Core Map Documentation for the Miami Tiger Beetle

Version 2

Review Completed: September 2025

Core Map Developer: Tessenderlo Kerley International (TKI)

This core map has been reviewed by FWS

Review Notes

The developers created this core map using the U.S. Environmental Protection Agency's (EPA) process available at: https://www.epa.gov/endangered-species/process-epa-uses-develop-core-maps-pesticide-use-limitation-areas. EPA reviewed the core map and documentation and evaluated if: (1) the map and documentation are consistent with e agency's process; (2) areas included or excluded from the core map are consistent with the biology, habitat, and/or recovery needs of the species; (3) data sources are documented and appropriate; and (4) the GIS data and mapping process are consistent with the stated intention of the developer. EPA agrees that this map is a reasonable depiction of core areas for this species and was consistent with the agency's mapping process. This documentation was not prepared by EPA, and EPA may have edited this documentation for clarity or other purposes. Some views expressed in this documentation may not necessarily be the viewpoints of EPA or its staff.

The core map developed for this species can be used to develop pesticide use limitation areas (PULAs). This core map incorporates information developed by the U.S. Fish and Wildlife Service (FWS) and made available to the public and was reviewed by FWS. This core map may be revised in the future to incorporate additional information that becomes available for this species. The core map has a best professional judgement grade of 2 (limited). The core map was limited just to designated critical habitat based on review of FWS materials.

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

Core Map Development

ArcGIS Pro 3.3 was used to perform all spatial operations.

Basis for Core Map: The core map for this species is the designated critical habitat.

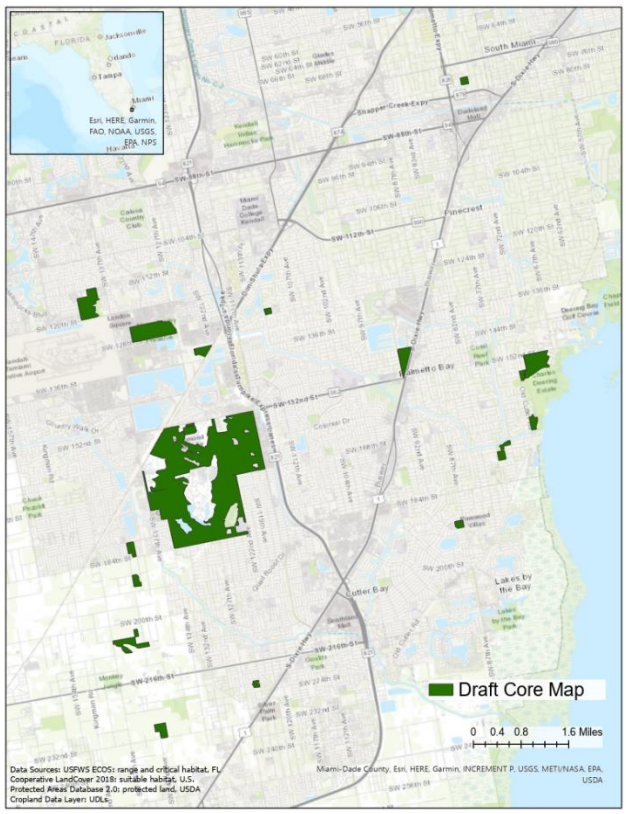

Figure 1. Core map for the Miami tiger beetle (based on critical habitat)

Table 1. Percentage of Core Map Represented by NLCD[1] Land Covers and Associated Example Pesticide Use Sites/Types

Example pesticide use sites/types	NLCD Class/Value	% Area
Forestry	Deciduous Forest (41)	0
Forestry	Evergreen Forest (42)	18
Forestry	Mixed Forest (43)	0
Agriculture	Pasture/Hay (81)	1
Agriculture	Cultivated Crops (82)	5
Mosquito adulticide, residential	Open space, developed (21)	26
Mosquito adulticide, residential	Developed, Low intensity (22)	27
Mosquito adulticide, residential	Developed, Medium intensity (23)	3
Mosquito adulticide, residential	Developed, High intensity (24)	0
Invasive species control	Woody Wetlands (90)	16
Invasive species control	Emergent Herbaceous Wetlands (95)	1
Invasive species control	Open water (11)	0
Invasive species control	Grassland/herbaceous (71)	0
Invasive species control	Scrub/shrub (52)	3

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

Example pesticide use sites/types	NLCD Class/Value	% Area
Invasive species control	Barren land (rock/sand/clay; 31)	0
Total Acres	**Core Map Acres**	**~ 1,977 acres**

Key Core Area Inputs

Sourced from most up-to-date documentation available on ECOS.

