

Florida's Statewide Greenways Initiative

1990 - 2015

**Florida
Greenways
Program &
the
Florida
Greenways
Commission**

**Initial
Greenways
Legislation -
DEP Lead
State
Agency &
Florida
Greenways
Coordinating
Council**

**GIS
Decision
Support
Model
Completed,
Public
Review &
Comment**

**Legislative
Adoption of
Five
Year Plan**

**Adopt
Priorities,
Update Plan
and Implement
Protection**

1990-94

1995

1997 - 98

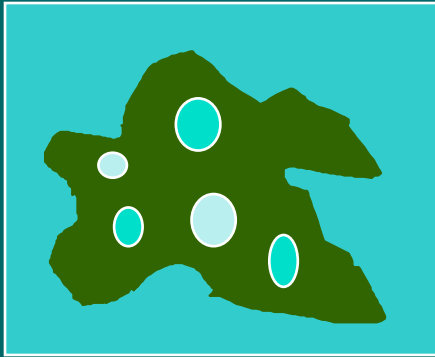
1999

2000-16

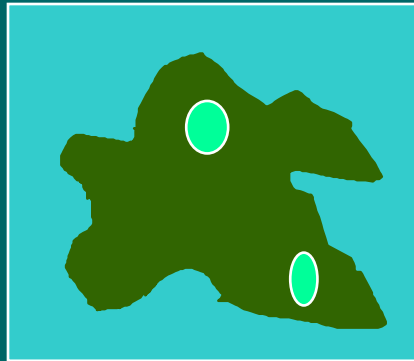
FEGN Update Goals and Objectives

- Update the FEGN to identify a functionally connected statewide ecological network of public and private conservation lands that incorporates new and updated GIS data.
- Ensure the FEGN maximizes protection of high priority natural communities and species identified in the Florida State Wildlife Action Plan.
- Address climate change impacts to maximize the potential of Florida's native biodiversity to functionally respond to sea-level rise and other environmental changes.

Key Analysis Steps



Step 1 - Identify:
Areas of Ecological Significance



Step 2 - Select:
Ecological Hubs

Step 3 - Delineate:
Landscape Linkages



PEA Data Layers

Landscape Species Habitat (Crested caracara, Florida sandhill crane, Short-tailed hawk, Swallow-tailed kite, Sherman's fox squirrel, Big Cypress fox squirrel)

USFWS Florida panther conservation zones

University of Tennessee USFWS panther habitat

Florida black bear habitat quality model

Florida black bear Population Priority Conservation Areas

FNAI Rare Matrix-Landscape Natural Communities (sandhill, flatwoods, dry prairie, upland hardwood forest, upland pine)

Integrated Habitat Network

Existing conservation lands

FWC Strategic Habitat
Conservation Areas (SHCA)

FNAI Rare Species Habitat

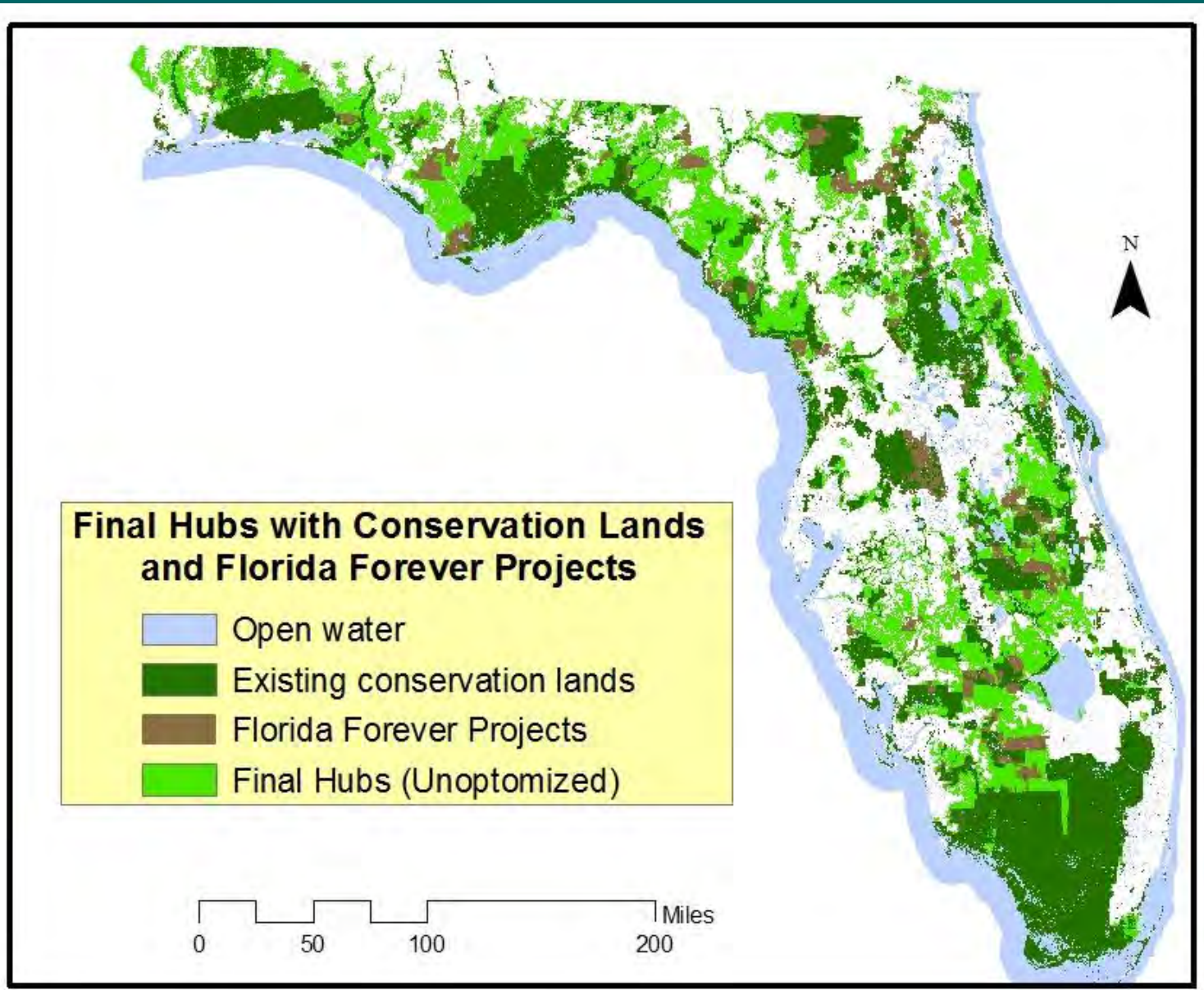
FNAI Rare Natural Communities

FNAI Functional Wetlands

FNAI Potential Natural Areas

Coastal Barrier Resources Act Lands

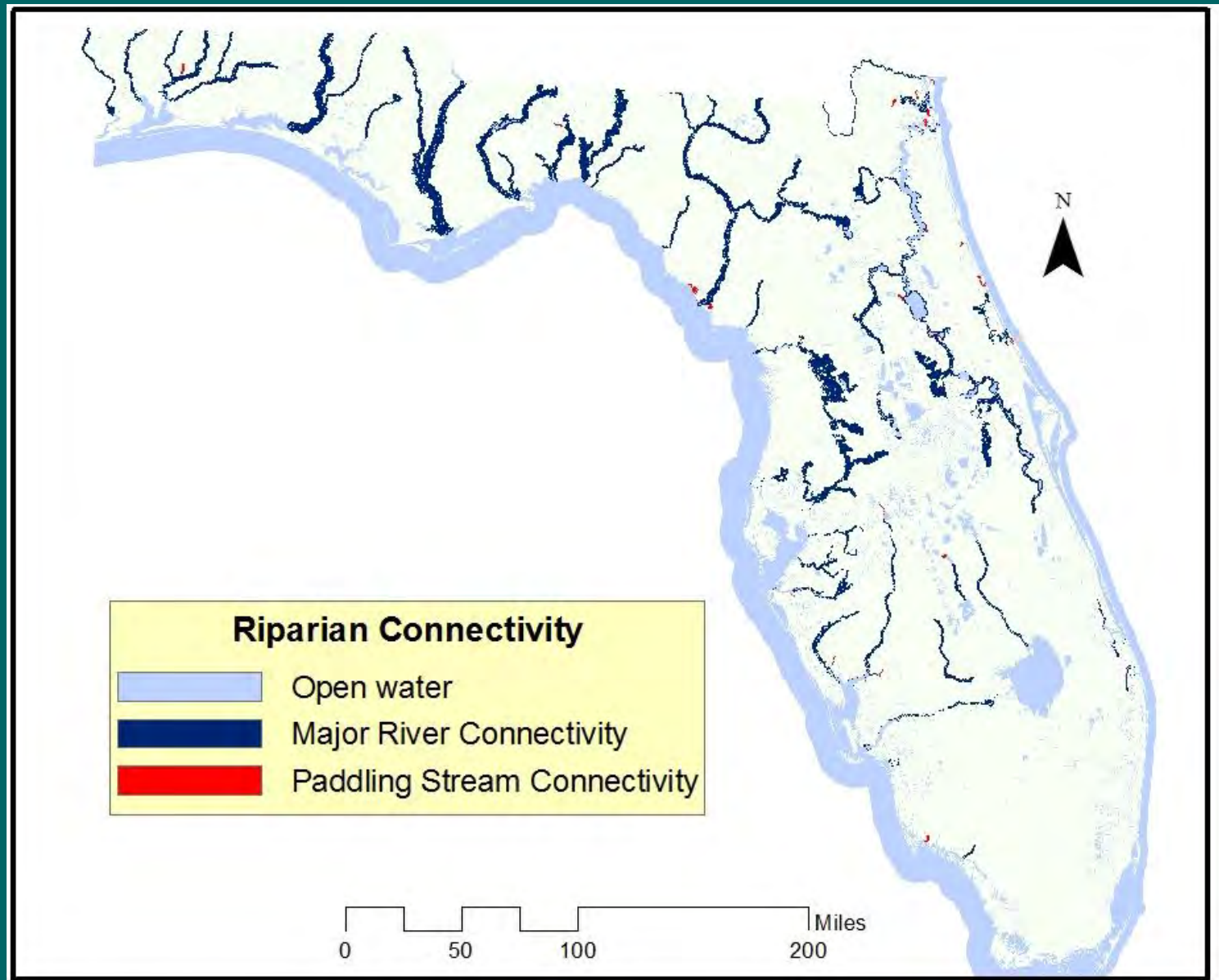
FEGN Update Hubs



Connectivity Analyses

- Major river/riparian connectivity/buffer analysis
- Coastal to inland connectivity analysis
- Xeric habitat connectivity analysis
- Florida panther and Florida black bear habitat and connectivity analyses
- General landscape connectivity analysis

