

Alabama Beach Mouse
(*Peromyscus polionotus ammobates*)

5-Year Status Review:
Summary and Evaluation



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U.S. Fish and Wildlife Service
Southeast Region
Alabama Ecological Services Field Office
Daphne, Alabama

December 2025

5-YEAR STATUS REVIEW
Alabama Beach Mouse (*Peromyscus polionotus ammobates*)

GENERAL INFORMATION

Current Classification: Endangered

Lead Field Office: Alabama Ecological Services Field Office, Daphne, Alabama

Review Author: William J. Lynn, Alabama Ecological Services Field Office

Reviewers:

Lead Regional Office: Southeast Region, Carrie Straight

Cooperating Service Program(s): Bon Secour National Wildlife Refuge, Jackie Sablan

Date of original listing: June 6, 1985 (50 FR 23872; June 6, 1985).

Critical Habitat: Critical habitat was designated with the 1985 listing and revised effective on March 1, 2007 (72 FR 4330; January 30, 2007).

Methodology used to complete the review:

In accordance with section 4(c)(2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a status review is to assess each threatened species or endangered species to determine whether its status has changed and if it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants ([50 CFR 424.11](#)). The U.S. Fish and Wildlife Service (Service) evaluated the best available information about the Alabama beach mouse biology, habitat, and threats to inform this status review.

Information summarized in this review include information from the final listing rule, published and unpublished reports, field observations, and personal communications from recognized experts in the field along with information from a Species Status Assessment Report (SSA; Service 2025) that was developed by the Service and species experts. The Species Status Assessment Report is a peer-reviewed document that represents our evaluation of the best available scientific information regarding the biology, life history, and condition of the species. In addition to the Service, the core team responsible for the Report included species experts from state and federal agencies such as Alabama Department of Conservation and Natural Resources, Montgomery, Alabama, Texas A&M University, and Florida Ecological Services Field Office. All recommendations resulting from this review are the result of thoroughly reviewing the best available information on the Alabama beach mouse. We published an announcement in the Federal Register requesting information on this subspecies on May 11, 2023 (88 FR 30324), and a 60-day comment period was opened. In response, we received no public comments or data. This review was completed by the U.S. Fish and Wildlife Service, Alabama Ecological Services Field Office, Daphne, Alabama. All recommendations resulting from this review are the result of thoroughly reviewing the best available information.

FR Notice citation announcing the species is under active review: May 11, 2023 ([88 FR 30324](#))

Species' Recovery Priority Number at start of 5-year review ([48 FR 43098](#)):

3c, indicating that the listed entity is a subspecies with a high degree of threat and high recovery potential if threats can be eliminated or minimized. The “C” indicates that recovery of the Alabama beach mouse conflicts with economic activities.

Review History: Previous conducted five-year reviews were signed in 1991 (56 FR 56882), 2006 (Service 2006), and 2019 (Service 2019a). All reviews recommended no change in status for this subspecies.

REVIEW ANALYSIS

Listed Entity

Taxonomy and nomenclature

We are not aware of any changes to the taxonomy of this entity, and it is still considered valid by the Service.

Distinct Population Segment (DPS) ([61 FR 4722](#))

The Act defines species as including any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate wildlife. This subspecies was not listed as a DPS, and we have no new information that would indicate the subspecies should be listed as a DPS under the Service's 1996 DPS Policy.

Recovery Criteria

Recovery Plan

Recovery plans are not regulatory documents and intended to provide guidance to the Service, States, and other partners on methods of minimizing threats to listed species and on criteria that may be used to determine when recovery is achieved. If the recovery criteria defined in the plan are still valid, meeting recovery criteria can indicate that the species no longer requires protections under the Act. However, when recommending whether a listed species should be delisted, the Service must apply the factors in section 4(a) of the Act ([84 FR 45020](#)).

Final Recovery Plan for the Choctawhatchee Beach Mouse, Perdido Key Beach Mouse, and Alabama Beach Mouse Recovery Plan, August 12, 1987 (Service 1987).

Alabama Beach Mouse Recovery Plan Amendment, August 6, 2019 (Service 2019b).

