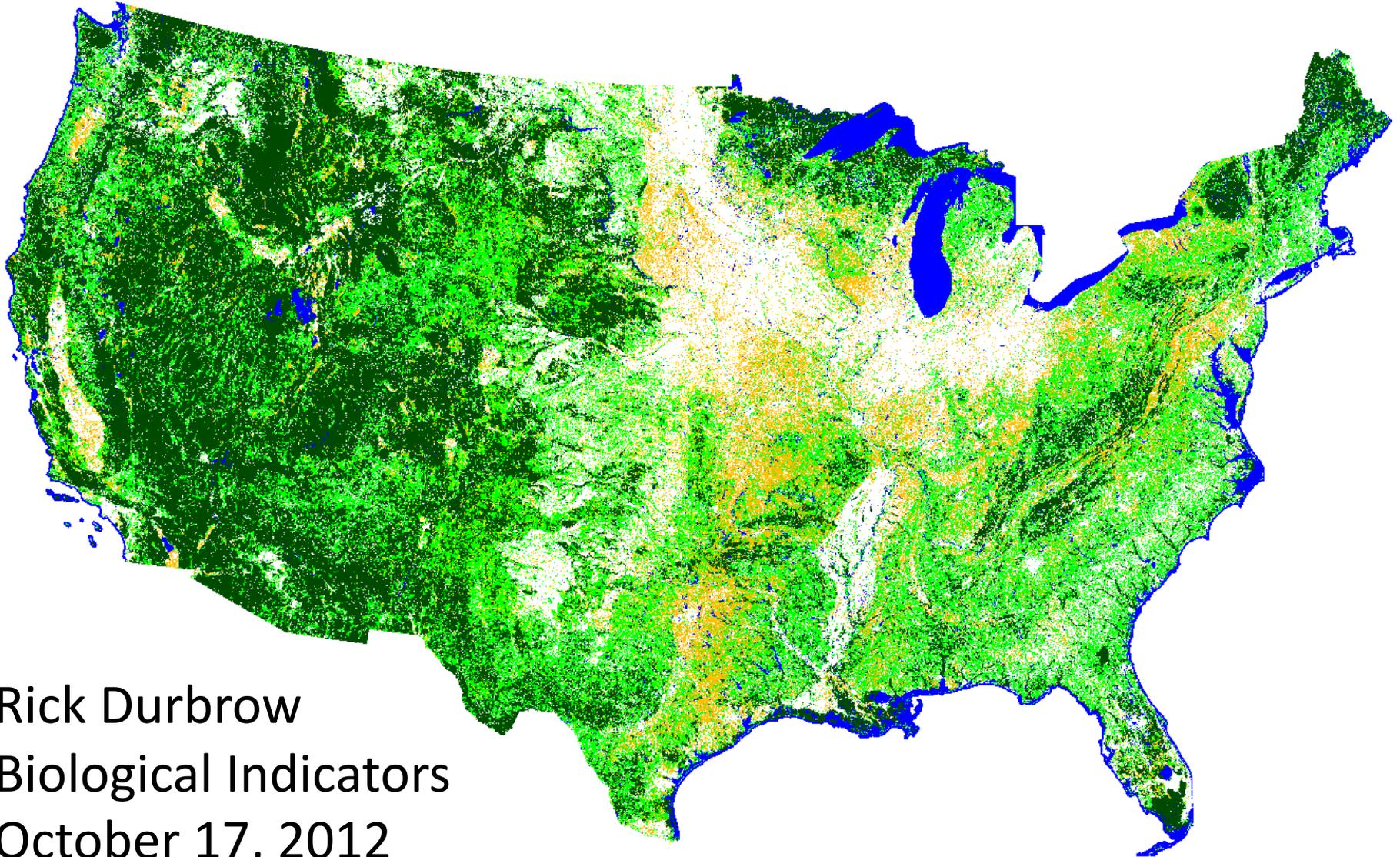


National Ecological Framework



Rick Durbrow
Biological Indicators
October 17, 2012

Protecting Ecosystem Services

- Riparian Buffer
- Carbon Sequestration
- Water Filtration
- Particulate Matter Removal
- Flood Protection
- Recreation
- Biodiversity
- Habitat



Protecting Functional Habitat



**Longleaf Pine
Sandhills**



**Bottomland
Hardwood Forests**

Protection Efforts in Isolation

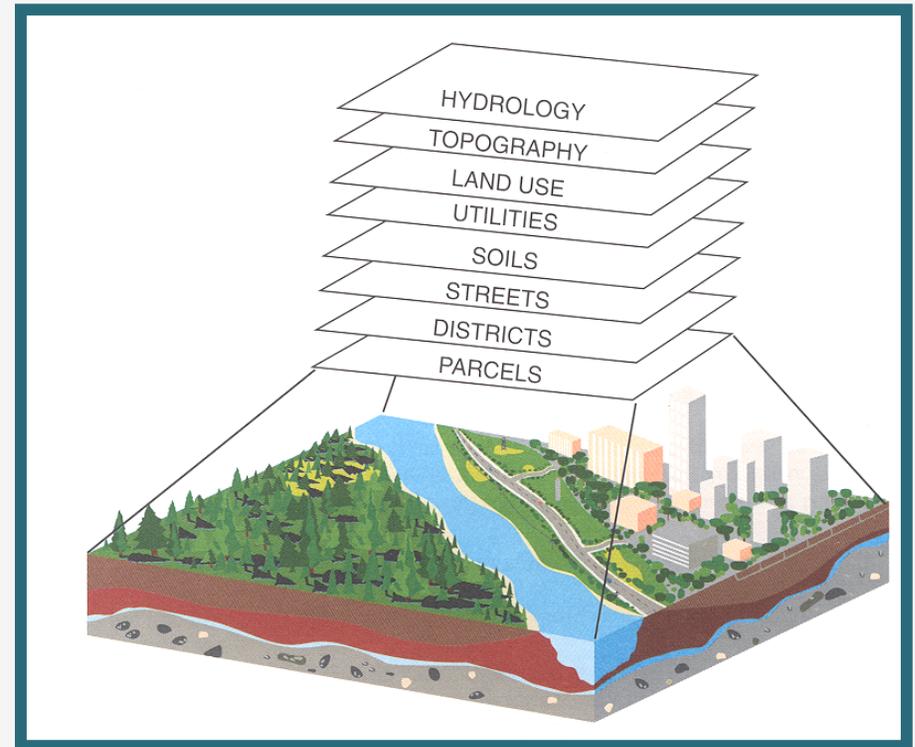


Regional Landscape Approach

- 
- An aerial photograph of a lush green landscape, likely a park or natural area. A winding path or stream cuts through the dense vegetation, creating a series of curves and loops. The colors range from vibrant green to deep forest green, with some areas appearing slightly darker, possibly due to shadows or different types of trees. The overall scene is serene and natural.
- (1) Identifies critical elements of native ecosystems and landscapes;**
 - (2) Maintains connectivity among ecological systems & processes;**
 - (3) Facilitates the ability of these ecosystems & landscapes to function as dynamic systems;**
 - (4) Maintains the ability of the ecosystems to adapt to future environmental changes.**

