

# Interim Core Map Documentation for the Perdido Key Beach Mouse

## Version 1

**Review Completed:** April 2026

**Core Map Developer:** U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs (OPP)

## Species Summary

The Perdido Key beach mouse (*Peromyscus polionotus trissyllepsis*, Entity ID 35) is an endangered mammal listed in 1985. Historically, this subspecies was documented in coastal dune habitat (primary, secondary, and scrub) on Perdido Key between Perdido Bay, AL, and Pensacola Bay, FL. However, habitat loss and fragmentation due to development has greatly reduced this subspecies' distribution. Storms also have the potential to completely change the habitat, as was the case when Hurricane Ivan affected the area. Currently, the Perdido Key beach mouse can be found in three disjointed public lands; Gulf State Park (GSP), Perdido Key State Park (PKSP), and Gulf Islands National Seashore (GINS). PKBM occur at varying densities on the private lands between these three areas; however, the connectivity function of these fragmented areas is poorly understood. The U.S. Fish and Wildlife Service (FWS) has designated a critical habitat for the Perdido Key beach mouse. Additional information on the species is provided in **Appendix 1**.

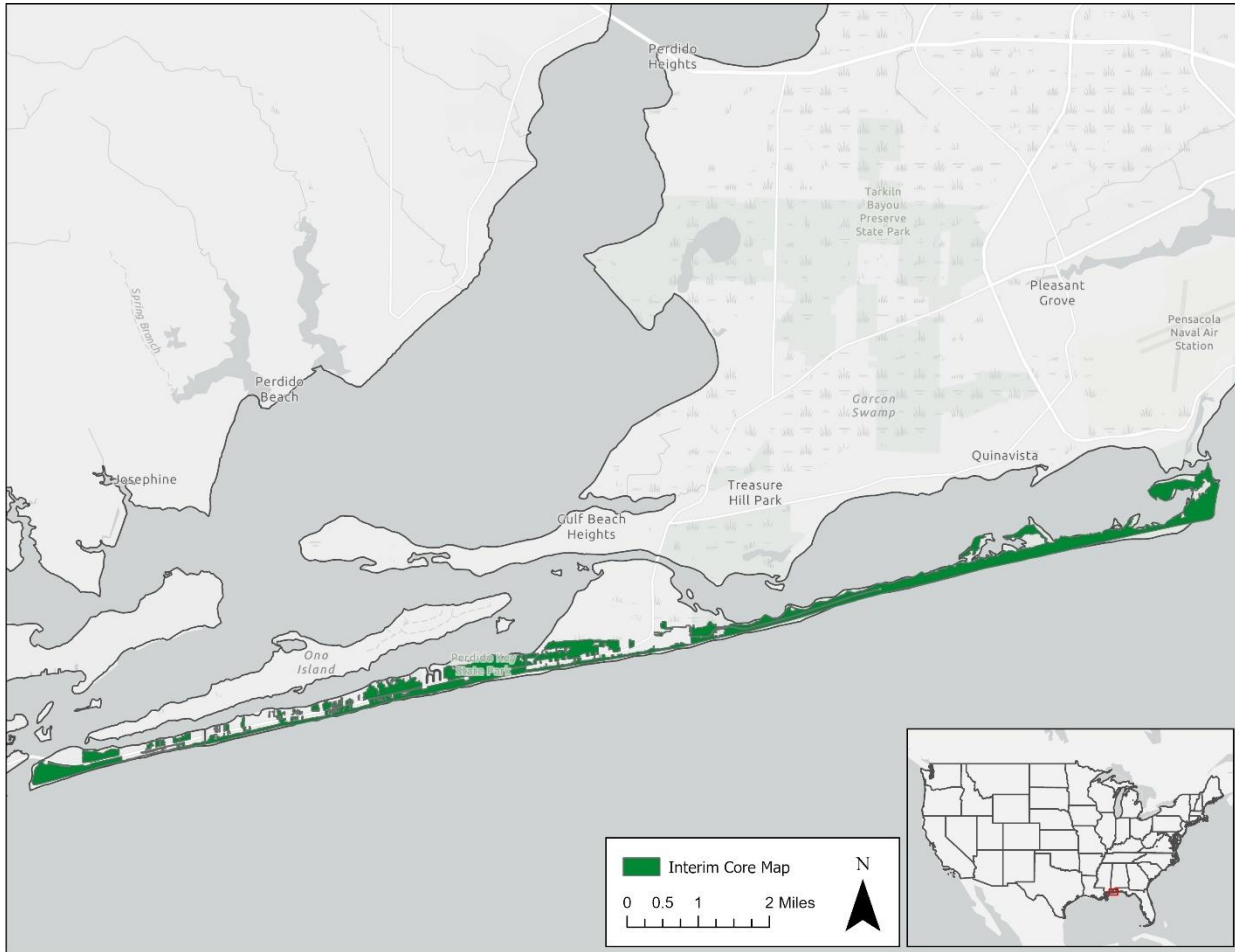
## Description of Core Map

The core map for the Perdido Key beach mouse is based on critical habitat. EPA did not find evidence that any key areas for this species exist outside of the designated critical habitat. **Figure 1** depicts the interim core map for the Perdido Key beach mouse (green areas on map). The core map represents approximately 1,300 acres.

Primary and secondary dunes (frontal dunes) are considered optimal habitat for the Perdido Key beach mouse; however, recent evidence indicates that scrub dunes serve as vital refugia for the Perdido Key beach mouse during and after tropical storms. Therefore, critical habitat for the Perdido Key beach mouse includes frontal and scrub dunes along Perdido Key, FL. Landcover categories within the core map area are included in **Table 1**. Landcover within the core map is predominantly barren land. Given the dynamism of barrier islands and National Land Cover Database's (NLCD) coarse resolution, there is likely some uncertainty in the land-cover classification.

