

Florida Ecosystem Impacts



Conservation in Florida: Challenges and Opportunities

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Outline of Presentation

- I. Landscape Conservation Cooperatives
- II. Threats, SLR and urbanization
- III. Areas in Florida:
 - I. Big Bend area
 - II. Everglades/SW Florida
 - III. Florida Keys
- IV. Conservation/adaptation

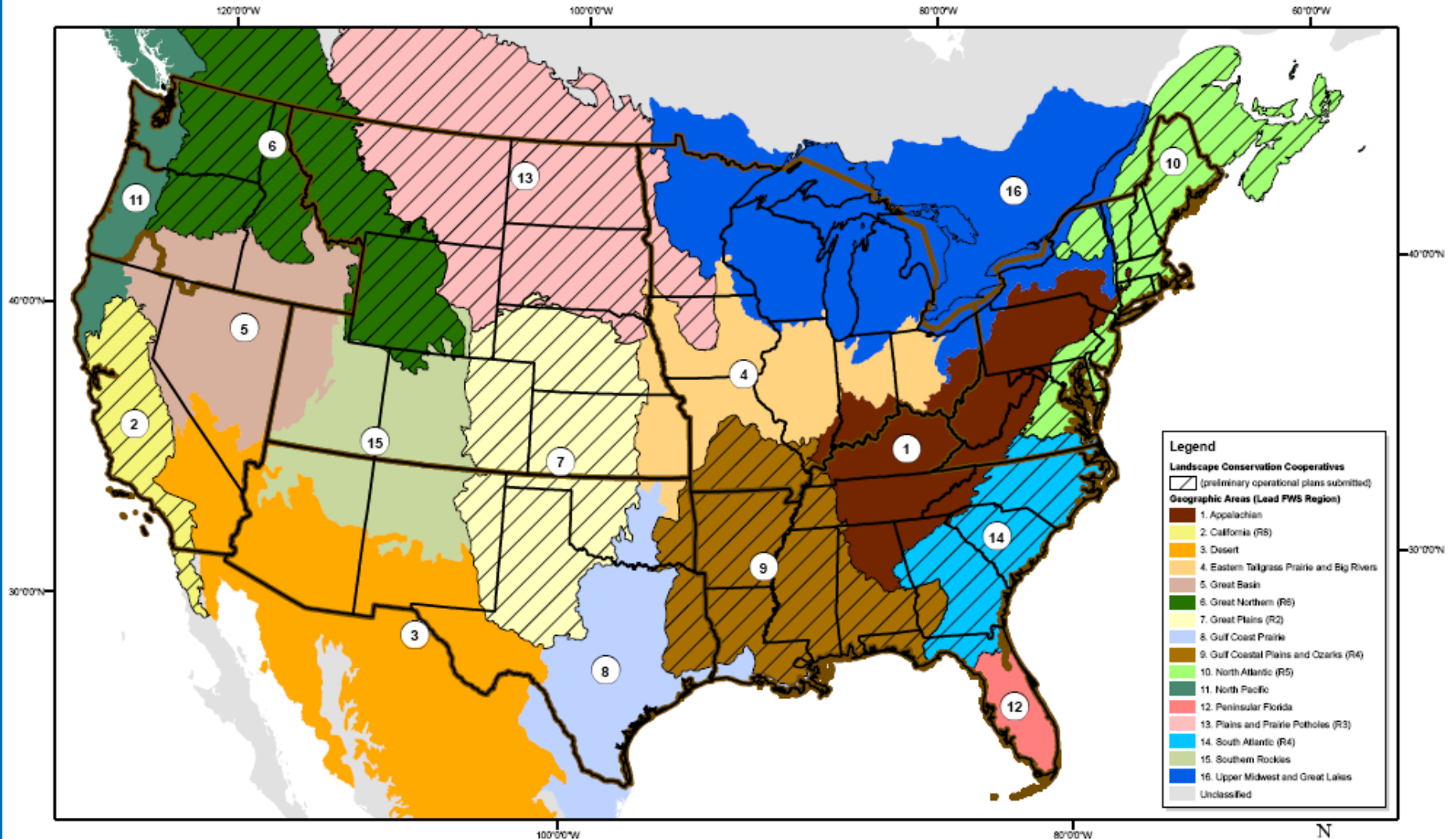


* The opinions expressed herein do not necessarily represent those of USFWS or DOI



U.S. Department of the Interior

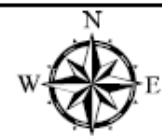
Landscape Conservation Cooperatives - Interim Geographic Framework



Produced by FWS, IRTM, Denver, CO
Map Date: 01222010

0 175 350 700 1,050 1,400 Miles

0 400 800 1,600 2,400 3,200 Kilometers



Albers Equal Area Conic
NAD83

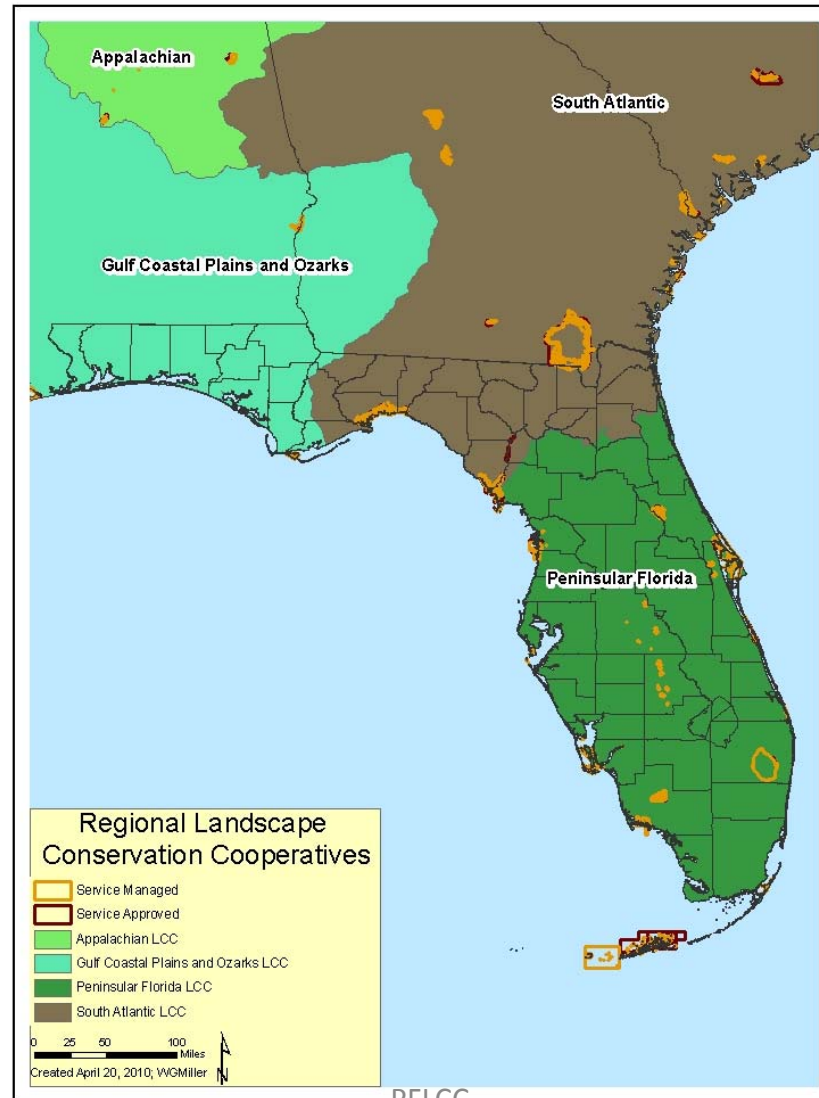
From Sally Jewell on Earth Day:

This isn't a pie-in-the-sky idea. We need look no further than the greater sage-grouse conservation effort to see what's possible when people work together across a landscape....

