

Recovery Plan for Pygmy Madtom (*Noturus stanauli*)

https://ecos.fws.gov/docs/recovery_plan/940927a.pdf

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AMENDMENT 1

We have identified best available information that indicates the need to amend recovery criteria for the pygmy madtom (*Noturus stanauli*) since the recovery plan was completed. In this proposed amendment, we synthesize the adequacy of the existing recovery criteria, show amended recovery criteria, and provide the rationale supporting the proposed recovery plan modification. The proposed modification is provided as an addendum that supplements the recovery plan by adding delisting criteria which were not developed at the time this recovery plan was completed. The recovery objective and the step-down outline are described on Part II A and B (page 5) of the Recovery Plan (RP) for the pygmy madtom (USFWS 1994). Recovery plans are non-regulatory documents that provides guidance on how best to help recover a species.

**For
U.S. Fish and Wildlife Service
Region 4
Atlanta, GA**

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METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

This proposed amendment to the recovery criteria was developed using the most recent and best available information for the species. The lead biologist for the species gathered the information for the pygmy madtom and notified state wildlife managers and other interested parties of the Service's process to complete this amendment. The most recent information on the species was contained in the 5-year review for the species (USFWS 2018).

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list." Legal challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors (ESA 4(a)(1)).

Recovery Criteria

The current recovery plan (https://ecos.fws.gov/docs/recovery_plan/940927a.pdf) (USFWS 1994) only provides downlisting criteria for the pygmy madtom, see page 5.

Synthesis

The pygmy madtom was listed as an endangered species in 1993 due to habitat degradation from siltation and coal mining (Factor A), insufficient legal protections (Factor D) and population isolation from impoundments (Factor E) (50 FR 25758). The most recent status review for the pygmy madtom was in 2018 (USFWS 2018), and recommended no change from its endangered status. Currently, the pygmy madtom occupies a relict distribution of two disjunct (isolated) populations in the Duck River and the Clinch River, separated by over 600 river miles (1000 river kilometers (rkm)). There are no population estimates for the two populations, but fewer than 10 individuals have ever been collected in any individual survey and no more than 100 individuals in total have been encountered by scientists. Pygmy madtoms are known to occupy about 72 river miles (116 rkm) of the Duck River and 2.5 river miles (4 rkm) of the Clinch River.

In 2007, the lower portions of the Holston River and the French Broad River were designated as areas suitable for Nonessential Experimental Populations (NEPs) for the pygmy madtom and 20 other aquatic species (72 FR 52434). At this time, no pygmy madtoms have been introduced into the NEP areas, but limited attempts have been made to propagate the species (USFWS 2018). These propagation efforts have provided important insight into the life history of the species, bringing us closer to criteria 2 in the original recovery plan, but have not yielded sufficient numbers for reintroduction because of the difficulty in collecting broodstock. Since the recovery plan was published, the documented range of the pygmy madtom has expanded by 57 river miles (92 rkm) in the Duck River based on the discovery of an individual at river mile 89 (rkm 143) by a Tennessee Valley Authority stream monitoring crew (USFWS 2009). Additional studies have led to a better understanding of the pygmy madtom's microhabitat needs and distribution within known locations (USFWS 2018).

The pygmy madtom remains affected by habitat degradation and isolation by dams (USFWS 2018). Agricultural activities are still contributing to sediment input and water withdrawals in both the Duck and Clinch River systems. Additionally, there has been continued mining activity in the Clinch River watershed, and reclaimed mine sites continue to leach pollutants and sediment in some areas. Large areas of potential habitat remain inundated by hydroelectric dams that also isolate the two populations of pygmy madtoms. A genetic study found that the two populations showed little divergence compared to other species with similar distributions; however, the isolation and small population sizes of the pygmy madtom increase the likelihood of loss of genetic diversity due to genetic drift (USFWS 2018). Furthermore, the disjunct nature of the two populations likely eliminates the possibility of natural reestablishment after a localized extirpation event.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and the pygmy madtom may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term “endangered species” means any species (species, sub-species, or distinct population segment (DPS) of vertebrate) which is in danger of extinction throughout all or a significant portion of its range. The term “threatened species” means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made “solely on the basis of the best scientific and commercial data available.” Thus, while recovery plans provide important guidance to the Service, States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species’ status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*.

We provide delisting criteria for the pygmy madtom, in addition to the downlisting criteria included in Recovery Plan for the Pygmy Madtom.

Downlisting Criteria

We are not amending the existing downlisting criteria, see the Recovery Plan for the Pygmy Madtom. (https://ecos.fws.gov/docs/recovery_plan/940927a.pdf) (USFWS 1994).

Delisting Recovery Criteria

The pygmy madtom will be considered for delisting when in addition to achieving the downlisting criteria, the following criterion is met:

1. At least four (4) populations, including the Duck River and Clinch River populations exhibit a stable or increasing trend, evidenced by natural recruitment, and multiple age classes. (addresses Factors A and E)

Justification for Criteria

The criterion requires the two (2) existing disjunct populations in the Duck River and Clinch River, thereby maintaining the resilience and representation of the species, reducing risk of extinction from stochastic events (Smith et al. 2018). Additional populations will increase the redundancy of the species, further protecting it from catastrophic events.

Rationale for Amended Recovery Criteria

The proposed delisting criterion reflect the best available and most up-to-date information on the pygmy madtom. The establishment of the NEP areas in the lower French Broad and lower Holston Rivers has created an opportunity for establishing new populations of the pygmy madtom. These new populations could contribute to the amended criterion, increasing the redundancy of the pygmy madtom. Increasing the pygmy madtom's redundancy improves the likelihood that the species would survive a catastrophic event and addresses some of the threats considered under Factor E such as loss of genetic diversity. However, with any reintroduction plan, there are some uncertainties on how the species will respond, as well as unforeseen circumstances that may arise, for example, a new threat.

The criterion is also aimed at maintaining and improving the resilience of the currently known populations and addressing threats to them under Factors A and E. Protecting the two currently extant populations in different physiographic regions is the only way to maintain species representation for the pygmy madtom. An ongoing project to survey for pygmy madtoms and quantitatively describe their habitat needs will aid in understanding what the current resilience is for the species and where to look for expansion of populations. This study will also inform decisions on reintroduction locations (USFWS 2018). Efforts such as the Clinch-Powell Clean Rivers Initiative have been developed to coordinate conservation actions and monitoring progress that will contribute to accomplishing these amended criteria.

LITERATURE CITED

- U.S. Fish and Wildlife Service (USFWS). 1993. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Duskytail Darter, Palezone Shiner, and Pygmy Madtom. Federal Register, Vol. 58, No. 79, pp. 25758-25763.
- USFWS. 1994. Recovery Plan for Pygmy Madtom (*Noturus stanauli*). Southeast Region, USFWS, Atlanta, GA. 20pp.
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USFWS. 2018. Pygmy Madtom (*Noturus stanauli*) 5-Year Review: Summary and Evaluation. USFWS Southeast Region, Cookeville Ecological Services Field Office, Cookeville, Tennessee. 18pp.