

Core Map Documentation for the Bartram's Hairstreak Butterfly (*Strymon acis bartrami*)

Version 2

Review Completed: August 2025

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This core map has been reviewed by the U.S. Fish and Wildlife Service (FWS)

Species Summary

The Bartram's hairstreak butterfly is a terrestrial insect that is found in southern Florida only within pine rocklands that retain its only known host plant, pineland croton.

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 the 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, but EPA may have edited this documentation for clarity or other purposes. Some views included in this documentation may not necessarily reflect the views 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. The core map has been reviewed by a FWS species expert. This core map may be revised in the future to incorporate new data on this species as it becomes available.

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

Core map development for the species and critical habitat

ArcGIS Pro 3.3 was used to perform all spatial operations.

Basis for Core Map: The core map for this species is based on the range with extirpated areas described by FWS removed.

Level of Best Professional Judgement (EPA scale): 2-Limited, core map based on the range with the removal of Big Pine Key, Little Pine Key, and No Name Key. Based on species expert recommendations.

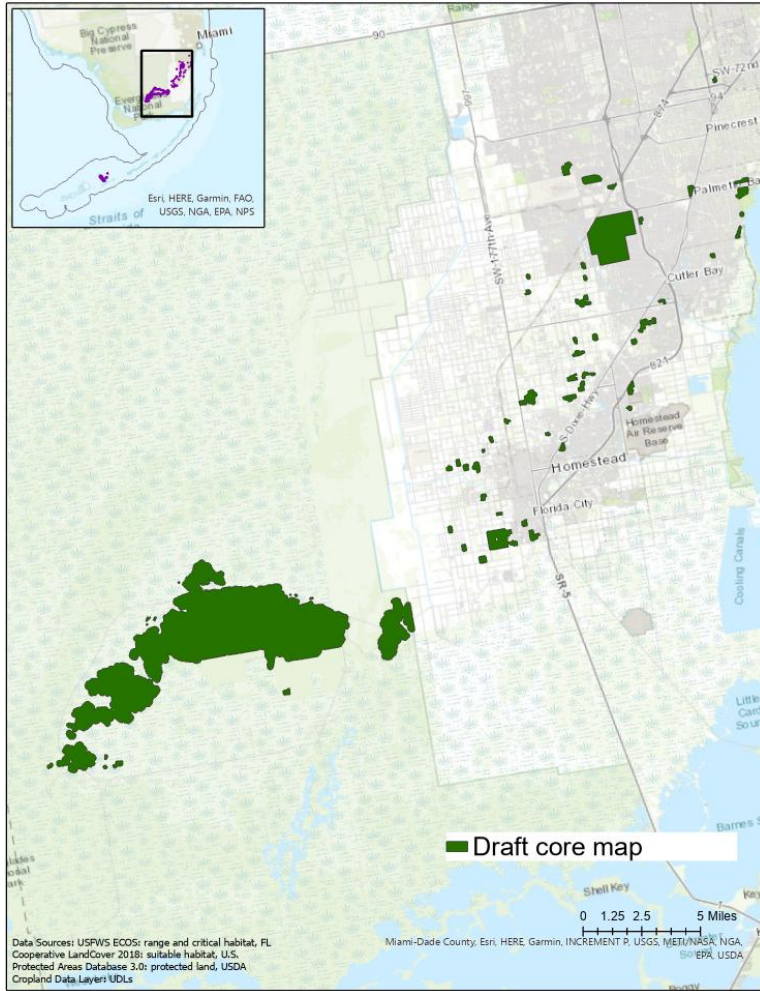


Figure 1. Core map for the Bartram's hairstreak butterfly based on range with Big Pine Key, Little Pine Key and No Name Key removed.

Table 1. Percentage of Core Map Represented by NLCD¹ 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)	11
Forestry	Mixed Forest (43)	5
Agriculture	Pasture/Hay (81)	1
Agriculture	Cultivated Crops (82)	4
Mosquito adulticide, residential	Open space, developed (21)	5
Mosquito adulticide, residential	Developed, Low intensity (22)	5
Mosquito adulticide, residential	Developed, Medium intensity (23)	1
Mosquito adulticide, residential	Developed, High intensity (24)	0
Invasive species control	Woody Wetlands (90)	23
Invasive species control	Emergent Herbaceous Wetlands (95)	35
Invasive species control	Open water (11)	0
Invasive species control	Grassland/herbaceous (71)	0
Invasive species control	Scrub/shrub (52)	8
Invasive species control	Barren land (rock/sand/clay; 31)	0
Total Acres	Core Map Acres	~ 26,600 acres

Key Core Area Inputs

Sourced from most up-to-date documentation available on [ECOS](#).