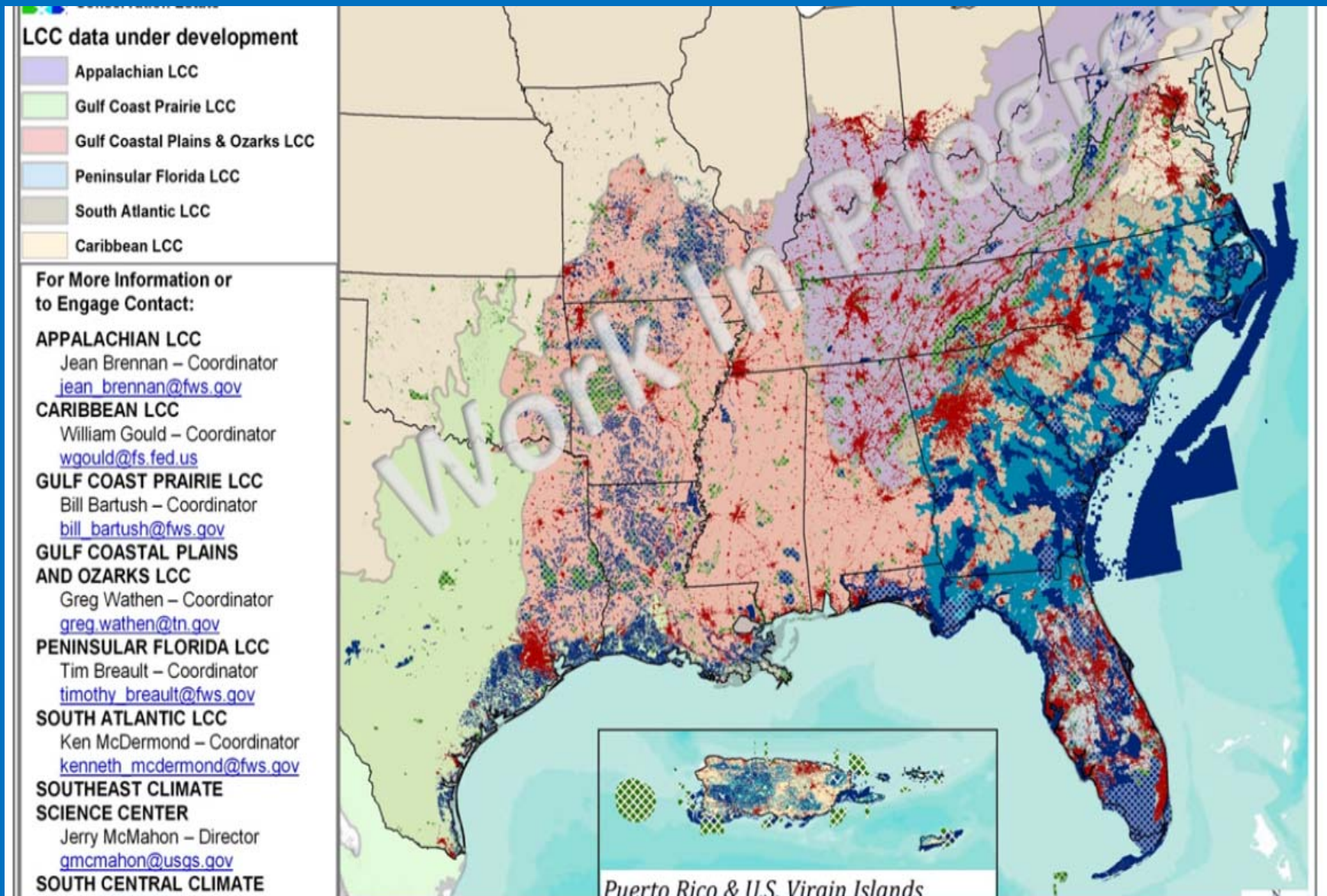
I'm not suggesting that this was an easy task. It wasn't, by any stretch of the imagination. But the epic collaboration did result in a thoughtful, science-based roadmap for a healthy ecosystem and sustainable development across a landscape.

That's the model for the future of conservation. That big-picture, roll-up-your-sleeves, get-input-from-all-stakeholders kind of planning is how land management agencies should orient themselves in the 21st century."

Florida and LCC Structure



SE Conservation Adaptation Strategy



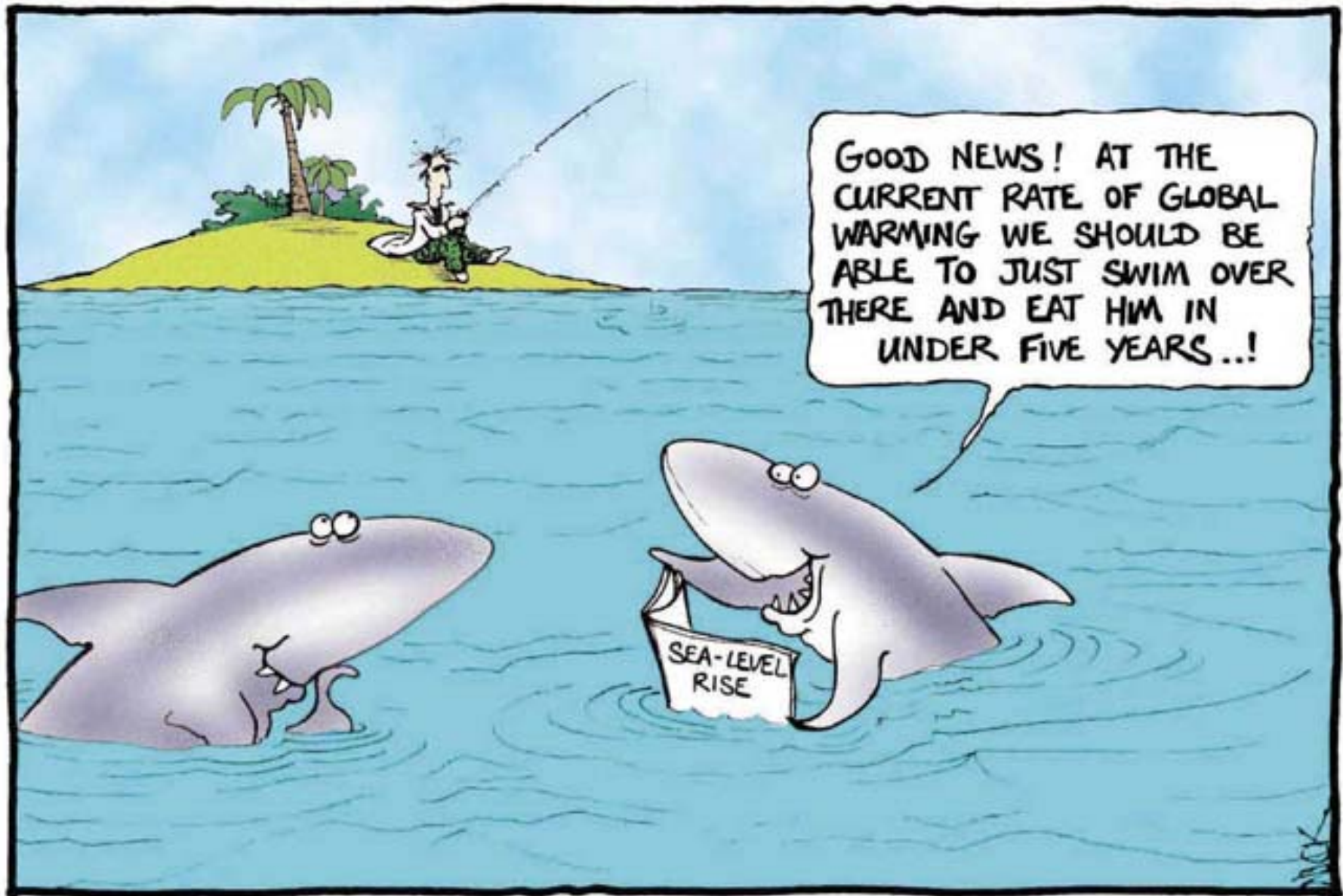
PFLCC Conservation Planning ATLAS

- HUC 12
- Simple and complex viewers
- GIS data available
- Most PFLCC science products
- All SE LCCs have a CPA

The screenshot shows the homepage of the Peninsular Florida LCC Conservation Planning Atlas. At the top, there is a logo with a palm tree and the text "PENINSULAR FLORIDA LCC CONSERVATION PLANNING ATLAS". To the right is a search bar with the text "Search by keyword or location" and a magnifying glass icon. Below the search bar, it says "powered by DATA BASIN". A navigation bar contains five tabs: "GET STARTED", "EXPLORE", "CREATE", "COMMUNITY", and "MY WORKSPACE". The main content area features a large banner image of a coastal landscape with a lighthouse. Overlaid on the banner is a white box with the heading "About the PFLCC Conservation Planning Atlas" and a paragraph of text: "The Peninsular Florida LCC Conservation Planning Atlas is a data discovery, visualization, and analytical platform for stakeholders throughout the Peninsular Florida area. With the PFLCC CPA you can search for spatial datasets, visualize supported projects, and learn more about landscape scale conservation science and design in the region." Below the text is a "More Information..." link and a "Take a Tour" button. Below the banner is a section titled "Data Galleries" with six thumbnails: "Critical Lands & Waters Identification Project", "Alternative Futures & Scenarios", "Base Maps & Data", "Priority Resources & Conservation Targets - Coming Soon...", "Supporting Models & Data", and "Landscape Changes and Threats". At the bottom, there are three sections: "Simple Map Viewer" with a "Coming Soon..." link and a map thumbnail, "PFLCC CPA News" with a news article snippet dated "Dec 10" and text about the new CPA, and "Advanced Mapper" with a map thumbnail.

