

*Sea Level Rise Adaptation in the Florida Keys:*  
Conserving Terrestrial and Intertidal Natural Areas  
and Native Species

May 10-12, 2011



**HIGHLIGHTS FROM OUR FIRST TWO DAYS**

# Workshop Objectives

- **Share information about past, current and future research, monitoring and management efforts focused on SLR in the Florida Keys**
- **Lay the foundation for a prioritized Florida Keys SLR research agenda and long-term monitoring network**
- **Begin to identify best management practices for adapting to SLR in the Florida Keys and similar ecosystems**
- **Compile existing information and begin prioritizing research, monitoring and management needs for a synthesis report**

# Day 1: Intro, Management Perspectives

- Overview of the topic
- Updates from local, state, and federal entities working to address climate change and sea level rise
  - Monroe County (Stock Island Firehouse)
  - South Florida Water Management District
  - Florida Fish & Wildlife Conservation Commission
  - National Park Service
  - US Fish & Wildlife Service
  - Department of Defense (Naval Air Station)
  - National Oceanic & Atmospheric Administration
- **EVERYONE is working on climate change / sea level rise**

# Day 1: Field Visit

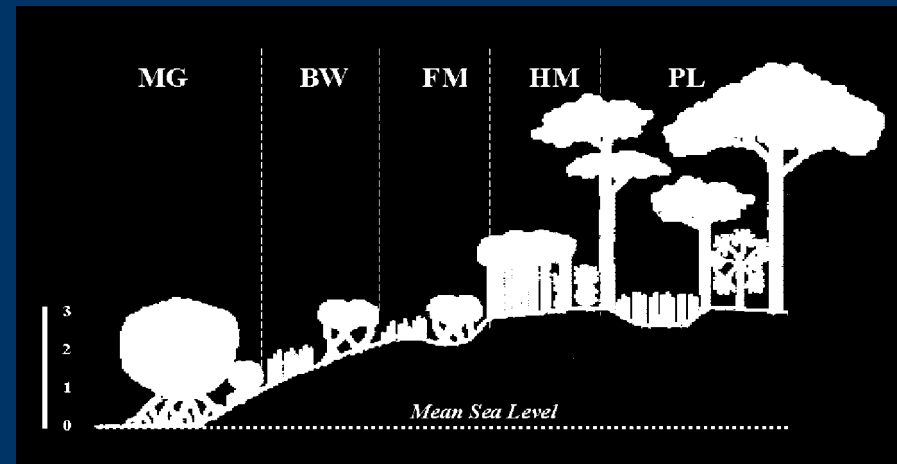


**Trip to multiple field sites to learn about species and habitats at risk, and to discuss current and/or needed research and monitoring (Curry Hammock, Long Beach, Watson Boulevard, Refuge Nature Trail, Big Pine Slough)**

# Day 2: SLR Impacts and Management Interventions

## HABITATS / COMMUNITIES

- Mangroves
- Lagoonal ponds
- Coastal wetlands
- Pine rocklands
- Rare plants
- Freshwater lenses
- Plant community boundary dynamics



# How will different habitats/communities do?

- Species adapted to flooding have a better chance
- Coastal fringing red mangroves may do better than black and white mangroves
- But uncertainty exists...
- Rare plant species will be heavily impacted

# Most promising management strategies?

- Identify core areas with higher elevations, protect these areas, and manage them well
- Keep ecosystems as healthy as possible:
  - Fire management (prescribed burns)
  - Exotic plant control
- Don't put up barriers that prevent wetland plants from migrating inland/upslope (e.g. seawalls, roads)

# Most promising management strategies?

- **Enhance freshwater lens recharge**
  - **Maybe block some mosquito ditches (so freshwater does not drain out)**
  - **Explore ways to manage boat canals so less freshwater flows out**
  - **Explore potential for using (well-treated) wastewater for recharge**
- **Direct limited restoration dollars towards projects that can help with SLR adaptation**
- **Think about good management of expanding marine area!**



# Day 2: SLR Impacts and Management Interventions

## SPECIES

- Birds
- Lower Keys Marsh Rabbit
- Key Deer
- Key Largo Woodrat
- Cottonmouse
- Key Tree Cactus
- Butterflies
- Insects



# How will different species do?

- Cottonmouse will do better than the woodrat because it can use more diverse habitat
- Some Key tree cactus may be more tolerant of salt than others (focus on these genotypes)
- Survival depends on how *fast* SLR happens
- Exotic species seem to do well under disturbance...
- Butterflies not doing well – imperiled will be first to go

# How will different species do?

- Bird species survival will depend on how their populations are doing now... And whether their habitat needs are met
- Some insects will be wiped out by SLR
- Lower Keys Marsh Rabbit prospects are not good... But what we learn by studying this species can help us protect similar species to the north
- Plan for groups of species rather than one individual species – want to save as many as we can...



# Most promising management strategies?

- **Fire management**
- **Integrated predator management (e.g. raccoons, feral cats)**
- **Clean out water holes and open hardwoods for Key Deer**
- **Think now about areas to target for conservation easements and acquisition (plan ahead before development pressures develop on inland areas)**
- **Look for approaches that help multiples species – get the most “bang for the buck” possible**

# Most promising management strategies?

- Ultimately there are some species that will have to be moved to zoos or perhaps relocated to other areas (e.g. Caribbean islands) if they are going to persist
- Research!
  - Why is the woodrat population declining?
  - Why are butterflies doing *well* in an urban area (Key West)?
  - Looking at SLR and fire impacts together
  - Try out herbivore exclusions for tree cactus

# What Are We Discussing Tomorrow?

- **Identify and prioritize best management practices for resilience and adaptation**
- **Identify and prioritize research and monitoring needs**
- **Identify and prioritize communication and education needs and methods**

# Up Next: Q&A with Our Speakers