Habitat	Descriptions/Datasets
Range	Last updated 2024
Critical habitat	Designated 2014
Suitable habitat	5-yr review (2024): Pine rockland habitat that supports its host plant, the pineland croton. <i>Bartram's scrub-hairstreak butterflies will make use of rockland hammock and hydric pine flatwood within and between occurrences of pine croton but cannot complete their life cycle without pine croton.</i>
Known locations (General Descriptions)	5-yr review (2024): <i>Due to development and fragmentation of pine rockland habitat in South Florida, its range is now restricted to two populations in isolated remnants of pine rockland habitat in Miami-Dade County (Figure 1), including in the Long Pine Key Region of Everglades National Park and a few sites in Miami-Dade County</i>

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

Habitat	Descriptions/Datasets
Element occurrences	Shown in Fig below from 2024 5-yr review Global Biodiversity Information Facility (GBIF), iNaturalist, and NatureServe were searched for occurrence data; however, the occurrences found did not impact the core map.
Relevant recovery criteria	5-yr review (2024): Protect and restore remnant pine rocklands throughout the range

Datasets Used in Core Map Development

- ECOS Datasets:
 - Most recent species range:
https://ecos.fws.gov/docs/species/shapefiles/usfws_complete_species_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/ecp/report/critical-habitat>
 - Recovery Outline for Bartram’s scrub hairstreak butterfly: 2014
https://ecos.fws.gov/docs/recovery_plan/20141126_Recovery%20Outline_Bartrams%20hairstreak.pdf
 - Bartram’s scrub hairstreak butterfly 5-Year Status Review: 2024
https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/14367.pdf
- Other GIS Datasets:
 - Florida Cooperative Landcover dataset v3.7
<https://myfwc.com/research/gis/wildlife/cooperative-land-cover/>

Deciding Factors for Core Map Formation

- Range has recently been updated and reflects suitable habitat well.
 - The FL Cooperative Landcover² dataset classes “Pine rockland”, “Hydric pine flatwoods”, and “Rockland hammock” were compared with the range.
- The species is considered extirpated from Big Pine Key as it has not been detected since 2017, so this island was removed from the core map. Little Pine Key and No Name Key populations were confirmed extirpated by FWS species experts, so these areas were also removed from the core map.

² <https://myfwc.com/research/gis/wildlife/cooperative-land-cover/>

Core Map Development

- Most recent species range shapefile was downloaded from ECOS.
- Multipart to singlepart was run on the range shapefile to separate out the range segments.
- The segments of range in Little Pine Key, Big Pine Key and No Name Key were deleted.
- The remaining range polygon was used as the core map.