<http://pflcc.databasin.org/>

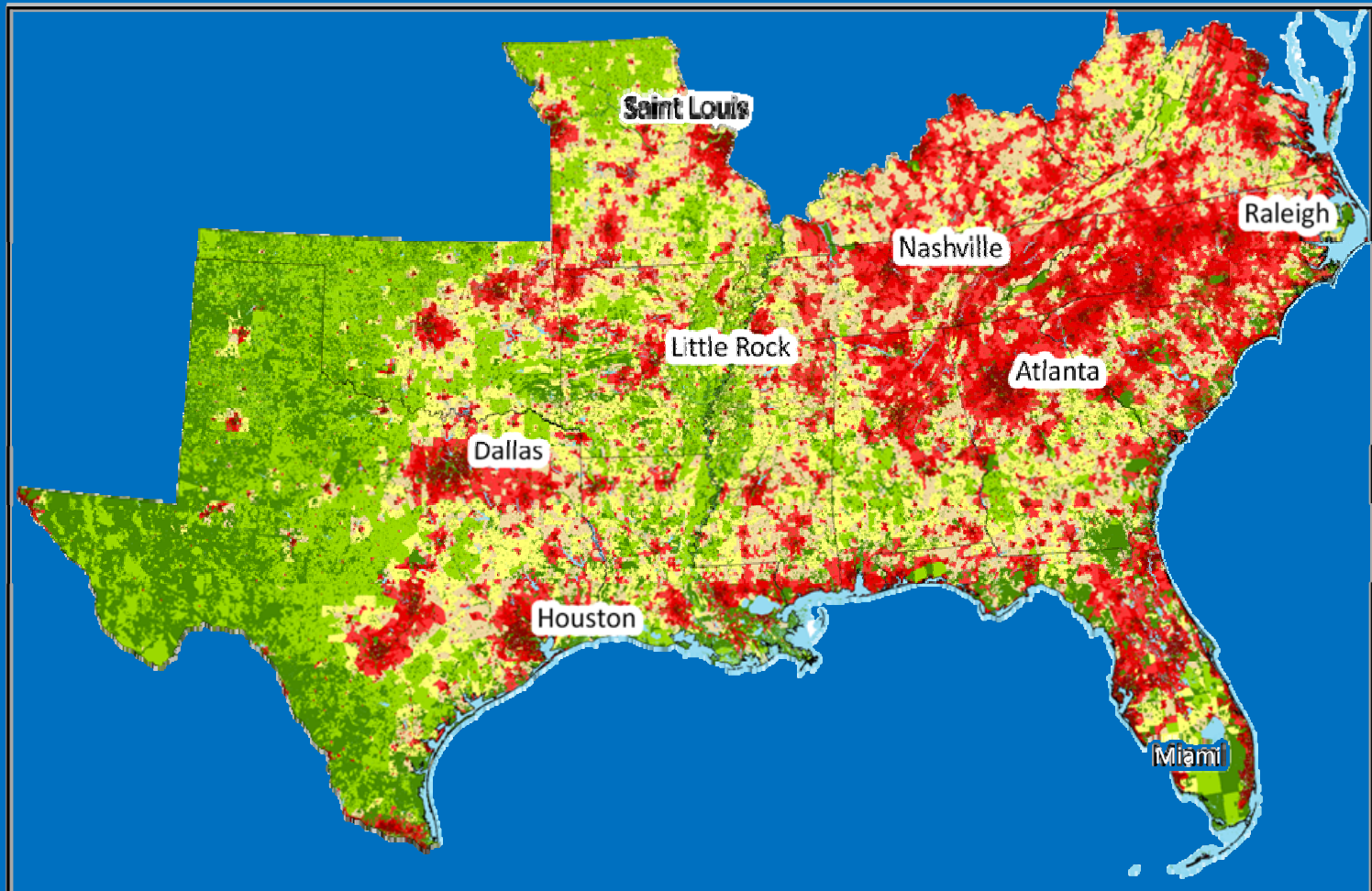
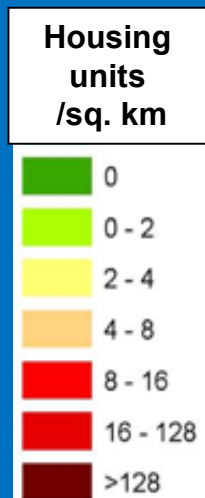
Rising Seas around Florida



US Population (2000): 304 M

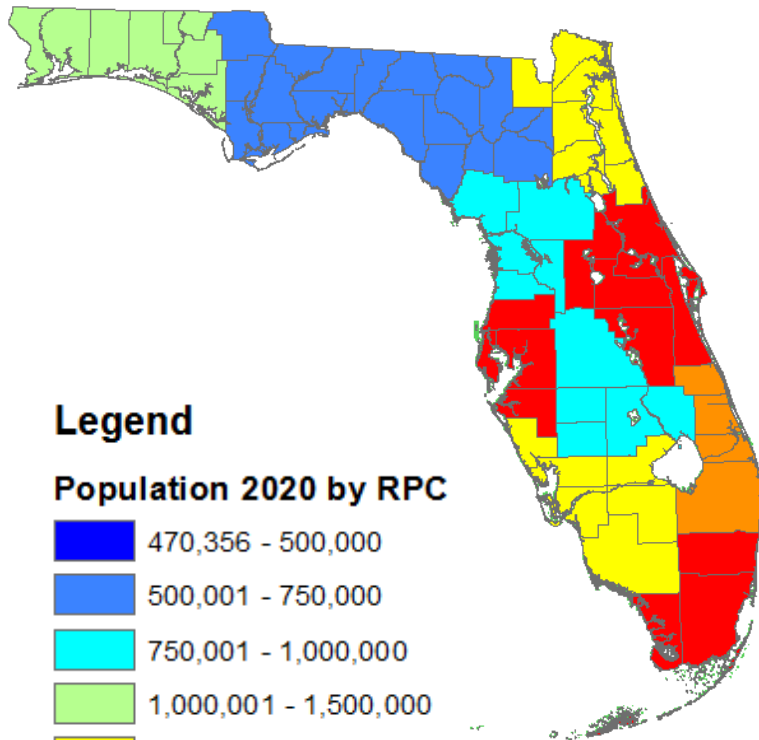
Projected population: **1 Billion** by 2100

Urbanization, loss/conversion of Ag-land/Open spaces **2030**



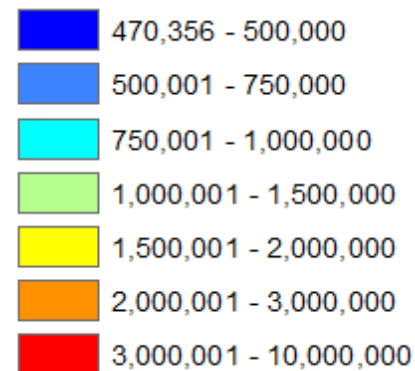
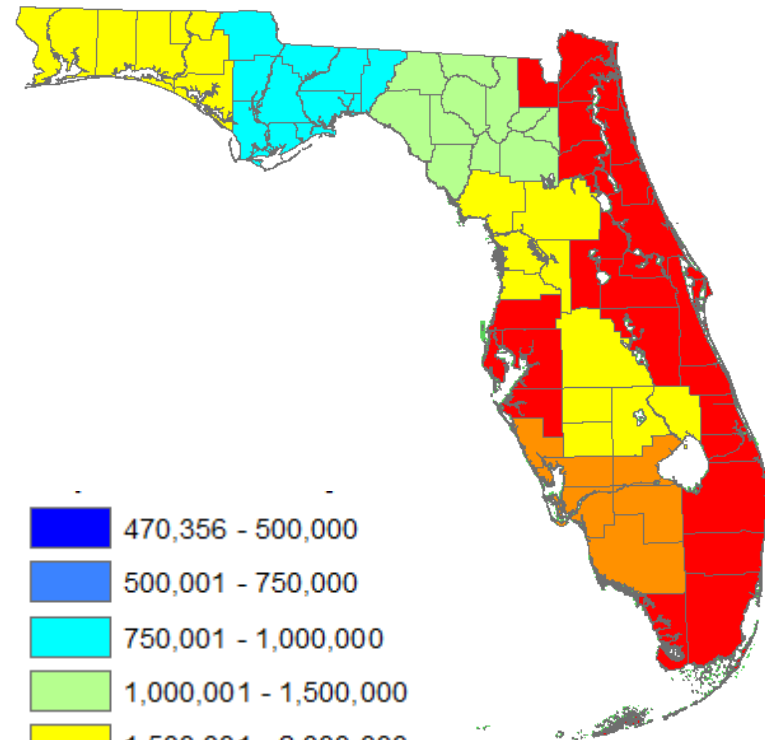
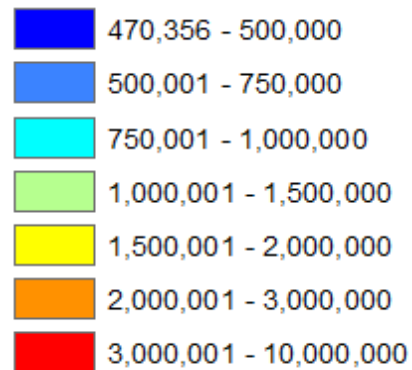
Source: A. Pidgeon UWI. <http://silvis.forest.wisc.edu/old/Library/HousingData.php>

