Interim Core Map Documentation for Florida Pineland Crabgrass (*Digitaria pauciflora*)

Version 1
Review Completed: April 2026
Core Map Developer: U.S. Environmental Protection Agency (EPA), Office of Pesticide Programs

Species Summary

The Florida pineland crabgrass *(Digitaria pauciflora)* is also known as Everglades grass or two-spike crabgrass and only occurs in the Everglades in Miami-Dade and Monroe counties. The historical range of the Florida pineland crabgrass includes southern Florida, including central and southern Miami-Dade County along the Miami Rock Ridge, from southern Miami to Long Pine Key region of Everglades National Park and into Big Cypress National Preserve in Monroe County. This blue-green perennial clump grass grows in pine rocklands, marl prairie, cypress habitat, and transitional habitats between them. It reaches three feet tall in clumps three feet wide with densely hairy leaves up to five inches long and produces flowers and fruits from summer to late fall on both new and older growth. Plants can reproduce sexually, and clonally through rhizomes and vegetative spread. Very small dull green flowers are borne along paired spikes on the ends of the flowering stems, with usually only a few flower clusters forming per clump of grass.

Description of Core Map

The core map for the Florida pineland crabgrass is biological information type based on the range with habitat refinements. The species occurs predominantly within the seasonally flooded ecotones. Since the species occurs in seasonally wetlands, EPA refined the core map based on wetland habitat. This refinement did minimum improvements because most of the range already includes wetland habitats. FWS documentation states that the current extant of the species is only Everglades National Park (ENP) and into Big Cypress National Preserve (BCNP), so further refinement was performed to only encompass these two areas. From the 5-year review, Florida pineland crabgrass can be partially submerged in freshwater for a portion of the year but based on location, they appear not to tolerate salinity, so EPA removed wetlands that specifically had a saltwater association (Tidal Flats, Saltwater Marshes, and Mangrove Swamps).

Figure 1 depicts the results interim core map for the Florida pineland crabgrass. The size of the core map is approximately 654,763 acres. Landcover categories within the core map area are included in **Table 1**. Land cover is almost exclusively emergent Herbaceous Wetlands and woody wetlands, which aligns with the species habitat.

The core map developed for the Florida pineland crabgrass is considered interim. This core map will be used to develop pesticide use limitation areas (PULAs) that include Florida pineland crabgrass. This core map incorporates information developed by the U.S Fish and Wildlife Service (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 an “average” (3) best professional classification to describe major uncertainties/limitations. The map is

based on range with refinements of habitat described by FWS. This core map does not replace or revise any range or designated critical habitat developed by FWS for this species.