In the recent Alabama beach mouse Recovery Plan Amendment (Service 2019b), the recovery criteria area as follows:

The Alabama beach mouse will be considered for delisting when the following criteria are met:

1. The existing two (2) Alabama beach mouse 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 Alabama beach mouse to remain viable (Factor E).

The Service believes these criteria are appropriate and relevant; however, no criteria have currently been met.

Biology and Habitat Summary

We currently have two populations of Alabama beach mouse: one metapopulation (Fort Morgan including Fort Morgan State Park and Units of Bon Secour National Wildlife Refuge; Figure 1) and one isolated population to the east (Gulf State Park; Figure 2). The two populations are isolated from one another by Little Lagoon Pass (a man-made canal that prevents movement between the two).

The metapopulation is highly fragmented by development and occurs from Little Lagoon Pass to the tip of Fort Morgan Peninsula. The second population occurs within Gulf State Park and some lands adjacent to the park in the Cities of Gulf Shores and Orange Beach. Approximately 2,433 acres (ac) of Alabama beach mouse habitat remain within these areas out of a historical estimate amount of 8,000-9,000 acres (Service 2009). About 63% of the Alabama beach mouse's remaining habitat (1,546 acres on public lands of 2,667 overall acres of habitat) currently occurs on separated public lands of Fort Morgan State Park, Bon Secour National Wildlife Refuge, and Gulf State Park (Service 2009).

Although both populations are currently stable and all remaining habitat is occupied, we do not believe the Gulf State Park population will be a self-sustaining population into the future without human intervention (Service 2025). This is due to a lack of high hurricane refugia (e.g., tertiary dunes), the small park size, and isolated location. Lessons from Hurricane Ivan (2004) demonstrated that Gulf State Park is highly susceptible to storm surge from a catastrophic tropical storm event. There is no known way Alabama beach mouse can naturally recolonize this park from the Fort Morgan metapopulation because of the man-made canal that isolates it from the metapopulation to the west. The Fort Morgan metapopulation also needed human assistance to prevent extirpation after a catastrophic tropical storm event related to Hurricane Ivan that occurred in 2024 (see additional discussion under Factor E, below). Additionally, the threats of development habitat loss, tropical storm habitat loss, and sea level rise are still occurring and are expected to impact all habitats in the future.



Figure 1. Current range of the Fort Morgan population of Alabama beach mouse.



Figure 2. Current range of the Gulf State Park population of Alabama beach mouse.

We are not aware of any additional new biology or habitat information since the 2019 review that impacts the status of the species and all of information provided in the last 5-year review remains valid (Service 2019a). For an in-depth summary of biology and habitat, please refer to the Alabama beach mouse Species Status Assessment Report (Service 2025).

Threats (Five-Factor Analysis) Summary

The status of a species is determined from an assessment of factors specified in section 4(a)(1) of the Act. A summary of this assessment is detailed below.

Factor A: the present or threatened destruction, modification, or curtailment of its habitat or range

Habitat loss and fragmentation associated with residential and commercial real estate development are still considered one of the primary threats contributing to the endangered status of beach mice (Service 1985, Holler 1992, Humphrey 1992, Service 2007). Tropical Storm events (hurricanes) can affect the entire remaining range of the Alabama beach mouse in one

storm (see discussions under Factor E, below). Additionally, the threats of development habitat loss, tropical storms habitat loss, and sea level rise are still occurring. Alabama beach mouse has been shown to survive around low-intensity developments; however, development removes the mosaic of suitable habitat consisting of primary, secondary, tertiary, and interior scrub needed to support these populations.

Factor B: overutilization for commercial, recreational, scientific, or educational purposes
Overutilization of the species for commercial, recreational, and educational purposes has not been a threat for this subspecies.

Factor C: disease or predation

Although diseases and parasites have been documented in beach mice, it is not known at this time if they constitute significant threats to the subspecies (Conservation Breeding Specialist Group 2007).