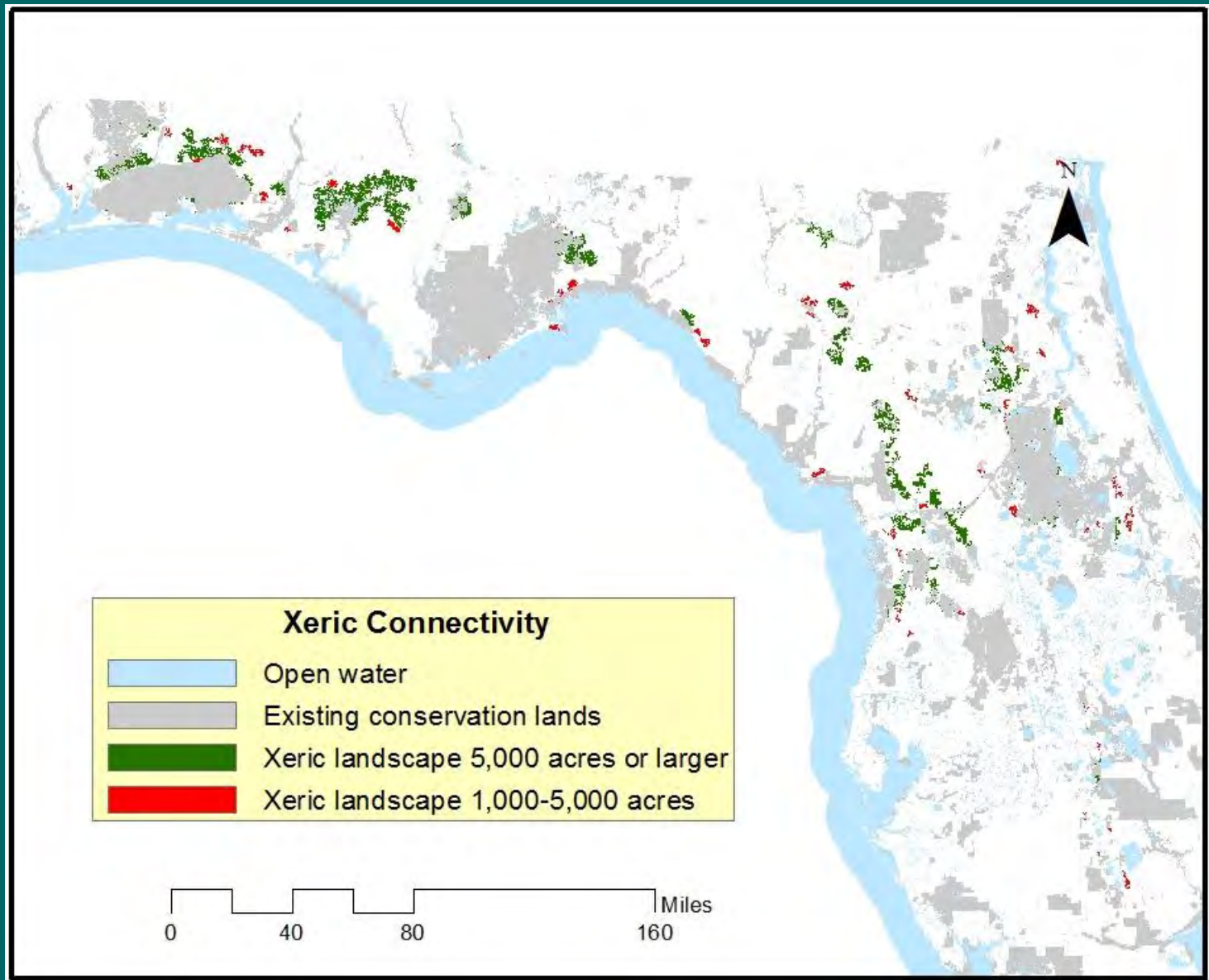
Riparian Connectivity



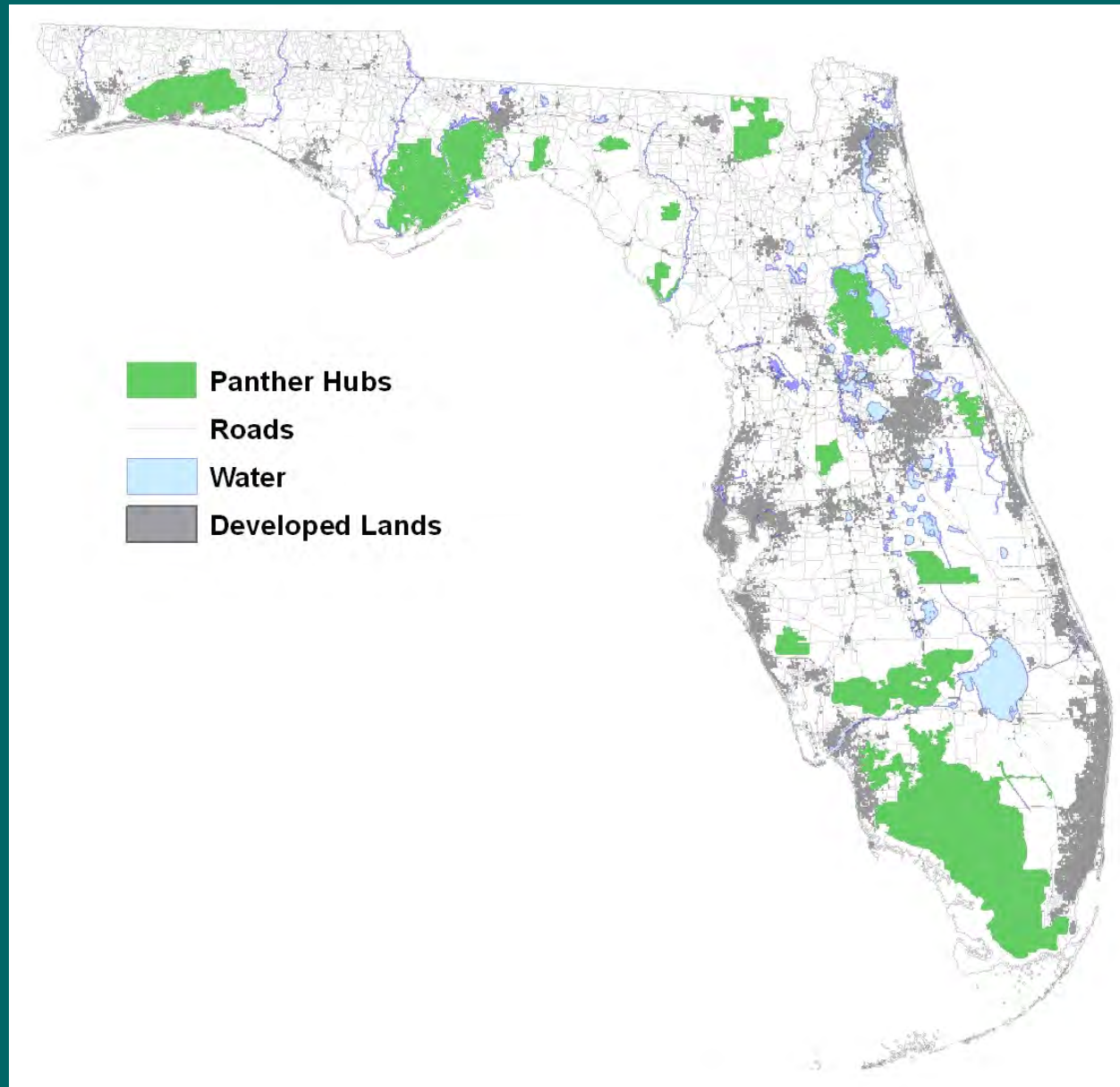
Coastal-Inland Connectivity



Xeric Habitat Connectivity

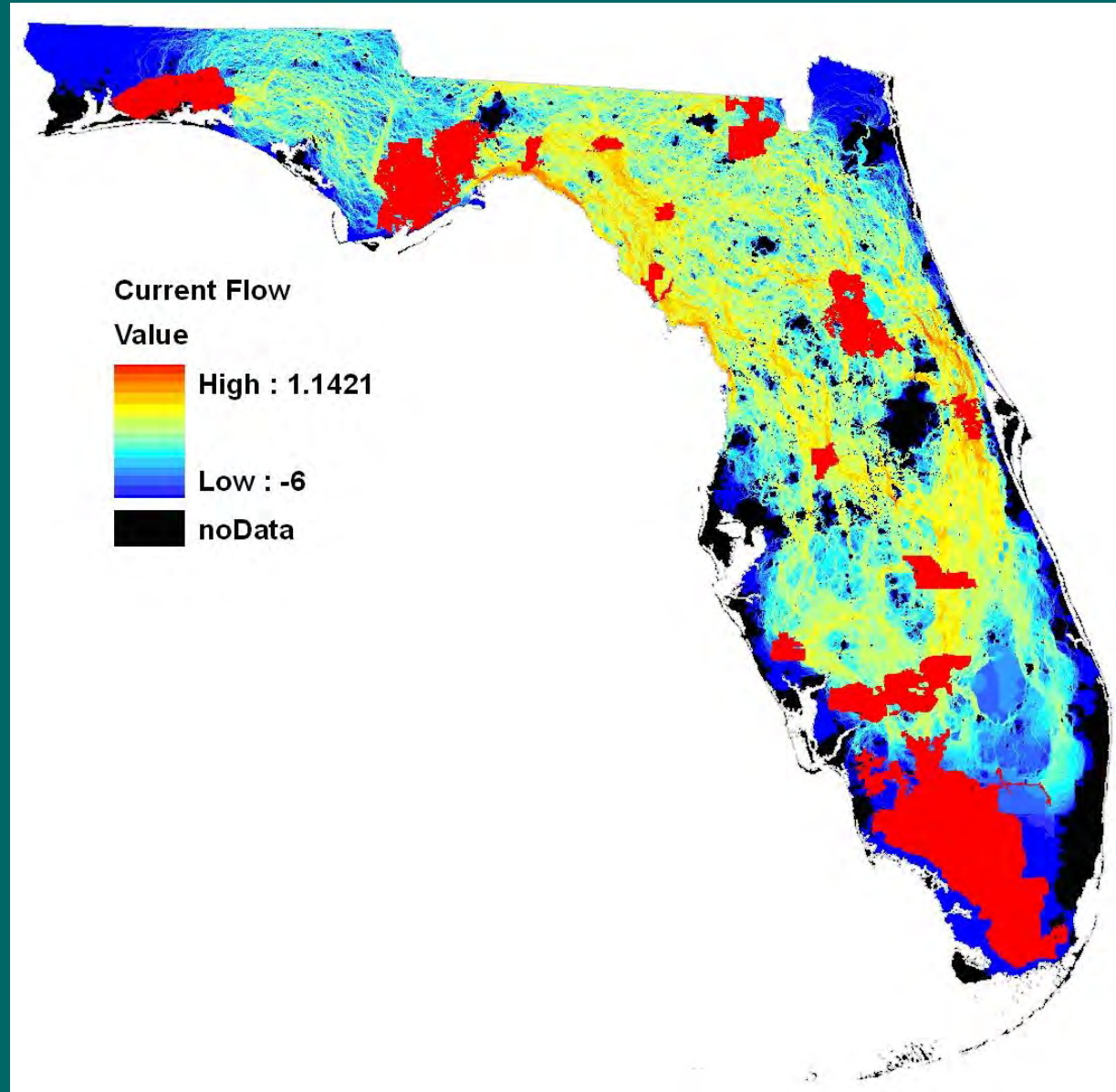


Panther Connectivity

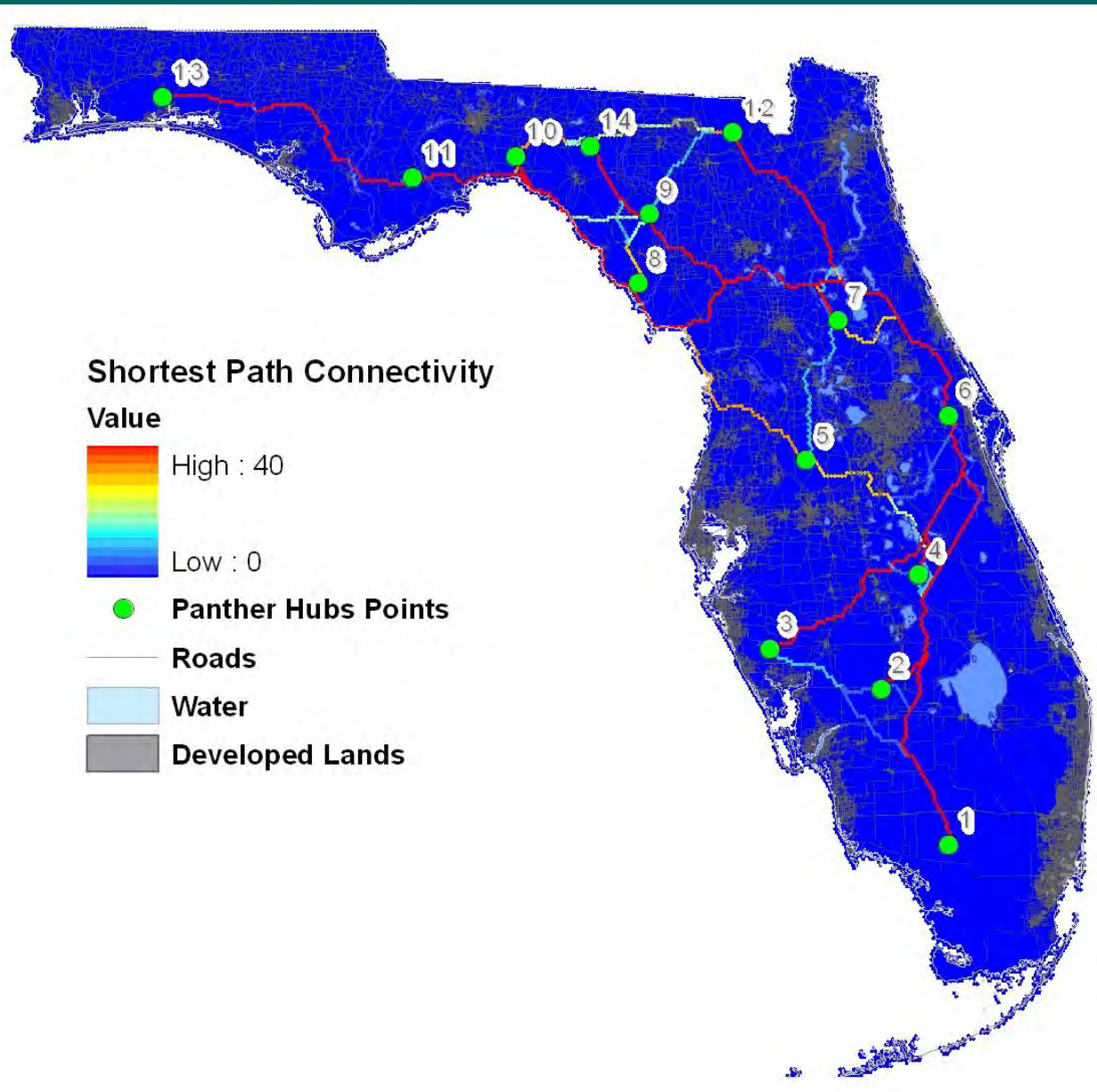


Panther Connectivity

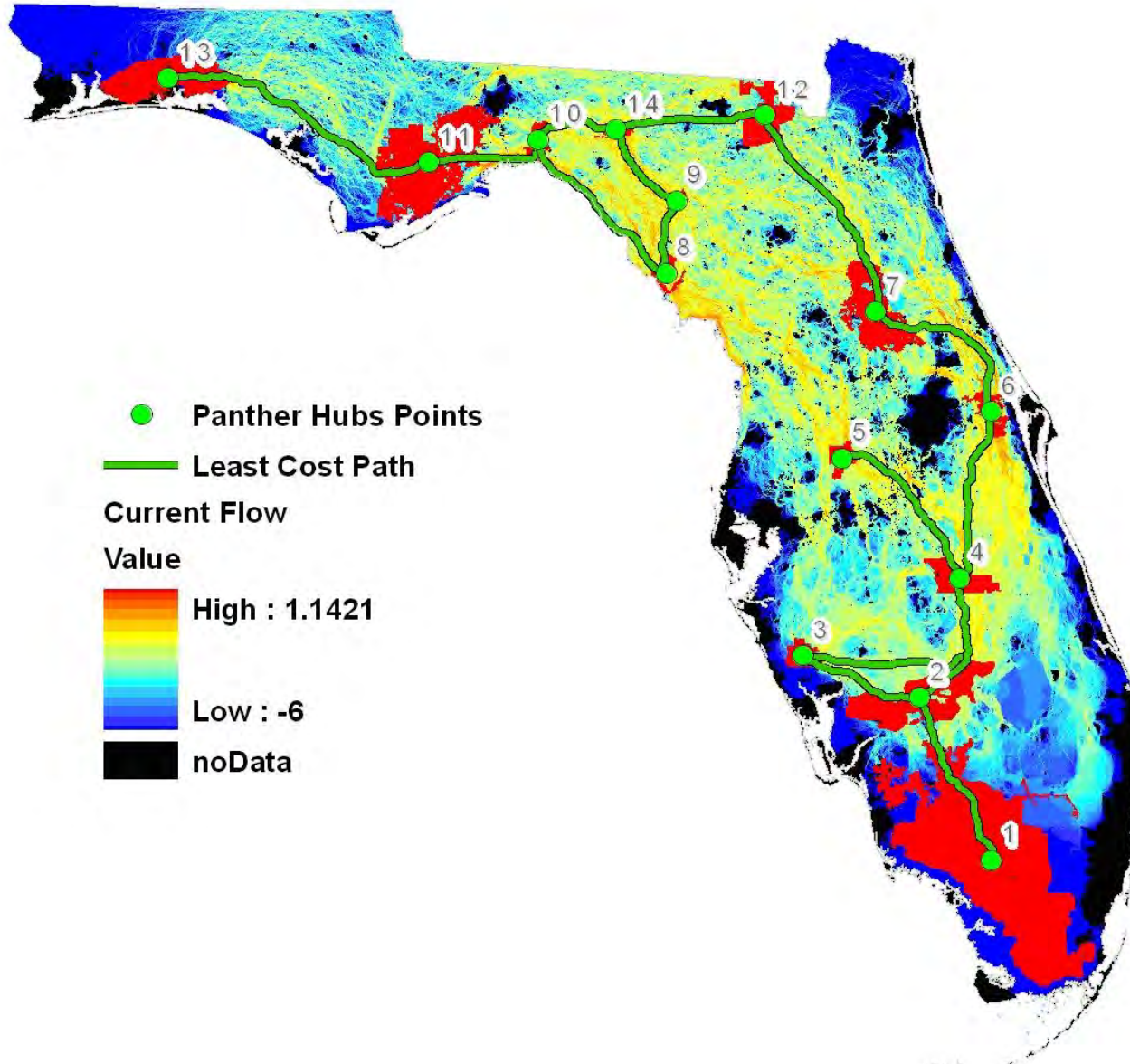
A Multi-Faceted
Approach to Corridor
Planning for the
Florida Black Bear and
Florida Panther (2017)
Spontak and Hctor,
Journal of
Conservation Planning.