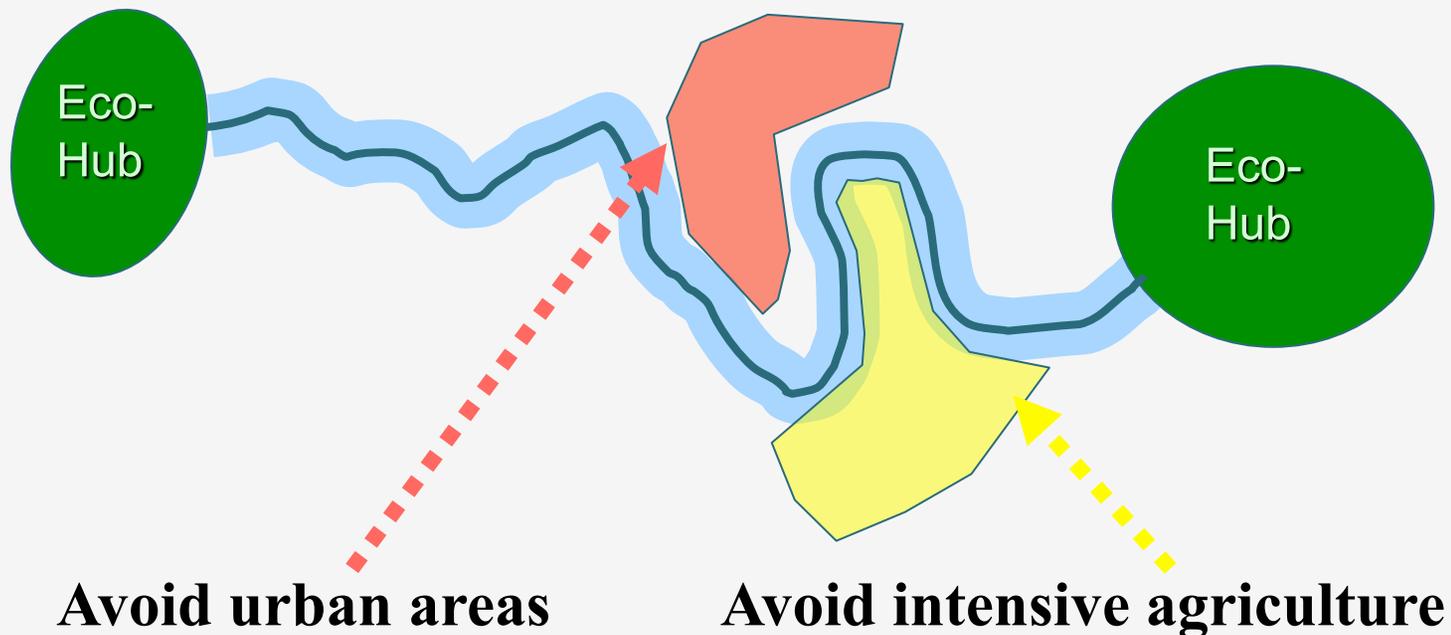
Priority Ecological Area Data Layers

- Mature Forest
- Wetness Index
- Protected Lands Data
- USFWS Critical Habitat
- Landcover Diversity
- NLCD Wetland Classes
- Roadless Areas (>5,000 acres)
- Healthy Headwater Streams