Beach mice have a number of natural predators including, but not limited to, the coachwhip (*Masticophis flagellum*), corn snake (*Elaphe guttata guttata*), pygmy rattlesnake (*Sistrurus miliarius*), Eastern diamondback rattlesnake (*Crotalus adamanteus*), short-eared (*Asio flammeus*) and great-horned owl (*Bubo virginianus*), great blue heron (*Ardea herodias*), northern harrier (*Circus cyaneus*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), skunk (*Mephitis mephitis*), weasel (*Mustela frenata*), and raccoon (*Procyon lotor*) (Blair 1951, Bowen 1968, Holler 1992, Novak 1997, Moyers *et al.* 1999, Van Zant and Wooten 2003). Natural predation of beach mouse populations that have sufficient recruitment and habitat availability is generally not a concern. However, excessive predation pressure from natural and non-native predators (e.g., free-roaming and feral cats (*Felis catus*) fire ants (*Solenopsis* spp.), house mice (*Mus musculus*), may result in the extirpation of small, isolated local populations/occurrences of beach mice, especially after hurricanes, when both predators and prey are more concentrated in smaller often isolated habitat patches.

Free-roaming and feral cats are known to have a devastating effect on beach mouse persistence (Bowen 1968, Linzey 1978) and were considered the main cause of the loss of at least one local population (Ono Island) of Alabama beach mouse (Holliman 1983). In 2017, a Trap-Neuter-Return (TNR) group formed (Safe Harbor Animal Coalition) in the Cities of Orange Beach and Gulf Shores. Almost immediately the Service began documenting feral cats being released within the known range of the Alabama beach mouse.

Factor D: inadequacy of existing regulatory mechanisms

State of Alabama, City of Gulf Shores, City of Orange Beach and Baldwin County local building codes and regulatory mechanisms do not have specific regulations to protect this species' habitat. The Alabama beach mouse is protected under the States' nongame species regulation 220-2-.92. The Alabama Natural Heritage Program lists the species as State Protected with the highest conservation priority rank of P1. The protections for the species are described in the 2019 5-year review (Service 2019a).

The protections on public lands can help minimize some impacts, but several threats to the species remains. The protections discussed here and in the previous 5-year review (Service

2019a) are currently inadequate to protect the species from the habitat loss associated with development, sea level rise, threats associated with fragmentation and isolation of habitats, feral cat predation and disturbance, and hurricane related impacts.

Since the last review, Baldwin County changed one of their development regulations:

- The development regulations have been revised that prevent upzoning of lots for increased density in the Baldwin County regulated Fort Morgan area. This preserves habitat by preventing increased density of development on one lot.

Factor E: other natural or manmade factors affecting its continued existence

The isolation of the two populations prevents movements for genetic exchange, which reduces the species adaptive capacity in the future. Additionally, this isolation also prevents natural recolonization after catastrophic events. Additionally, the subspecies continues to be impacted by recreational use of coastal areas negatively impacting dune habitat, artificial lighting which likely impacts behaviors like foraging, competition with native species (resource competition with cotton rats), habitat modification, predation, and resource competition from non-native species, oil spills, and mowing. These impacts are described in the 2019 5-year review (Service 2019a).

Hurricanes, tropical storms, and other cyclonic disturbances are relatively common within the coastal areas Alabama beach mice occupy and often produce sudden, massive disturbances in coastal ecosystems. The storm surge associated with Hurricane Katrina impacted in some way most of the habitat within the two Alabama beach mouse populations (Figure 3). Possible mechanisms for adverse effects include direct mortality of individuals, relocation/ dispersal, predator/competitor relationships and subsequent long-term effects of habitat alterations (i.e., impact on food resource availability and dune structure). Dune erosion occurs when storm surge elevates waves higher on the beach, allowing them to attack and erode the coastal dune (U.S. Geological Survey 2020).

