and Threatened Species of the Southeastern United States (The Red Book) FWS Region 4.

U.S. Fish and Wildlife Service (USFWS). 2013. Snail Darter five-year review. Tennessee Ecological Services Field Office, Cookeville, Tennessee.

U.S. Fish and Wildlife Service (USFWS). 2019. Snail Darter species profile. Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E010>. Accessed July 9, 2019.

Appendix: Notice to States


Notice of petitions to delist 3 southeast freshwater species

Tierra Curry <tcurry@biologicaldiversity.org>

Sent: Tue 5/21/2019 2:04 PM

To: 'DCNR.Wildlife@dcnr.alabama.gov'; 'Mark.Sasser@dcnr.alabama.gov'; ed.carter@tn.gov

Cc: 'Ross_Shaw@fws.gov'; 'Warren_Stiles@fws.gov'; 'Bill_Pearson@fws.gov'; 'Bridget_Fahey@fws.gov'; 'Gary_Frazer@fws.gov'; 'Sarah_Quamme@fws.gov'; tcurry@biologicaldiversity.org

Message |  Tulotoma Round Rocksnail and Snail Darter 30 Day Delisting Petition Notice.pdf (53 KB)

Dear Alabama Department of Conservation and Natural Resources, Tennessee Wildlife Resources Agency, and U.S. Fish and Wildlife Service:

Pursuant to 50 C.F.R. § 424.14(b), we hereby provide notice that the Center for Biological Diversity intends to file petitions under the federal Endangered Species Act to delist the tulotoma snail (*Tulotoma magnifica*), round rocksnail (*Leptoxis ampla*), and snail darter (*Percina tanasi*) no sooner than 30 days from the date that this notice is provided.

Since its listing in 1991, the tulotoma has been detected at six additional locations, three in the Coosa River drainage and three in the Alabama River and the known population now exceeds 100 million individuals.

The round rocksnail is present across its historical range and new populations have been detected in Cahaba River tributaries.

The snail darter has benefited from improved water quality due to the Tennessee Valley Authority improving dam management and oxygenating water below dams. The snail darter has also been detected in a wider range than was known at the time of listing.

The southeastern United States is a global hotspot of freshwater diversity and the Endangered Species Act has played a key role in protecting the unique species and waterways of this region. Many species in the region need to be added to the endangered species list, but these three species may no longer need the Act's protections.

Please feel free to contact me for more information.

Sincerely,

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At the Center for Biological Diversity, we believe that the welfare of human beings is deeply linked to nature — to the existence in our world of a vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, we work to secure a future for all species, great and small, hovering on the brink of extinction. We do so through science, law and creative media, with a focus on protecting the lands, waters and climate that species need to survive. We want those who come after us to inherit a world where the wild is still alive.