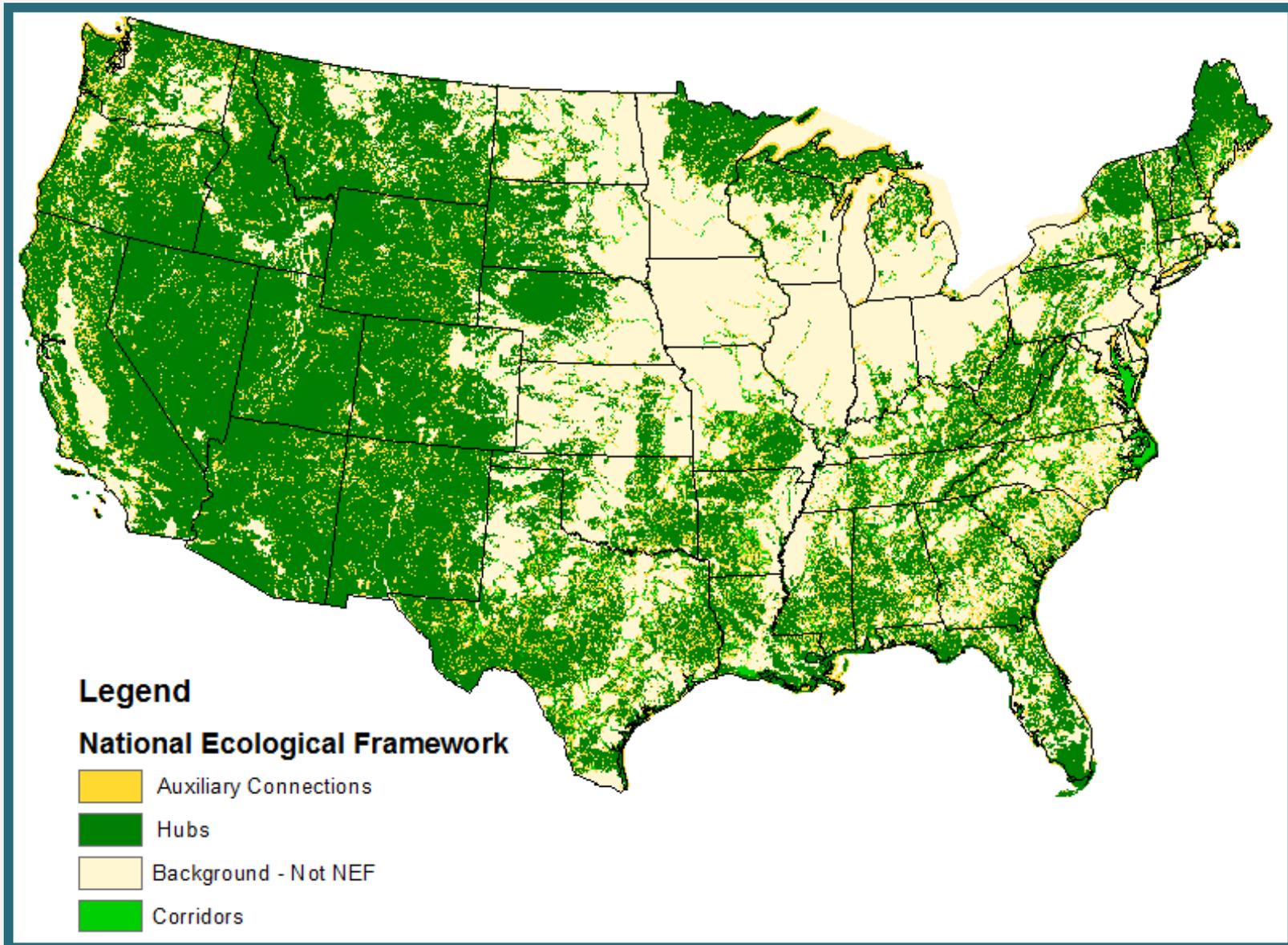


Ecological Cost Surface Analysis

Find a path representing the best “ecological pathway” between the hubs.
Cost is not monetary, but is ecological.

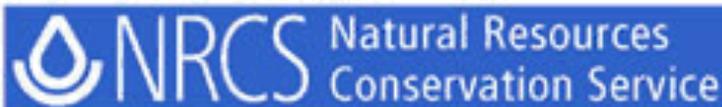


National Ecological Framework



Landscape Conservation and Restoration Pilot Project

Southeast Natural Resource Leaders Group



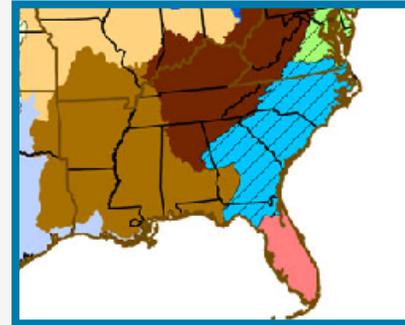
US Army Corps
of Engineers.



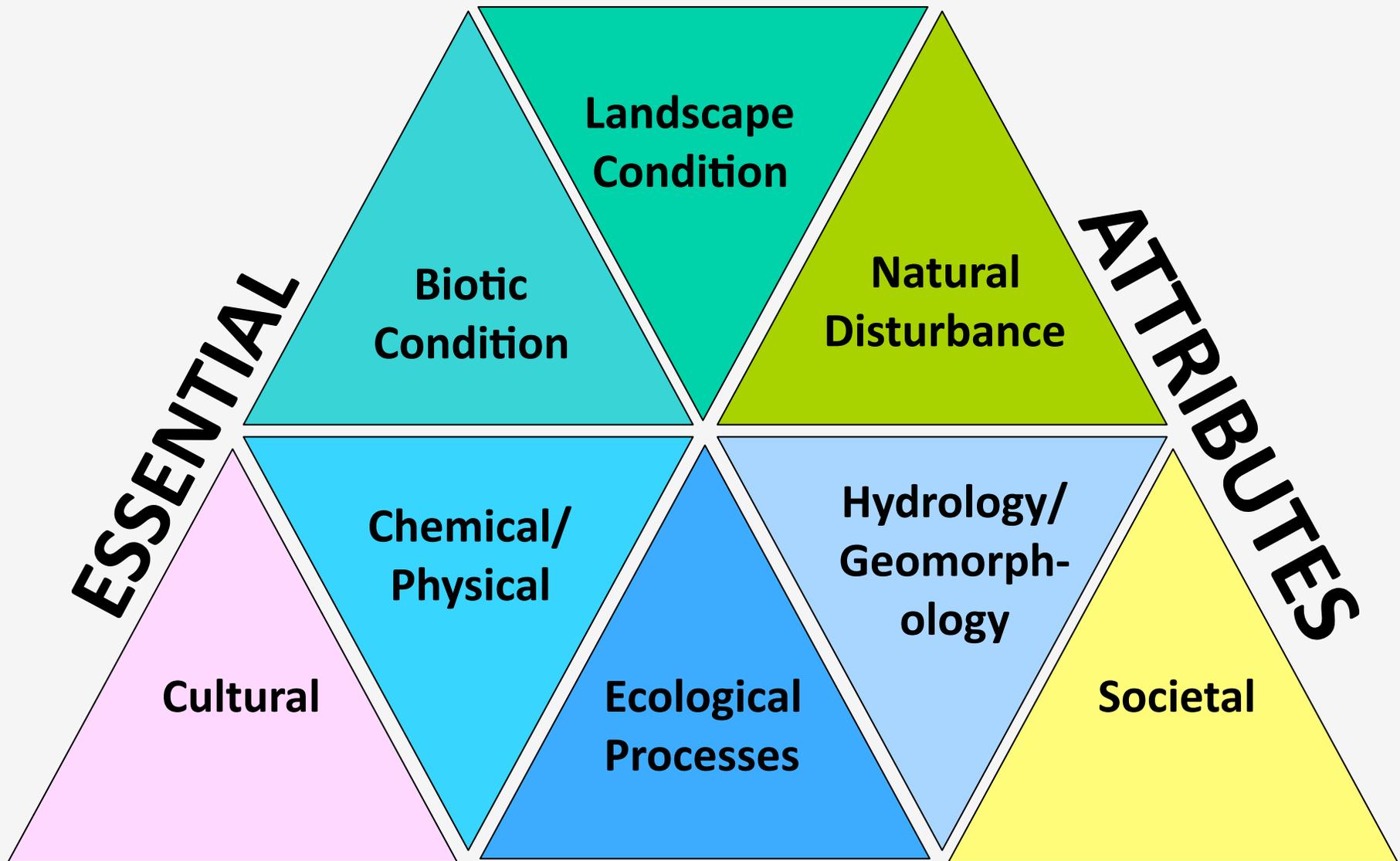
Targeting Federal Funding
for Natural Resource Protection

