

Recovery Plan for the Palezone Shiner (*Notropis albizonatus*)

https://ecos.fws.gov/docs/recovery_plan/970707.pdf

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DRAFT AMENDMENT 1

We have identified the best available information that indicates the need to amend the recovery criteria for the Palezone Shiner (*Notropis albizonatus*). In this proposed amendment, we synthesize the adequacy of the existing recovery criteria, provide amended recovery criteria, and explain the rationale supporting the proposed recovery plan amendment. The proposed amendment is shown as an addendum that supplements the recovery plan, superseding portions of only the Executive Summary (page iii) and Section II.A. (page 11) of the recovery plan (Service 1997). Recovery plans are a non-regulatory document that provides guidance on how best to help recover the species.

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

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METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

This amendment was developed by the lead biologist using the most recent and best available information for the species, including the five-year review (Service 2014) and unpublished survey data obtained by the Service and its partners since the five-year review was published. State biologists and other governmental and non-governmental partners were invited to participate in this process. The draft amendment was peer reviewed by Dr. David Eisenhower (Morehead State University), Dr. Sherry Harrel (Eastern Kentucky University), and Dr. Melvin L. Warren, Jr. (U.S. Forest Service). The outside peer reviewers were chosen based on their qualifications and knowledge of the species. Specifically, we asked the peer reviewers to comment on (a) the adequacy of the information used to develop the recovery criteria identified below (i.e., Have we used the best available data?), (b) the adequacy of our analyses to reassess the recovery criteria, and (c) the availability of any additional species information not considered in this amendment.

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 Palezone Shiner Recovery Plan (Service 1997) provides only downlisting criteria for the species. Link to the Recovery Plan: https://ecos.fws.gov/docs/recovery_plan/970707.pdf.

Synthesis

The Palezone Shiner is restricted to the Little South Fork of the Cumberland River system (Little South Fork) in Kentucky and the Paint Rock River system in Alabama (Service 2014). The species has been extirpated from two historical streams - Marrowbone Creek, Cumberland County, Kentucky (Cumberland River drainage) and Cove Creek, Campbell County, Tennessee (Tennessee River drainage). Within the Little South Fork, the species appears to be stable to increasing, occupying an approximate 48-km (30-mi) stream reach in McCreary and Wayne counties. Based on observations made in 2007, the species appears to be more abundant and more widely distributed in the Little South Fork than it was in the mid-1990s. Within the Paint Rock River, Palezone Shiners have been reported from an approximate 27-km (16.8-mi) reach, but the species is not common or observed in large numbers, suggesting a low population size (Service 2014).

Three of the five listing factors considered by the Service pose threats to the Palezone Shiner: the present or threatened destruction, modification or curtailment of its habitat or range; the inadequacy of existing regulatory mechanisms; and other natural or manmade factors affecting its continued existence. The species' habitat and range have been severely degraded and limited by water pollution from coal mining and gas exploration activities, reservoir construction and subsequent loss of free-flowing stream habitat, removal of riparian vegetation and concomitant increases in stream temperatures, stream channelization, increased siltation associated with poor agricultural and mining practices, and deforestation of watersheds. Current regulatory mechanisms have been inadequate to prevent these impacts. Due to the species' limited range, it is also vulnerable to stochastic events such as drought or toxic chemical spills that could cause the extirpation of the species from portions of the Little South Fork or Paint Rock River. The disjunct nature of the Little South Fork and Paint Rock River populations prohibits the natural interchange of genetic material between these populations, and the small population size in both systems reduces the reservoir of genetic diversity within populations. This can lead to inbreeding depression and reduced fitness of individuals. It is possible that some of the Palezone Shiner populations are below the effective population size required to maintain long-term genetic and population viability.

The Service and its partners have continued to evaluate potential recovery actions for the Palezone Shiner. Recommended actions identified in the most recent five-year review include (1) continued inventories of the Little South Fork and Paint Rock River systems to track the species' status and estimate population size; (2) searches for new populations in other Cumberland River tributaries (e.g., South Fork, Rock Creek); (3) research on the species' biology, especially the life history needs of larval and juvenile Palezone Shiners; (4)

investigations of the level of genetic diversity and gene flow within populations; and (5) continued habitat protection, restoration, and enhancement efforts by the Service and its partners.