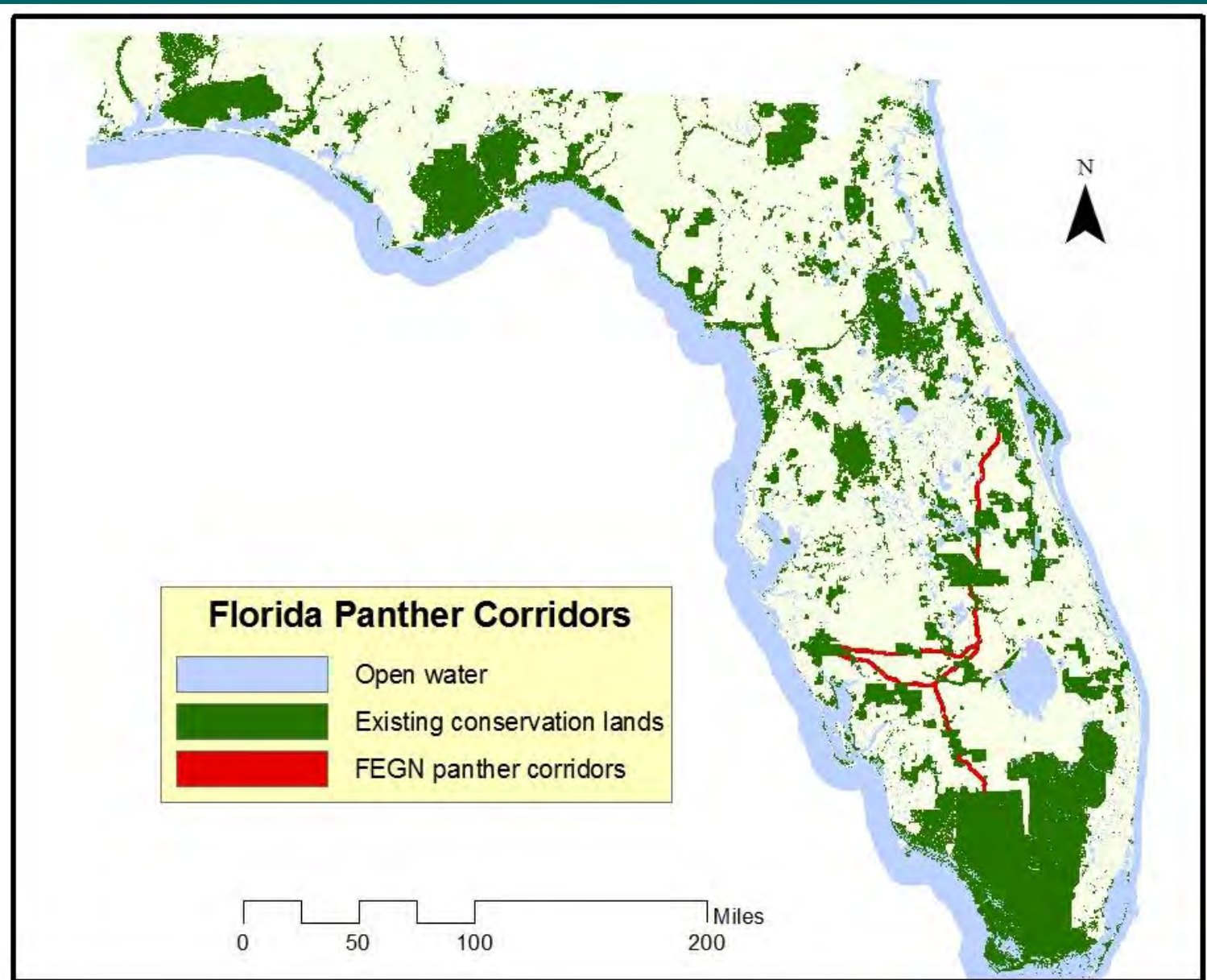
Panther Connectivity



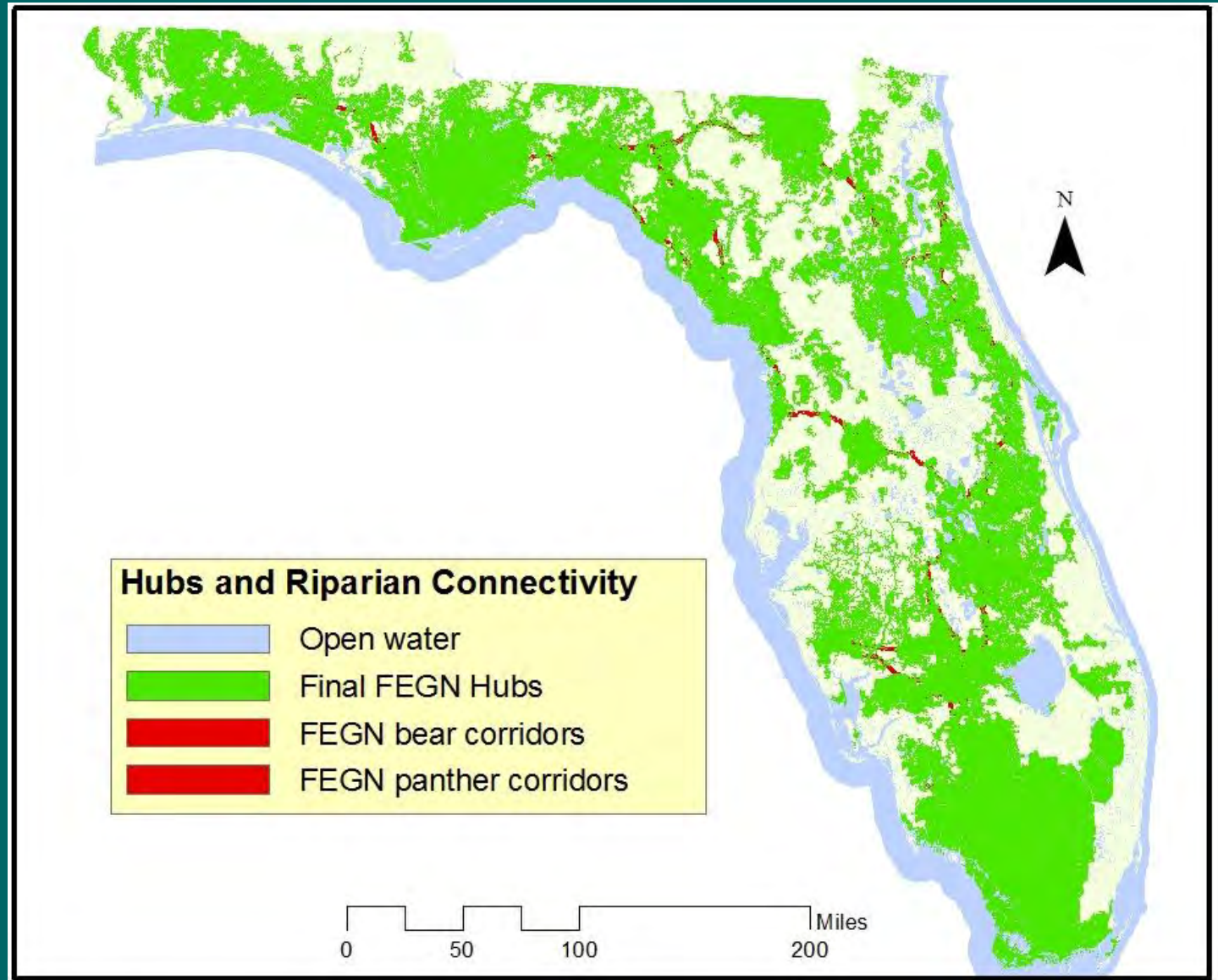
Panther Connectivity



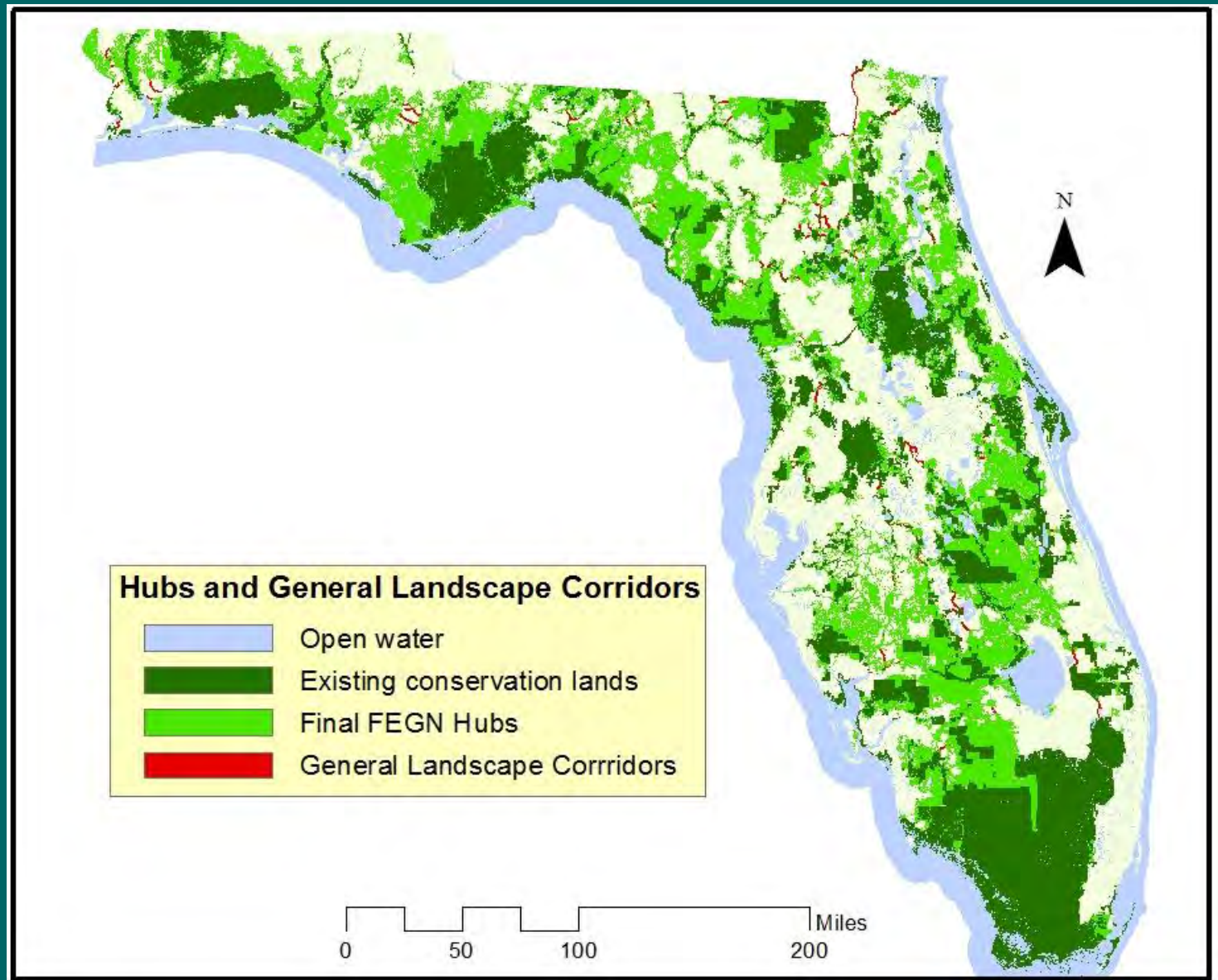
Panther Connectivity



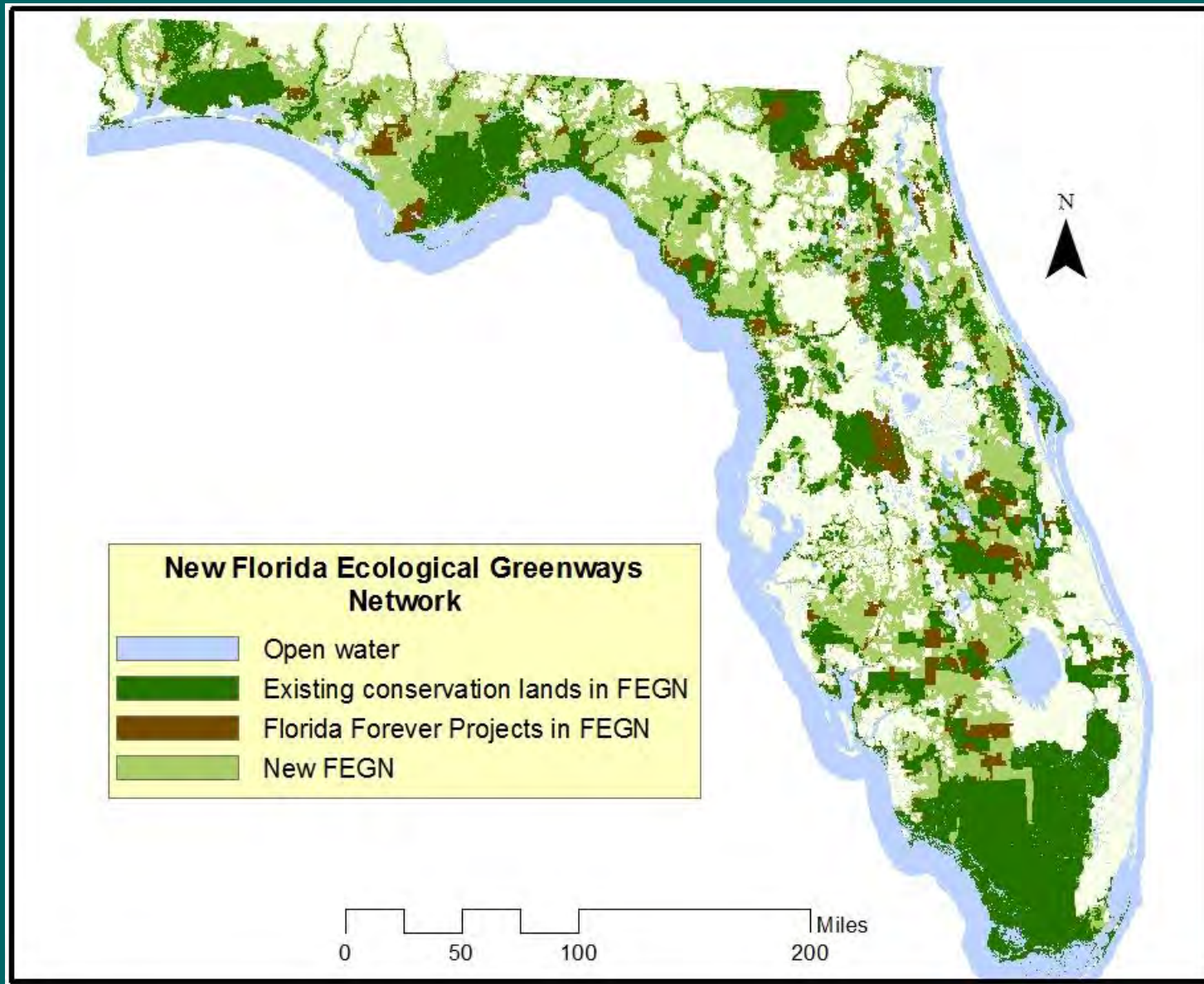
Bear/Panther Corridors and Hubs



General Landscape Connectivity



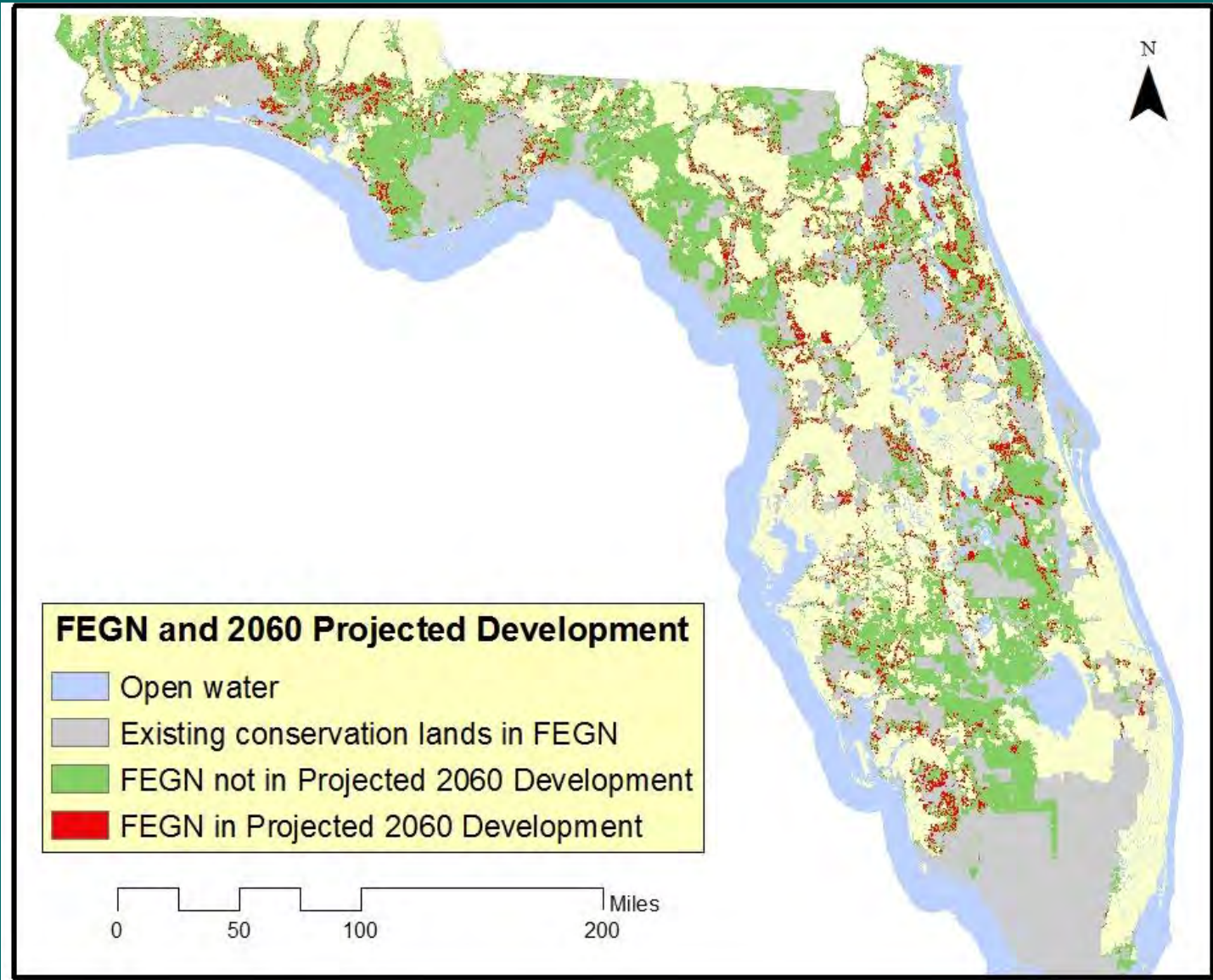
Updated FEGN



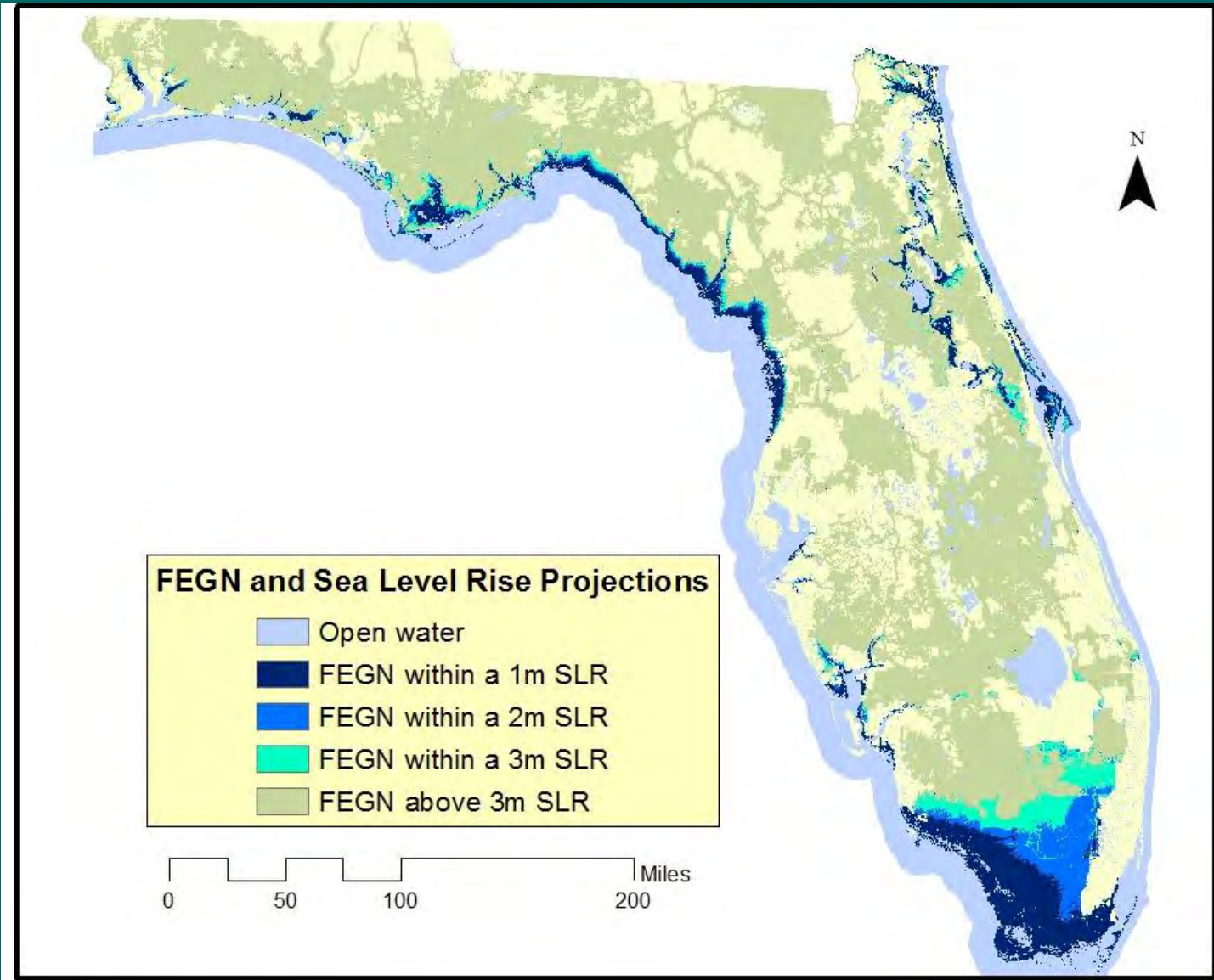
Prioritization Considerations: Future Development and Sea Level Rise

- Based on past FEGN prioritization work and the goals of the FEGN Update project, we used three primary considerations for any alterations to existing FEGN priorities:
 - A new 2060 development projection from Zwick and Carr (UF) updated for the concurrent statewide SLR impact assessment project.
 - Comparison of the new FEGN and assigned priorities to Lidar-based DEM sea level rise projections.
 - Consideration of merging Critical Linkages P1 and Critical Linkages P2 and the P1 and P2 classes to create six priority classes instead of the current eight classes.