Habitat	Descriptions/Datasets
Range	Last updated 2022
Critical habitat	Designated 2023
Suitable habitat	Pine rockland habitat in Miami-Dade County
Known locations (General Descriptions)	2023 Recovery outline: two populations, Richmond Pine Rocklands and Nixon Smiley Pineland Preserve, that are separated by approximately 5 km (3.1 mi) of urban development that likely represents a barrier to dispersal.
Element occurrences	GBIF, iNaturalist, and NatureServe were searched for occurrence data, however the occurrences found did not impact the core map.
Relevant recovery criteria	2023 Recovery outline: Preserve habitat in occupied sites and other potentially suitable pine rockland sites.

Datasets Used in Core Map Development

- ECOS Datasets:
  - Most recent species range: https://ecos.fws.gov/docs/species/shapefiles/usfws_I0XA_I01_Cicindelidia_floridana_current_range.zip
  - Most recent species critical habitat downloaded via aggregate feature class, current update status checked on individual species page: https://ecos.fws.gov/docs/crithab/zip/FCH_Cicindelidia_floridana_20230523.zip
  - Recovery Outline for the Miami tiger beetle: 2023 https://ecos.fws.gov/docs/recovery_plan/20231214_MiamiTigeBeetle_recovery%20outline.pdf
  - Miami tiger beetle (Cicindelidia floridana) 5-Year Review: 2022 https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3815.pdf

Deciding Factors for Core Map Formation

- Range and critical habitat are both recently updated and appear to be highly focused around pine rockland habitat in Miami-Dade County.
- According to the 2023 Recovery outline and the 2022 5-year review, the species is only known to exist in two locations: Richmond Pine Rocklands and Nixon Smiley Pineland Preserve. Both areas are captured in the critical habitat.
- Because the critical habitat is such a small area of suitable habitat clustered around the known locations, critical habitat can be used as the core area.

Core Map Development

- Most recent species range and critical habitat shapefiles were downloaded from ECOS.
- The critical habitat feature class is used as the core map.