Federal Program Resources for Conservation/Restoration

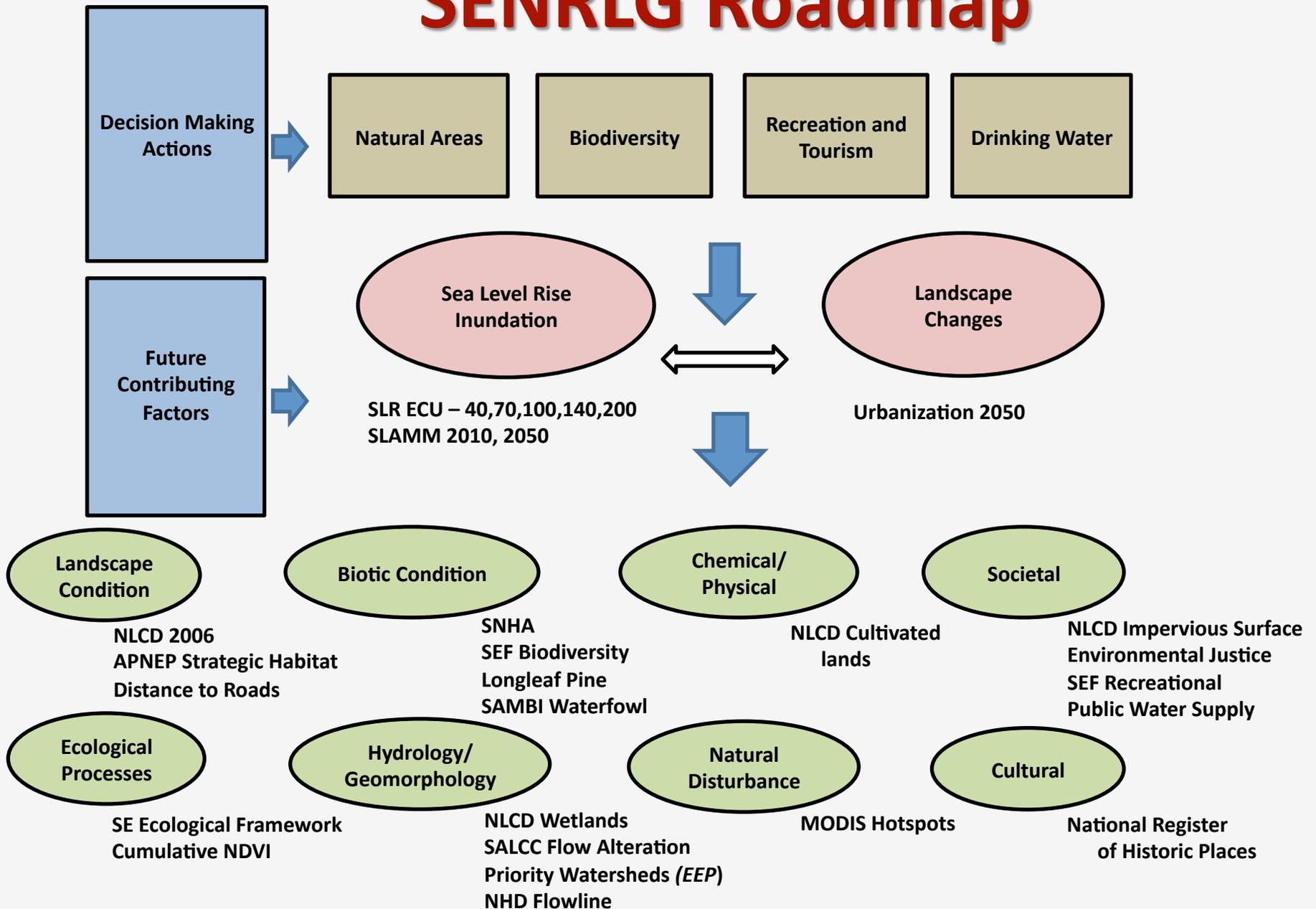
- Cooperative Forestry Programs (FS)
- Landscape Conservation Cooperatives (DOI)
- Coastal and Estuarine Land Conservation Program (NOAA)
- Watershed and River Basin Assessments (ACE)