The core map developed for the Perdido Key beach mouse is considered interim. EPA intends to use this interim core map to develop pesticide use limitation areas (PULAs) that include the Perdido Key beach mouse. This core map incorporates information developed by FWS and made available to the public; however, the core map has not been formally reviewed by FWS. This interim core map may be revised in the future to incorporate expert feedback from FWS. This interim core map has a "limited" (2) best professional judgment classification because it consists of the species' critical habitat without additions or subtractions. EPA did limit the core map only to designated critical habitat based on interpretation of FWS documentation. The core map contains all the tracking tube occurrences described by FWS. This

core map does not replace or revise any range or designated critical habitat developed by FWS for this species.



**Figure 1. Interim core map for the Perdido Key beach mouse. The total acreage of the core map is approximately 1,300 acres.**

**Table 1. Percentage of Interim Core Map Represented by NLCD<sup>1</sup> Land Covers and Associated Example Pesticide Use Sites/Types.**

Example pesticide use sites/types	NLCD Landcover (Value)	% of core map represented by landcover
Forestry	Deciduous Forest (41)	0
Forestry	Evergreen Forest (42)	0
Forestry	Mixed Forest (43)	0
Agriculture	Pasture/Hay (81)	0
Agriculture	Cultivated Crops (82)	0
Mosquito adulticide, residential	Open space, developed (21)	0
Mosquito adulticide, residential	Developed, Low intensity (22)	4
Mosquito adulticide, residential	Developed, Medium intensity (23)	14
Mosquito adulticide, residential	Developed, High intensity (24)	0
Invasive species control	Woody Wetlands (90)	0
Invasive species control	Emergent Herbaceous Wetlands (95)	0
Invasive species control	Open water (11)	4
Invasive species control	Grassland/herbaceous (71)	0
Invasive species control	Scrub/shrub (52)	0
Invasive species control	Barren land (rock/sand/clay; 31)	77
<b>Total Acres</b>	<b>Interim Core Map Acres</b>	<b>~ 1,300 acres</b>

## Evaluation of Known Location Information

There are four datasets with known location information for this species:

- Descriptions of locations provided by FWS
- Occurrence locations in iNaturalist
- Occurrence locations in the Global Biodiversity Information Facility (GBIF)
- Occurrence locations in NatureServe

EPA evaluated these sets of data before selecting the type of and developing the core map. FWS' most recent 5-year review (2021) detailed tracking tube occurrences for this species. FWS described three inhabited public lands (GINS, GSP, PKSP) with fragmented private lands containing unknown densities of this subspecies interspersed between. These locations are consistent with the critical habitat.