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 Palezone Shiner 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 a species’ status or remove it from the Federal Lists of Endangered and Threatened Wildlife and Plants is ultimately based on an analysis of the best available scientific and commercial data, 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 delisting criteria for the Palezone Shiner Recovery Plan, as the recovery plan only included downlisting criteria as discussed above.

Downlisting Criteria

The Palezone Shiner Recovery Plan (Service 1997) provides only downlisting criteria for the species, and we are not amending those existing downlisting criteria. Link to the Recovery Plan: https://ecos.fws.gov/docs/recovery_plan/970707.pdf.

Delisting Recovery Criteria

In addition to meeting downlisting criteria, the Palezone Shiner will be considered for delisting when all of the following criteria have been met:

1. Two (2) additional populations of the Palezone Shiner are discovered or established that exhibit stable or increasing abundance trends, as evidenced by natural recruitment, and the presence of multiple age classes.
2. One (1) population (as defined in criterion 1) must occur in the upper Cumberland River system in Kentucky and/or Tennessee and one (1) population (as defined in criterion 1) must occur in the upper Tennessee River system in Alabama and/or Tennessee (addresses Factor E).
3. Threats have been addressed and/or managed to the extent that that the species will be viable into the foreseeable future (addresses Factors A and D).

Justification for Criteria

Criterion 1. The Palezone Shiner's current range is limited to two isolated populations - Little South Fork Cumberland River, Kentucky, and Paint Rock River, Alabama. Two additional populations with stable or increasing abundance trends will increase the species' resiliency and redundancy, thereby reducing its vulnerability to catastrophic and stochastic disturbance (Factor E).

Criterion 2. Discovering or establishing new populations with stable or increasing abundance trends in both the upper Cumberland and upper Tennessee River systems will increase the species' resiliency, representation, and redundancy, thereby reducing its vulnerability to catastrophic and stochastic disturbance (Factor E).

Criterion 3. Cooperative conservation efforts by the Service and its partners will reduce existing threats posed by habitat disturbance, range curtailment, and inadequate regulatory mechanisms (Factors A and D). These threats must be reduced to the extent that there is a reasonable expectation the species will be viable into the foreseeable future. Evidence of threat reduction will be demonstrated by the species' improved resiliency and redundancy across its range.

Rationale for Amended Recovery Criteria

The proposed delisting recovery criteria reflect the best available and most up-to-date information on the biology of the species and its habitat. The species is currently in danger of extinction because it is limited to two, isolated populations, which continue 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 disturbance), 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.

Achieving the amended delisting recovery criteria will result in an improvement in the species' resiliency and redundancy and a reduction in its threats. Once these criteria are achieved, the species will be represented by two additional, viable populations in the Cumberland and Tennessee River systems, and all threats (Factors A, D, and E) will have been addressed and/or managed to the extent that there is a reasonable expectation that the species will be viable into the foreseeable future. Increased resiliency of populations will be demonstrated by such measures as stable or increasing abundance trends, the presence of multiple age-classes, and continued evidence of recruitment. Increased population resiliency will improve the species' overall ability to withstand stochastic disturbance across its range.

An increased number of resilient populations in multiple stream systems will provide for increased redundancy, improving the species' ability to withstand catastrophic events and reducing its extinction risk. Achievement of the amended delisting criteria will increase the species' current representation, allowing it to adapt to changing environmental conditions over time. Threat abatement will be accomplished through our improved understanding of the species' biology and implementation of cooperative management actions in these systems by the Service, its State partners, non-governmental agencies, and private landowners. Evidence of threat reduction will be demonstrated by the species' improved resiliency, redundancy, and representation across its range.

LITERATURE CITED

- U.S. Fish and Wildlife Service (Service). 1997. Recovery plan for the Palezone Shiner (*Notropis albizonatus*). Southeast Region, Atlanta, Georgia. 34 pp.
- U.S. Fish and Wildlife Service (Service). 2014. Palezone Shiner (*Notropis albizonatus*) 5-year review: summary and evaluation. Southeast Region, Atlanta, Georgia. 19 pp.