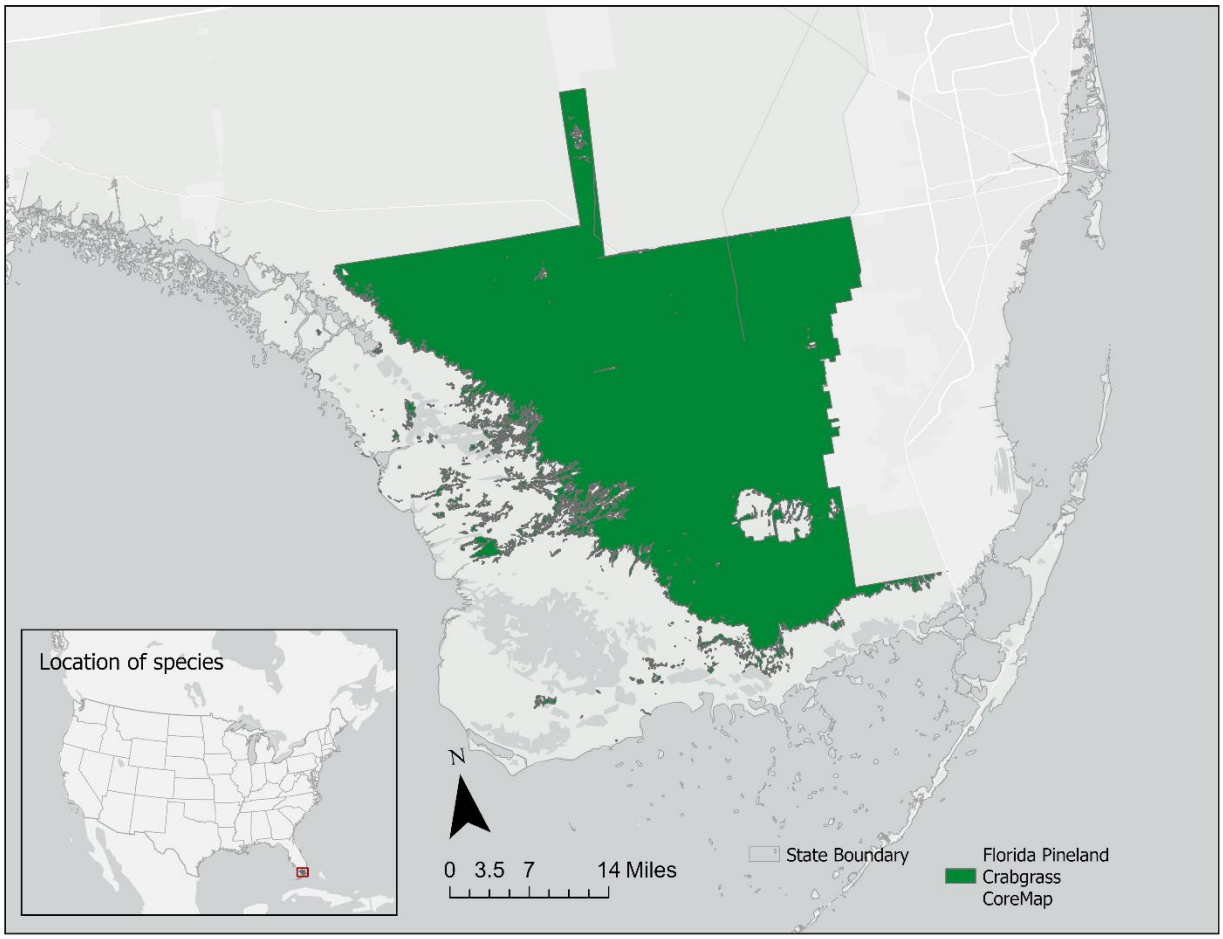

Figure 1. Interim core map for the Florida pineland crabgrass. The total acreage of the interim core map is approximately 654,763.

Table 1. Percentage of Interim Core Map Represented by NLCD2 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)	<1
Forestry	Evergreen Forest (42)	<1
Forestry	Mixed Forest (43)	<1
Agriculture	Pasture/Hay (81)	<1
Agriculture	Cultivated Crops (82)	<1
Mosquito adulticide, residential	Open space, developed (21)	<1
Mosquito adulticide, residential	Developed, Low intensity (22)	<1
Mosquito adulticide, residential	Developed, Medium intensity (23)	<1
Mosquito adulticide, residential	Developed, High intensity (24)	<1

Example pesticide use sites/types	NLCD Landcover (Value)	% of core map represented by landcover
Invasive species control	Woody Wetlands (90)	~8
Invasive species control	Emergent Herbaceous Wetlands (95)	~92
Invasive species control	Open water (11)	<1
Invasive species control	Grassland/herbaceous (71)	<1
Invasive species control	Scrub/shrub (52)	<1
Invasive species control	Barren land (rock/sand/clay; 31)	<1
	Interim Core Map Acres	**~654,763**

Evaluation of Known Location Information

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

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

EPA evaluated these four sets of data to inform or support the core map. FWS appeared to have the finest resolution of the location information, providing details that depicted the current known locations (**Figure 2 in Appendix 1**). Occurrences in iNaturalist, GBIF, and NatureServe did not support expanding the core map. **Appendix 1** includes more information on the available known location information.