- EPA queried iNaturalist, GBIF, and NatureServe. Collectively, the occurrence data are consistent with the FWS location data used to identify the core map.
- iNaturalist (available [here](#)) had 1 research grade observations for this species. Location data for these observations are consistent with the core map given the positional accuracy of the information.

<sup>1</sup> Dewitz, J., 2023, National Land Cover Database (NLCD) 2021 Products: U.S. Geological Survey data release, <https://doi.org/10.5066/P9JZ7AO3>

- GBIF (available [here](#)) included no additional occurrences and human observations.
- NatureServe (available [here](#)) did not have precise public observations or element occurrences. The documented distribution was consistent with the core map given the positional accuracy of the information.

Together, the public occurrence information did not support expanding the outer extent of the core map beyond the critical habitat. **Appendix 1** includes more information on the available known location information.

## Approach Used to Create Core Map

The core map was developed using the “Process EPA Uses to Develop Core Maps for Draft Pesticide Use Limitation Areas for Species Listed by the U.S. Fish & Wildlife Service (FWS) and their Designated Critical Habitats”<sup>2</sup> (referred to as “the process”). This core map was developed by EPA and was developed using the four steps described in the process document:

1. Compile available information for a species
2. Identify core map type
3. Develop the core map for the species
4. Document the core map

For step 1, EPA compiled available information for the Perdido Key beach mouse from FWS as well as observational information available from various publicly available sources (discussed in previous section). The information compiled for the Perdido Key beach mouse is included in **Appendix 1**. Influential information that impacted the development of the core map included:

- Current tracking tube occurrences are in locations consistent with the critical habitat.

For step 2, EPA used the compiled information to identify the core map type, including the species range, critical habitat, and subspecies’ occurrence descriptions. EPA compared the description of occurrences to the range and critical habitat and found that they are consistent with the location of the designated critical habitat. The species range encompasses the entirety of Perdido Key, and, therefore, is not likely limited to the areas containing habitat of the species. Based on this information, EPA used the designated critical habitat as the core map.

For step 3, EPA used the designated critical habitat provided by FWS for the Perdido Key beach mouse. EPA downloaded the critical habitat from FWS’ Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>).

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<sup>2</sup> Dated 2024, available online at: <https://www.epa.gov/endangered-species/process-epa-uses-develop-core-maps-pesticide-use-limitation-areas>

## Discussion of Approaches and Data that were Considered but not Included in Core Map

EPA did not explore approaches other than those described in this documentation.

## Appendix 1. Information Compiled for Species

### 1. Recent FWS Documents/Links

- U.S. Fish and Wildlife Service (FWS). 2021. Perdido Key Beach Mouse (*Peromyscus polionotus trissyllepsis*) 5-Year Review: Summary and Evaluation. pp. 35. Available at [https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public\\_docs/species\\_nonpublish/997.pdf](https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/997.pdf).
- U.S. Fish and Wildlife Service (FWS). 2019. Recovery Plan for Perdido Key Beach Mouse (*Peromyscus polionotus trissyllepsis*). pp. 12. Available at [https://ecos.fws.gov/docs/recovery\\_plan/Perdido%20Key%20Beach%20Mouse\\_Final\\_12-6-2019.pdf](https://ecos.fws.gov/docs/recovery_plan/Perdido%20Key%20Beach%20Mouse_Final_12-6-2019.pdf).
- U. S. Fish and Wildlife Service (FWS). 2007. Perdido Key Beach Mouse (*Peromyscus polionotus trissyllepsis*) 5-Year Review: Summary and Evaluation. pp. 24. Available at [https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public\\_docs/species\\_nonpublish/1065.pdf](https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/1065.pdf).
- U.S. Fish and Wildlife Service (FWS). 2006. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Perdido Key Beach Mouse, Choctawhatchee Beach Mouse, and St. Andrew Beach Mouse. 71:60238. Available at <https://www.govinfo.gov/content/pkg/FR-2006-10-12/pdf/06-8481.pdf>.
- U.S. Fish and Wildlife Service (FWS). 2005. Endangered and Threatened Wildlife and Plants; Critical Habitat for the Perdido Key Beach Mouse, Choctawhatchee Beach Mouse, and St. Andrew Beach Mouse. *Federal Register* 70:74426. Available at <https://www.federalregister.gov/documents/2005/12/15/05-23695/endangered-and-threatened-wildlife-and-plants-critical-habitat-for-the-perdido-key-beach-mouse>.
- U.S. Fish and Wildlife Service (FWS). 1987. Recovery Plan for the Alabama Beach Mouse (*Peromyscus polionotus ammobates*), Perdido Key Beach Mouse (*P. p. trissyllepsis*), and Choctawhatchee Beach Mouse (*P. p. allophrys*). pp. 45. Available at [https://ecos.fws.gov/docs/recovery\\_plan/870812.pdf](https://ecos.fws.gov/docs/recovery_plan/870812.pdf).
- U.S. Fish and Wildlife Service (FWS). 1985. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status and Critical Habitat for Three Beach Mice. *Federal Register* 50:23872. Available at [https://archives.federalregister.gov/issue\\_slice/1985/6/6/23869-23889.pdf](https://archives.federalregister.gov/issue_slice/1985/6/6/23869-23889.pdf).