Agency Program Indicators

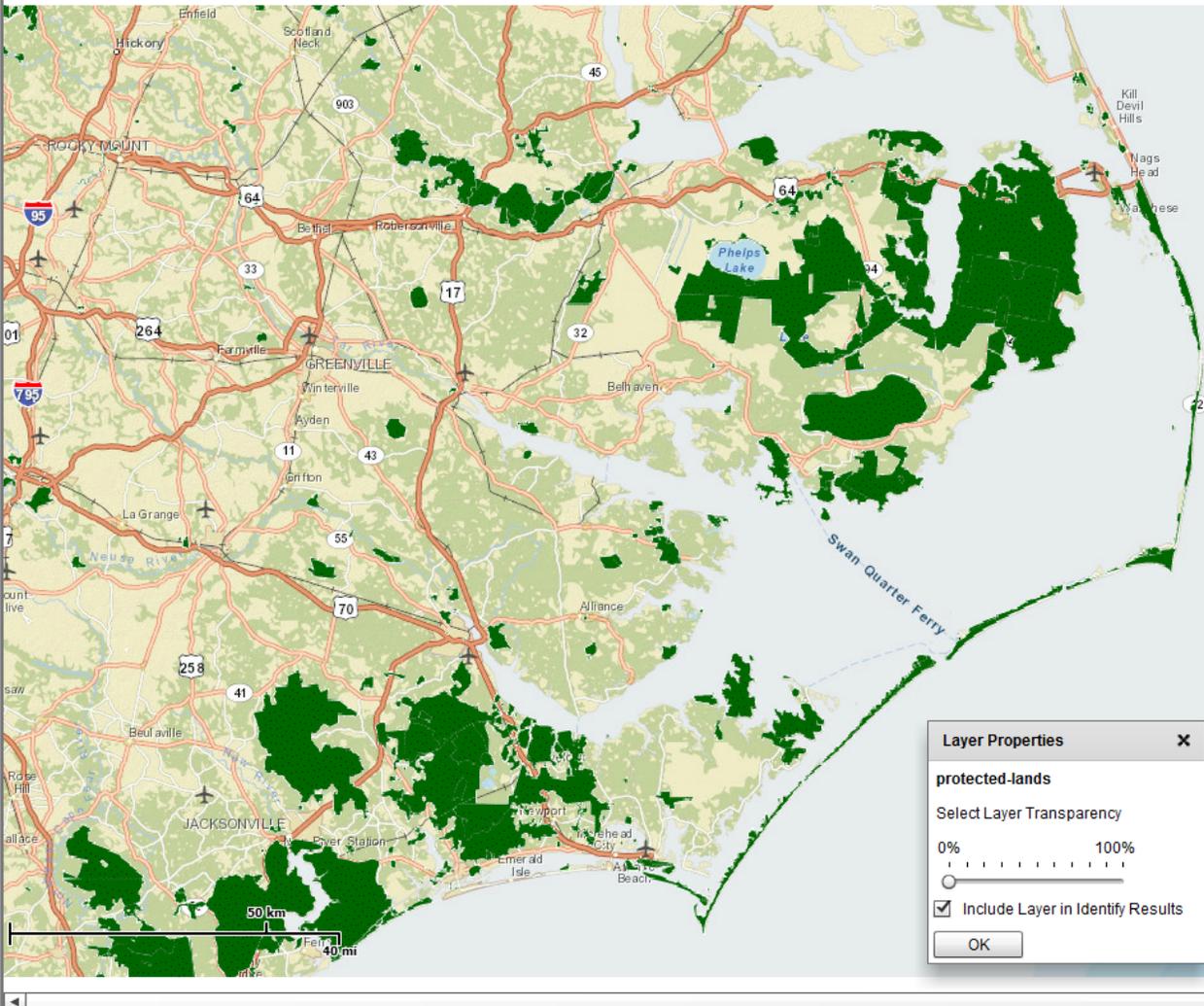


SENRLG Roadmap



SENRLG Phase 2 Viewer

Basemap ESRI Streets Find Area Theme Phase 2



Map Tools

Legend (click to clear layer)

Map Layers

- Boundaries
 - State Borders
 - Urban Areas
 - Military Training Points
 - Military Installation Areas
 - Federal Land Types
 - NC Easements
- Protected Lands Database**
 - protected-lands

Layer Properties

protected-lands

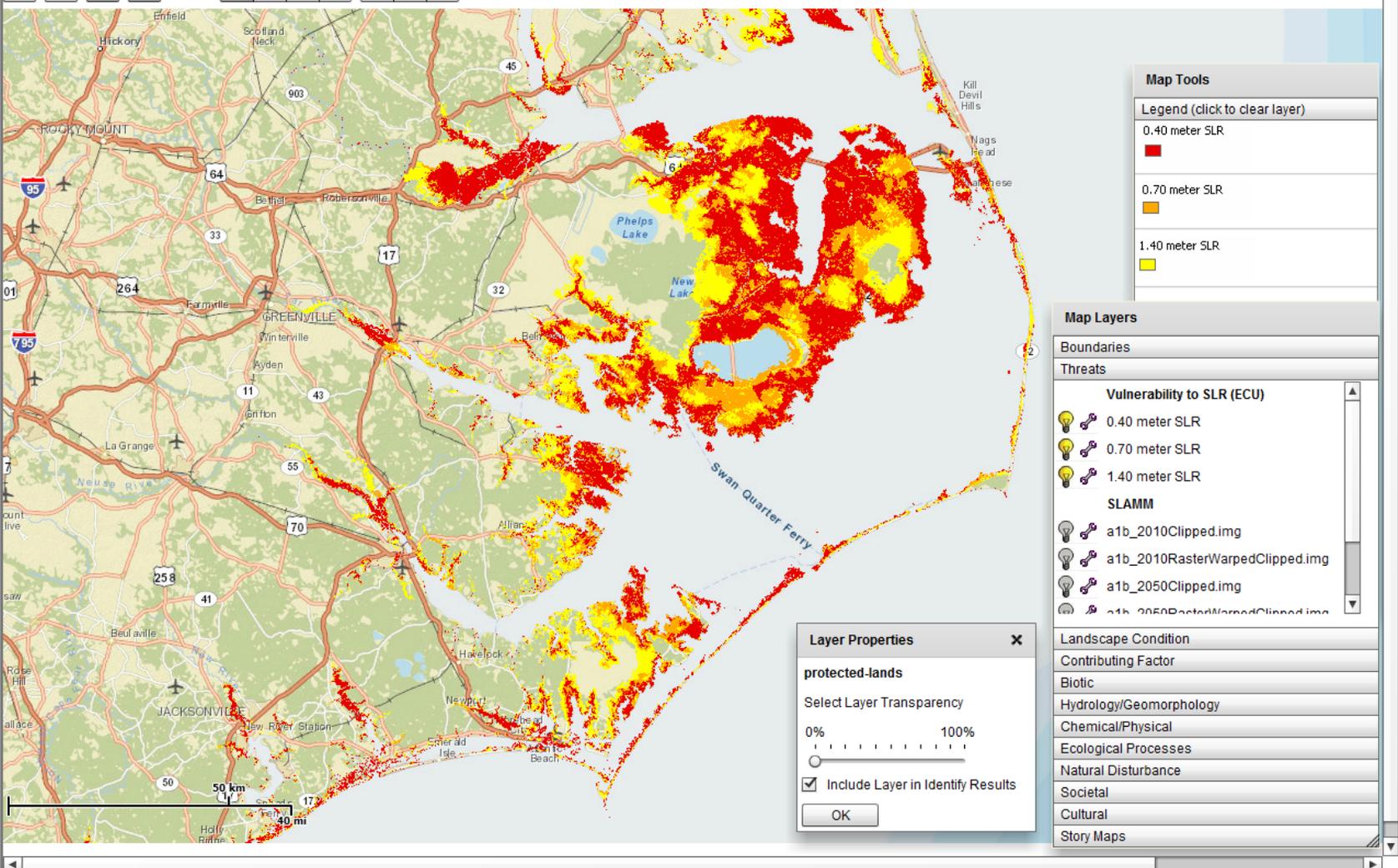
Select Layer Transparency

0% 100%

Include Layer in Identify Results

OK

- Threats
- Landscape Condition
- Contributing Factor
- Biotic
- Hydrology/Geomorphology
- Chemical/Physical
- Ecological Processes
- Natural Disturbance
- Societal
- Cultural
- Story Maps



Map Tools

Legend (click to clear layer)

- 0.40 meter SLR
- 0.70 meter SLR
- 1.40 meter SLR

Map Layers

Boundaries

Threats

- Vulnerability to SLR (ECU)**
 - 0.40 meter SLR
 - 0.70 meter SLR
 - 1.40 meter SLR
- SLAMM**
 - a1b_2010Clipped.img
 - a1b_2010RasterWarpedClipped.img
 - a1b_2050Clipped.img
 - a1b_2050RasterWarpedClipped.img

Landscape Condition

Contributing Factor

- Biotic
- Hydrology/Geomorphology
- Chemical/Physical
- Ecological Processes
- Natural Disturbance
- Societal
- Cultural
- Story Maps