Prioritization Considerations: FEGN and 2060 Growth Projection



Prioritization Considerations: FEGN and Sea Level Rise

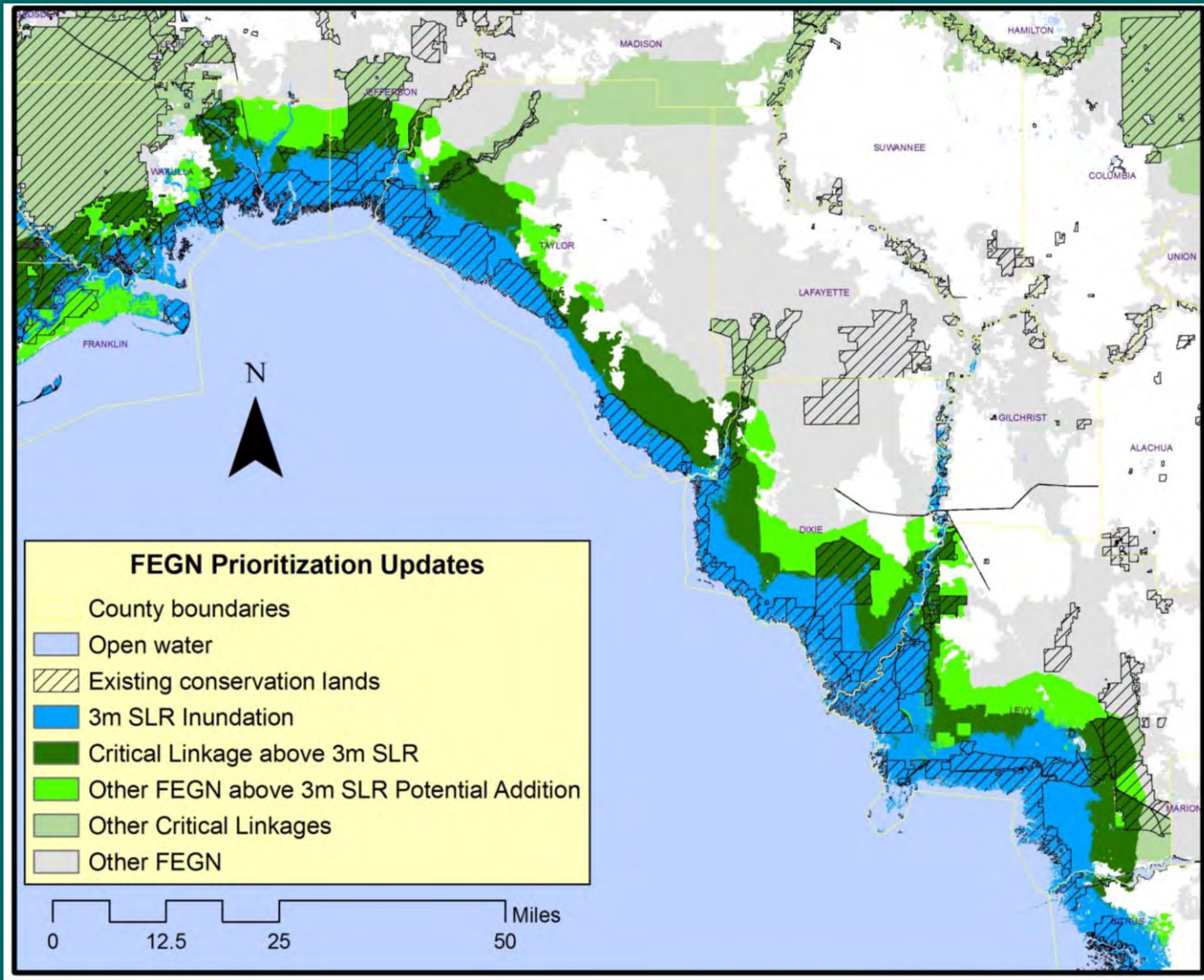


2016 FEGN Prioritization Edits

Proposed edits to the FEGN priorities include:

- 1) Expand the Big Bend Critical Linkage inland beyond a 3m SLR.
- 2) Elevate the inland Big Bend priority corridor alternative to a Priority 2 or 3 as appropriate.
- 3) Expand the middle St. Johns River Critical Linkage where feasible to the east and west to provide more buffer from development as the river potentially widens due to SLR.
- 4) Expand the St. Marks Critical Linkage to include current lower priority areas between the Aucilla and Wakulla conservation areas.
- 5) Add a Priority 2 corridor north of the St. Marks Critical Linkage south of Tallahassee.
- 6) Elevate the upper St. Marks River, Aucilla River, Red Hills region, and upper Ochlockonee River corridors to a Priority 3 alternative to the coastal St. Marks-Wakulla Critical Linkage.
- 7) Elevate the various south to north rivers in North Florida that are currently Priority 4 or 5 to Priority 2 as important connectors to Georgia and Alabama.

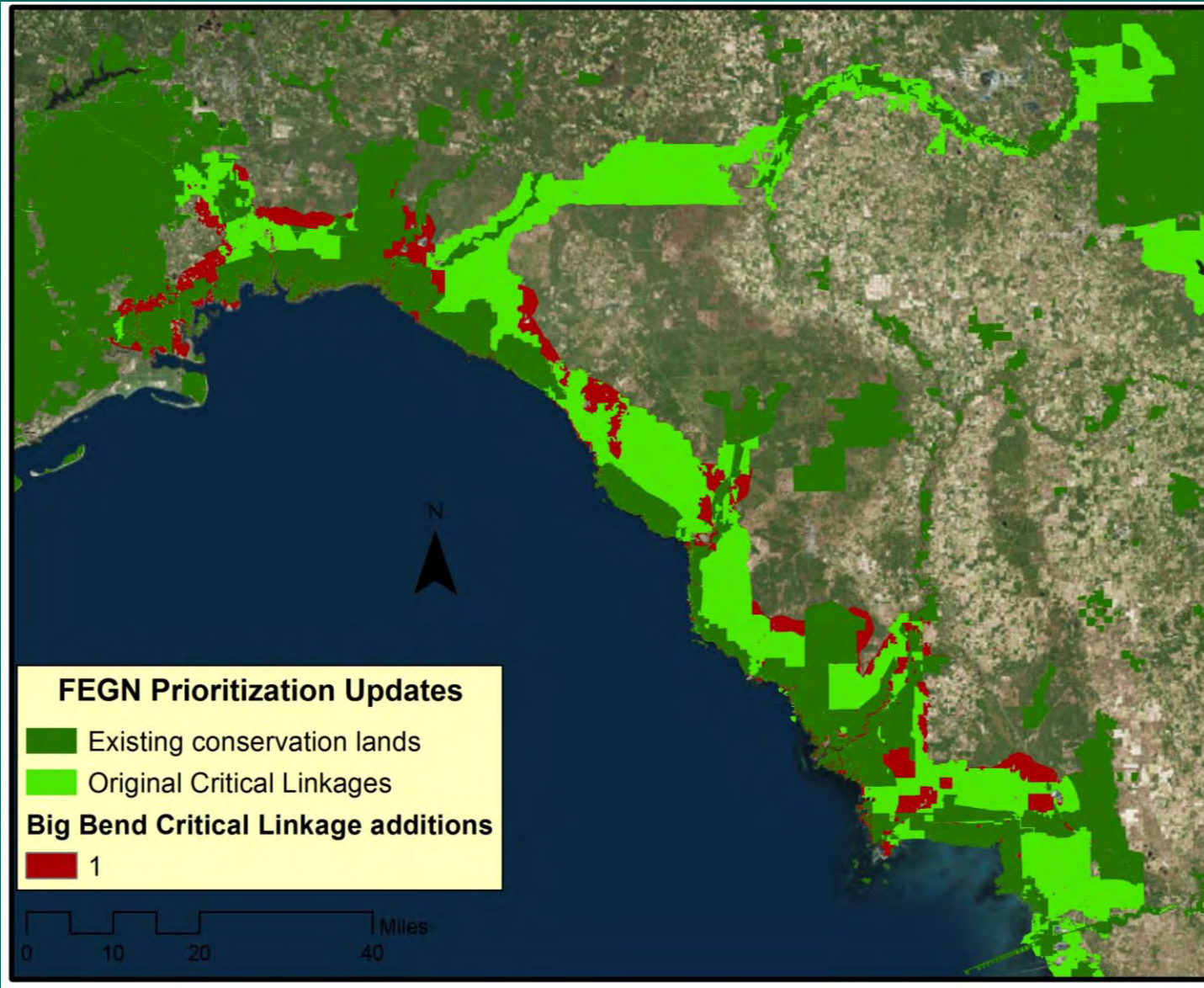
Proposed Big Bend Critical Linkage Expansion



Big Bend Coastal Additions

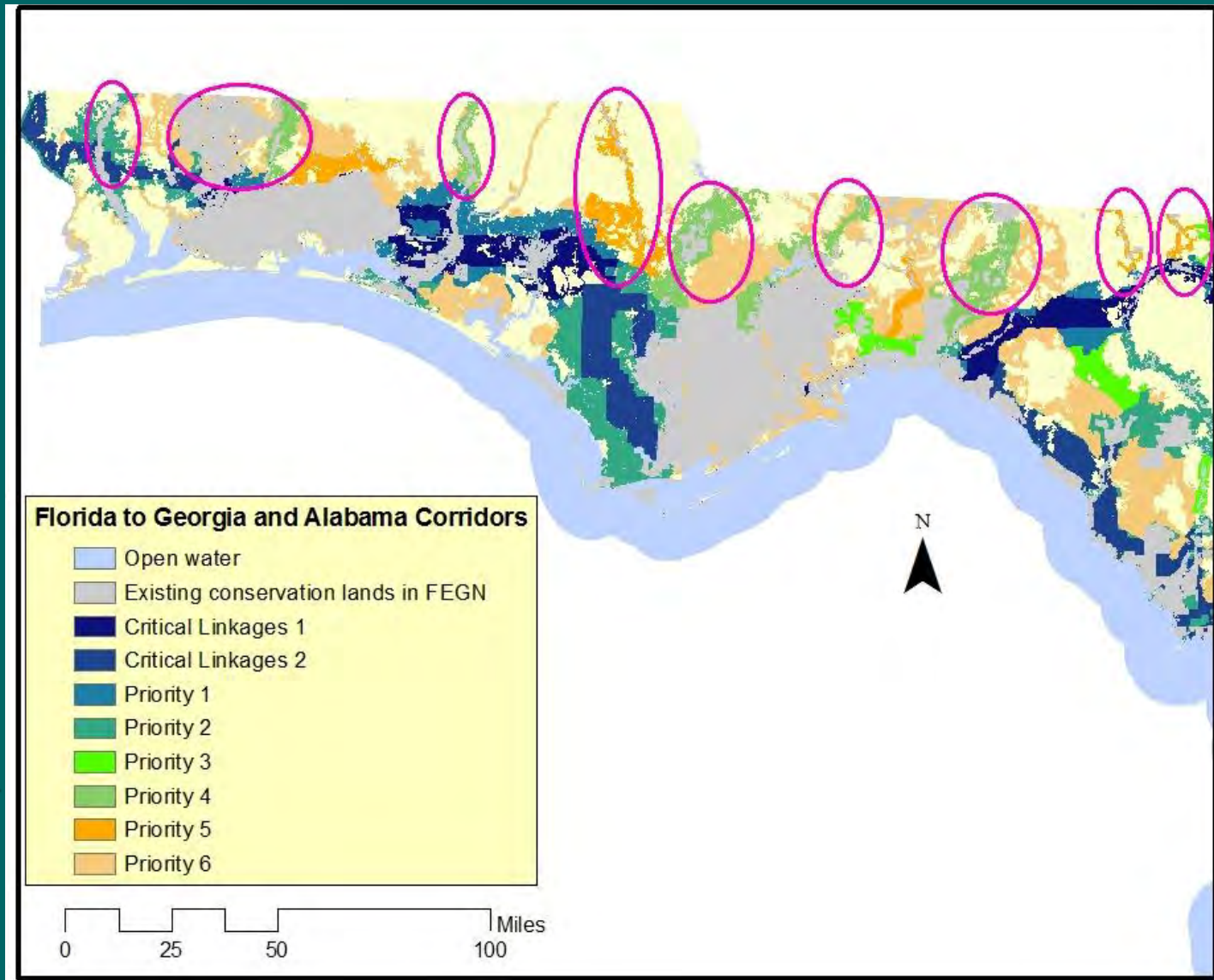
- Used Lidar-based 3 meter sea level rise projection overlaid with FEGN Priority 1 along the Big Bend coast from Crystal River north and west to the west end of St. Marks National Wildlife Refuge
- Identified all intact landcover connected to the outer edge of the 3 meter SLR projection with the FEGN Priority 1 connected to and within 2 miles of this edge.
- All such areas were added to the new Priority 1.