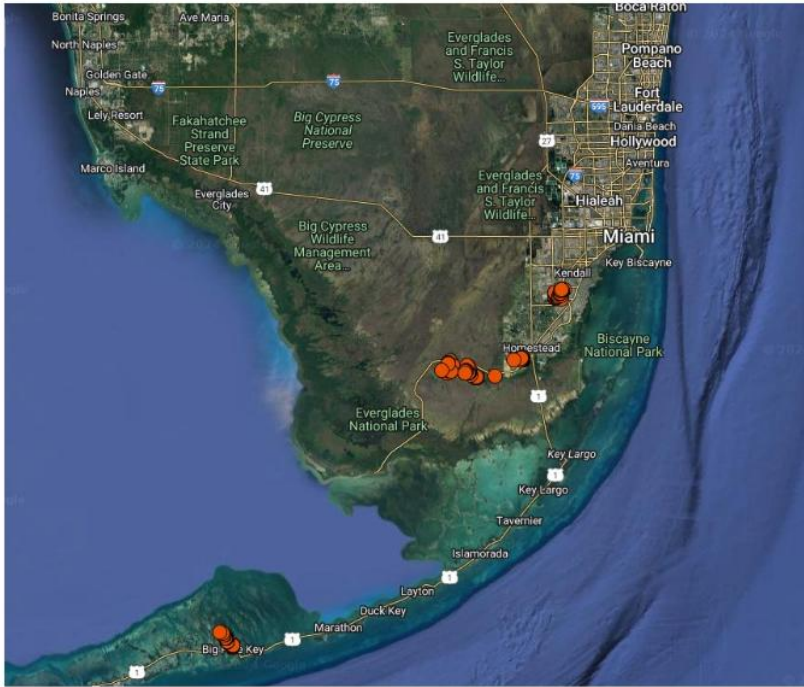


Figure 1: Distribution of recent (2007 – present) sightings of Bartram’s scrub-hairstreak butterfly as denoted with purple points. Note that the population mapped on Big Pine Key (the circles in the southernmost portion of the map) has not been detected since 2017 and is presumed extirpated (provided within Daniels pers. comm. 2023).

Figure 2. Fig 1 in the 2024 5-yr review shows the extant occurrences of the species. Note that the Big Pine Key population hasn’t been detected since 2017 and is presumed extirpated.

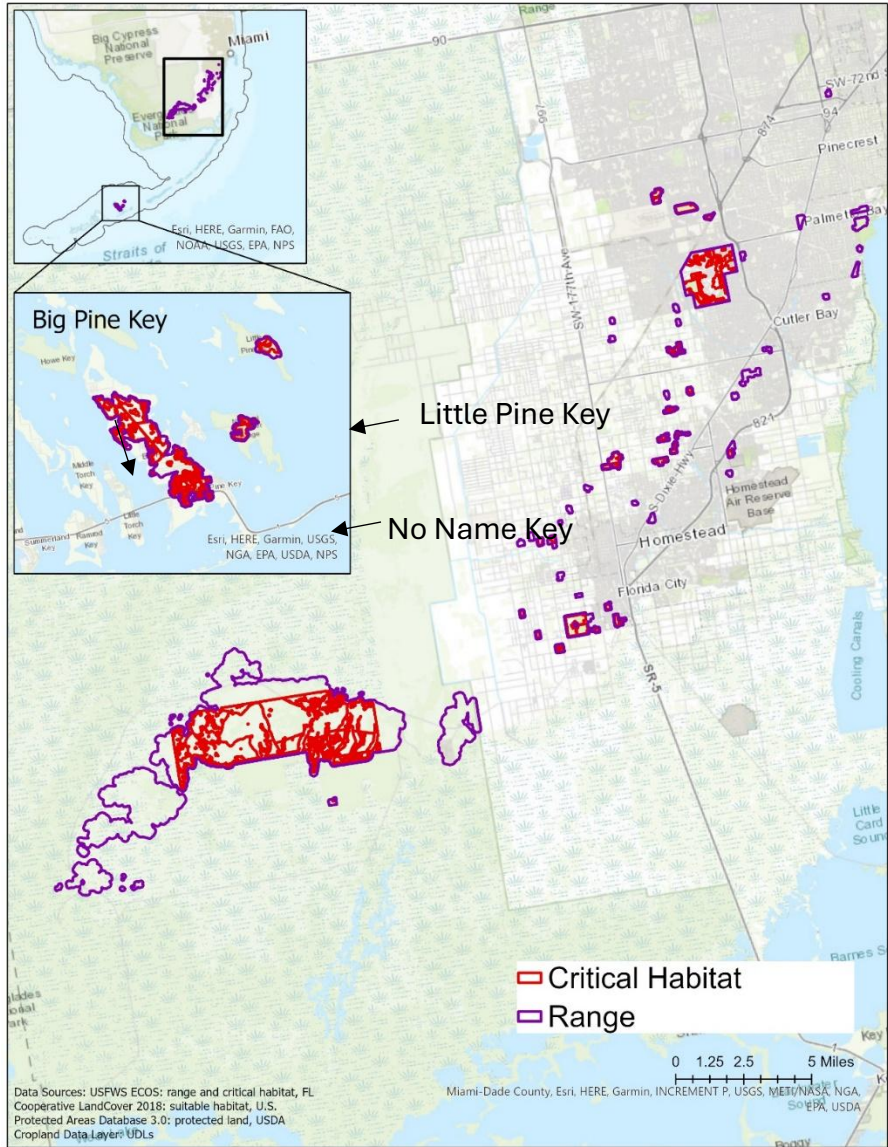


Figure 3. Range and critical habitat for the Bartram's hairstreak butterfly.

