Roseate Spoonbill.
Photo: Niccole Neely/Audubon Photography Awards

Audubon Assembly

LEARNING SESSION A

Creating Habitat in Unconventional Ways

Moderator: Beth Alvi, Sr. Director of Policy

BABCOCK RANCH:

WATER QUALITY INITIATIVE

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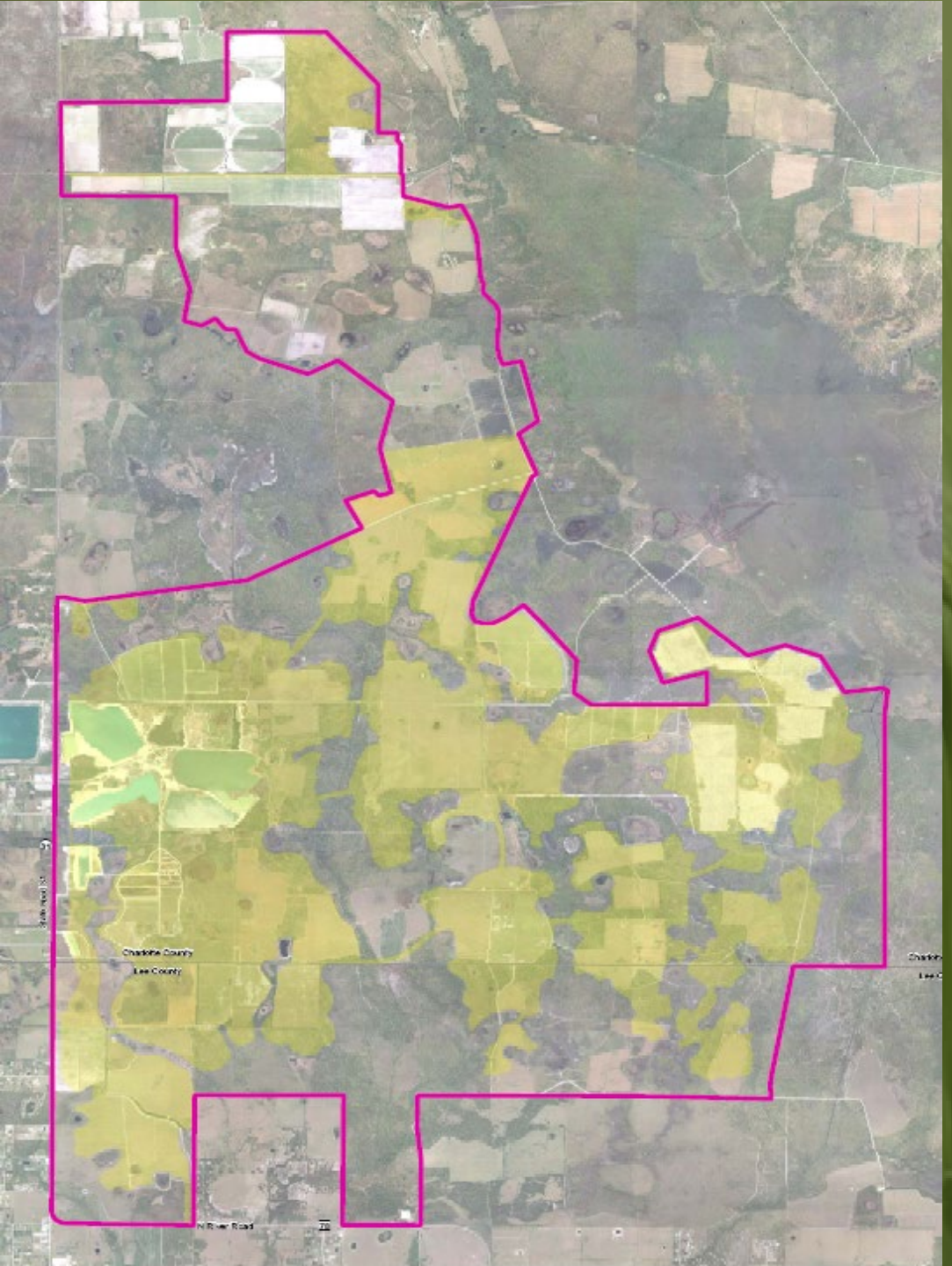
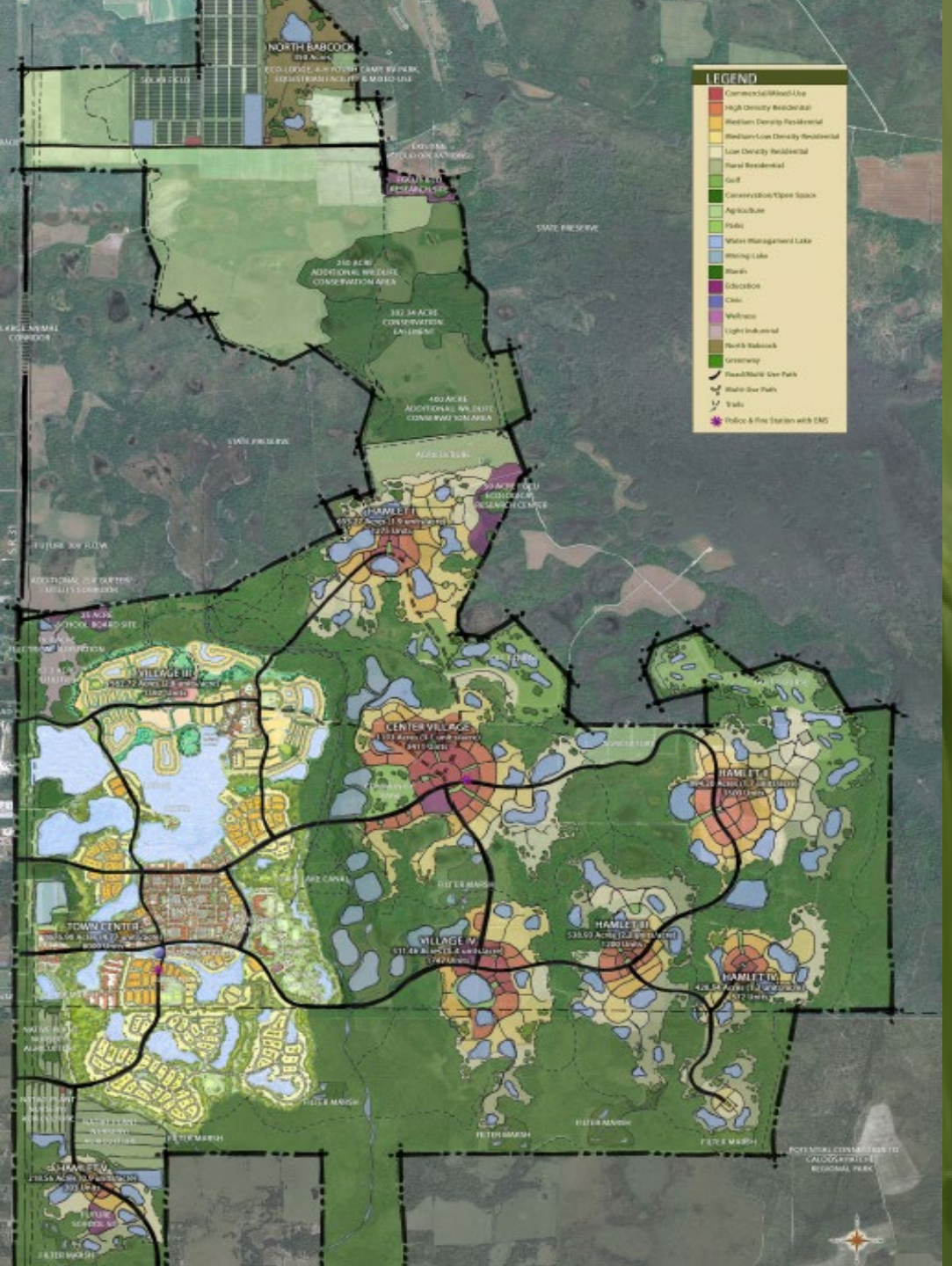
WATER QUALITY INITIATIVE