Approach Used to Create Core Map[1]

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[3]" (referred to as "the process"). This core map was developed by EPA using the 4 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 Florida pineland crabgrass from FWS, as well as observation information available from various publicly available sources (including iNaturalist, GBIF, and NatureServe). The information compiled for the Florida pineland crabgrass is included in Appendix 1. Influential information that impacted the development of the core map included:

- FWS specifies where known locations are found
- Species habitats include specific eco-types.

For Step 2, EPA used the compiled information to identify the core map type. EPA compared what information is known about location data to the range and found that the species range can be used as

[1] U.S. Fish and Wildlife Services Environmental Conservation Online System (ECOS)

the outer extent of the core map. The species occurs predominantly within the seasonally flooded ecotones of pine rocklands, marl prairies, and cypress habitat, so EPA refined the core map based on wetlands since flood plains are considered part of wetland habitat. The current extant of the species is only Everglades National Park (ENP) and into Big Cypress National Preserve (BCNP)[2], so EPA further refined the wetlands by these two areas. Lastly, the Florida pineland crabgrass is noted to be partially submerged in freshwater for a portion of the year but based on location, appears not to tolerate salinity, so EPA removed wetlands that specifically had a saltwater association (Tidal Flats, Saltwater Marshes, and Mangrove Swamps).

For Step 3, EPA used the best available data sources to generate the core map. Data sources are discussed in the process document. For this core map, EPA used the FWS range as the starting point[1]. EPA refined the core map by using the Florida Department of Environmental Protection Geospatial Open Data Geodatabase for wetlands[3]. **Appendix 2** provides more details on the GIS analysis and data used to generate the core map.

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.

[2] Everglades National Park (ENP) and Big Cypress National Preserve
https://services3.arcgis.com/17F7m6SrhCakwCcI/arcgis/rest/services/EvergladesNP_boundary/FeatureServer
[3] Florida Department of Environmental Protection Geospatial Open Data Geodatabase for wetlands
https://geodata.dep.state.fl.us/datasets/wetlands/explore

Appendix 1. Information Compiled for Species

1. **Recent FWS documents/links and other data sources**

- Florida Pineland Crabgrass 5-year Status Review. (https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/9549.pdf)
- Five Year Review (2022) (https://www.fws.gov/species-publication-action/initiation-5-year-status-reviews-35-southeastern-species-request-15)
- Critical Habitat (2022)) (https://www.federalregister.gov/documents/2022/10/14/2022-21604/endangered-and-threatened-wildlife-and-plants-designation-of-critical-habitat-for-sideroxylon)

2. **Background information**

- **Status**: Federally listed as threatened (https://ecos.fws.gov/ecp/species/3728) on 10/6/2017 with several other species (https://www.fws.gov/species-publication-action/endangered-species-status-dalea-carthagenensis-var-floridana-florida-2)

- **Resiliency, redundancy, and representation** (the 3Rs)
  Resiliency: Florida crabgrass relies on periodic disturbance, such as fire regimes, to maintain their habitat (Bradley and Gann, 1999; ENP 2014). The species is also found in habitats with longer 3 hydroperiods, particularly marl prairie, that exhibit flooding for several months during the wet season (Gann et al. 2006). Plants can be partially submerged in freshwater for a portion of the year but based on location, they appear not to tolerate salinity.
  Redundancy: In 2007, the Big Cypress National Preserve (BCNP) population estimate was greater than 10,000 individual plants (Bradley, pers. comm. 2007). While Florida crabgrass populations remain abundant within ENP and BCNP, these areas represent only half of the species' historical range (Bradley and Gann 1999; Gann 2015). However, Florida crabgrass remains vulnerable to extinction due to low population dispersal across its range (low redundancy), and fragmented populations causing decreased genetic diversity (low representation) (Five Year Review 2023).
  Representation: The Florida crabgrass population in ENP is estimated to be greater than 200,000 individuals at Long Pine Key (Maschinski and Lange 2015). In 2007, over 16,000 seeds from this population were collected and sent to the National Center for Genetic Resources Preservation for storage (Gann 2015). Bradley et al. (2013) discovered Florida crabgrass within the Lostmans Pines region of BCNP in Monroe County, Florida in 2002. This represented the first known Florida crabgrass occurrence outside Miami-Dade County (FNAI 2007). This species is widely distributed within Lostmans Pines (Bradley et al. 2013). Bradley et al. (2013) conducted surveys in the Gum Slough region of Lostmans Pines and indicated that the species is widely distributed within the study area documenting over 2,365 individuals.