Layer Properties

protected-lands

Select Layer Transparency

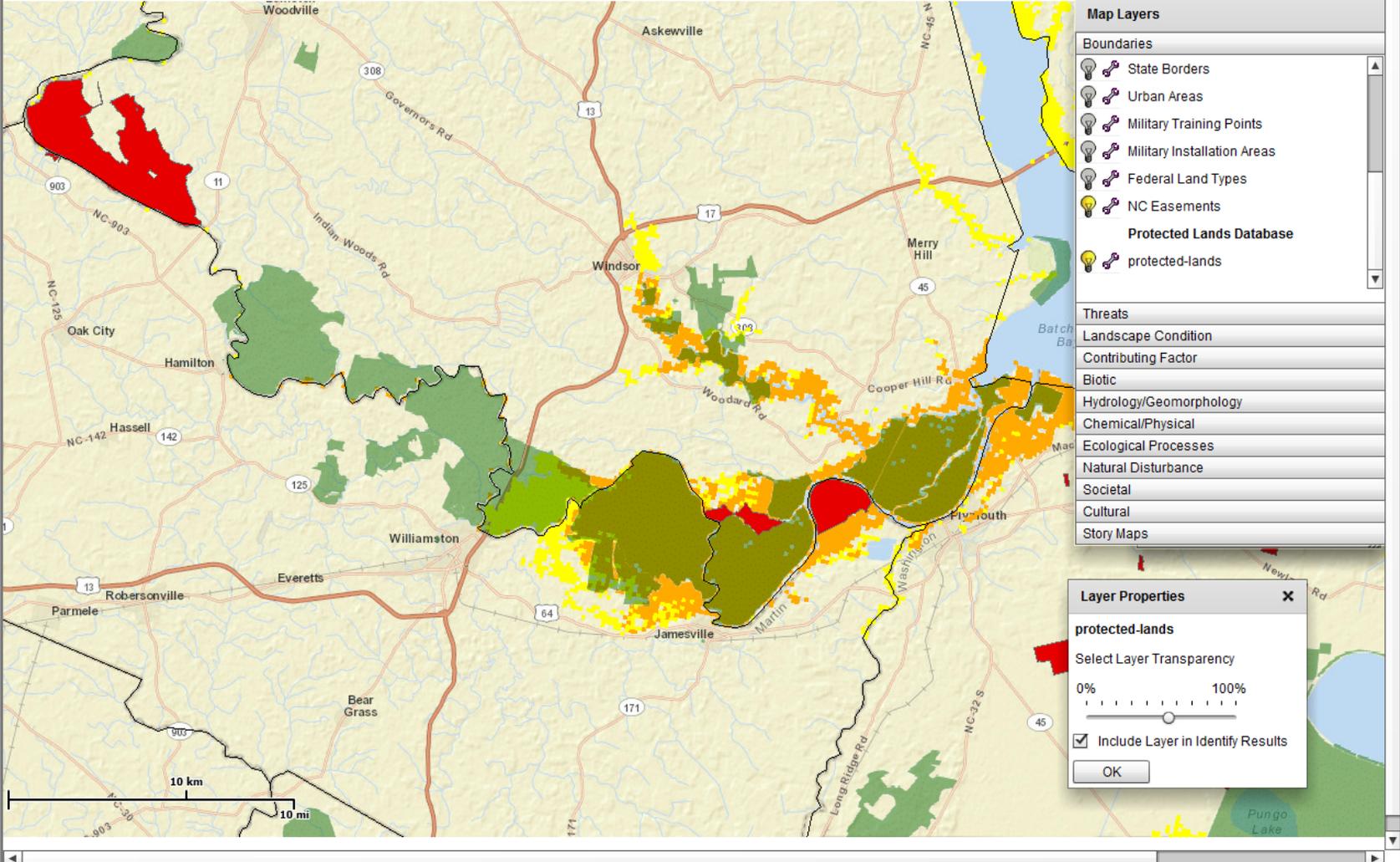
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Include Layer in Identify Results

OK

SENRLG Phase 2 Viewer

Basemap ESRI Streets Find Area Theme Phase 2



Map Layers

- Boundaries
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Layer Properties

