

**Amendment to the Alabama Cavefish Recovery Plan**

[https://ecos.fws.gov/docs/recovery\\_plan/901025.pdf](https://ecos.fws.gov/docs/recovery_plan/901025.pdf)

**Original Approved: 1982**

**Original Prepared by: John Cooper, North Carolina State Museum of Natural History**

**Revision Approved: October 25, 1990**

**Revision Prepared by: James H. Stewart, U.S. Fish and Wildlife Service, MS Field Office**

**AMENDMENT 1**

We have analyzed all the best available information that indicates the need to amend recovery criteria for this species since the recovery plan was completed. In this amendment, we reference the original criteria; document the criteria amendments; include the rationale supporting the recovery plan modifications; and, include any updated information. The modification is shown as an addendum that supplements the recovery plan, superseding only Section II, page 7 (USFWS 1990). Recovery plans are a non-regulatory document that provides guidance on how best to help recover species.

**For  
U.S. Fish and Wildlife Service  
Atlanta, Georgia**

Approved: Larry Williams  
Acting Regional Director, U.S. Fish and Wildlife Service

Date: September 26, 2019

**METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT**

The amendments to the recovery criteria are based on the species' recovery plan (USFWS 1990), the recent five-year review (USFWS 2017), and recent studies of the species. All relevant documents and data, including reports from state agencies and non-governmental partners, were considered during this recovery plan review and modification. The lead biologist for the species gathered information on the Alabama cavefish and notified species experts, relevant state agencies, and non-governmental partners of the Service's process to complete this amendment. The lead biologist used the available information to develop the delisting criteria for this species. A draft of this recovery plan amendment was published for public review on August 6, 2019 (84 FR 38291). No comments were received.

## **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.

## **RECOVERY CRITERIA**

The Alabama Cavefish Recovery Plan (USFWS 1990) provides only downlisting criteria for the species (see page 7). [https://ecos.fws.gov/docs/recovery\\_plan/901025.pdf](https://ecos.fws.gov/docs/recovery_plan/901025.pdf)

## **SYNTHESIS**

Species specific and habitat data was summarized in the most recent 5-Year Review (USFWS 2017). To date, no new substantial information is available.

The Alabama cavefish is only known from a single cave aquifer system in northwest Alabama. Although the entrance to the cave and a portion of the surface property is protected by USFW ownership, much of the surrounding land and particularly portions of the aquifer and recharge area remain unprotected. The species continues to face threats from groundwater degradation, lower groundwater levels, in addition to diminished organic input by bats. These threats coupled with the species’ restricted range and small population size increases its vulnerability.

## **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 Alabama cavefish 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 endangered to threatened. The term “endangered species” means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term “threatened species” means any species that 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 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. 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*.

Herein, we provide amended downlisting criteria and add delisting criteria for the Alabama cavefish, which will supersede those included in the Alabama cavefish recovery plan as follows:

### **Downlisting Recovery Criteria**

Criterion 1. Existing population in Key Cave demonstrates a stable or increasing trend, evidenced by natural recruitment and multiple age classes (addresses Factor A, E).

Criterion 2. Two (2) additional populations are discovered or established that demonstrate a stable or increasing trend, evidenced by natural recruitment and multiple age classes (addresses Factor A, E).

Criterion 3. The aquifer recharge areas for these populations are thoroughly delineated, mapped, and protected from any foreseeable threats (addresses Factor A, D).

### **Delisting Recovery Criteria**

In addition to meeting downlisting criteria, the Alabama cavefish will be considered for delisting when the following criteria are met:

Criterion 4. At least two (2) additional populations demonstrate a stable or increasing trend, evidenced by natural recruitment and multiple age classes; and, for at least one of these, the aquifer recharge area is protected by a conservation mechanism (addresses Factor A, D, E).

Criterion 5. All other threats have been addressed or managed to the extent that the species will remain viable for the foreseeable future (addresses Factor A, D, E).

## Justification of Criteria

The downlisting and delisting recovery criteria address the five factors described in section 4(a)(1) of the Act and incorporate the conservation principles of representation, resiliency, and redundancy (Wolf *et al.* 2015).

Criterion 1: This criterion was added to the downlisting criteria to clarify the need that the only known population, Key Cave, be shown to be stable or increasing over a period of time. Ensuring that this current population is stable or increasing in size over the long-term, will confirm its resiliency into the future.

Criterion 2: The total number of additional stable or increasing populations needed for downlisting has changed from three to two. Upon reevaluation, the presence of three documented stable or increasing populations is thought to be adequate for ensuring adequate representation, redundancy, and resiliency for downlisting to threatened.

Criterion 3: The identification and protection of the populations' recharge areas are critical to the conservation of this species. Increasing groundwater pumping, stormwater runoff, and adjacent urbanization are major factors in water quality degradation. Threats related to water quality need to be managed through protection of the aquifers that includes the management of above ground activities that may cause disruption in infiltration of groundwater. Thus, the protection of the recharge areas will ensure the long-term resiliency of the populations.

Criterion 4: Two additional populations of the Alabama cavefish will need to be located or established, for a total of five populations overall, before the species will be considered for delisting. In addition, both populations should be shown to be stable or increasing over a long-term period. The recharge area for at least one of these two populations should be protected from any foreseeable threats. The presence of five stable or increasing populations of the Alabama cavefish, with four of the five protected into the foreseeable future, will ensure the resiliency, representation, and redundancy of the species to the point that the protection of the Act would no longer be needed.

Criterion 5: Any foreseeable threats, beyond those addressed in Criterion 3, need to be negated or planned for such as the loss of organic matter from declining bat populations. The management of all foreseeable threats will ensure the persistence of populations and the species to the point that delisting would be appropriate.

## **Rationale for Amended Recovery Criteria**

The long-term viability of the Alabama cavefish is based on conservation of numerous local populations throughout its subterranean/geographic range that demonstrate viability. The species is highly endemic with an extremely localized subterranean range that makes it vulnerable to extirpation from catastrophic events, such as toxic spills, changes in flow regime, and changes in aquifer recharge due to pumping for public water supply or irrigation.

The downlisting and delisting criteria reflect the best available and most recent information on the species and its habitat. The species is currently in danger of extinction because it is limited to one population, which continues to be threatened by habitat degradation (Factor A), inadequate regulatory mechanisms (Factor D), and small population size (Factor E). The species' overall resiliency (sufficient population size and demographics to withstand stochastic disturbance), redundancy (a sufficient number of resilient populations to withstand catastrophic events), and representation (sufficient genetic or ecological diversity to adapt to environmental change over time) are low and must be improved before the species can be considered recovered and no longer in need of the protection of the ESA.

Achieving the delisting criteria, and ensuring that the biological principles of resiliency, representation, and redundancy are adequate, will require the discovery or establishment of additional populations which are shown to be stable or increasing in size over time; in addition to, the abatement of foreseeable threats. Most critical is the protection of the recharge areas and the control of water quality degradation into the aquifer systems.

## **LITERATURE CITED**

- U.S. Fish and Wildlife Service. 1990. Alabama cavefish (*Speoplatyrhinus poulsoni*) Recovery Plan. Jackson, MS. 20 pp.
- U.S. Fish and Wildlife Service. 2017. Alabama cavefish (*Speoplatyrhinus poulsoni*)\_5-Year Review Jackson, MS. 17 pp.
- Wolf, S., B. Hartl, C. Carroll, M.C. Neel, and D.N. Greenwald. 2015. Beyond PVA: why recovery under the Endangered Species Act is more than population viability. *BioScience* 65:200-207.