BABCOCK RANCH:

ECOLOGICAL SYSTEMS PRESERVATION

- IDENTIFY NATURAL FLOWWAYS
- PRESERVE NATURAL FLOWWAYS
- IDENTIFY DEVELOPMENT CORRIDORS THAT WILL HAVE THE LEAST IMPACT TO WATER SYSTEMS AND WETLANDS.



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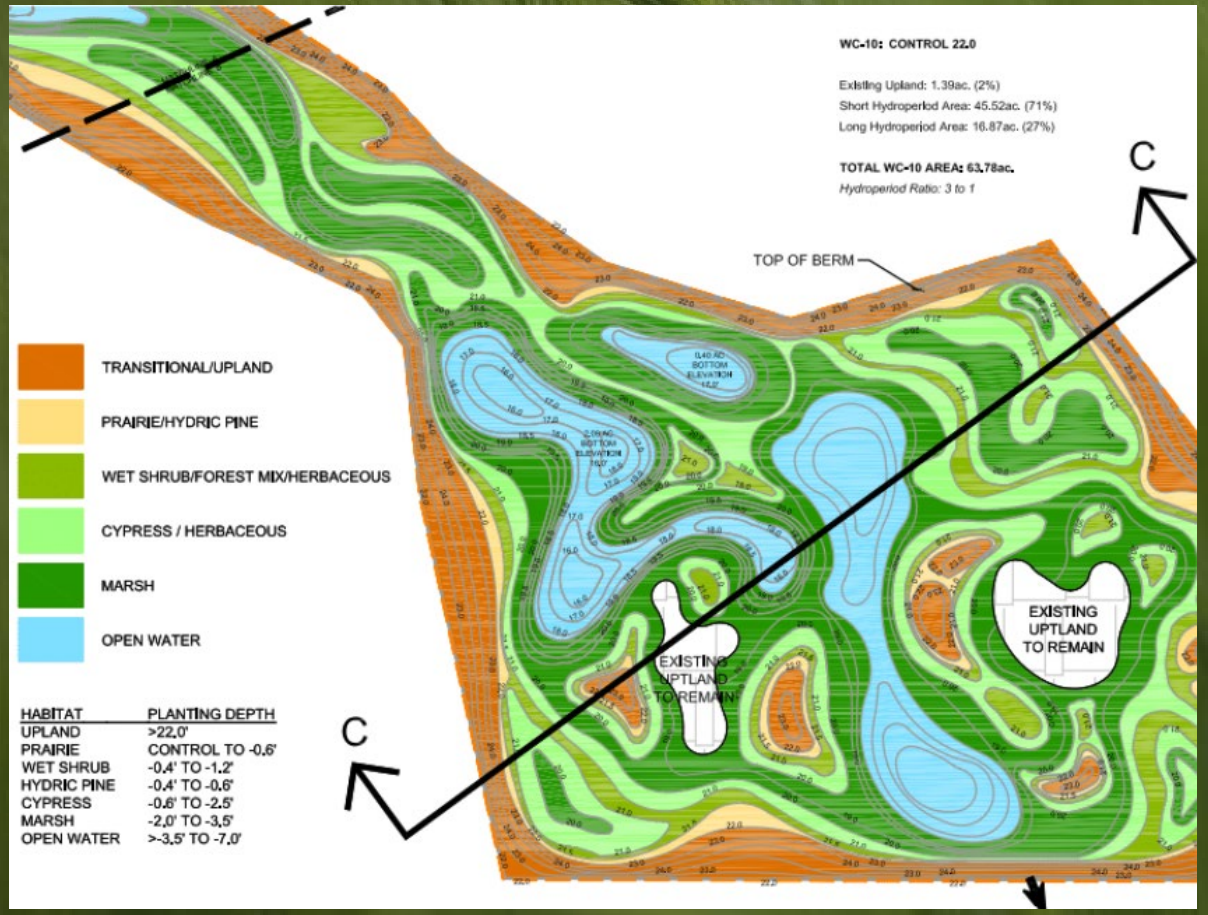
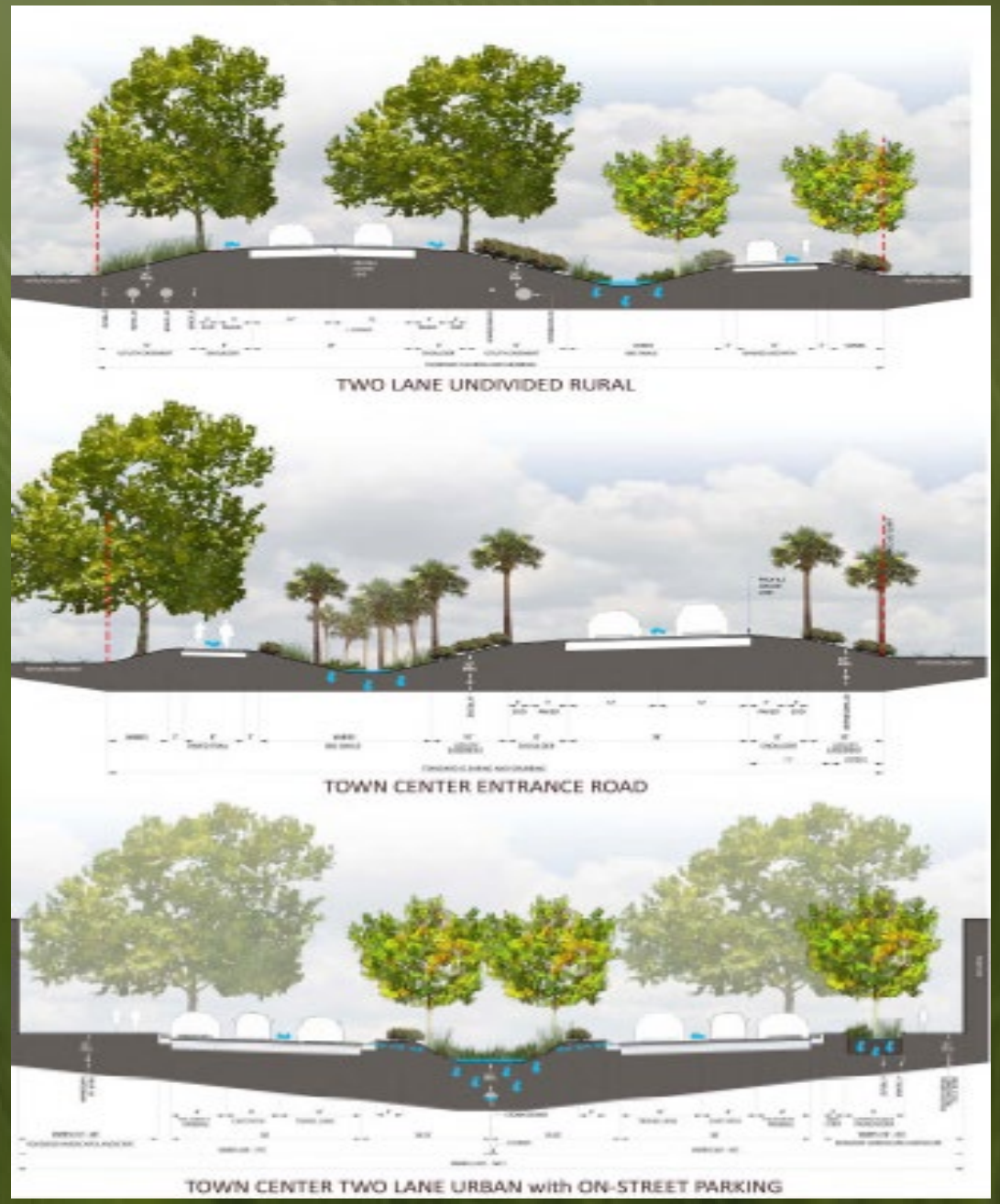
BABCOCK RANCH:
WATER ENHANCEMENT CREATION