- **Habitat**
  The Florida crabgrass occurs predominantly within the seasonally flooded ecotones of pine rocklands, marl prairies, and cypress habitat. The historical range of Florida crabgrass includes appropriate habitat in southern Florida, including central and southern Miami-Dade County along the Miami Rock Ridge, from southern Miami to Long Pine Key region of Everglades National Park (ENP) and into Big Cypress National Preserve (BCNP) in Monroe County. Currently, Florida crabgrass is extant only in two locations, ENP and BCNP.

- **Pollinator/reproduction**
  Florida crabgrass can reproduce sexually, clonally through rhizomes, and via vegetative spread. Several subpopulations are found near trails and roads, suggesting human activities may assist in seed dispersal and recruitment. This plant fruits in the fall and produces flowers from summer to late fall on both new and older growth.
- **Taxonomy**
  The Integrated Taxonomic Information System (ITIS) lists the scientific entity, Digitaria pauciflora, as a valid, accepted taxonomy for the listed species and list the common name as two spike crabgrass and Florida pineland crabgrass (ITIS 2022). The common name used in the list under the Act is Florida crabgrass (50 CFR 17.12). The common name Florida crabgrass was used and is still considered valid by the Service.
- **Relevant Pesticide Use Sites**
  No information specific to pesticide uses because the Florida crabgrass is restricted to Everglades National Park (ENP) and Big Cypress National Preserve (BCNP) in Monroe County.
- **Threats**
  FWS (2023) summarized the status of Florida crabgrass is determined from an assessment of factors specified in section 4 (a)(1) of the Act, including: Factor A: the present or threatened destruction, modification, or curtailment of its habitat or range, more specifically the extensive land modification for development and agriculture in Miami-Dade and Monroe counties; Factor B: overutilization for commercial, recreational, scientific, or educational purposes; and Factor C: disease or predation; are not known threats to this species. Factor D: the inadequacy of existing regulatory mechanisms; and Factor E: other natural or manmade factors affecting its continued existence.
- **Recovery Criteria/Objectives (2024 recovery plan)**
  As stated in FWS (2023) 5-year status review, recovery criteria for this species have not been finalized
- **Recovery Actions (2023 recommendation)** (https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/9549.pdf)
  This species does not have a final recovery plan. While completing this status review, FWS has identified the following potential recovery activities which are included below:

    - Maintain current populations of the pine rockland habitat with an approved management plan including a prescribed fire regimen
    - Conduct extensive eradication of invasive plants within known populations
    - Develop a translocation/reintroduction plan to identify potential recipient sites for reintroducing or establishment of populations within the historical range. Emphasis should be put on the known extirpated populations in Table 1 as well as Nixon Smiley Preserve, Lucille Preserve, Tamiami Complex Addition, and Snapper Creek Pineland.
    - Identify and restore patches of historically wetter environmentally endangered lands within the Florida crabgrass's historic range
    - Establishing partnerships with private landowners to promote conservation easements and landowner agreements within remaining Florida crabgrass habitats.

FWS (2023) recommends several monitoring/research and outreach activities to aid in the recovery of the Florida crabgrass.

