

Recovery Plan for Perdido Key Beach Mouse (*Peromyscus polionotus trissyllepsis*)
https://ecos.fws.gov/docs/recovery_plan/870812.pdf

Original Approved: 12 August 1987

Original Prepared by: U.S. Fish and Wildlife Service Southeast Region

DRAFT AMENDMENT 1

We have identified best available information that indicates the need to amend recovery criteria for Perdido Key Beach Mouse (*Peromyscus polionotus trissyllepsis*; PKBM) since the recovery plan was completed. In this proposed modification, we synthesize the adequacy of the existing recovery criteria; show amended recovery criteria, and the rationale supporting the proposed recovery plan modification. The proposed modification is shown as an addendum that supplements the Choctawhatchee Beach Mouse, Perdido Key Beach Mouse, and Alabama Beach Mouse Recovery Plan (USFWS 1987) by adding delisting criteria for the PKBM that were not developed at the time this recovery plan was completed. The original recovery objectives and the step-down outline are described on page 12 of the Recovery Plan. Recovery plans are a non-regulatory document that provide guidance on how best to help recover 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 using the most recent and best available information for the Perdido Key beach mouse since the completion of the most current 5-Year Review (USFWS 2014). In addition to recent data, a primary source of information drawn upon was the 5-Year Review, which drew upon information from the following sources: the Recovery Plan for the Choctawhatchee Beach Mouse, Perdido Key Beach Mouse, and Alabama Beach Mouse (USFWS 1987), peer-reviewed scientific publications, unpublished reports, ongoing field survey results and information from qualified Service and State biologists, the final rule listing the subspecies, revised critical habitat (USFWS 2006), and peer review comments. This amendment was completed by the Service's lead recovery biologist for the Perdido Key beach mouse located at the Panama City Field Office. No part of the review was contracted to an outside party. All literature and documents used for this amendment are on file at the Panama City Field Office.

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 Recovery Plan only provides downlisting criteria for the PKBM, and they can be found on page 12 of the document (https://ecos.fws.gov/docs/recovery_plan/870812.pdf).

Synthesis

New information and research studies have been conducted since the Recovery Plan was finalized and new data have been received since the most recent 5-Year Review. This information is synthesized below. The assessment of threats, suggested recovery actions, and life history information included in the Recovery Plan and 5-Year Review largely remain applicable and relevant. Issues related to habitat (i.e. loss, fragmentation, connectivity, management, and restoration; Factor A) and predation from non-native, invasive species and free-roaming pets (Factor C) are still directly pertinent to the PKBM's recovery.

Our partners have developed a noninvasive monitoring protocol that has been established across all public lands where PKBM habitat and connectivity are found. This track tube monitoring allows us to determine where PKBM are on a monthly or bi-monthly basis by recording the footprints of beach mice visiting a baited tube. While this method does not give us a population estimate, it is low impact to PKBM and less intensive for biologists than regular trapping. We get a snapshot over time to determine trends and when more intensive management is needed. Current track tube data suggests PKBM are doing well in three (Gulf State Park (GSP), Perdido Key State Park (PKSP), and Gulf Islands National Seashore (GINS)) out of five critical habitat units. The private lands that largely occupy the other two critical habitat units (West Perdido Key and Gulf Beach) are covered under the Habitat Conservation Plan (HCP) for Escambia County. This HCP has been successful in leading to the acquisition of additional County owned conservation lands and providing oversight and guidance for private lands owners to develop their property with conservation measures to benefit PKBM and other coastal species. While it currently appears that PKBM are doing well, they were facing possible extinction almost ten years ago following devastating impacts from Hurricane Ivan. Poor development practices and impacts from non-native species prior to that also contributed to lower population numbers. Although local extirpations are a normal phenomenon for PKBM throughout its life history, habitat destruction and fragmentation have made it difficult for PKBM to recolonize and rebuild their population numbers without human management requirements. Other threats, such as free-roaming or feral cats and other non-native predators, require constant management and have not yet been abated completely in these developed areas. More focus on non-native predators needs to be a funded priority in the smaller units surrounded by development as well as a focus on habitat restoration to enhance connectivity to these units.

Connectivity between the larger core populations is a concern. This issue occurs mostly on private lands. Many private lands have developed too close to the Gulf resulting in the loss of the dune ecosystem between the development and the water, this creates a barrier for PKBM to get around the structures and non-native landscaping. We are working to address this issue with

new construction, but older, existing developments continue to be a concern. On Perdido Key, a vegetated berm was constructed after Hurricane Ivan that did improve connectivity between all five critical habitat units. While this was not the initial intent of the project, it did act as a corridor for PKBM to expand and have access through the private lands to the other conservation lands. This identified a mechanism to fulfill the immediate coastal protection need with the needs of wildlife.

Genetic variation between the eastern and western portions of the PKBM range has been apparent in the past. However, the previous mentioned berm allowed mice to expand to other areas to mix with those individuals. Recent sampling has indicated PKBM was more genetically mixed throughout their entire population than the other panhandle beach mice. It is also a concerted effort to keep the genes in the captive bred population as close to the wild population as possible.

