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**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**[Docket No. FWS-R4-ES-2021-0092; FXES1111090FEDR–245–FF09E21000]**

**RIN 1018–BF43**

# Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Pyramid Pigtoe

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; withdrawal.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), withdraw the September 7, 2021, proposed rule to list the pyramid pigtoe (*Pleurobema rubrum*), a freshwater mussel, as a threatened species under the Endangered Species Act of 1973 (Act), as amended. This withdrawal is based on new information we received following publication of the proposed rule that indicates the pyramid pigtoe is not a valid listable entity under the Act. In 2023, a comprehensive genetic analysis throughout the range of the pyramid pigtoe (*P. rubrum*) and round pigtoe (*P. sintoxia*) mussels concluded that the two mussels are conspecific and that pyramid pigtoe is not a valid taxon. Individuals previously assigned to *P. rubrum* are now considered to be *P. sintoxia*, a wide-ranging common species. Because we are withdrawing the proposal to list the pyramid pigtoe, we

are also withdrawing the associated proposed rule issued under section 4(d) of the Act.

**DATES:** The proposed rule that published on September 7, 2021 (86 FR 49989), to list the pyramid pigtoe as a threatened species with a rule issued under section 4(d) of the Act, is withdrawn on **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** This withdrawal, comments on our September 7, 2021, proposed rule, and supplementary documents are available for public inspection on the internet at *https://www.regulations.gov* at Docket No. FWS-R4-ES-2021-0092, and some of these documents are also available on the Service's website at *https://ecos.fws.gov/ecp/species/2781*.

**FOR FURTHER INFORMATION CONTACT:** Janet Mizzi, Field Supervisor, U.S. Fish and Wildlife Service, Asheville Ecological Services Field Office, 160 Zillicoa St., Asheville, NC 28801; telephone 828–258–3939. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of contact in the United States.

**SUPPLEMENTARY INFORMATION:**

**Previous Federal Actions**

Please refer to our September 7, 2021, proposed rule (86 FR 49989) for a detailed description of previous Federal actions concerning the pyramid pigtoe. We accepted submission of new information and comments on our September 7, 2021, proposed rule for 60 days, ending November 8, 2021.

## Finding

Consistent with section 4(b)(6)(A)(i)(IV) of the Act, we are notifying the public that we are withdrawing the September 7, 2021, proposed rule to list the pyramid pigtoe as a threatened species with an associated rule issued under section 4(d) of the Act ("4(d) rule") (86 FR 49989). The basis for this action is described below.

## Background

It is our intent in this withdrawal to discuss the new information identifying the pyramid pigtoe and round pigtoe as conspecific (belonging to the same species) that serves as the basis for our decision. A thorough review of the life history, ecology, and overall viability of what was considered pyramid pigtoe at the time the September 7, 2021, proposed rule was published is found in the species status assessment report (SSA report) (version 1.0; Service 2021, pp. 19–36).

## Taxonomy

Species identification of pyramid pigtoe and round pigtoe, as well as between other related taxa, is challenging due to morphological similarity and phenotypic plasticity. It is further exacerbated by the fact that many species are sympatric (overlapping in geographical distribution) (Olivera-Hyde et al. 2023, pp. 2–5). Recent genetic studies led researchers to suggest that the pyramid pigtoe and the round pigtoe may be conspecific (Inoue et al. 2018, p. 694; Olivera-Hyde et al. 2023, pp. 8–14), although species experts continued to support recognition of the pyramid pigtoe as a valid taxon due to morphological differences and a lack of comprehensive rangewide genetic information comparing the similar taxa (Olivera-Hyde et al. 2023, p. 15; Williams et al. 2017, p. 39). Because the pyramid pigtoe and round pigtoe are difficult to differentiate,

there has been frequent misidentification by experts and lumping of the taxa together in the academic literature (Olivera-Hyde et al. 2023, pp. 2–5).

Both the SSA report for the pyramid pigtoe and the September 7, 2021, proposed rule to list the pyramid pigtoe as a threatened species (86 FR 49989) acknowledge the difficulty in identifying the pyramid pigtoe. After reviewing the best scientific information available at that time, we agreed with mussel experts and found that the pyramid pigtoe was a valid taxon (Service 2021, pp. 12–13; see also 86 FR 49989, September 7, 2021). Since that finding, however, a comprehensive, rangewide genetic analysis has been completed comparing pyramid pigtoe to round pigtoe, and this information now confirms that they are conspecific (Johnson et al., 2024, pp. 16–17).

**Review of New Genetic Information**

Prior genetic analyses relied on results taken from individuals from portions of species' ranges, resulting in conclusions that were limited to only those areas where individuals were collected (Inoue et al. 2018, p. 698; Olivera-Hyde et al. 2023, p. 3). The new study uses data collected from throughout the ranges of both pyramid pigtoe and round pigtoe populations (Johnson et al., 2024, entire). Genetic data were successfully sampled from 200 individuals for mitochondrial DNA (mtDNA) analysis, 106 individuals for nuclear DNA (nDNA) analysis, and 176 individuals for genotype-by-sequencing (GBS) analysis across 11 populations and 22 waterbodies (Johnson et al., 2024, p. 33). Mitochondrial DNA and nDNA were used in previous studies but were found to be problematic for supporting species delineations in *Pleurobema*, due to potential hybridization and backcrossing effects, resulting in a reliance on hard-to-distinguish morphological variation for species delineations (Olivera-Hyde et al. 2023, p. 14). The

most recent analysis incorporated GBS methodologies to address uncertainty in assessing whether pyramid pigtoe is a valid taxon (Johnson et al., 2024, p. 6.).

The results of the study support the hypothesis that pyramid pigtoe and round pigtoe are conspecific based on mtDNA, nDNA, and GBS data (Johnson et al., 2024, pp. 13–17). The results of the GBS analysis cluster individuals based on geographic location and not by species identification based on morphology (Johnson et al., 2024, p. 16). This finding is also supported by the results of the mtDNA and nDNA analyses and is consistent with the results of prior published findings (Inoue et al. 2018, p. 694; Olivera-Hyde et al. 2023, pp. 8–14). The results do not support the current morphologically-based species delineations.

**Summary of Justification for Withdrawal**

New rangewide genetic information has become available since the publication of our September 7, 2021, proposed rule (86 FR 49989) to list the pyramid pigtoe as a threatened species with an associated section 4(d) rule under the Act. The new information is based on mtDNA, nDNA, and GBS data, and concludes that pyramid pigtoe and round pigtoe are conspecific. These results support the findings of previous studies that were too narrow in scope to make definitive conclusions of species delineation. The resulting single species (round pigtoe; *P. sintoxia*) is wide-ranging and common throughout its current range. Because pyramid pigtoe (*P. rubrum*) is no longer considered a valid species, we withdraw the September 7, 2021, proposed rule (86 FR 49989) to list pyramid pigtoe as a threatened species with an associated section 4(d) rule.

## References Cited

A complete list of references cited in this document is available on the internet at *https://www.regulations.gov* and upon request from the Asheville Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

## Authors

The primary authors of this document are the staff members of the Fish and Wildlife Service's Species Assessment Team and the Asheville Ecological Services Field Office.

## Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.).

**Martha Williams,**

*Director,*

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