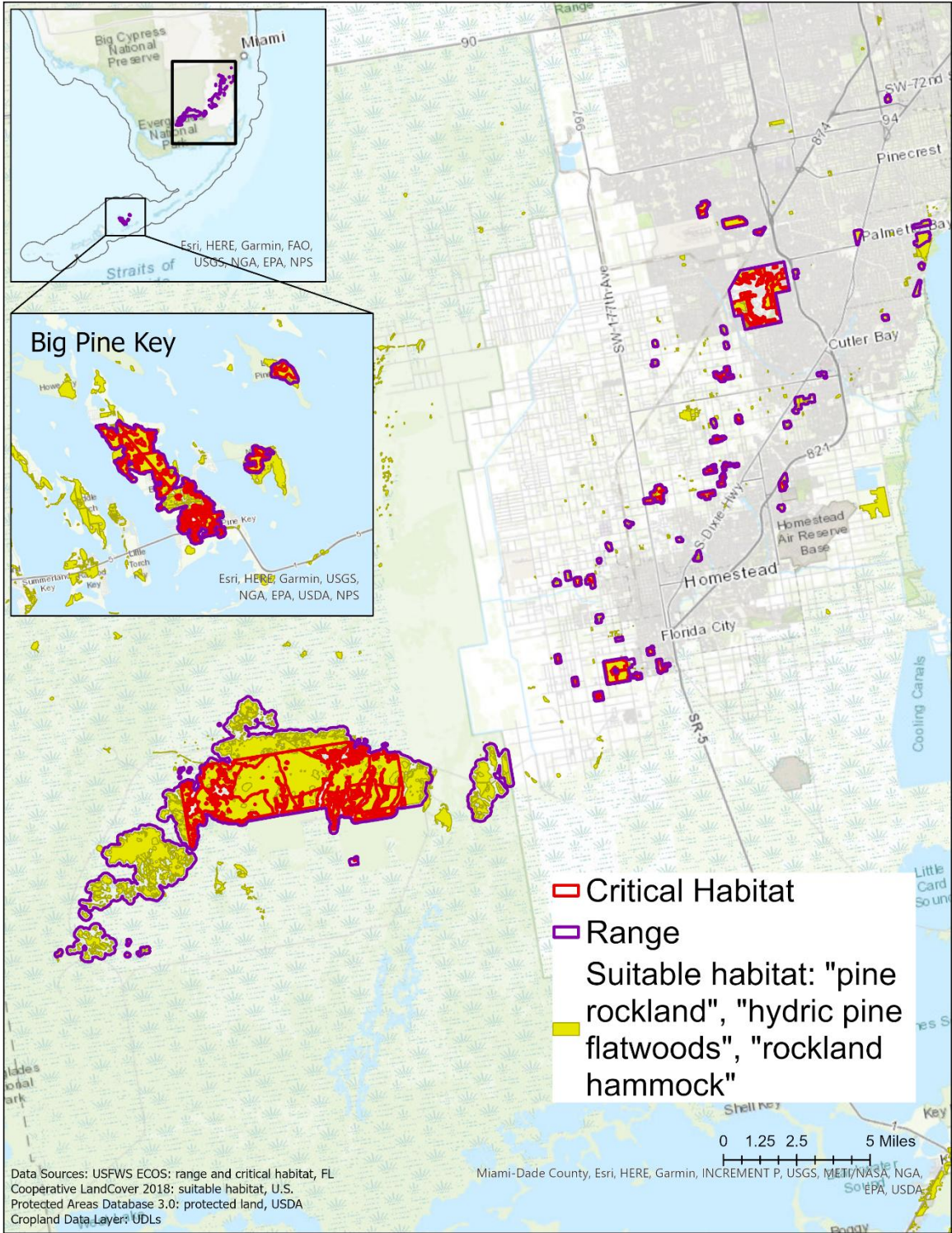


Figure 4. Range/critical habitat compared with suitable habitat (from FL CLC³ dataset).

³ <https://myfwc.com/research/gis/wildlife/cooperative-land-cover/>