BABCOCK RANCH:

FARMFIELD RESTORATION

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BABCOCK RANCH:

WETLAND RESTORATION

BABCOCK RANCH:

WETLAND RESTORATION

BABCOCK RANCH:

WETLAND RESTORATION

BABCOCK RANCH:
WETLAND RESTORATION




FPL Solar Stewardship Program

Jeff Smith
Senior Environmental Specialist
Florida Power & Light Company

2023 Audubon Assembly
Creating Habitat in Unconventional Ways to Maximize Connections for Conservation Lands
October 26th, 2023

FPL

Solar components

Solar facilities are low impact

Solar Designs with the Environment in Mind

Focus on avoiding and minimizing environmental impacts

- Site Selection criteria include but are not limited to:
  - Proximity to existing transmission with available capacity
  - Previously disturbed land (e.g., agriculture)
  - Minimal and/or low-quality wetlands on site
  - Minimal or no protected species concerns
  - Avoidance of critical wildlife habitat
  - Rural or low-density residential
- Design around natural habitats
- Constructed with inert, galvanized metal posts that are pile-driven and panels are installed on a racking system
- Ground cover is pervious and allows for infiltration
  - Reduces stormwater runoff and nutrient inputs to surrounding waterways

Solar Stewardship Program

FPL forged an innovative partnership with Audubon Florida to enhance habitat value on our solar sites

- Now titled FPL Solar Stewardship Program, an Eco-innovation partnership with Audubon Florida
- Voluntary collaborative effort with conservation organizations
  - Audubon Florida, FWF, local governments, etc.
- By the Numbers
  - Preserved over 4,400 acres of wetlands
    - 4,000 placed under conservation designation
  - 15,000 pounds of native wildflower seed planted
  - Over 300,000 native trees, shrubs, prairie grasses and wildflowers planted

Stewardship Approach

Pragmatic approach to achieve sustainable operational and environmental outcomes

- Pollinators are part of every feature, but the program provides far more value than an exclusive focus on pollinators
- Evaluation of site-specific ecological conditions
  - Existing features and surrounding land use
  - Practical and appropriate enhancements
- Stewardship elements
  - Invasive control and management
  - Groundcover enhancement
  - Habitat creation and enhancement
  - Ecological engineering and constructed elements
  - Research and resource expansions

Invasive Control and Management

Integrated approaches to selectively managing nuisance vegetation

- Traditional mechanical and chemical control
- Innovative technology and precision equipment
- Biological controls

Groundcover Enhancement

Increase floral biodiversity while stabilizing the soil

- Incorporating wildflower seed into stabilization mixes
- Prairie restoration
- Native plantings to increase biodiversity
- Food Plots
- Pollinator pods and strips

Habitat Creation and Enhancement

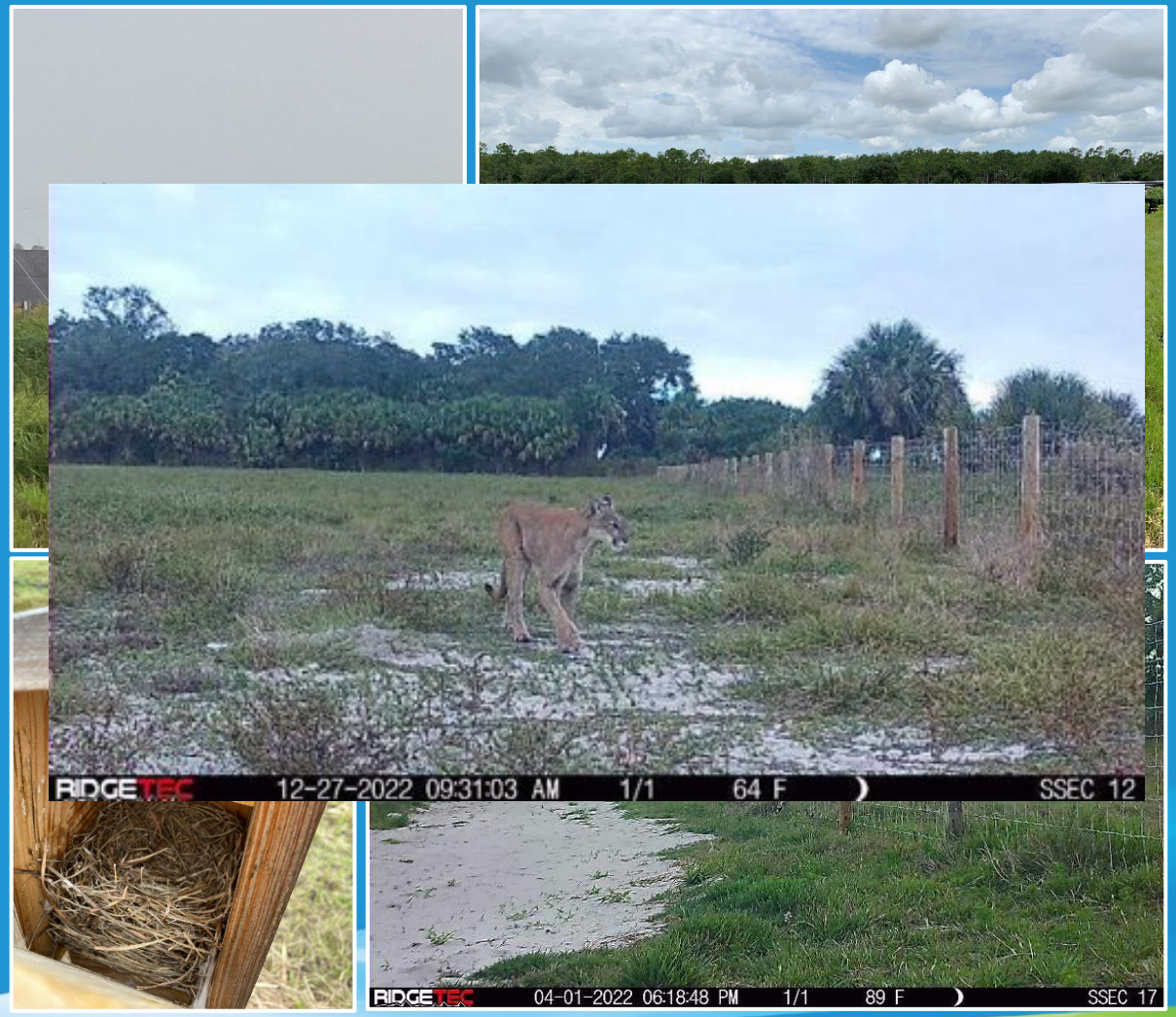
Promoting structural and functional habitat opportunities