Total Population 2020 and 2060



Legend

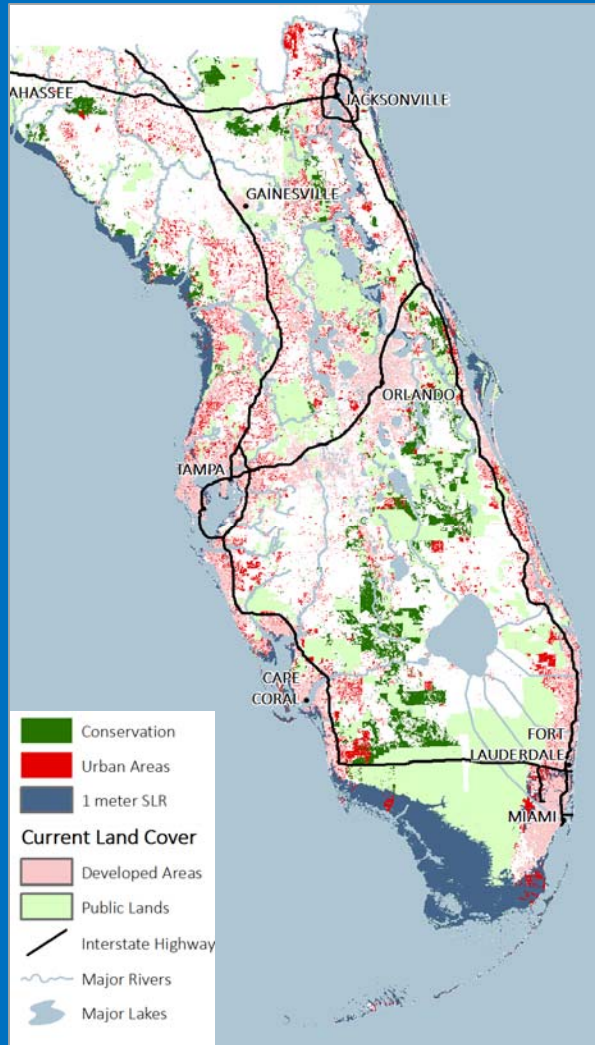
Population 2020 by RPC



SCENARIO 1

50% Fee Simple 50% Easement +
Florida Forever targets

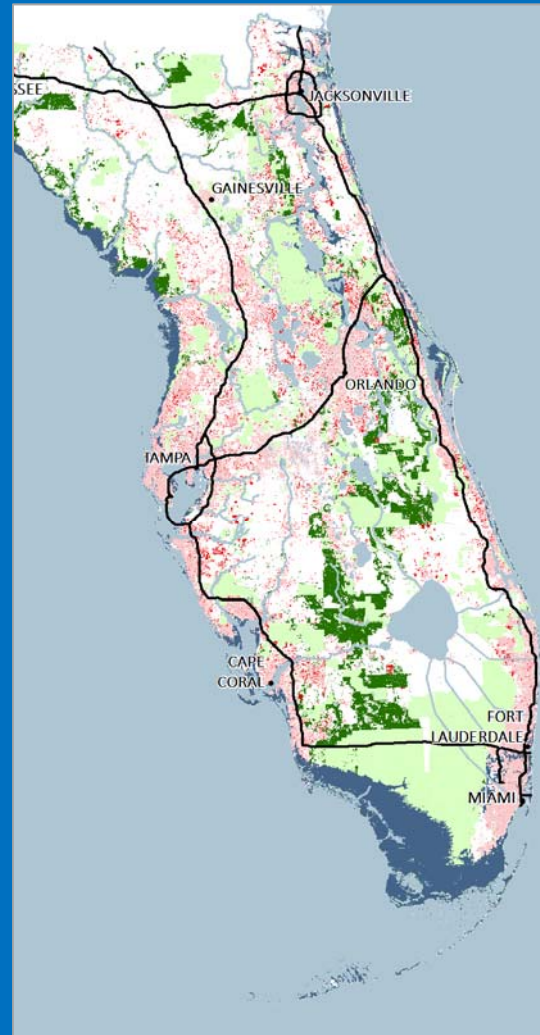
Low density greenfield development
Existing distribution of density



SCENARIO 2

10% Fee Simple | 90% Easement +
Florida Forever targets

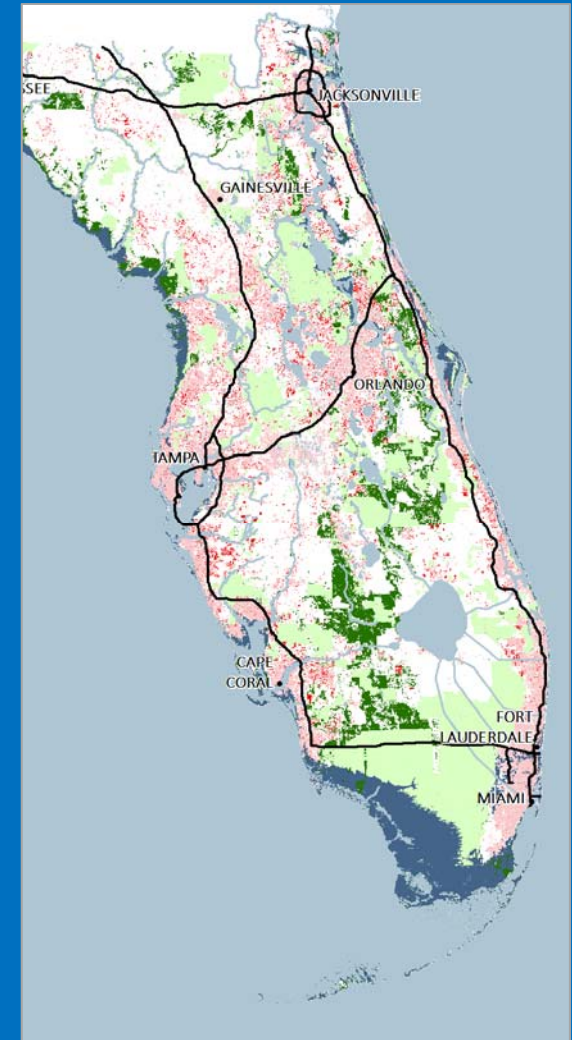
Green infrastructure+
Redevelopment + Densification