Big Bend Coastal Additions

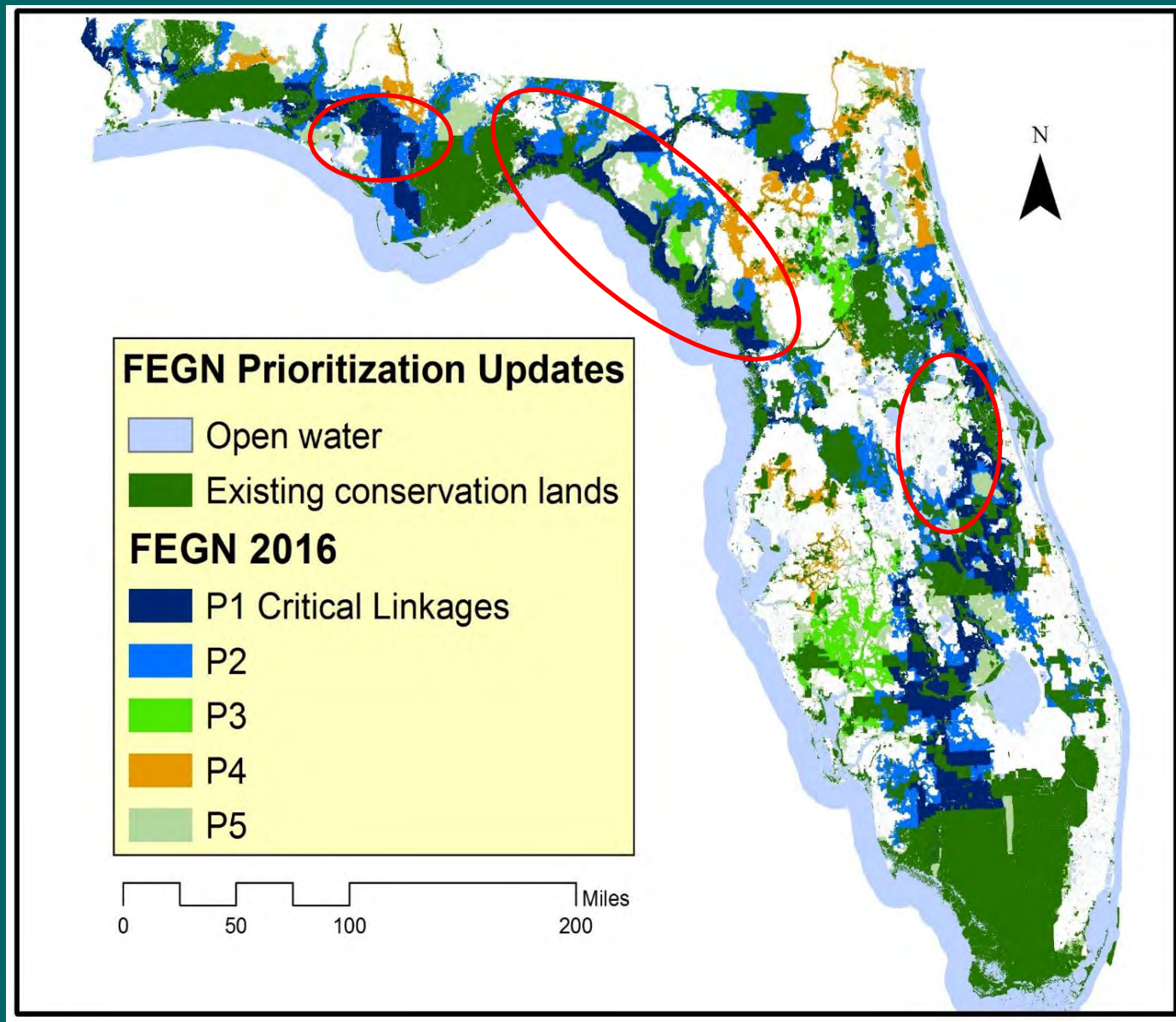


Proposed Florida to Georgia and Alabama Corridors

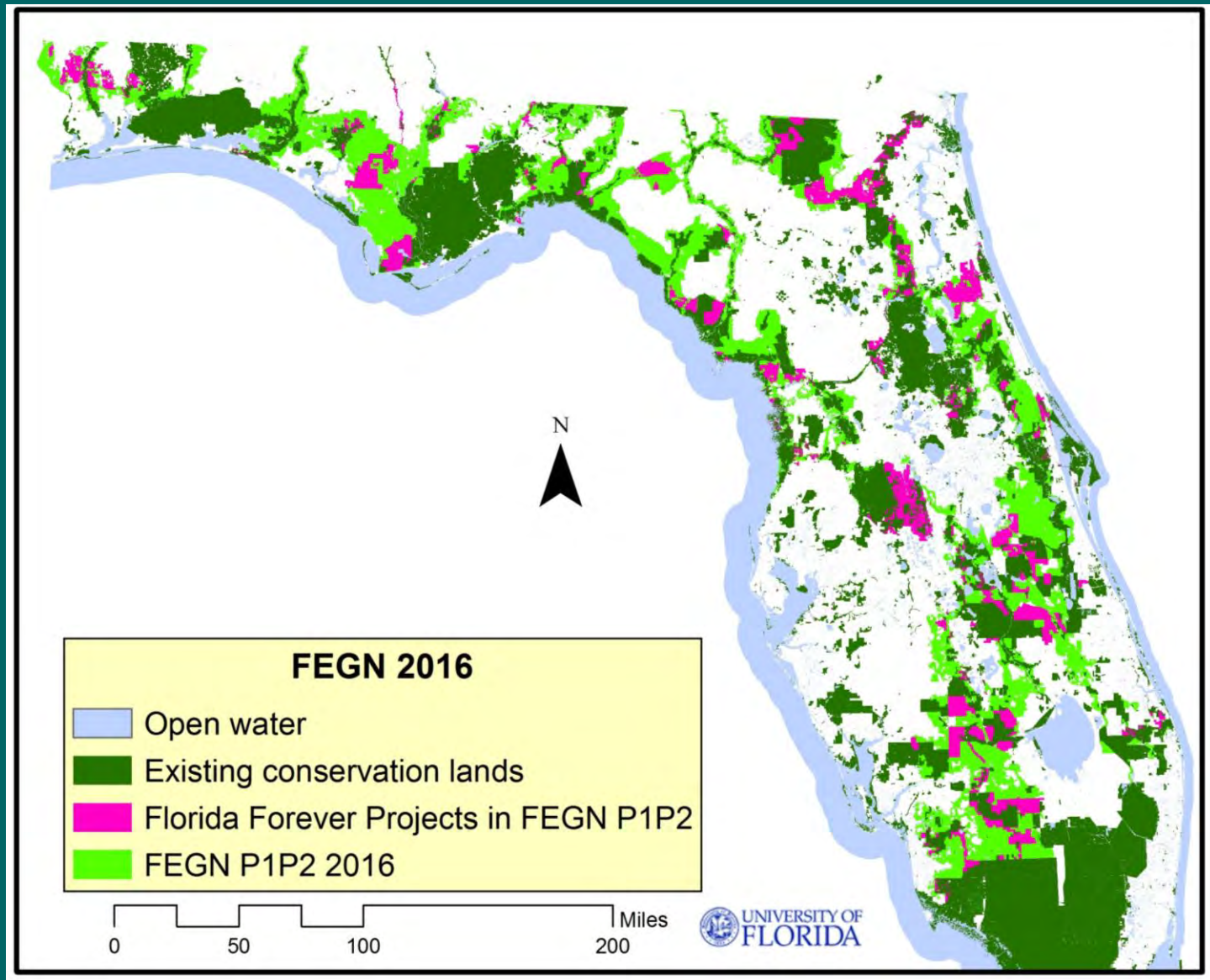
Potential Florida
to Alabama or
Georgia corridor
options in pink;
St. Mary's River
in northeast
Florida is another
option not depicted
on this map.

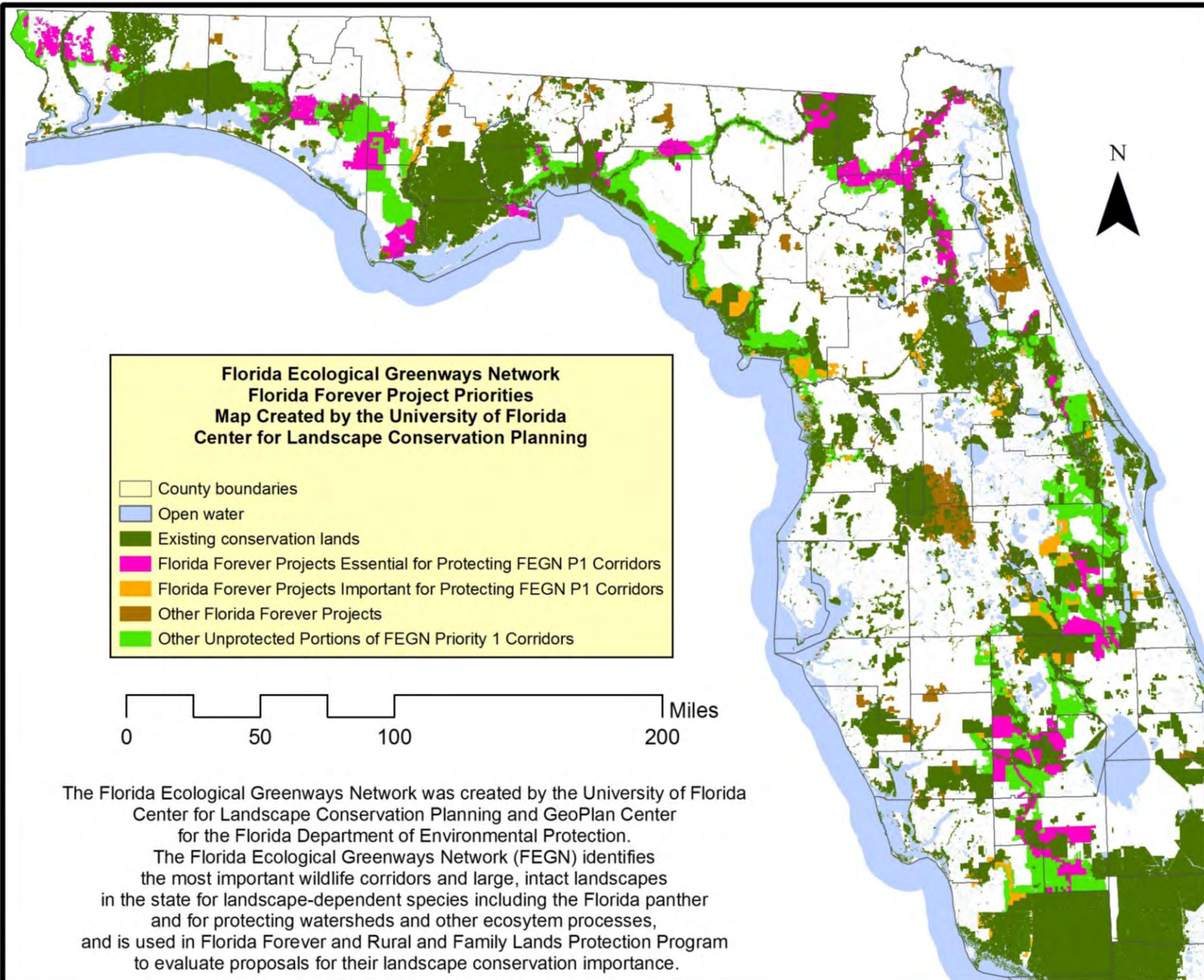


Florida Ecological Greenway Network 2016



Florida Ecological Greenway Network P1-P2 Florida Forever Projects

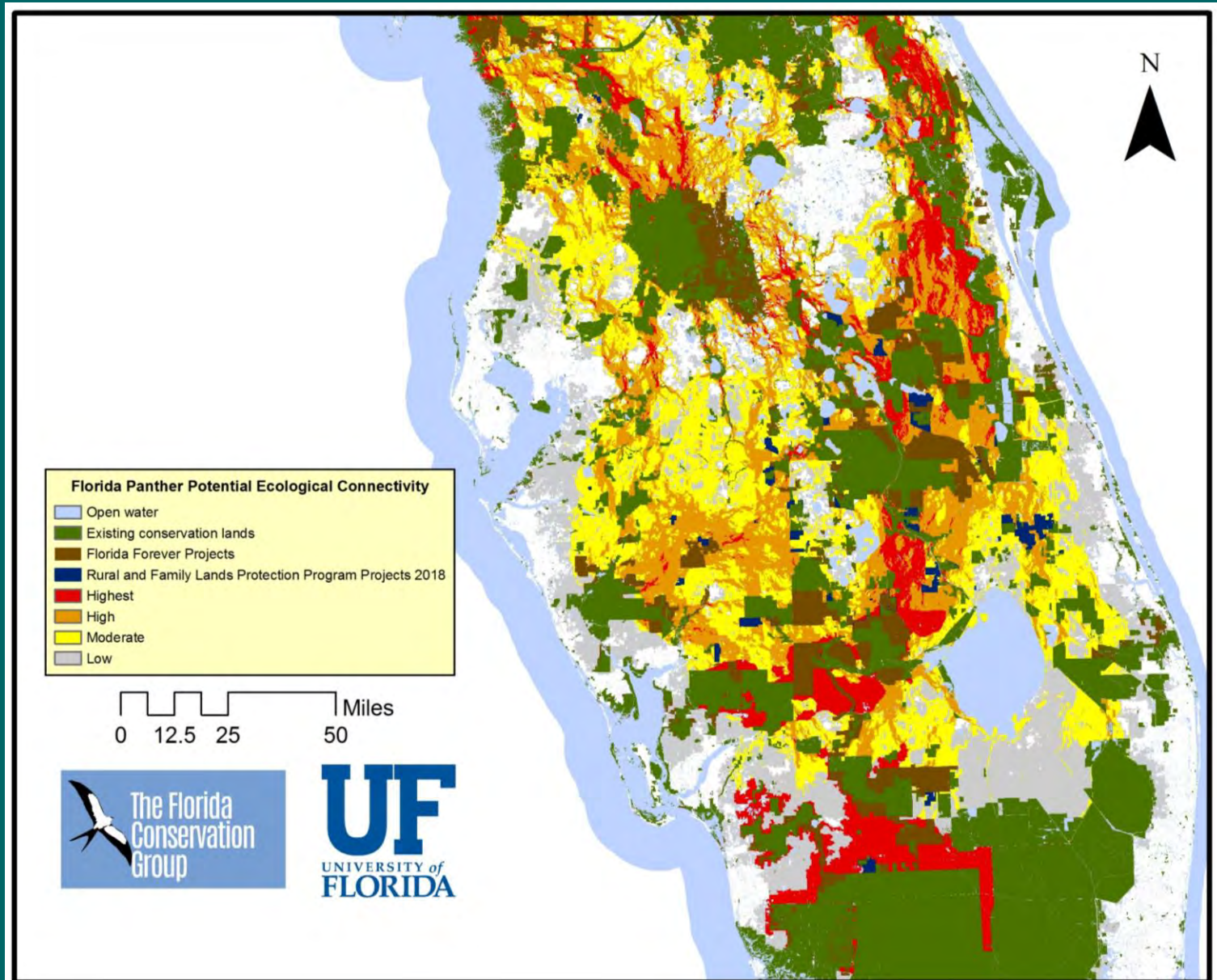




Proposed FEGN 2021 Panther Process

- Still use Panther Conservation Zones as PEA criterion.
- Use Random Forest Model Result and/or new panther “priority landscape patches” as PEA criterion.
- Consider using slices of existing Current Flow model result.
- Consider running a new Current Flow model with the Random Forest model result as the foundation.
- Still potentially consider Florida black bear as surrogate in North Florida

Current Flow Slice Example



Southwest Florida Landscape Conservation Design

US Fish and Wildlife Service

National Wildlife Refuge Association

University of Florida Center for Landscape Conservation Planning

Mike O'Brien

Peninsular Florida Landscape Conservation Cooperative



What is an LCD?

