Planning for Transformational

Change in Florida

2012 National LCC Workshop Denver, Colorado

Thomas H. Eason



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Florida Planning Tools

- Many, many excellent efforts, will focus on:
- Florida 2060
- Wildlife 2060
- Critical Lands and Waters Identification Project
- MIT Scenario Planning



Florida Wildlife Action Plan



FLORIDA 2060

A Research Project of 1000 Friends of Florida



Florida 2060

- Trend analysis of urban development
- Results of incremental decisions
- Question of legacy leadership

Prepared by:

GeoPlan Center of UF and



CQG&RD at Georgia Tech

Assumptions

1. Moderate Population Growth (BEBR trend line)

- 2. New population consumes land at same density as existing development, by County
- 3. New population distributed geographically based on land suitability (existing urban, roadways, water, coastline, wetlands)



Population Forecast





Current Situation





2060 Projection

Developed Land

Conservation Lands Permanently Protected



Statewide Land Use Allocation (millions of acres)



Additional Land Converted to Urban Development 2005-2060



te • NOIS

Total: 7 Million Acres



Wildlife 2060: • What's at stake for Florida?



What future do we want?

Florida now

Possible Florida in 2060



Habitat loss

An area the size of Vermont is at stake.



2.3 million acres of black bear habitat



2.1 million acres of wild turkey habitat



700,000 acres of gopher tortoise habitat



How important are fish and wildlife species to you?

Habitat isolation





How do you burn when you are surrounded by a sea of development?

Coastal challenges



OT - CONTRACTOR OF CONTRACTOR

What happens to our coasts if sea level rises?

The future is up to us

Wildlife 2060: what's at stake for Florida? Get Involved Now!



Critical Lands & Waters Identification Project (CLIP)

- Derived from and updates existing data sources
- Prioritizes biodiversity, landscapes, water
- Multi-agency technical advisory group





CLIP Data Structure



Consensus Priority 1 & 2

This map represents the P1 and P2 priority levels of the aggregated CLIP priorities with existing conservation lands included on top of the CLIP priorities. The current version of the CLIP priorities are based on rules-based selections from each of the 9 core data layers within the Biodiversity, Surface Water, and Landscape Resource Categories and overlap between the Biodiversity, Surface Water, and Landscape Resource Categories.

CLIP P1 and P2 Priorities with Existing Conservation Lands

Existing conservation lands

P1



P1 in submerged lands/state waters

P2 in submerged lands/state waters





1 & 2Priorities Overlay Agriculture and Silviculture





Addressing the Challenges of Climate Change in Southern Florida's Everglades Landscape

Massachusetts Institute of Technology





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Approach

1. Stakeholder-based participatory planning

- 1. Stakeholders from federal, state and local agencies
- 2. MIT facilitates, develops, and analyzes alternative futures

2. Scenario-based simulation modeling

- 1. Multiple futures rather than one (master plan)
- 2. Simulation not Prediction (educated assumptions by local experts)
- 3. Set of possible futures to better inform decision-makers

3. Landscape-scale Conservation

- 1. Better Inform decision makers of landscape scale conservation.
- 2. Model and evaluate different approaches and futures.



Drivers of Change

- 1. Population Change
 - 1. Effects of population change on urbanization
- 2. Planning Assumptions and Regulations (Land Use and Water)
 - 1. Urbanization as a cause of landscape fragmentation
 - 2. Unintended consequences of resource consumption

3. Climate Change

- 1. Sea Level Rise
- 2. Temperature Changes
- 3. Precipitation Changes

4. Conservation Strategies

- 1. Expert stakeholder driven
- 2. Landscape scale approach (establishment of patterns and processes)



Project Area Definition





MIT Scenario Dimensions

SEA LEVEL RISE	TEMPERATURE INCREASE	PRECIPITATION VOLUME	PRECIPITATION INTENSITY	POPULATION	LAND USE & WATER PLNG. ASSUMPTIONS	FINANCIAL RESOURCES
(inches)	(degrees F.)	(Annual Mean Precipitation)	(Avg. vol. increase per storm)	(all FL. in millions)	(BAU - Proactive)	(low vs. high)
No Change	No Change	No Change	No Change	No change (19)	No Change	No Change
3.6	1	-5%	25%	Marginal decrease (12)	Business as Usual (B.A.U.)	\$
		(+) 5%				
18.4	4	-10%	50%	Trend (25)		
		(+) 10%			Proactive	\$\$\$
39.1	7	-15%	70%	Double (29)		
		(+) 25%				



