Alabama Beach Mouse (*Peromyscus polionotus ammobates*) Recovery Plan
https://ecos.fws.gov/docs/recovery_plan/870812.pdf

Original Approved: August 12, 1987
Original Prepared by: Southeast Region

AMENDMENT 1

We have identified the need to amend recovery criteria for Alabama beach mouse (ABM) (*Peromyscus polionotus ammobates*) with the best available information since the original 1987 Choctawhatchee (CBM), Perdido Key (PKBM), and Alabama beach mouse Recovery Plan (USFWS 1987). In this modification, we synthesize the adequacy of the existing recovery criteria; show amended recovery criteria, and provide the rationale supporting the modification. The modification is an addendum that supplements the original CBM, PKBM, and ABM Recovery Plan by adding delisting criteria, which were not developed at the time of its publication. The delisting criteria addendum here will be specific to the ABM and its range. The recovery objective and the step-down outline of recovery actions are described on Part II A and B (pages 12 - 26) of the CBM, PKBM, and ABM Recovery Plan. 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
Atlanta, Georgia

Approved: _____
Acting **Regional Director, U.S. Fish and Wildlife Service**

Date: 9/25/19

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

The amendment to add delisting criteria to the recovery plan was developed using the downlisting criteria from the 1987 Recovery Plan; species information from 2009 5-Year Status Review; and information from the 5-Year Status Review that was initiated in 2016. The U.S. Fish and Wildlife Service (Service) recovery lead for ABM further developed the existing downlisting criteria in the drafting of the delisting criteria. This information was analyzed by Service biologists and managers in the Alabama Ecological Services Field Office in order to develop the delisting criteria for the ABM. We also provided the amendment to the Alabama Department of Conservation and Natural Resources for review.

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 ABM Recovery Plan (USFWS 1987, p. 9; and https://ecos.fws.gov/docs/recovery_plan/870812.pdf) only provides downlisting criteria for the ABM. The Plan also states ".due to the extensive and permanent loss of habitat for these beach mice, it will probably never be possible to safely remove them entirely from the protection of the (Endangered Species) Act." No delisting criteria was provided in the original plan.

Synthesis

The threats, recommended recovery actions, and life history information stated in the Recovery Plan (1987) and the 5-Year Status Review (2009) largely remain applicable and relevant. The present or threatened destruction, modification, or curtailment of the ABM habitat and range due to coastal residential and commercial development (Factor A); predation by non-native predators such as feral cats or red fox (Factor C); inadequacy of existing regulatory mechanisms to protect coastal habitat (Factor D); competition with other rodents (Factor E); the threat of natural stochastic events over the entire range of the ABM (Factor E) and sea-level rise are the main five listing factors affecting recovery of the ABM.

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 down listed to threatened, or that the protections afforded by the Act are no longer necessary and the ABM 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 DPS) 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*.

Herein, we provide delisting criteria specific to the ABM and its range for the original 1987 Recovery Plan (USFWS 1987). The original plan only developed downlisting criteria (refer to page 2 above or page 12 of the ABM Recovery Plan).

Delisting Recovery Criteria

The ABM will be considered for delisting when the following criteria are met:

1. The existing two (2) ABM populations exhibit stable or increasing trends, evidenced by natural recruitment and multiple age classes (Factor A, C, D, E).

2. Habitat connectivity and genetic diversity shall be maintained to a level that does not require translocations, or captive breeding (Factor A, C, D, E).

3. A mosaic of suitable habitat consisting of primary, secondary, tertiary, and interior scrub dunes is created, protected, and managed as needed for the species to remain viable for the foreseeable future (Factor E).

4. When in addition to the above criteria, it can be demonstrated that habitat loss associated with sea-level rise and development are diminished such that enough suitable habitat remains in the foreseeable future for ABM to remain viable (Factor E).

Justification for the Amended Recovery Criteria

Criterion 1: Populations that exhibit a stable or increasing trend, natural recruitment, and multiple age classes demonstrate that the population is secure and will be resilient to stochastic events (Factor A). For the ABM, it is believed the two populations exhibiting these traits are necessary to ensure sufficient redundancy for the species to no longer require protection under the Act.