Monitoring / Research Activities:

- Conduct regular monitoring of populations to better understand species trends
- Survey extensively in and around the Gum Slough/Stair Steps area of BCNP to better understand the extent of this population
- Research species demographics such as life history and ecology with an emphasis on understanding the hydrological periods required by the species
- Evaluate the 16,000 seeds collected for viability in long-term cold storage. Determine storage lifespan and the rate at which banks should be replenished.
- Map the extant populations of Florida crabgrass and identify remaining suitable habitat within the species range

Outreach Activities:

- Increase public awareness and appreciation for native plants and habitats
- Attend public events when appropriate to improve the communities understanding of management techniques and policies, such as prescribed fire, in pine rockland habitats

3. **Description of Species Range**

The historical range of the Florida pineland crabgrass includes southern Florida, including central and southern Miami-Dade County along the Miami Rock Ridge, from southern Miami to Long Pine Key region of Everglades National Park and into Big Cypress National Preserve in Monroe County. (**Figure. A1-1**)

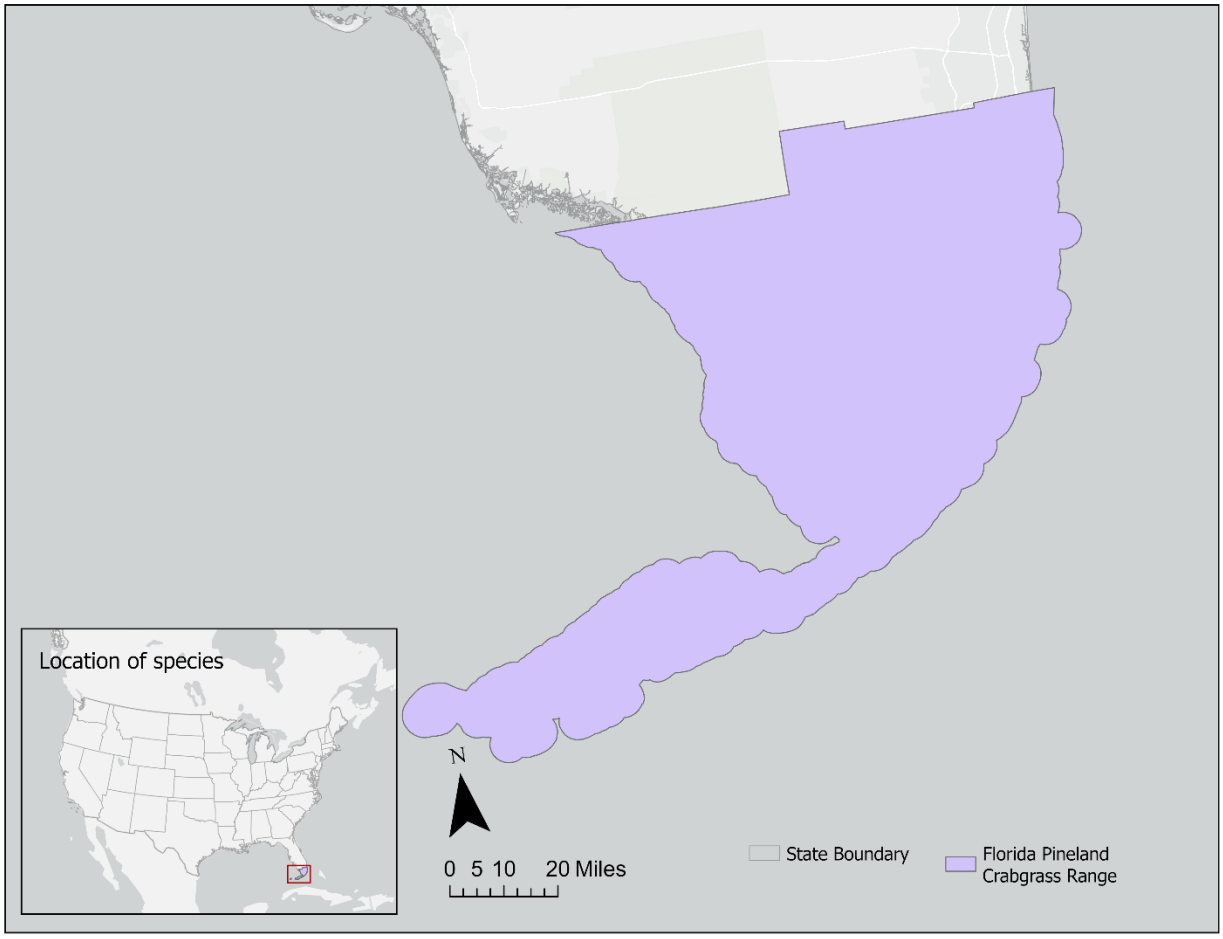

Figure A1-1. Florida pineland crabgrass includes southern Florida by FWS (3,948,914 acres).