### 2. Background information

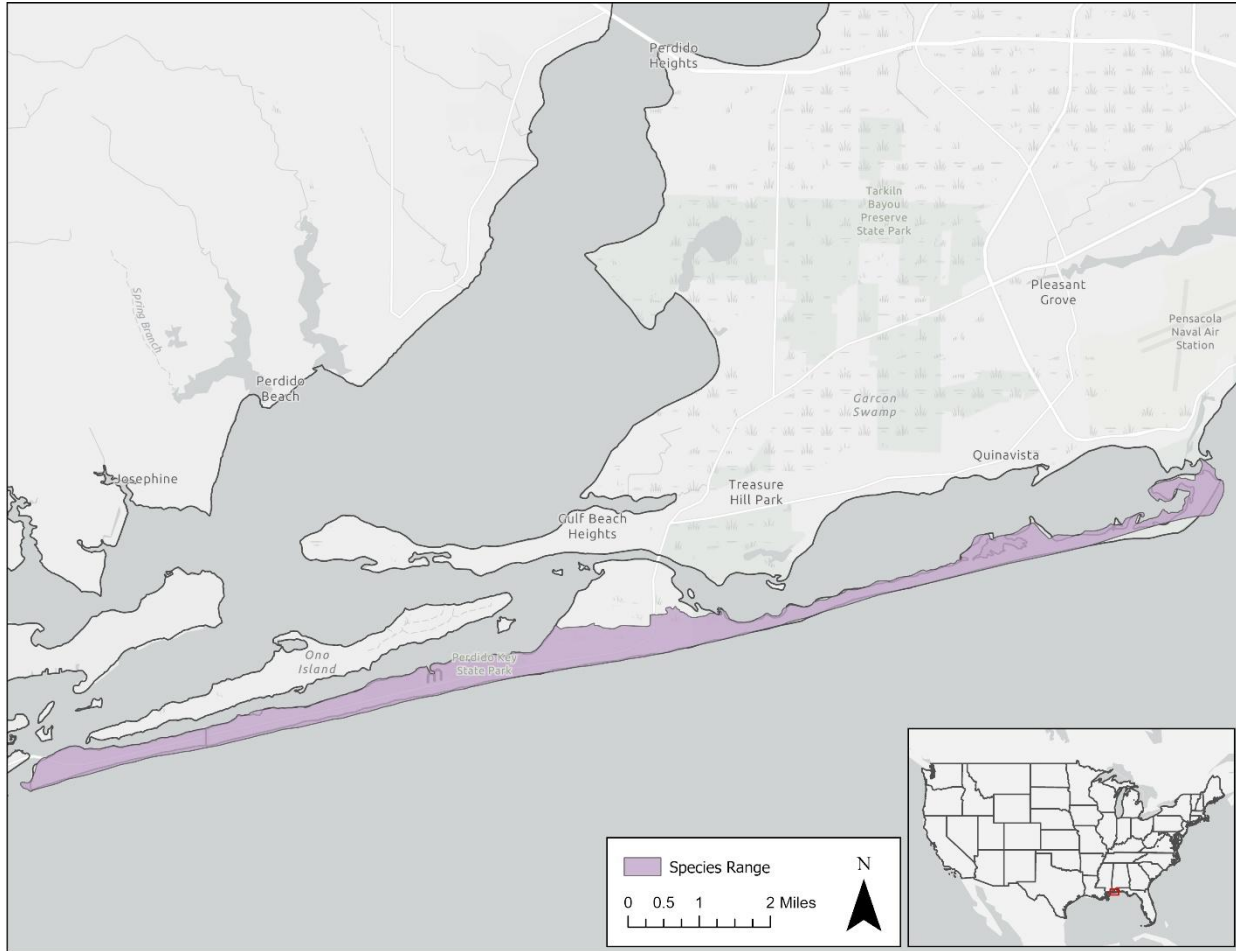
- Status: Federally listed as endangered in 1985
- Resiliency, redundancy, and representation (the 3Rs)
  - No information regarding resiliency, redundancy, and representation is currently available.
- **Habitat, Life History, and Ecology**
  - **Habitat:** (FWS, 2021)
    - Primary and secondary frontal dunes usually support the highest densities of Perdido Key beach mouse. Scrub dunes play a critical role by offering refugia from tropical storms, and thereby facilitate recolonization of the frontal dunes post-storm.
  - **Reproduction:** (FWS, 2007)