SCENARIO	BIOPHYSICAL	POPULATION	WATER & LAND USE PLNG. ASSUMPTIONS	FINANCIAL RESOURCES
Α	LOW	DOUBLE	B.A.U.	\$
В	LOW	TREND	PROACTIVE	\$\$\$
С	HIGH	TREND	B.A.U.	\$
D	HIGH	TREND	PROACTIVE	\$\$\$
Ε	MID	DOUBLE	B.A.U.	\$\$\$
F	MID	TREND	B.A.U.	\$
G	HIGH (113" SLR)	LESS	PROACTIVE	\$\$\$
1	HIGH	DOUBLE	PROACTIVE	\$
J	LOW	DOUBLE	PROACTIVE	\$







In present-day climate space

With 100 years of climate change









In present-day climate space

With 100 years of climate change





























Anticipating movement enables increases future protection



Modeling Process





ANIMATION - PROCESS OF GEOSPATIAL SEQUENCED-ALLOCATION

Development, conservation and agriculture









Scenario C

Scenario B



High Sea Level Rise – Low Financial Resources Business as Usual – Double Population Low Sea Level Rise – High Financial Resources Proactive – Trend Population

Landscape Ecology Strategies

- 1. Critical Corridors
- 2. Interior Habitat Corridors
- 3. New and Additional Patches
- 4. Indentify Potential Conflict due to urban
- 5. Potential Urban Conflict Area





Proactive Conservation Network

1. Structural Corridors:

2km wide area that connects existing patches of conservation (based on CLIP, SHCA priority data, FEGN critical linkages as weighted by stakeholders)

2. Interior Habitat Corridors:

Expansion of structural corridors to provide core habitat (includes all of top stakeholder-weighted priority area)

3. Patches:

Adds largest remaining patches based on CLIP priority 1 data to expand existing conservation areas

4. Potential Urban Conflict Area:

Areas within the potential conservation network that are vulnerable to development





Scenario C Scenario B









High Sea Level Rise – Low Financial Resources Business as Usual – Double Population Low Sea Level Rise – High Financial Resources Proactive – Trend Population

State Wildlife Action Plan

- Climate Change added as a Priority Goal
 - Incorporated into State Wildlife Grant (SWG) proposal review

- Interim Revision Oct. 2011
 - Climate change chapter
 - Built on Summit findings
 - Focus on Sea level Rise (SLR)
 - Vulnerability Assessments





A comprehensive wildlife conservation strategy

FLORIDA'S Wildlife Legacy Initiative MyFWC.com/WildlifeLegacy





Adaptation Planning

- 3 Scenarios
- 6 Species
 - Panther
 - Key deer
 - <u>Crocodile</u>
 - Salt marsh snake
 - Least tern
 - Short-tailed hawk
- Expert input and review

No Habitat Conflict

Total Habitat Conflict

36.322

207,579

14,9095

85.10%

No Habitat Conflict

Total Habitat Conflict

64,582

179,259

26,49%

73.51%

No Habitat Conflict

Total Habitat Conflict

36,396

207,446

14,93%

85.07%





Adaptation Planning

- Three Situations:
 - Room to move
 - Competing with the neighbors
 - Surrounded on all sides



Crocodile with high sea level rise



Cooperative Conservation Blueprint

- A Bold vision of Florida's future
- If we can envision our future we can create that future
- It's a quilt, not a blanket
- Focus on people and incentives





Regional & National Connections

- State Wildlife Action Plans
- FWS Climate Change Strategy and Plan
- National Fish, Wildlife and Plants Climate Adaptation Strategy
- Landscape Cons. Cooperatives
- Climate Science Centers
- Florida Climate Institute







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Florida Panhandle- Current



Florida Panhandle- 2060



North Florida- Current



North Florida- 2060





Central Florida- Current



Central Florida- 2060



South Florida- Current



South Florida- 2060



Reserve Network for Florida

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Core Preserves

Buffer Zones and Corridors

Source: Noss & Cooperrider 1994



Issues to consider

- Habitat loss
- Habitat isolation
- Coastal challenges
- Water quality and quantity
- Wildlife/Human interactions
- Access to land and water





Water quality and quantity





How will our growing need for fresh water affect fish and wildlife?

Wildlife/human interactions





Do you know how to live with a bear as your neighbor?

Access to land and water





How long will you wait in line to hunt or fish?

Working for wildlife





Landowner assistance helps folks get it right at Watermelon Pond

Some places to start

- Does your city or county have a local land acquisition program?
- Does your community view the management of its green infrastructure in the same way it does upkeep and management of roads, buildings, or bridges?
- Are you incorporating wildlife habitat conservation measures on your property?
- How is your community safeguarding your region's water resources?



Scenario Dimensions





Scenario Planning

- Scenarios varied across 4 dimensions:
 - Climate change
 - Human population change
 - Land & water planning policies
 - Availability of public resources
- 50 years into the future
 2010, 2040, and 2060