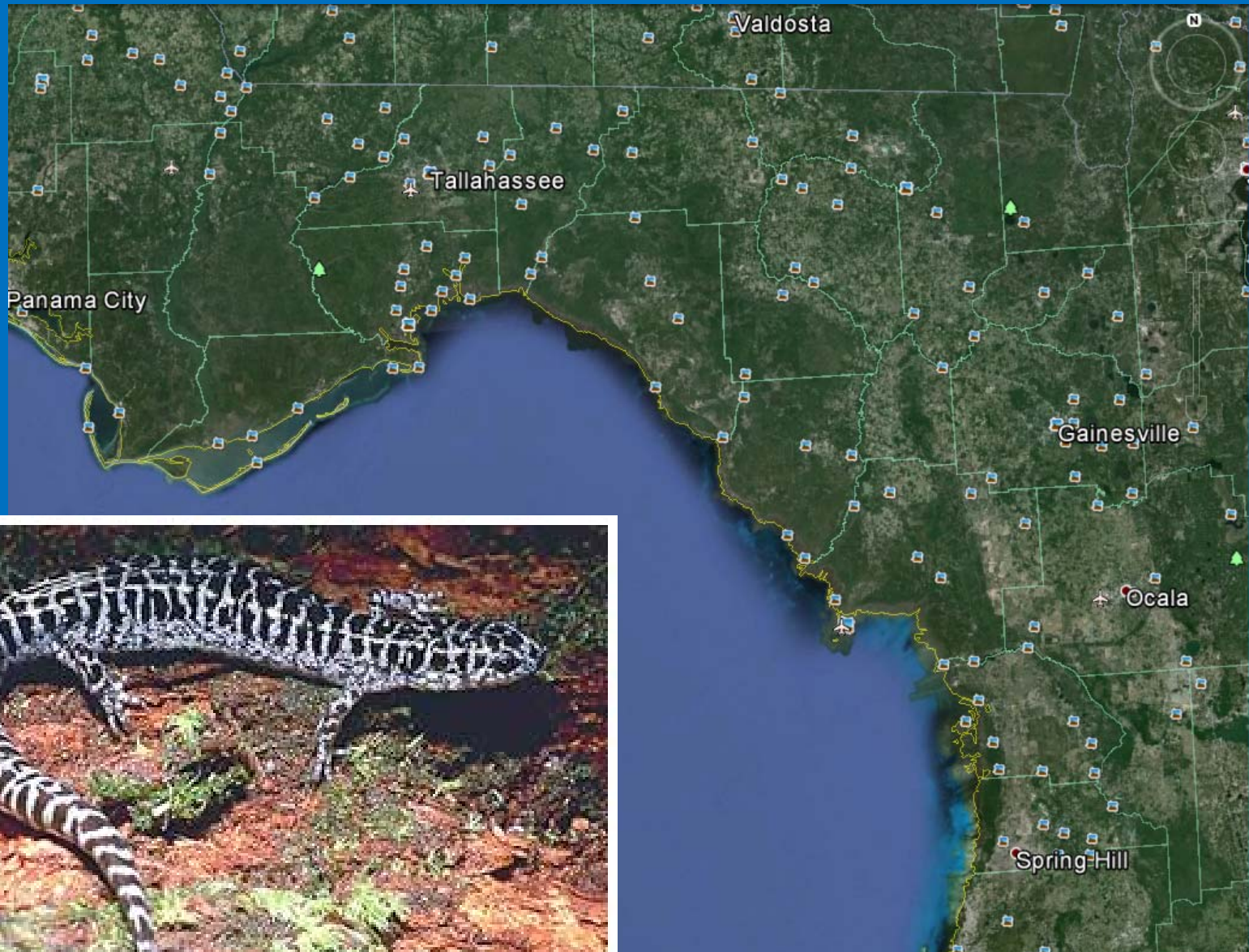
SCENARIO 3

10% Fee Simple | 90% Easement +
P1-CLIP 3.0

Green infrastructure+
Redevelopment + Densification



Big Bend, Florida



12-20-82

PD 2816-3-11

East Pass
Suwannee River

Corrigans reef complex



Freshwater
Detention?

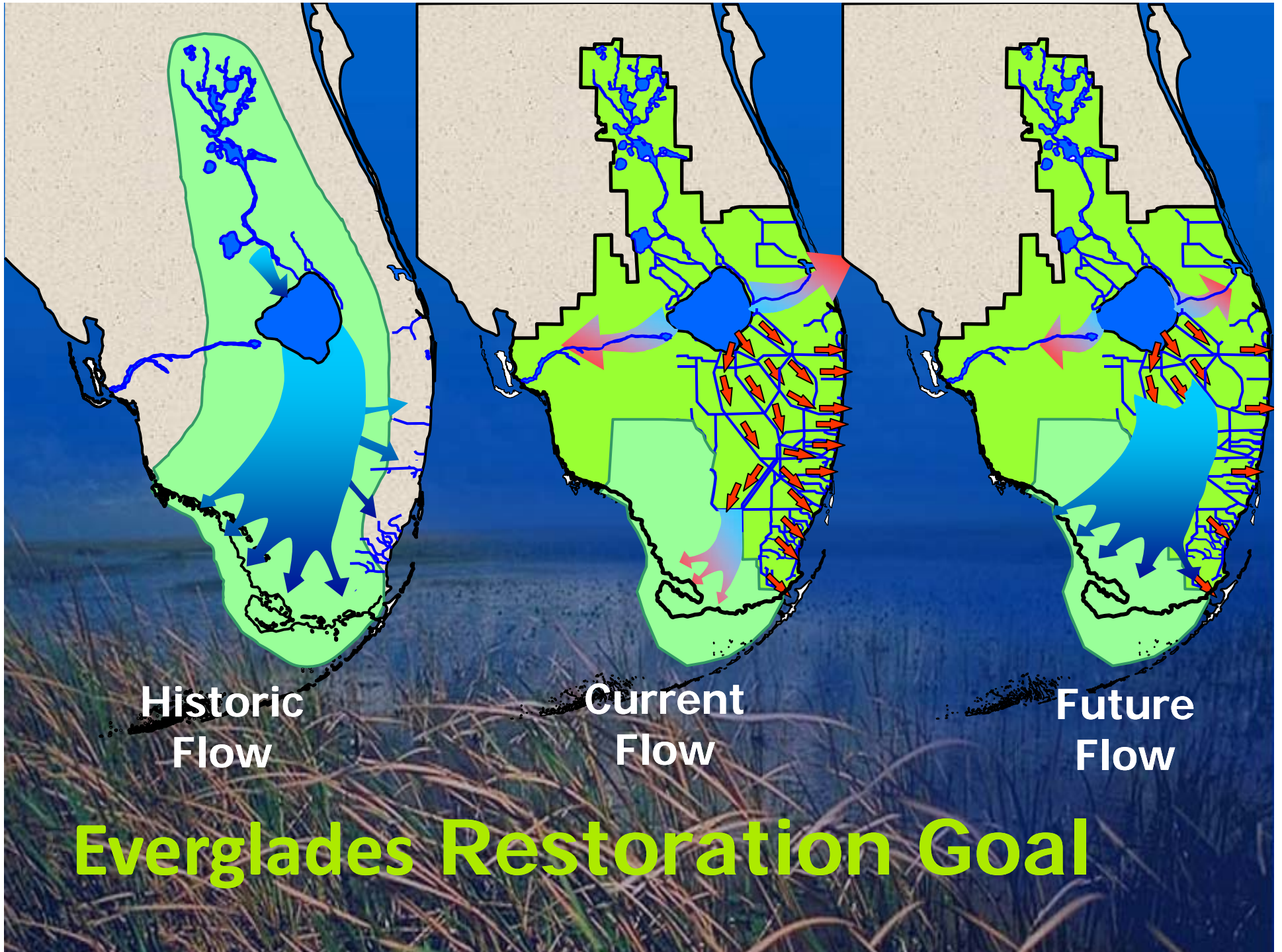


Do coastwise
reef chains keep
nearshore salinities low?



2010

Lone Cabbage Reef



Historic
Flow

Current
Flow

Future
Flow

Everglades Restoration Goal

SOUTHERN FLORIDA WETLAND

EIGHTH IN A SERIES



N A T U R E O F A M E R I C A

Crocodile Lake



(Not a crocodile)

Everglades N.P.



Ding Darling



Key Deer Refuge



Sea level rise threatens critical South Florida coastal refuges.

How will 1 meter SLR affect key refuges?

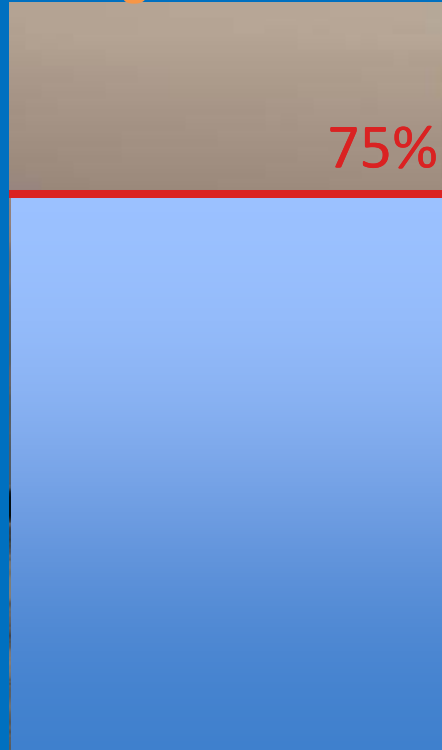
How much land will be lost with varying degrees of SLR?

What other damage can we expect?

Crocodile Lake



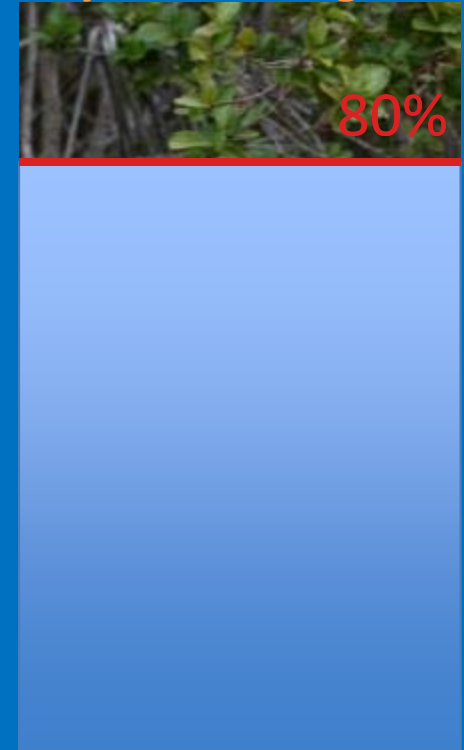
Everglades N.P.