Criterion 2: Connected ABM habitat preserves vital corridors for movement and provides dispersal areas for the ABM preserving genetic diversity. Direct and indirect effects from development are a challenge for keeping the remaining ABM habitat connected. Populations should demonstrate independent resiliency, redundancy, and representation. For the Gulf State Park population, it is highly susceptible to stochastic events.

Criterion 3: The need for high elevation hurricane refugia was demonstrated during the 2004/2005 hurricane season. These hurricanes demonstrated that Fort Morgan may have sufficient high elevation hurricane refugia; however; they demonstrated the Gulf State Park population does not have the needed high elevation hurricane refugia to weather stochastic events. The Gulf State Park Habitat Conservation Plan states a goal of the plan is to encourage development/management of high hurricane refugia.

Criterion 4: Sea-level rise has been predicted to impact the remaining range of the ABM. Development of the remaining habitat and associated impacts continues to be a threat to the ABM.

Together, these recovery criteria cover current threats related to habitat loss and connectivity, genetic diversity, sea-level rise, and habitat loss; all of which are likely drivers of the ABM's population demographics and the species long-term persistence. Once meeting these criteria, ABM would likely have a low probability of extinction for the foreseeable future and have several robust, stable populations, appropriate for long-term recovery. We will work together with our partners to strategically and efficiently implement the new criteria.

Rationale for the Amended Recovery Criteria

The delisting recovery criteria reflect the best available and most up-to-date information on the ABM, while incorporating information still relevant from the 1987 ABM Recovery Plan. Furthermore, the downlisting criteria were developed to reflect this subspecies overarching recovery strategy, and are consistent with current goals, objectives, and known risk levels. Specifically, each delisting criterion ensures that the underlying causes of decline and impediments to recovery will be addressed and mitigated.

The 2009 5-year review suggested that the approved recovery plan for the ABM (Service 1987) does contain objective downlisting criteria. It was thought the publicly-owned areas such as Bon Secour National Wildlife Refuge, Fort Morgan State Historic Site, and Gulf State Park would be enough area to support independent and self-sustaining populations in each of the critical habitat areas.

However, surveys have shown there are only two populations of ABM. One population is the area between the Fort Morgan State Historic Site to the west side of Little Lagoon Pass in the City of Gulf Shores. This population can be temporarily divided into smaller isolated populations by stochastic events (hurricanes). The habitat in this area is highly fragmented by a mixture of coastal and commercial development of the private lands. The overall conservation strategy for this population is to keep it connected through corridors and native landscaping.

The other population is at Gulf State Park and the immediate adjacent areas in the cities of Gulf Shores and Orange Beach. This population is isolated and highly susceptible to extirpation by stochastic events. The current overall strategy for this population is to maintain it through translocations, improving the habitat, creating high hurricane refugia, and keeping remaining habitat connected. However, a single stochastic event can greatly affect the entire remaining range and habitat for both populations.

Population Criterion 1: Provides redundancy and resiliency through the two identified populations along Alabama's coastline and demographic parameters. Since populations of many small mammals, including the ABM, fluctuate cyclically, it is necessary to evaluate population demographics across multiple generations to assess true trends. Sub-species viability ensures maintaining genetic diversity, and thus representation, in order to preserve population variability and population adaptability.

Habitat Criterion 2: Ensuring sufficient and stable habitat and habitat connectivity are in place for long-term persistence, despite habitat changes, fluctuations, and habitat loss projected due to sea- level rise and storm frequency/intensity. This criterion provides redundancy through multiple sites that support ABM and representation through habitat connectivity to ensure gene flow between sub-populations.

Literature Cited

USFWS. 1987. Choctawhatchee beach mouse, Perdido Key Beach Mouse, and Alabama beach mouse Recovery Plan. Atlanta, Georgia.

USFWS. 2009. Alabama beach mouse (*Peromyscus polionotus ammobates,* Bowen 1968) 5-year Review: Summary and Evaluation. Alabama Ecological Services Field Office, Daphne, Alabama. November 23, 2009. 34 pp.