protected-lands

Select Layer Transparency

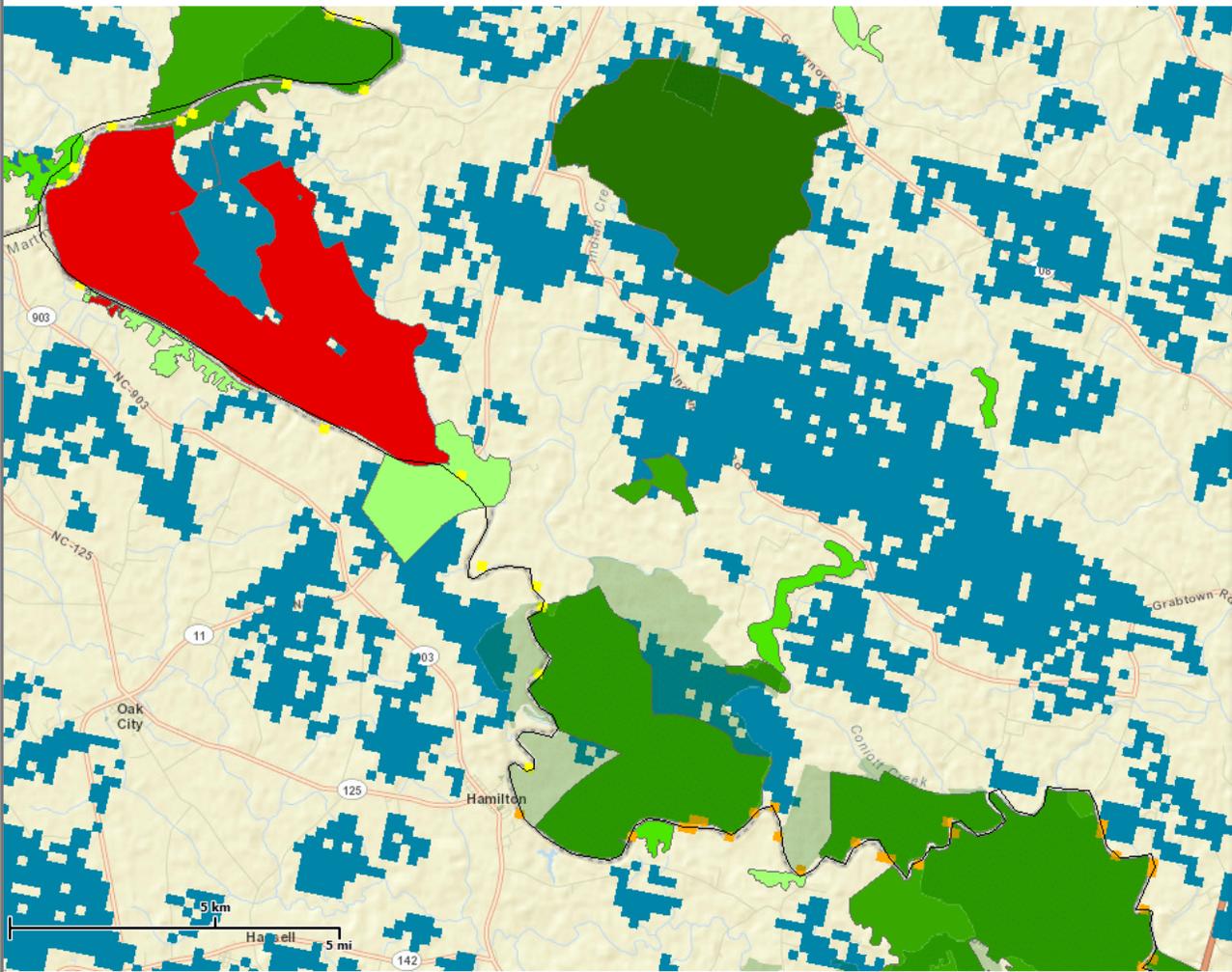
0% 100%

Include Layer in Identify Results

OK

SENRLG Phase 2 Viewer

Basemap ESRI Streets Find Area Theme



Map Tools

Legend (click to clear layer)

- 0.70 meter SLR
- 1.40 meter SLR
- NHP SNHA
 - A
 - B
 - C
 - D
- First Order Streams Raster

Print Map

Export Map to JPG

Map Layers

Boundaries

Threats

- 0.70 meter SLR
- 1.40 meter SLR
- SLAMM
 - a1b_2010Clipped.img
 - a1b_2010RasterWarpedClipped.img
 - a1b_2050Clipped.img
 - a1b_2050RasterWarpedClipped.img
- Slosh
 - DominicLi1MAD92

Landscape Condition

Contributing Factor

Biotic

Hydrology/Geomorphology

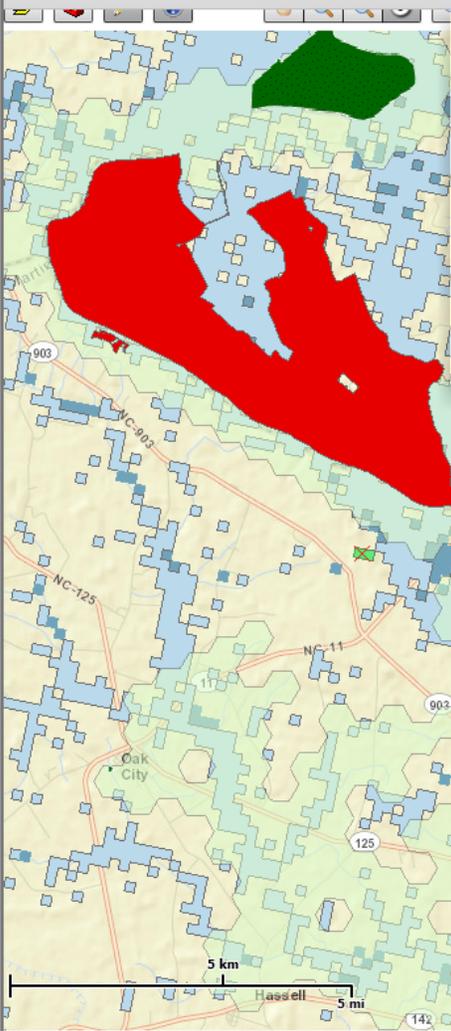
Chemical/Physical

Ecological Processes

Natural Disturbance

Societal

SENRLG Phase 2 Viewer



Identify Results

Wetlands: 61614

CFDA: <http://www.cfda.gov>

CFDA Program:

- ACE Planning Assistance to States
- ACE Environmental Protection and Restoration: Estuary Habitat Restoration
- ACE Environmental Protection and Restoration: Aquatic Ecosystem Restoration
- ACE Environmental Protection and Restoration: Beneficial Use of Dredge Material
- ACE Environmental Protection and Restoration: Project Modification for Improvement of the Environment
- ACE Environmental Protection and Restoration: Specifically Authorized Project
- ACE Collaborative Research and Development
- ACE State Memorandum of Agreement Program for the reimbursement of Technical Services
- ACE Emergency Advance Measures for Flood Prevention
- ACE Protection, Clearing and Straightening Channels

map tools

Legend (click to clear layer)

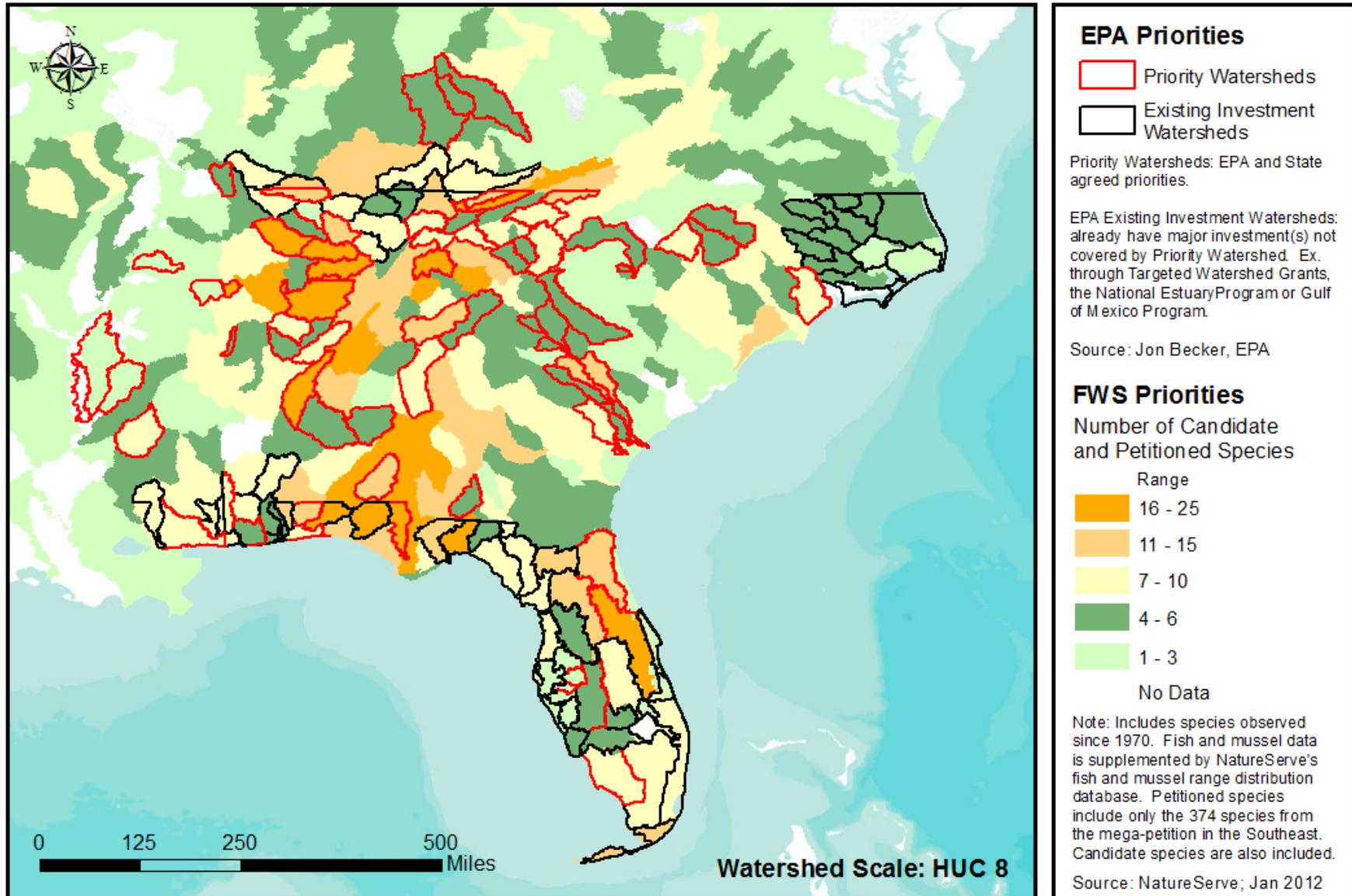
- NC Easements
- Strategic Habitat Area Nominations (Region 1)
- Woody Wetlands
- Emergent Herbaceous Wetlands