Ding Darling



Key Deer Refuge



Federal Reserve	Sea Level Rise			
	3.6"	18.4"	39.1"	113"
Caloosahatchee National Wildlife Refuge	40%	73%	100%	100%
Island Bay National Wildlife Refuge	2.5%	88%	93%	100%
Pine Island National Wildlife Refuge	5.5%	77%	82%	87%
Ten Thousand Islands NWR	8.1%	77%	96%	100%
Hobe Sound National Wildlife Refuge	6.5%	46%	70%	83%

Landscape Conservation Design Framework

Direct Drivers (Future Scenarios)

- Climate Change Vulnerability- incorporated as impacts to habitat
- Human Growth Impact Areas- including impact buffers
- Direct Loss of Habitat- from sea level rise or other applicable factors

Indirect Drivers

- Management Directives
- Conservation Partner Opportunities
- Use of Directed Funding/Programs
- Habitat Improvement- (will be incorporated as a direct driver in scenarios if possible and available, e.g. fire regimes, water management)

Conservation Priorities

- Imperiled Species /'Expert Selection' Species
- Impacted Habitats
- Underrepresented Habitats
- Priority Linkages
- Network Criteria
- Ecosystems?

Current Plans and Management Actions

- All applicable current management and conservation plan directives and goals will be incorporated into the landscape conservation designs for the focal sites

Landscape Conservation Design and Planning



MARine Estuarine goal Setting (MARES) for South Florida

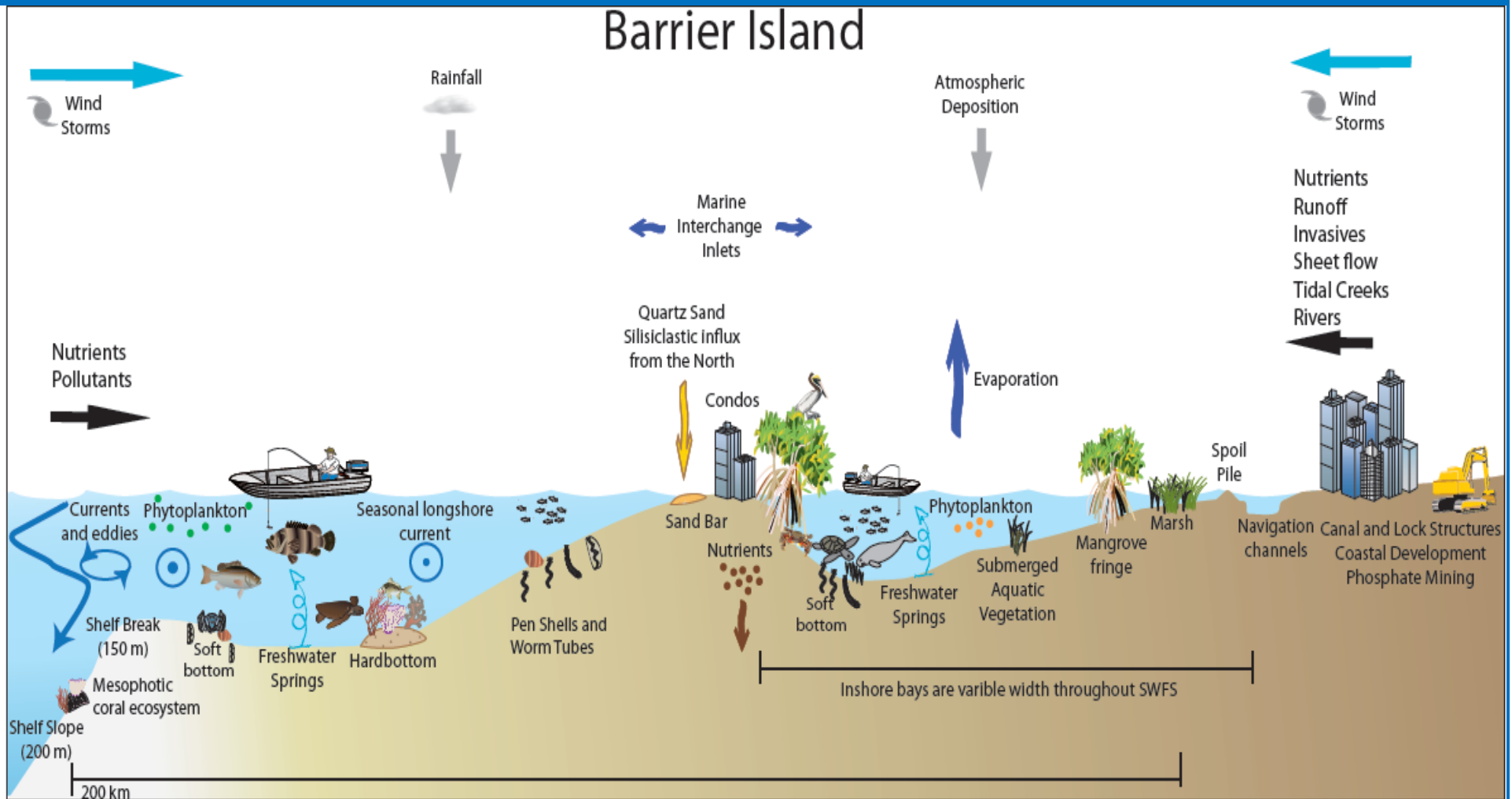


Figure 3a. Conceptual diagram of the Southwest Florida Shelf Barrier Islands Province ecosystem, processes operating upon it, and factors affecting its condition.