4. **Critical Habitat**
    - FWS has not designated a critical habitat for the Florida crabgrass https://ecos.fws.gov/ecp/species/3728 for two reasons:
        1. Data sufficient to perform required analyses are lacking.
        2. The biological needs of the species are not sufficiently well known to identify any area that meets the definition of ‘‘critical habitat.’’

5. **Known Locations**

The Florida pineland crabgrass *(Digitaria pauciflora)* occurs in the Everglades in Miami-Dade and Monroe counties. The historical range of the Florida pineland crabgrass includes southern Florida, including central and southern Miami-Dade County along the Miami Rock Ridge, from southern Miami to Long Pine Key region of Everglades National Park and into Big Cypress National Preserve in Monroe County. This blue-green perennial clump grass grows in pine rocklands, marl prairie, cypress habitat, and transitional habitats between them.

- **Occurrences Included in Public Databases**

EPA queried iNaturalist, GBIF, and NatureServe for the Florida pineland crabgrass or twospike crabgrass *(Digitaria pauciflora)* (searched 10/3/2025).

Occurrences in **NatureServe** are consistent with the species range (**linked here**). Collectively, the occurrence data do not support expanding the core map beyond the species range.
https://explorer.natureserve.org/pro/Map/?taxonUniqueId=ELEMENT_GLOBAL.2.161755

iNaturalist (available here) has seven research grade observations for this species (searched 10/3/2025). Among them, six observations are in or Big Cypress National Preserve and one observations is in Everglades National Park, Monroe County.
https://www.inaturalist.org/observations?quality_grade=research&taxon_id=161914

GBIF (available here) occurrences included less than 10 human observations in core map areas of south Florida since 2000 and over 300 as preserved specimen nationwide (from 1853-2025).
https://www.gbif.org/species/5289978
The occurrence data are consistent with the locations of Big Cypress National Preserve and Everglades National Park, in Monroe County included in the core map.

References

FWS, 2023. Florida Pineland Crabgrass Digitaria pauciflora 5-year Status Review. U.S. Fish and Wildlife Service. 11 pages. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/9549.pdf.

Appendix 2. GIS Data Review and Method to Develop Core Map

This core map was created based on biological information with habitat refinements, including occupied locations and suitable habitat. EPA used the FWS range file from 2025 as the starting point for developing this core map. The core map was further refined by limestone geology and the removal of forested areas.

1. **Dataset References and Software**

- 2021 National Land Cover Database (NLCD)[Error! Bookmark not defined.]
- Everglades National Park (ENP) and Big Cypress National Preserve[2]
- Florida Department of Environmental Protection Geospatial Open Data Geodatabase for wetlands[3]
- Software used: ArcGIS Pro 3.2
- FWS Species Range – last updated on 02/16/2022

2. **Datasets Used in Core Map Development**

All datasets used in core map development are described in EPA's process document.

3. **Core Map Development**

- EPA started with the species range documented in FWS documents.
- The species occurs predominantly within the seasonally flooded ecotones of pine rocklands, marl prairies, and cypress habitat, so EPA refined based on wetlands since flood plains are considered part of wetland habitat using Florida Department of Environmental Protection Geospatial Open Data Geodatabase for wetlands.
- The current extant of the species is only Everglades National Park (ENP) and into Big Cypress National Preserve (BCNP), so EPA further refined the wetlands by these two areas.
- NLCD land cover data was clipped to the area.
- Raster to polygon
- Pairwise dissolve was used to condense land cover data of the same classname.
- NLCD land cover data was used to remove forested areas since this species does not occur in forested habitat.
- Final core map is named "Florida Pineland Crabgrass Core Map.shp"