- Monogamous, where most pair for life. However, males may reproduce with unpaired females.
  - Sexual maturity ~ 55 days; gestation averages 28 to 30 days; average litter size is 4 pups.
  - Peak breeding season occurs in autumn and winter.
- **Taxonomy (FWS, 2007)**
  - Mammals
- **Essential Primary Constituent Elements (PCEs) for Designated Critical Habitat (FWS, 2006):**
  - “Based on our current knowledge of the life history, biology, and ecology of the species and the requirements of the habitat to sustain the essential life history functions of the species, [FWS] have determined that PCEs for the Perdido Key beach mice [...] are:
    1. A contiguous mosaic of primary, secondary, and scrub vegetation and dune structure, with a balanced level of competition and predation and few or no competitive or predaceous nonnative species present, that collectively provide foraging opportunities, cover, and burrow sites.
    2. Primary and secondary dunes, generally dominated by sea oats (*Uniola paniculata*), that, despite occasional temporary impacts and reconfiguration from tropical storms and hurricanes, provide abundant food resources, burrow sites, and protection from predators.
    3. Scrub dunes, generally dominated by scrub oaks (*Quercus* spp.), that provide food resources and burrow sites, and provide elevated refugia during and after intense flooding due to rainfall and/or hurricane-induced storm surge.
    4. Functional, unobstructed habitat connections that facilitate genetic exchange, dispersal, natural exploratory movements, and recolonization of locally extirpated areas.
    5. A natural light regime within the coastal dune ecosystem, compatible with the nocturnal activity of beach mice, necessary for normal behavior, growth, and viability of all life stages.”
- **Relevant Pesticide Use Sites in FWS Documents**
  - No specific references to pesticides were listed in FWS documents.
- **Relevant Recovery Criteria and Actions**
  - FWS published the *Choctawhatchee Beach Mouse, Perdido Key Beach Mouse, and Alabama Beach Mouse Recovery Plan* in 1987. FWS amended the delisting criteria in 2019 in an amended *Recovery Plan for Perdido Key Beach Mouse (Peromyscus polionotus trissyllepsis)*.
  - FWS discusses five critical habitat units in their 2019 amended recovery plan: three on public lands (PKBM-1 Gulf State Park (GSP), PKBM-3 Perdido Key State Park (PKSP), and PKBM-5 Gulf Islands National Seashore (GINS)) and two on private lands (PKBM-2 West Perdido Key and PKBM-4 Gulf Beach).
  - Recovery Objective: “The primary recovery objectives for [...] the Perdido Key beach mouse [...] are to stabilize the present populations by preventing further habitat deterioration, and to reestablish populations in areas from which they have been extirpated in order to reduce the possibility of an entire subspecies being brought to extinction by a catastrophic storm.” (FWS, 1987)