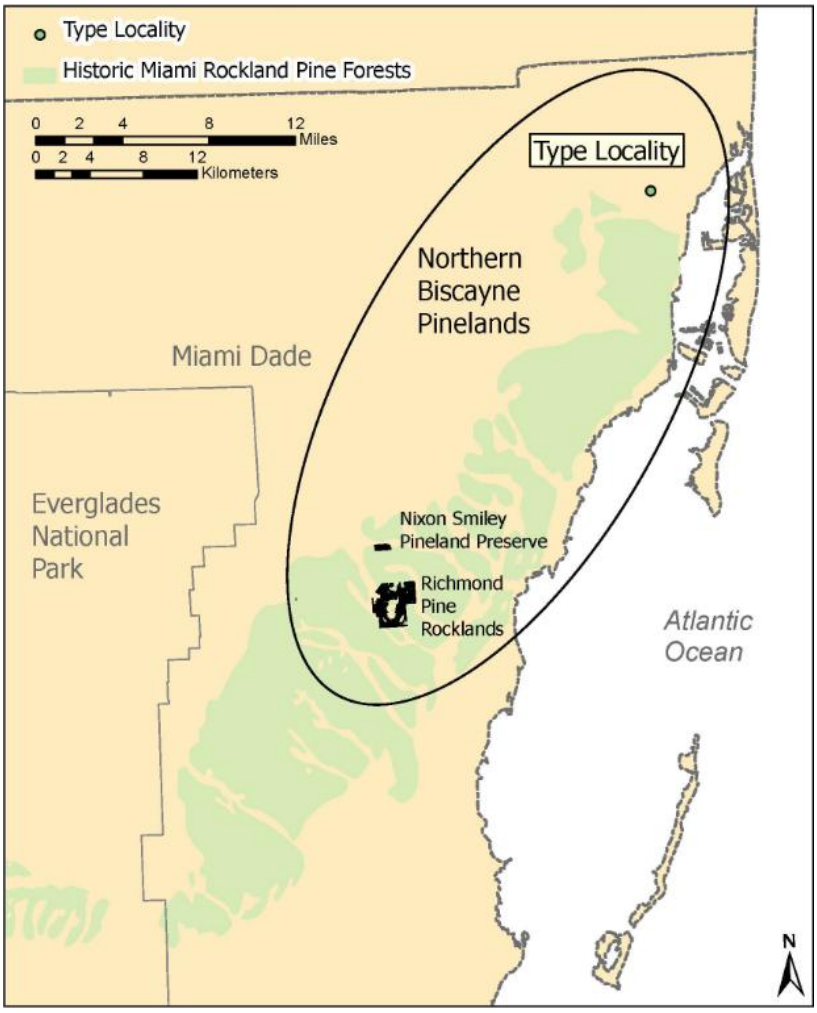

Figure 2. Map showing current locations from the 2022 5-year review

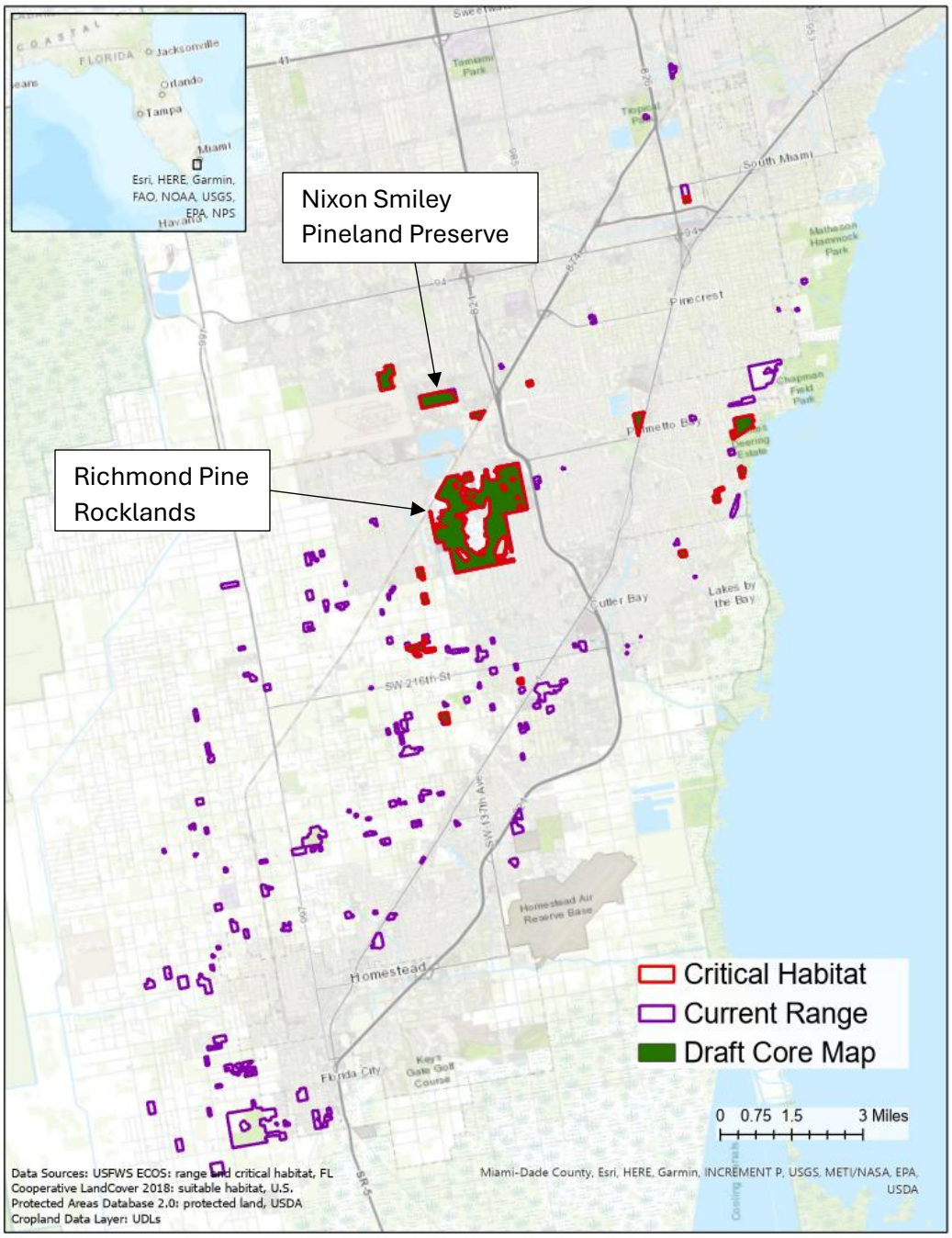

Figure 3. Range and critical habitat in relation to the core map. The two known populations are labeled.