Florida Keys Species



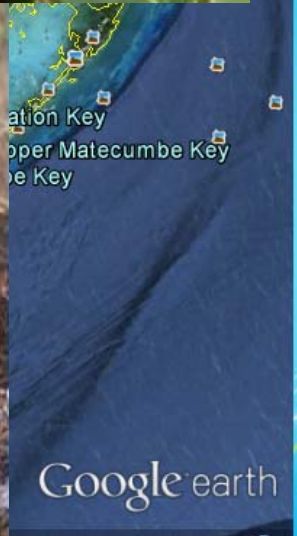
Clayton DeGayner



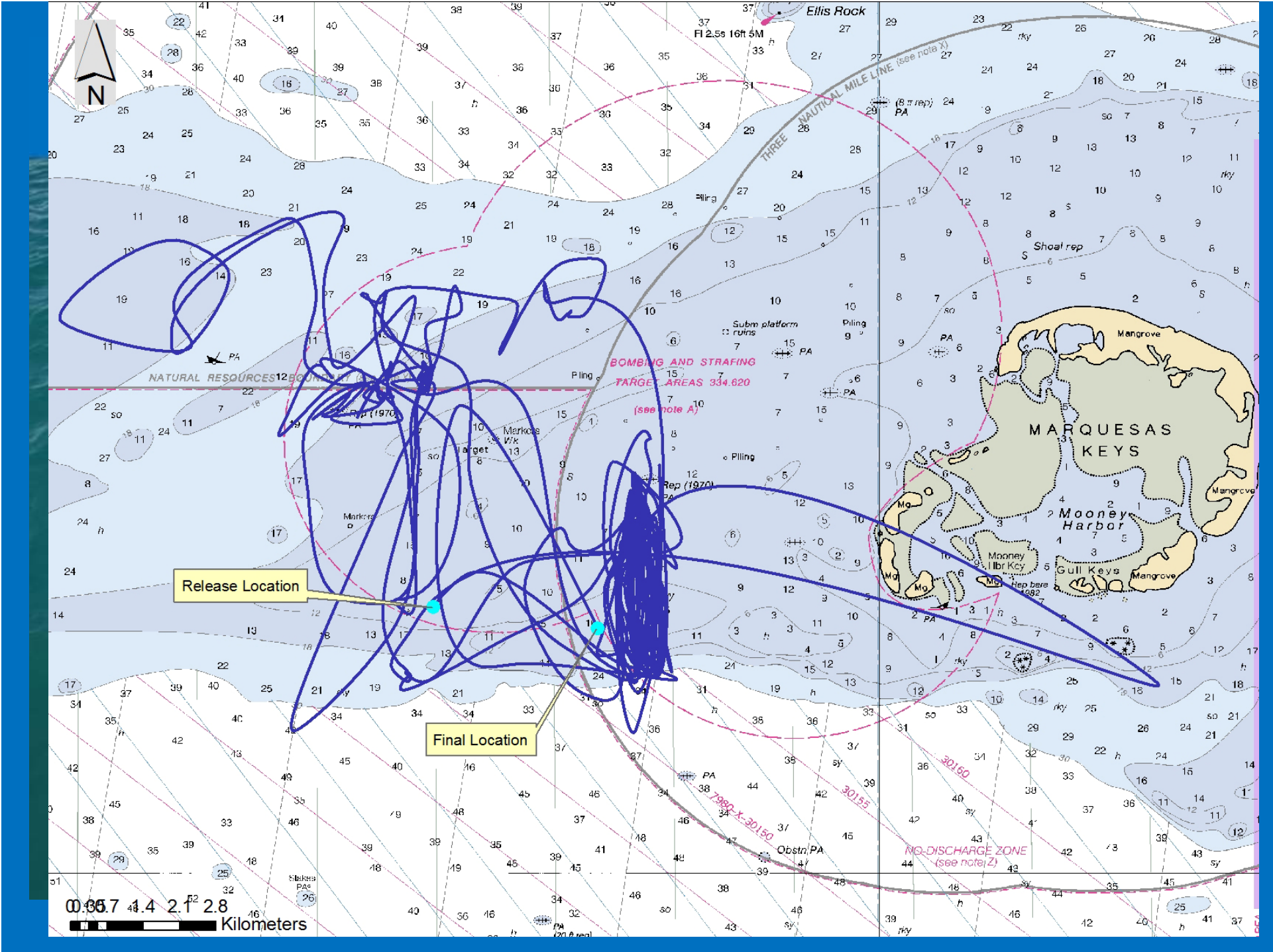
Dry Tortugas



Neil Perry



Google earth



Butterflies



Zestos skipper



Rockland grass skipper



Pine Rockland



PROPOSED RULE TO LIST
FOUR FLORIDA KEYS PLANTS
And Designate Critical Habitat

Sand Flax



Big Pine Partridge Pea



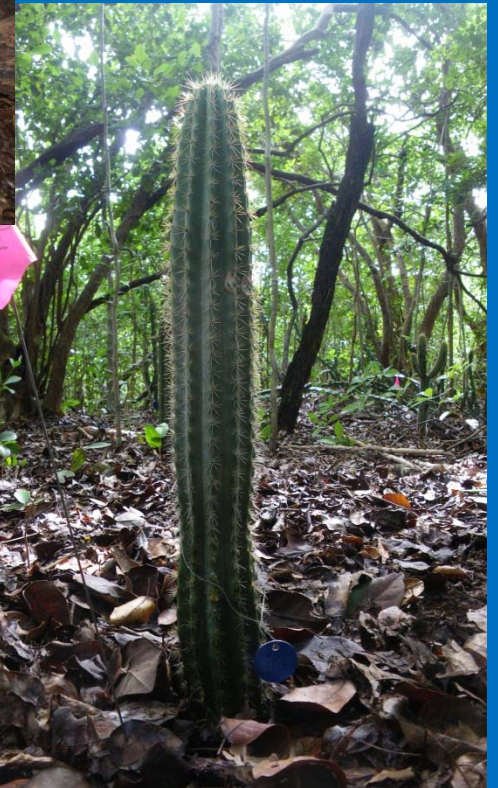
Wedge Spurge



Blodgett's Silverbush





Keys tree cactus adaptation planning



Hopeful solutions

Amendment 1



Type Constitutional amendment
Origin Citizens
Topic Environment
Status Approved 



NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION STRATEGY

CONTACT US

THE STRATEGY
A Framework for Action

TAKING ACTION
Using the Strategy

LEADERSHIP



City of Punta Gorda Adaptation Plan



Southwest Florida Regional Planning Council
Charlotte Harbor National Estuary Program
Technical Report 09-4

11/18/2009

James W. Beever III, Whitney Gray, Daniel Trescott, Dan Cobb, Jason Utley, David Hutchinson.

Priority Agenda

Enhancing the Climate Resilience

of America's Natural Resources



COUNCIL ON CLIMATE PREPAREDNESS AND RESILIENCE

We do not inherit the Earth from our Ancestors, we borrow it from our Children."

Email Steve_Traxler@fws.gov





Crocodile Lake



Sea level rise threatens critical South Florida coastal refuges.

Everglades N.P.



Ding Darling



Key Deer Refuge



(Not a crocodile)

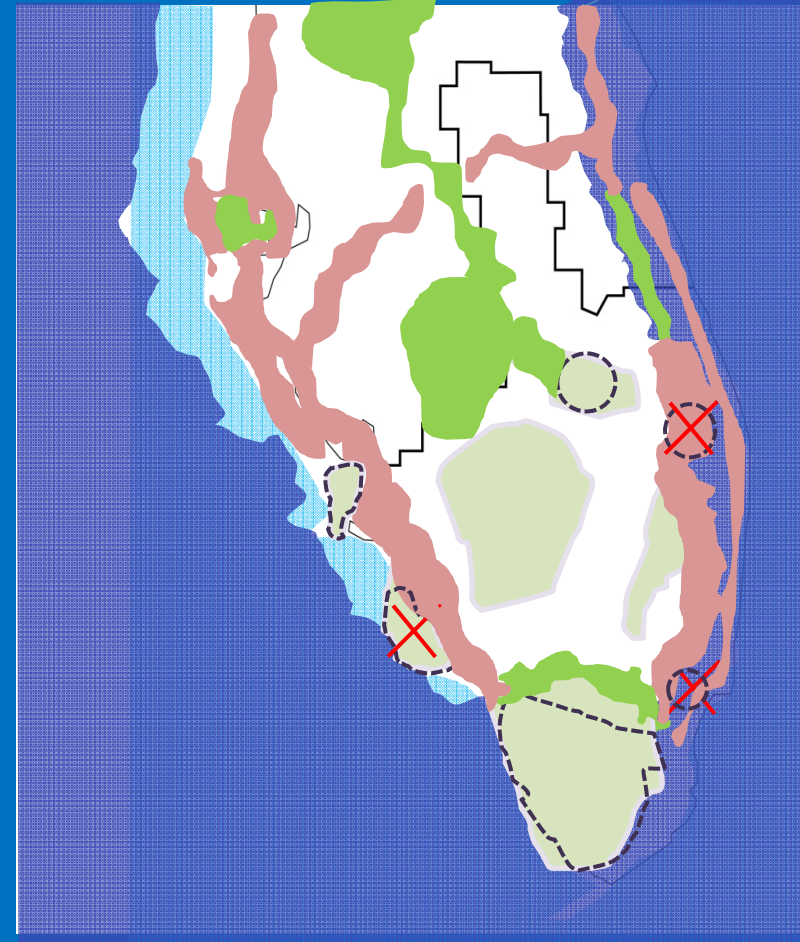
How will 1 meter SLR affect key refuges?

How much land will be lost with varying degrees of SLR?

What other damage can we expect?

Landscape Change

-under climate change and urbanization-



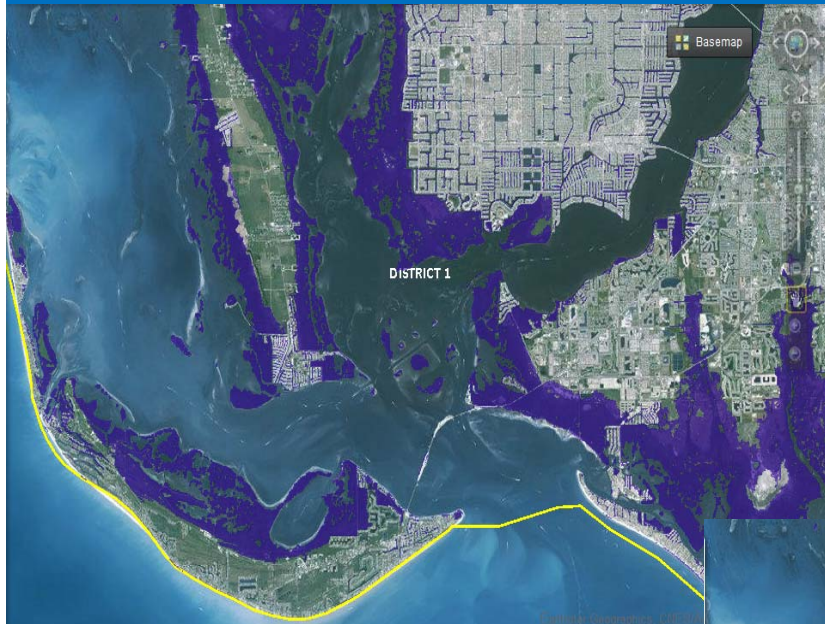
**Anticipating movement enables
increased future protection and
Good urban planning is a
Key to conservation**