- Downlisting criteria:
  - “[PKBM] can be considered for downlisting to threatened when there are 3 distinct, self-sustaining populations in each of the critical habitat areas, and a minimum of 50% of the critical habitat is protected and occupied by mice.” (FWS, 1987)
- FWS’ amended recovery plan (2019) found that the Perdido Key beach mouse can be considered for delisting when all the following criteria are met:
  1. “Populations in all five [...] critical habitat units [(GINS, GSP, PKBM-2, PKBM-4, PKSP)] exhibit stable or increasing trends, evidenced by natural recruitment and multiple age classes [...].
  2. Habitat connectivity shall be maintained throughout the range to a level that genetic diversity among populations does not require translocations, captive breeding, human intervention, and populations in all 5 critical habitat units can rebound from catastrophic weather events [...].
  3. All designated PKBM critical habitat under public ownership [GINS, GSP, PKSP] is protected and under a conservation management plan and private lands [(e.g., PKBM-2 and PKBM-4)] supporting PKBM populations implement conservation measures that focus on coastal dune habitat and beach mouse conservation [...].
  4. Non-native predator and competitor species removal (specifically, free-roaming/feral cats) shall be conducted to a degree that PKBM populations in all 5 critical habitat units will remain viable for the foreseeable future [...].
  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 PKBM to remain viable [...].”
- Recovery actions:
  - Protect habitat from further human development/encroachment.
  - Reestablish and/or supplement populations.
  - Develop and educational program for the public.
  - Develop emergency procedures to protect mouse habitat in the event of an off-shore oil spill.

### 3. Description of the species range

- Historically occurring in coastal dunes across Perdido Key between Perdido Bay, Alabama, and Pensacola Bay, Florida, the Perdido Key beach mouse now occupies only a fraction of its former range. (FWS 2021)
- **Figure A1-1** depicts the current FWS species range (last updated January 27, 2022).
- The species range is approximately 2,662 acres.



**Figure A1-1. FWS Range of the Perdido Key beach mouse. The total acreage is approximately 2,660 acres**

**4. Critical Habitat (Source: 2024 Five Year Review)**

- At the time of listing, FWS designated critical habitat for the Perdido Key beach mouse focused on primary and secondary dunes habitats. In 2006, FWS revised the critical habitat to include critical scrub dune habitat. (FWS, 2006)
- **Figure A1-2** depicts the current critical habitat.