A Landscape Conservation Design (LCD) consists of three main components:

- (1) an assessment of current conditions of a landscape, including biological, physical, and socio-economic metrics;
- (2) a spatially explicit assessment of the desired future condition of the landscape using quantifiable biological, physical, and socio-economic objectives; and
- (3) a high-level plan with recommendations on how to move the landscape from the current to the future condition. In collaboration with interested stakeholders (non-DOI entities), DOI bureaus develop LCDs for landscapes under the jurisdiction of, or of interest to, DOI for implementation by both DOI and non-DOI entities.



IT IS HARD TO START A FIRE WITH ONE STICK OF WOOD



BUT...IF YOU COULD EVER GET THE FIRE WOOD TOGETHER IN ONE PILE...

People, Purpose, Process, and Products

SWFLCD Goals

- Regional Scale LCD
- Forward the Goals of the CCB process that was adopted by the LCC Steering Committee
- Further process of developing implementation projects
- Inform Refuge Planning process
- Interface and incorporate partner goals
- Identify Incentive Programs for Conservation Delivery including Refuge Expansion

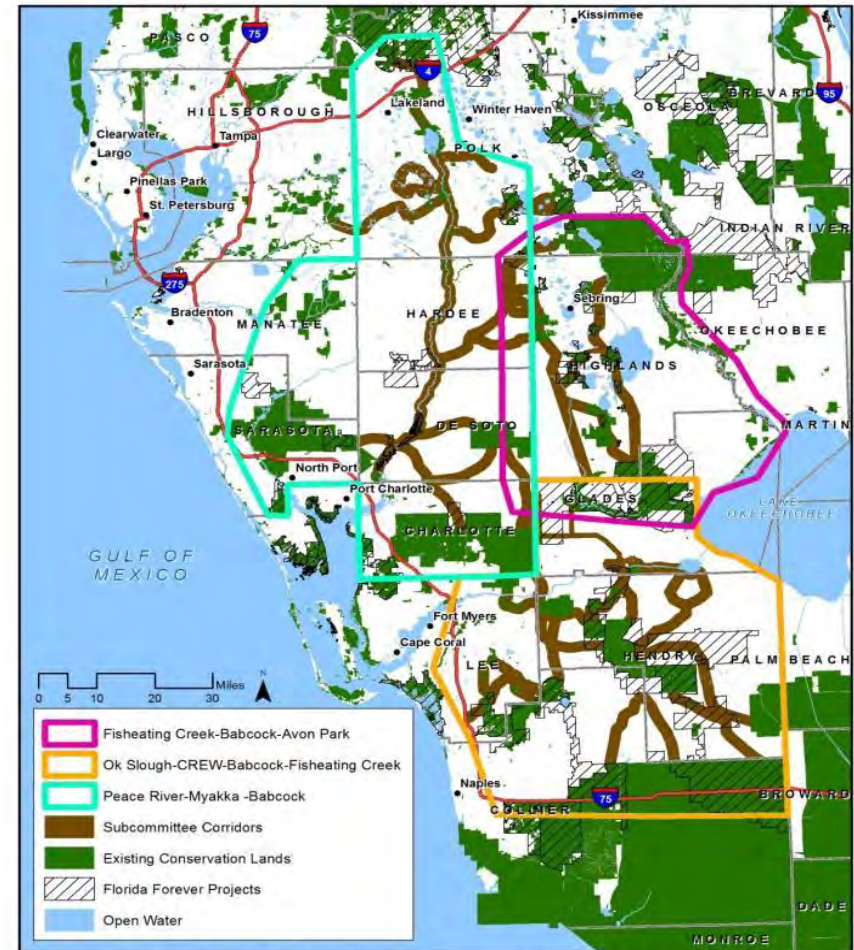
Cooperative Conservation Blueprint

- Consensus starting point for planning
- A map of statewide conservation priorities,
- Voluntary non-regulatory incentives to implement it



Blueprint Regional Pilot Study Area

- **Southwest Florida**
- Generate broad agreement about a set of priority wildlife corridors that connect existing public conservation lands in the region and
- Identify private landowner conservation incentives that would help facilitate the protection of those corridors.



Cooperative Conservation Blueprint Regional Pilot Project
Corridor Subregions

UF Center for Landscape Conservation Planning

Florida Natural Areas Inventory

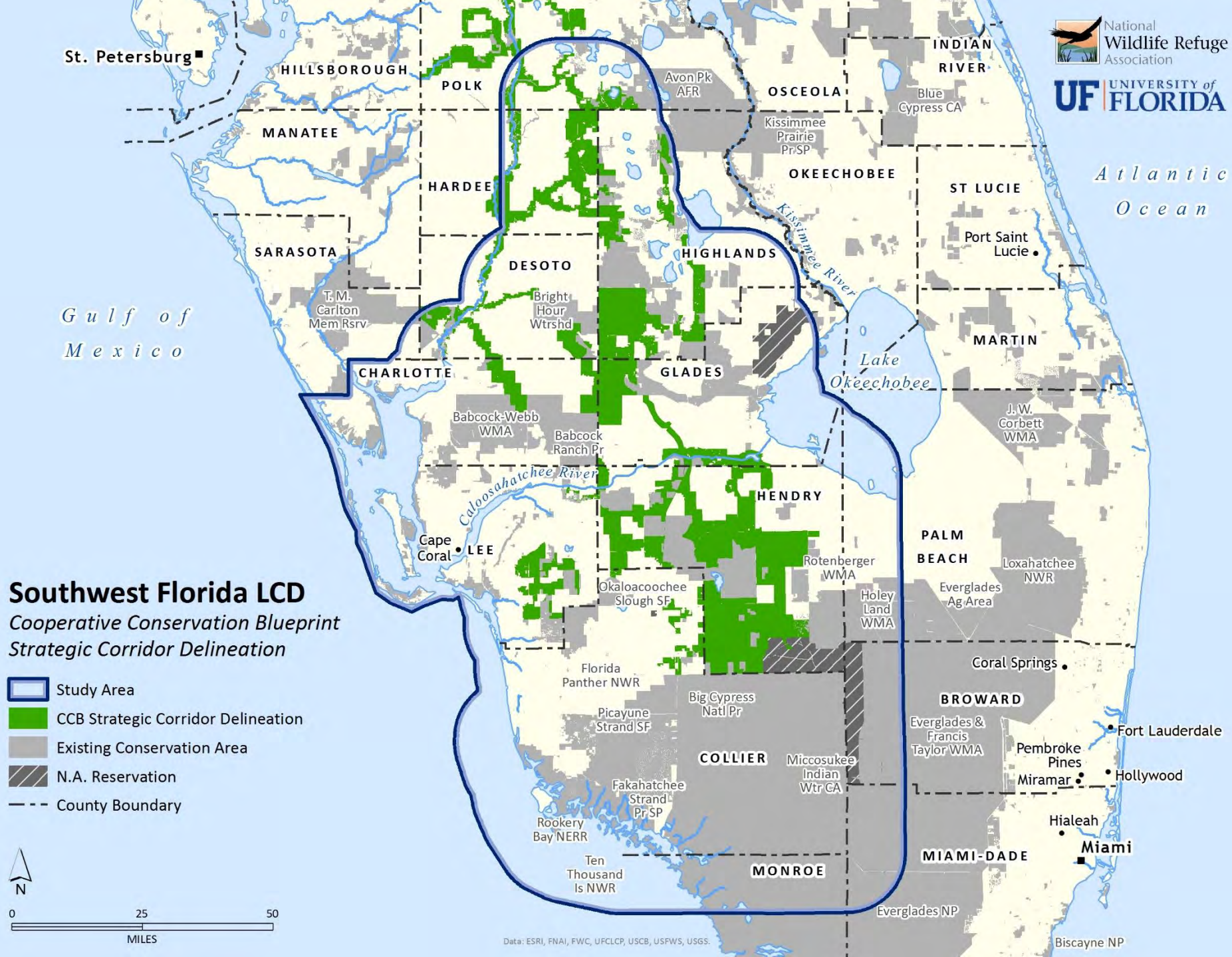
September 18, 2012

This map was developed for state and regional conservation planning purposes and identifies general opportunity areas. It is a stakeholder map and could be modified based on future vetting with landowners. This map is neither intended nor sufficient to be the sole basis for local government comprehensive plans, environmental resource or agency permitting decisions.

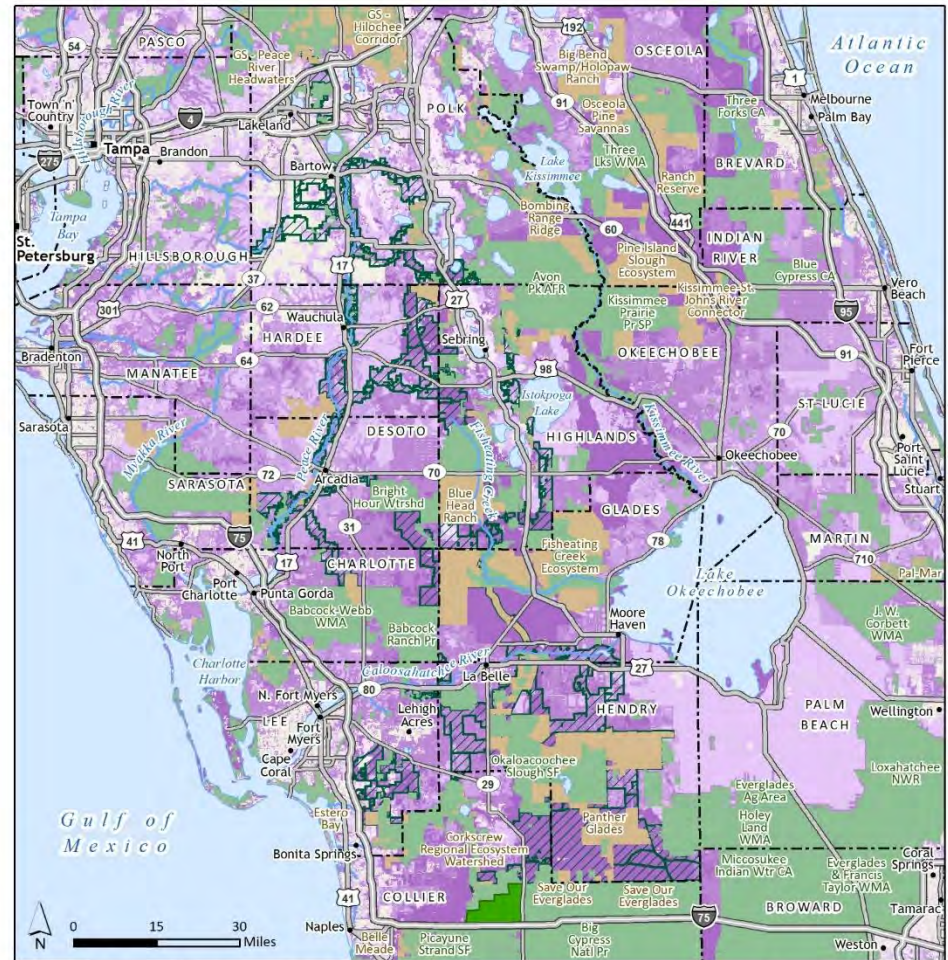
Stakeholder Corridors

(consensus based)

- Corridors were chosen for a number of reasons including:
- SCIENCE (CLIP database)
- Landowner buy-in;
- Existing protection opportunities in the region.
- Future land use
 - Important to note that stakeholders took the science (CLIP) and added the human component/on the ground reality (Blueprint)



CCB Stakeholder Corridors and CLIP 3.0



Florida Panther Protection Priorities

Cooperative Conservation Blueprint Strategic
Corridors with CLIP 3.0 Overall Priorities