Hurricanes may also affect ABM habitat in the following ways:

- 1) tidal surge and wave action over wash habitat leaving a flat sand surface denuded of vegetation
- 2) sand deposition completely or partially covers vegetation
- 3) blowouts occur between the Gulf and inland areas leaving a patchy landscape of bare sand, dune and scrub habitat
- 4) the frontal portion of the primary dune habitat is sheared (damage to landward areas varies in severity)
- 5) vegetation is killed by salt spray
- 6) islands may be breached entirely and channels between the Gulf and inland waters may be created.
- 7) post-hurricane cleanup activities and recovery efforts may inadvertently introduce or transport exotic plants like cogon grass (*Imperata cylindrica*) that outcompete native plants, directly impact surviving animals by heavy equipment moving sand, and leave debris piles that may provide refuge for predators and/or competitors.



Figure 3. Two maps showing an aerial image of Alabama coast (top) and the scale of flooding (light blue and dark blue overlay) from Hurricane Katrina in 2005 (below) on top of an aerial image of coastal Alabama in the range of Alabama beach mouse (<https://gom.usgs.gov/slr/slr.aspx>; Accessed July 17, 2024)

Sea level rise is another looming threat to Alabama beach mouse habitat. By 2100, sea level rise is expected to impact coastal Alabama within the habitats where Alabama beach mouse occurs. “Based on observed data from 1966 to 2020, the local sea level at Dauphin Island has increased 1.6 inches per decade” (Runkle et al. 2022). Because Dauphin Island is a similar peninsular island to the west of Fort Morgan State Park, we believe these impacts are also being seen within the range of Alabama beach mouse. A pilot project by National Oceanic and Atmospheric Administration Coastal Services Center and the U.S. Geological Survey visualizes potential habitats impacted by sea level rise (Figure 4).



Figure 4. Two maps showing the projected scale of sea level rise (light blue and dark blue overlay) on top of an aerial image of coastal Alabama in the range of Alabama beach mouse. The top image is 1ft of sea level rise and the bottom is a prediction based on 3 ft of sea level rise (<https://gom.usgs.gov/slr/slr.aspx>; Accessed July 17, 2024).

Synthesis

The Alabama beach mouse is a small monogamous subspecies of oldfield beach mouse endemic to the coastal sand dunes of Alabama. We currently have two populations of Alabama beach mouse: one metapopulation to the west (Fort Morgan including Fort Morgan State Park and Units of Bon Secour National Wildlife Refuge) and one isolated population to the east (Gulf State Park). The two populations are isolated from one another by Little Lagoon Pass (a man-made canal). This isolation prevents movement between the two populations for genetic exchange and rescue after catastrophic events. The subspecies continues to be impacted from development of coastal Alabama, tropical storms, mowing, weed eating, free-roaming cats, and sea level rise which continue to be threats to its survival. Although some populations are protected and some threats, like development may be minimal, the remaining threats are impacting the entire range of the Alabama beach mouse. Because of ongoing threats and the current condition of the subspecies, we believe it continues to meet the definition of an endangered species.

RECOMMENDED FUTURE ACTIVITIES

- **Beach Renourishments**

A beach renourishment should be considered in the future for the Fort Morgan area to protect private property and to create, maintain habitat for nesting sea turtles, shorebirds, and Alabama beach mouse.

- **Protection of Dune Habitats at Baldwin County Public Beach Access Locations**

Baldwin County has several beach access points (>10) along Fort Morgan. These were designed for pedestrian access only and vary in width and length depending on their location. Typically, they are 30 or 50 feet wide. Currently these access points are marked but not with post and rope. As a result, there is no guidance to the beach, and the public may be crossing onto private properties and impacting Alabama beach mouse habitat. Post and roping will create more habitat protection and provide a better connection between habitat areas.

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RESULTS / SIGNATURES

U.S. Fish and Wildlife Service Status Review of Alabama Beach Mouse

Status Recommendation:

On the basis of this review, we recommend the following status for this species. A 5-year review presents a recommendation of the species status. Any change to the status requires a separate rulemaking process that includes public review and comment, as defined in the Act.

- Downlist to Threatened
- Uplist to Endangered
- Delist:
 - The species is extinct*
 - The species does not meet the definition of an endangered or threatened species*
 - The listed entity does not meet the statutory definition of a species*
- No change needed

FIELD OFFICE APPROVAL:

Field Supervisor, Alabama Ecological Services Field Office, Fish and Wildlife Service

Approve _____