High SLR 2060

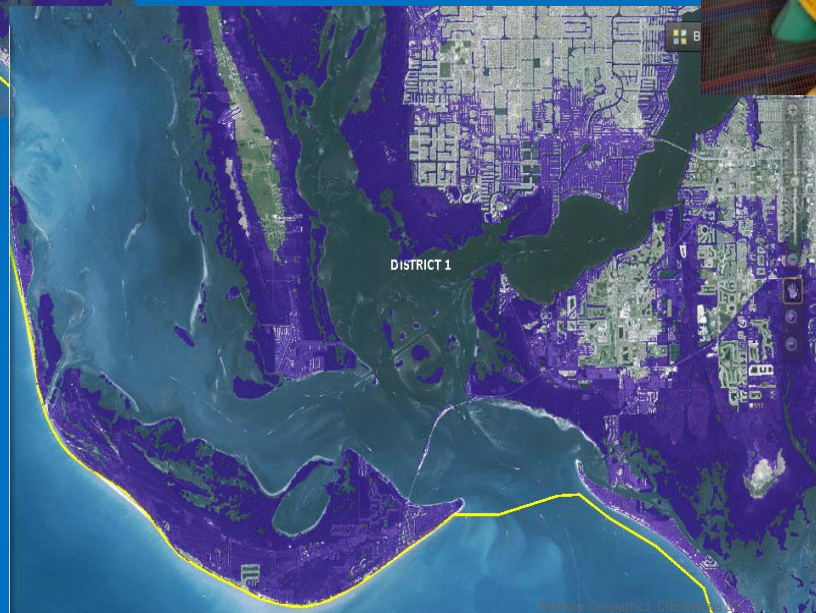


Florida Sea Level Scenario Sketch Planning Tool
District 1

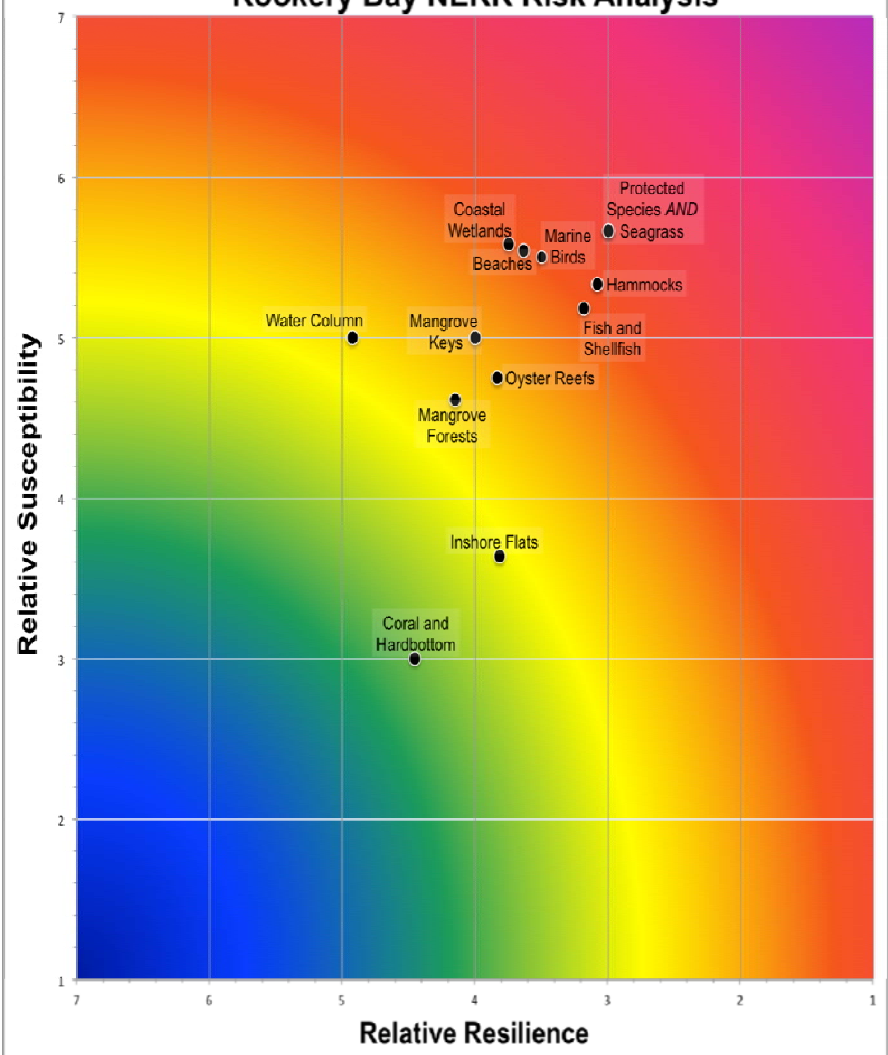
<http://sls.geoplan.ufl.edu/>



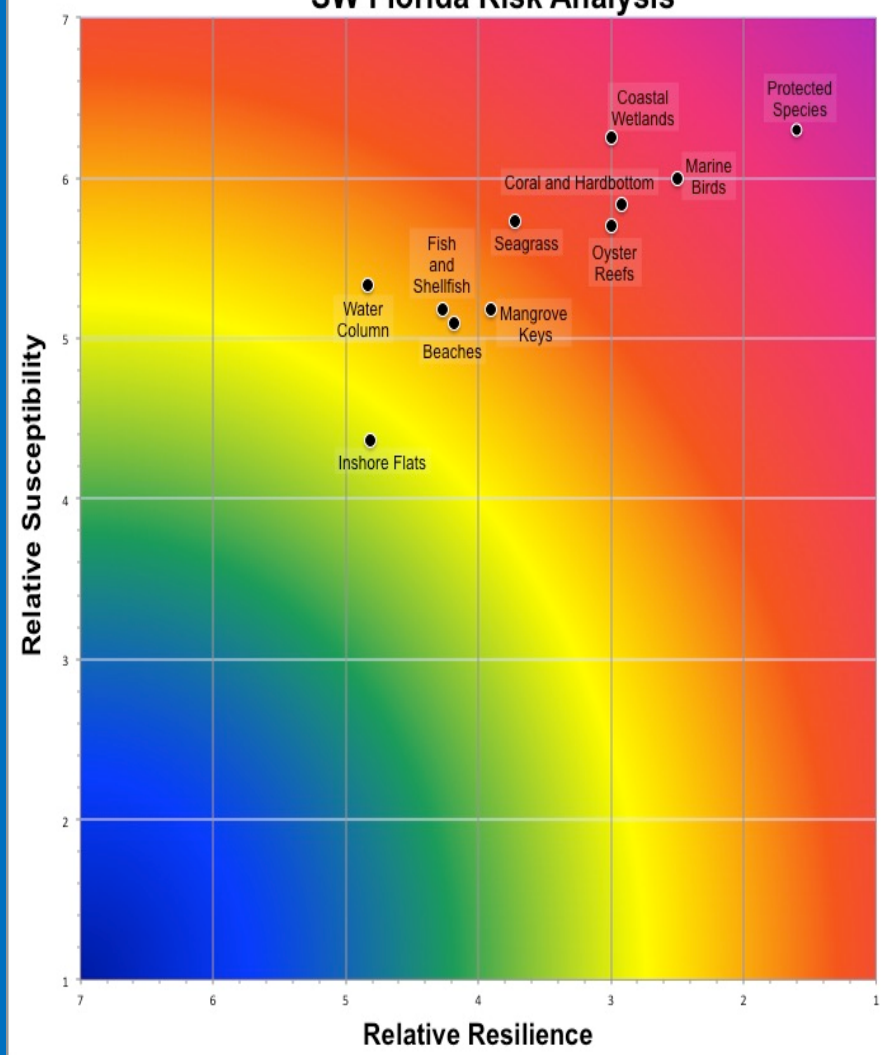
High SLR 2100



Rookery Bay NERR Risk Analysis




SW Florida Risk Analysis



“We must act now, as if the future of fish and wildlife and people hangs in the balance — for indeed, all indications are that it does.”

– FWS Climate Change Strategic Plan “Rising to the Urgent Challenge,” 2010

A photograph of a sunset over a field. The sun is a bright white circle in the center of the frame, surrounded by a large, glowing orange and red aura. The sky is filled with soft, wispy clouds. In the foreground, there is a field of tall grasses or reeds. In the background, a line of trees is silhouetted against the bright sky. The overall mood is serene and natural.

“the region faces threats on multiple fronts — from increasing urbanization and land use changes to invasive species, rising seas, and shifting weather and temperature patterns.”