Southwest Florida



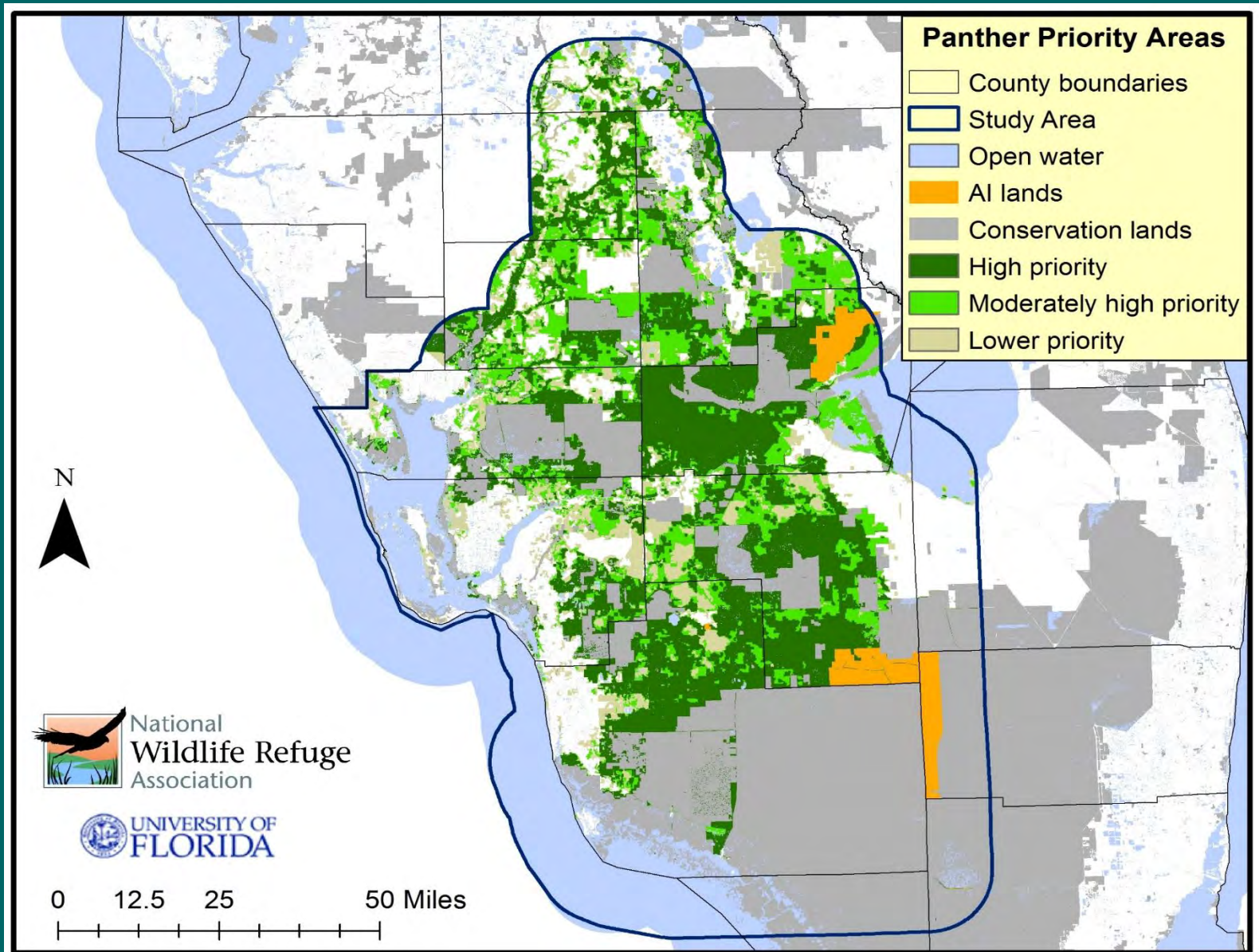
SWLCD Analysis Process

- Focal species and natural communities selection
- Florida panther priorities
- Focal Species Habitat and Natural Communities Prioritization
- Marxan-Based Priorities
- Priority Aggregation
- Conflict Assessment
- Priorities Based on Combined Assessment

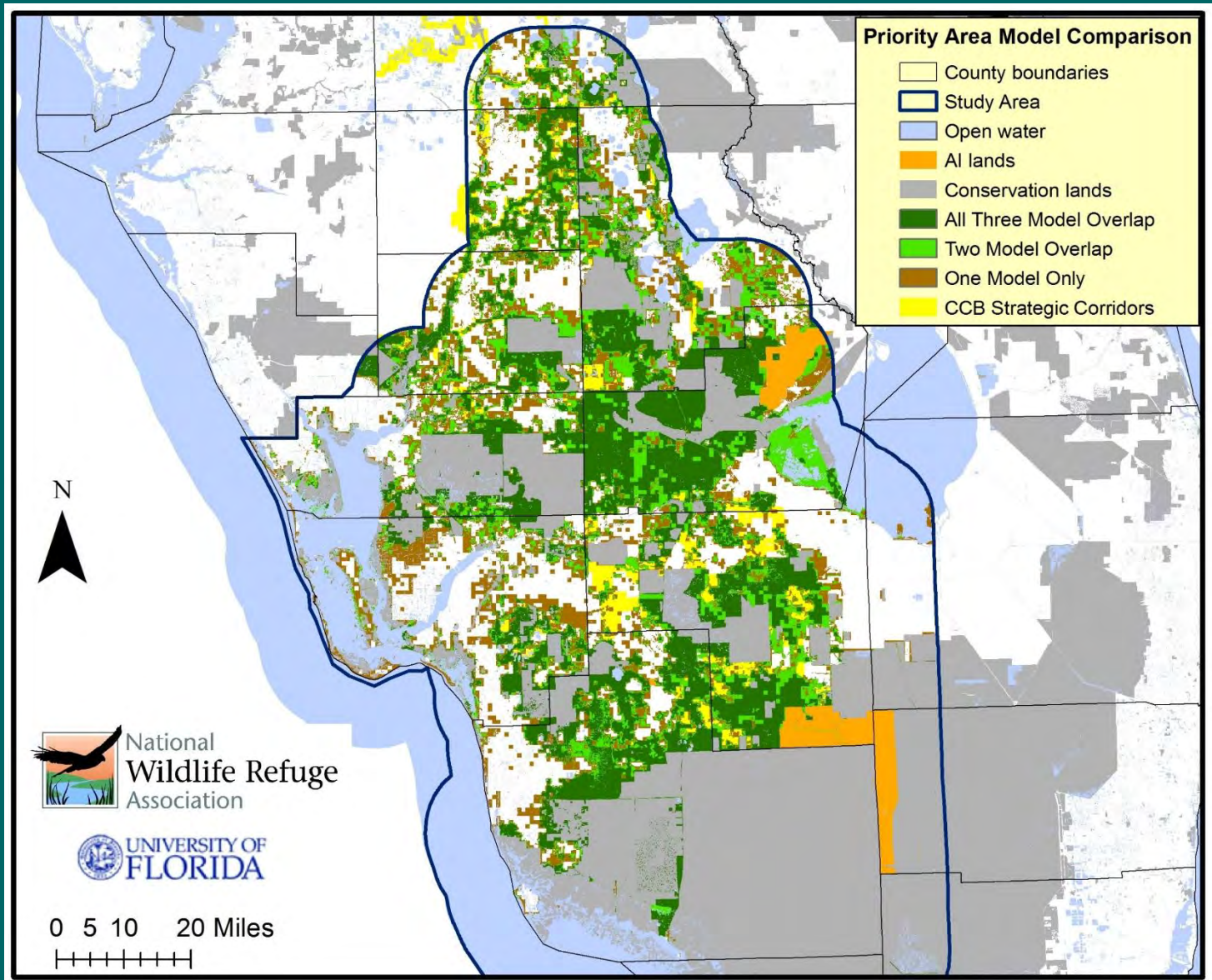
Panther Priority Layers

- A **panther potential habitat map** (using modified Kautz et al. 2006 methods) updated with CLC 3.1 data, where all habitat was given a 1.
- The **Frakes et al. habitat model**, where all areas with index scores of 0.338 or higher or habitat within 0.5 miles of these areas were given a value of 1.
- The **Florida Panther Subteam Conservation Zones** (Kautz et al. 2006) where the Primary Zone, Secondary Zone, and Dispersal Zone plus the North Focal Areas were all given a value of 1.
- The **CLIP 4.0 Landscape Integrity** layer (Oetting et al. In Progress), where all areas with index values of 6-10 were given a value of 1.
- The **Florida Ecological Greenways Network** (FEGN) (Hoctor et al. 2013), where all parts of the FEGN were given a value of 1.

Panther Priorities Aggregation Map



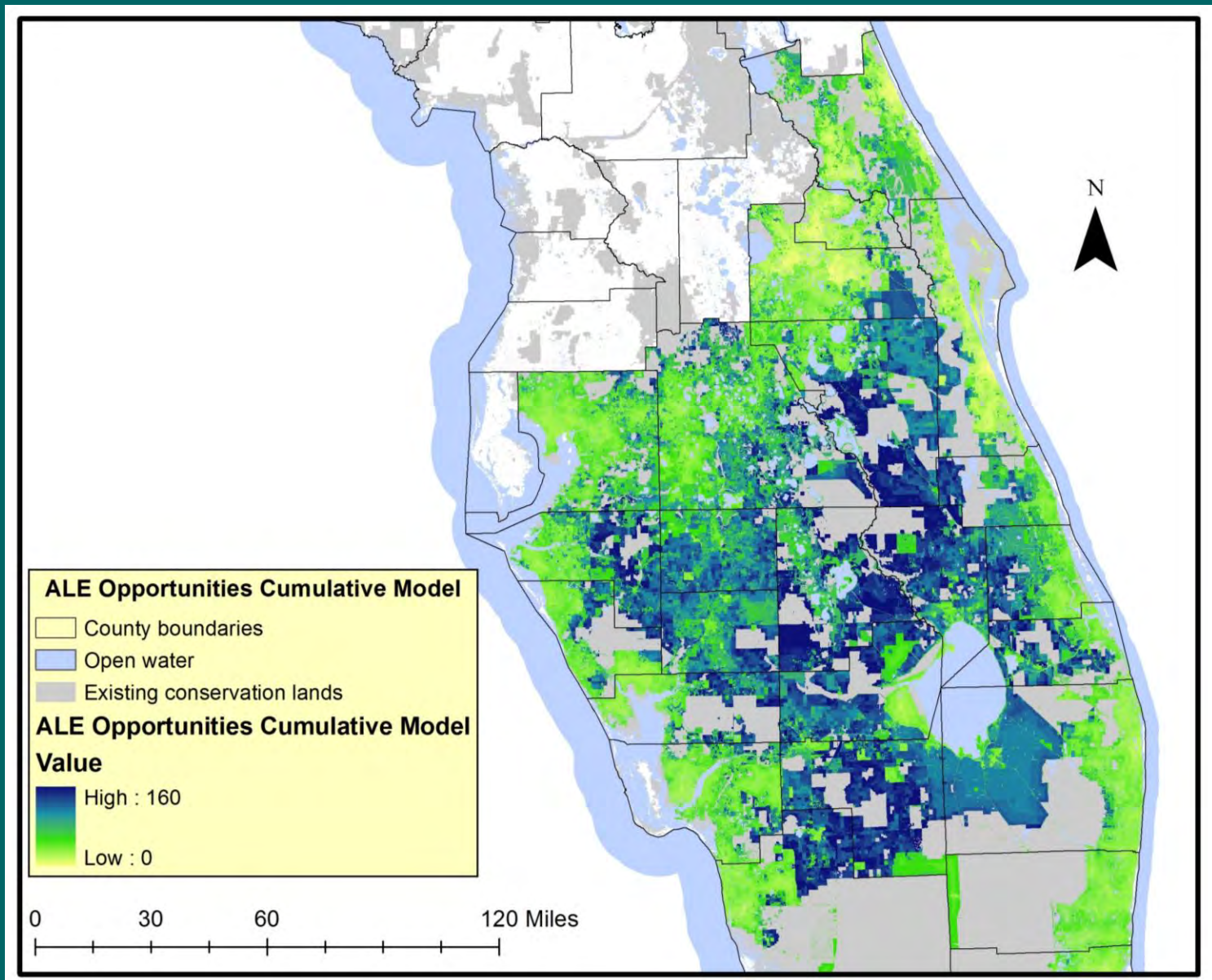
Priorities Aggregation



Other Current Efforts: NFWF

- Identify underserved ranches that have high conservation value.
- Work with FWS staff to identify panther conservation priorities that overlap with other listed species habitat conservation priorities.
- Identify lands with high protection potential.

Other Current Efforts: NFWF



Other Current Efforts: Florida 2070 SLR

- Update the Florida 2070 growth projection model to account for projected sea level rise.
- Side benefit is soon to be available statewide Future Land Use GIS data (GeoPlan Center).
- Also, identify potential impacts to agricultural lands with high conservation value including for the Florida panther.

Proposed Efforts: Smith Fellowship Panther Connectivity Proposal

- Potential Post-doc at the University of Florida from Argentina, Dr. Maru Iezzi.
- Use graph theory and other current connectivity modeling techniques to identify strategic panther connectivity priorities at the parcel level.
- Work with Florida Conservation Group, Florida Wildlife Corridor, and other partners to work with ranchers and other landowners to discuss easements and incentives to manage for panther habitat and connectivity.

Florida Wildlife Corridor Statewide Vision



<http://floridawildlifecorridor.org/>