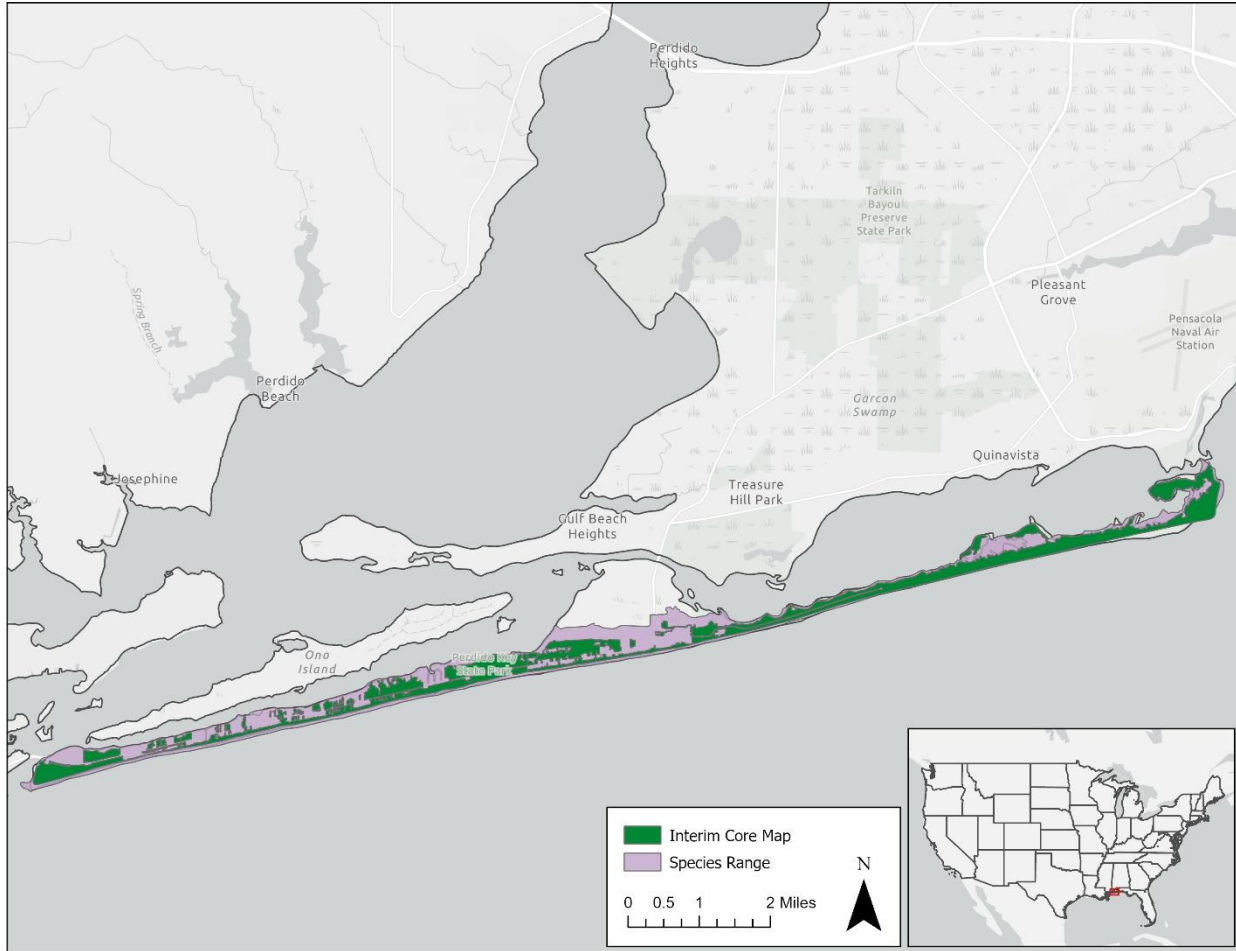


Figure A1-2. FWS critical habitat for the Perdido Key beach mouse. Range also included for reference.

## 5. Known Locations

- **Known Locations Described in FWS Recovery Documents**
  - FWS and their partners have monitored occurrences using tracking tubes in five critical habitat units. Three of those units are on public lands (GINS, GSP, PKSP), and two of those units are on private lands (PKBM-2 and PKBM-4). Occurrence monitoring does not provide a population estimate, but it allows FWS to determine where Perdido Key beach mice are with minimal impact. (FWS 2019)
- **Occurrences in iNaturalist**
  - Searched on January 26, 2026
  - [https://www.inaturalist.org/observations?quality\\_grade=research&taxon\\_id=237774](https://www.inaturalist.org/observations?quality_grade=research&taxon_id=237774)
  - There is one research grade observation available from December 2023.
  - The observation was consistent with the core map given the positional accuracy of the information.
- **Occurrences in NatureServe**
  - NatureServe was searched on January 26, 2026.
  - [https://explorer.natureserve.org/Taxon/ELEMENT\\_GLOBAL.2.105073/Peromyscus polio notus trissyllepsis](https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105073/Peromyscus_polio_notus_trissyllepsis)

- The documented distribution was consistent with the core map given the positional accuracy of the information.

**Occurrences in GBIF**

- GBIF was searched on January 26, 2026.
- There were no “human observations” available for this subspecies.
- [https://www.gbif.org/occurrence/search?q=perdido%20key%20beach%20mouse&basis\\_of\\_record=HUMAN\\_OBSERVATION&taxon\\_key=6163563&year=2000,2026](https://www.gbif.org/occurrence/search?q=perdido%20key%20beach%20mouse&basis_of_record=HUMAN_OBSERVATION&taxon_key=6163563&year=2000,2026)

Collectively, the occurrence data from iNaturalist, GBIF, and NatureServe do not support expanding the core map beyond the designated critical habitat.