The Recovery Plan does not specifically address climate change or sea-level rise in the PKBM recovery criteria or recovery actions. Using the NOAA Sea-level Rise Viewer tool (NOAA 2017); with a 3-foot (0.9 m) rise in sea-level, wash overs through low lying portions of GINS are apparent. This will sever connectivity between habitat on either side of the breach. Many of the larger dunes swales on GINS and PKSP would become permanently flooded, thus isolating high dunes around it and preventing PKBM from accessing the swales during dry time periods. Bays and inland waters connected to the Gulf quickly engulf coastal dune swales from rising backwaters and become fragmented by newly formed connections between the bay and gulf. This intermediate scenario of the NOAA Sea-level Rise Viewer tool is predicted to occur in 50-70 years (NOAA 2017). The higher dune habitat will still be available, but upland access and connectivity will be severed. This is a dynamic habitat and will always be dynamic and changing. Storms always have the potential to completely alter the coastal dune habitat as was experienced by Hurricane Ivan that directly impacted the entire range of PKBM. With the potential for more frequent and intense storms, the coastal dune environment will not have the ability to grow and reform as it has in the past. It is likely we will lose much of the three stages of the coastal dune habitat (primary, secondary, and scrub) that are depended on by PKBM.

Free-roaming and feral cat populations in the PKBM range are largely made up of outdoor pets and unwanted pets. The free-roaming/feral cats are usually associated with development near the coastal dune habitat. In previous years, cat colonies were responsible for localized extirpations of PKBM. Free-roaming and feral cats will always be a threat to PKBM if local ordinances and predator management actions are not adopted and enforced

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 Choctawhatchee beach mouse 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 for the PKBM as the Recovery Plan only developed downlisting criteria as discussed above.

Downlisting Recovery Criteria

We are not amending the existing downlisting criteria (please refer to page 12 of the Recovery Plan).

Delisting Recovery Criteria

The Perdido Key beach mouse will be considered for delisting when all the following criteria have been met:

1. Populations inhabiting all five (5) critical habitat units exhibit stable or increasing trends, evidenced by natural recruitment and multiple age classes (Factor A).
2. Habitat connectivity and genetic diversity shall be maintained throughout the range to a level that does not require translocations or captive breeding (Factors A and E).
3. All designated PKBM critical habitat under public ownership (Federal, State, and Local entities) is managed under a conservation mechanism that addresses beach mice (Factor A).
4. Non-native predator removal (specifically free-roaming/feral cats) shall be conducted to a degree that PKBM will remain viable for the foreseeable future (Factor C, D).

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

Justification

The proposed delisting criteria reflect the best available and most up-to-date information of the PKBM, while incorporating information still relevant from the Recovery Plan. Furthermore, the delisting criteria developed reflect the species' 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 by:

Criterion 1. Providing redundancy through multiple populations and sufficient habitat, and reaching demographic parameters maintain resilient and stable populations. Providing natural, functional connectivity is critical because the intensive management actions required to lessen the effects of fragmentation is very labor intensive and only provides short-term solutions.

Since populations of many small mammals, including the PKBM, fluctuate both seasonally and annually, it is necessary to evaluate population demographics amongst multiple generations to assess true trends. These units are defined in the Critical Habitat Rule (USFWS 2006). For the PKBM it is believed that a minimum of five populations exhibiting these traits are necessary to provide sufficient redundancy to ensure the species will no longer require protection under the Act. Further habitat conservation provided through the Perdido Key Habitat Conservation Plan will contribute to efforts to reach a stable population, this plan includes the development footprint over the entire range of PKBM.

Criterion 2. Providing resiliency through maintenance of genetic diversity across the entire range preserves the subspecies and prevent bottlenecks. For PKBM, habitat connectivity between the populations will lead to a genetically diverse population. Management actions are needed to assess the genetic stability when required. Management and preservation of north-south and east-west habitat corridors are required to achieve the needed genetic diversity across the species range and facilitate recolonization of areas after localized extirpations.

Criterion 3. Developing/updating management plans and implementing recovery actions on publicly owned lands will ensure sufficient habitat is available into the future. Regulatory actions focused on PKBM conservation by local and State government entities is also needed to help meet this criteria.

Criterion 4. Provide a long-term solution to significantly reduce or eliminate the threat of non-native species. Currently there are efforts by our partners to reduce the threat of non-native species to our native listed species. Certainty of funding and objectives focused on PKBM are still needed.

Criterion 5. Ensure sufficient habitat is expected to remain for long-term persistence, despite habitat changes and habitat loss projected due to climate change/sea-level rise. Regulatory actions focused on PKBM conservation by local and State government entities is also needed to help meet this criteria.

Together, these recovery criteria cover threats related to habitat loss and fragmentation, non-native predators, genetic diversity, and climate change; all of which are likely drivers of the PKBM's population demographics and the species' long-term persistence.

Rationale for Amended Recovery Criteria

The existing criteria for PKBM on page 12 of the Recovery Plan (Service 1987) (https://ecos.fws.gov/docs/recovery_plan/870812.pdf) included only downlisting criteria. The amended delisting recovery criteria provide an avenue for connectivity between private lands and the larger core PKBM populations on public lands. It is imperative that the primary dune systems be restored along these private lands. It is the main pathway for connectivity between the existing PKBM populations. When populations become extirpated or significantly imperiled due to hurricanes or other climate related actions, the habitat needs to be restored or maintained to allow PKBM to repopulate these areas. Scrub habitat is a valuable resource to preserve throughout the entire range, as this is the only area PKBM will be able to survive a major hurricane and repopulate impacted primary and secondary dune habitat. Recovery of PKBM can only be achieved when the habitat is available and connectivity is established to ensure genetic diversity.

With the proposed amendments, delisting has been clearly defined with measurable, objective criteria in keeping with the recovery strategy and goals outlined in the Recovery Plan. These criteria address what is necessary to ensure resiliency, redundancy, and representation by addressing factors that threaten the species. In achieving these criteria, we expect the PKBM to have a low probability of extinction for the foreseeable future and have stable populations needed for long-term recovery. We will work together with our partners to strategically and efficiently implement the new criteria.

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