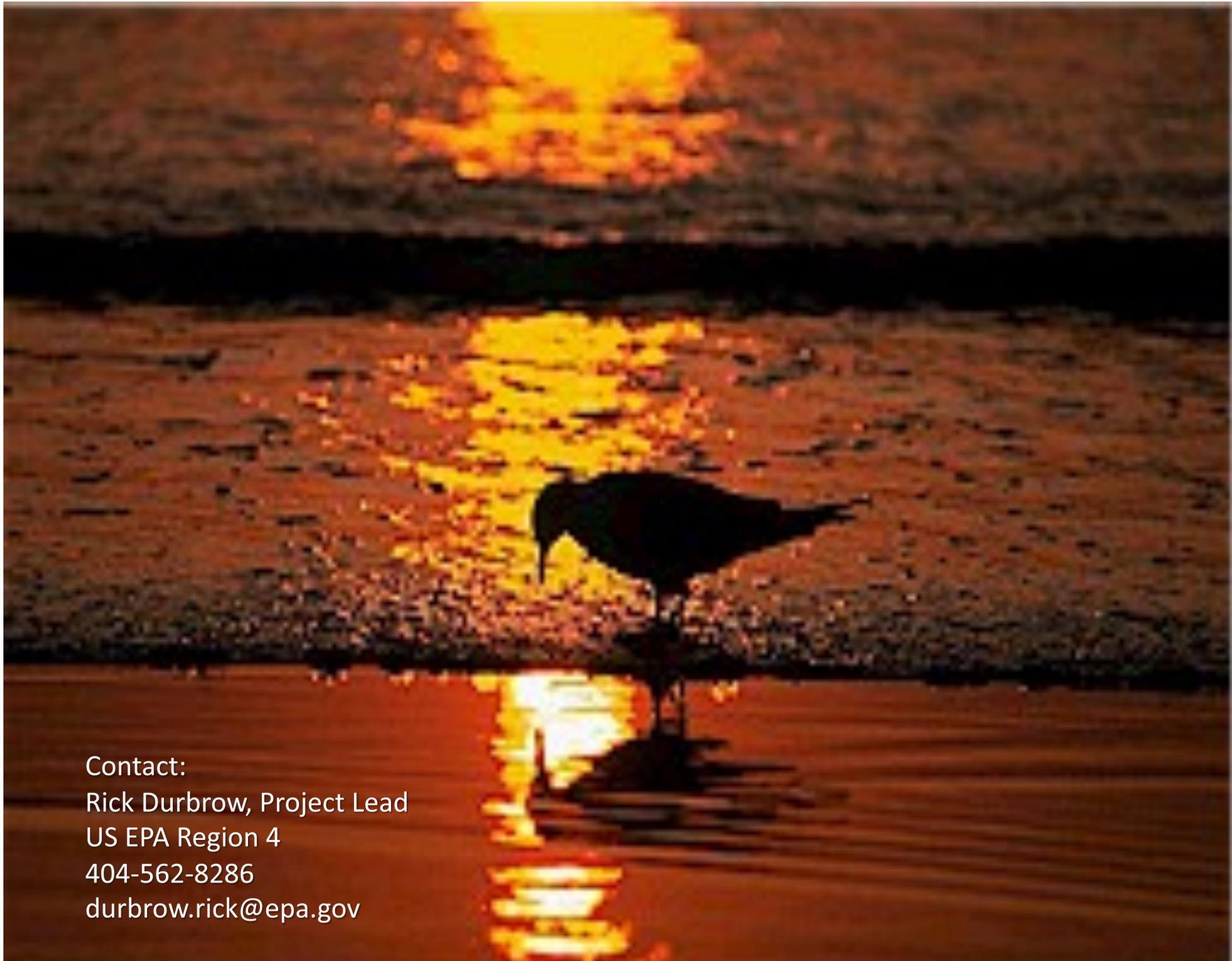
Map Layers

- Boundaries
- Threats
- Landscape Condition
 - APNEP**
 - APNEP Strategic Habitat Areas
 - Strategic Habitat Area Nominations (Regic
 - Strategic Habitat Area Nominations (Regic
 - Distance to Roads**
 - Distance to Roads
 - Landcover**
 - NLCD 2006
- Contributing Factor
 - Biotic
 - Hydrology/Geomorphology
 - Chemical/Physical
 - Ecological Processes
 - Natural Disturbance
 - Societal
 - Cultural
 - Story Maps



EPA Region 4 Priority Watersheds & Density of At-Risk Species





Contact:

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US EPA Region 4

404-562-8286

durbrow.rick@epa.gov