- Habitat stepping-stones
- Habitat connections for safe wildlife passage
- Structural habitat enhancements and reset
- Supplemental wetland and upland habitat plantings
- Native landscape buffers

Ecological Engineering and Constructed Elements

Facilitating wildlife access and utilization of solar sites

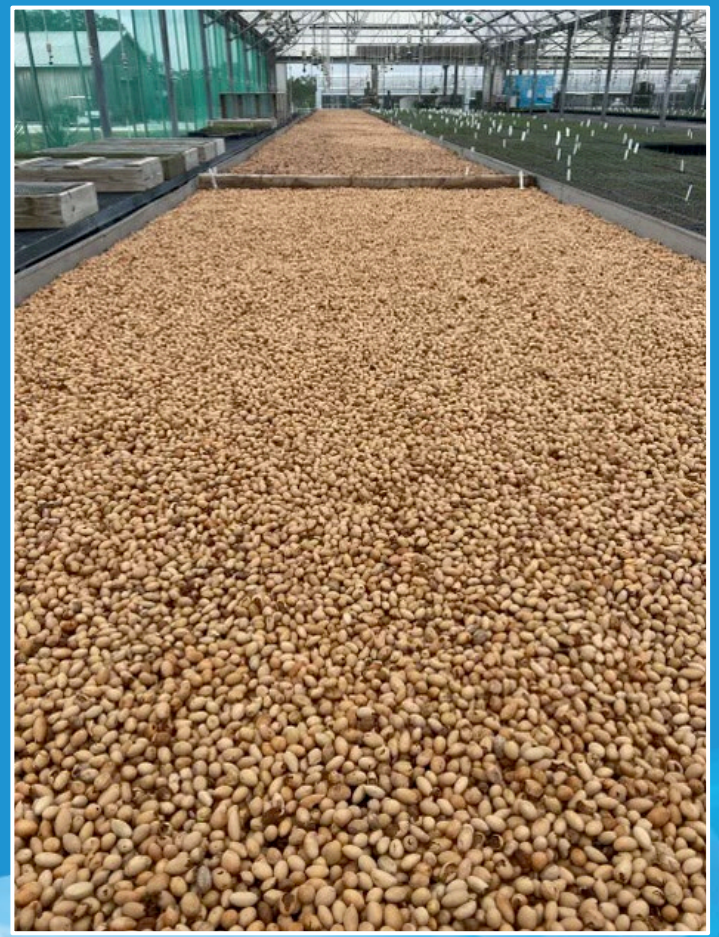
- Constructed nest boxes and platforms
- Stormwater pond enhancement
- Earthwork
  - Leveling furrows
  - Filling in drainage swales
  - Topographic heterogeneity
- Wildlife-friendly fencing
- Passive restoration with competitive natives
- Cavity trees



Research and Resource Expansion

Complementary partnerships that achieve multifunctional benefits

- Source plots and harvest sites
- Agrivoltaics and collaborative co-use
- Gopher tortoise recipient site



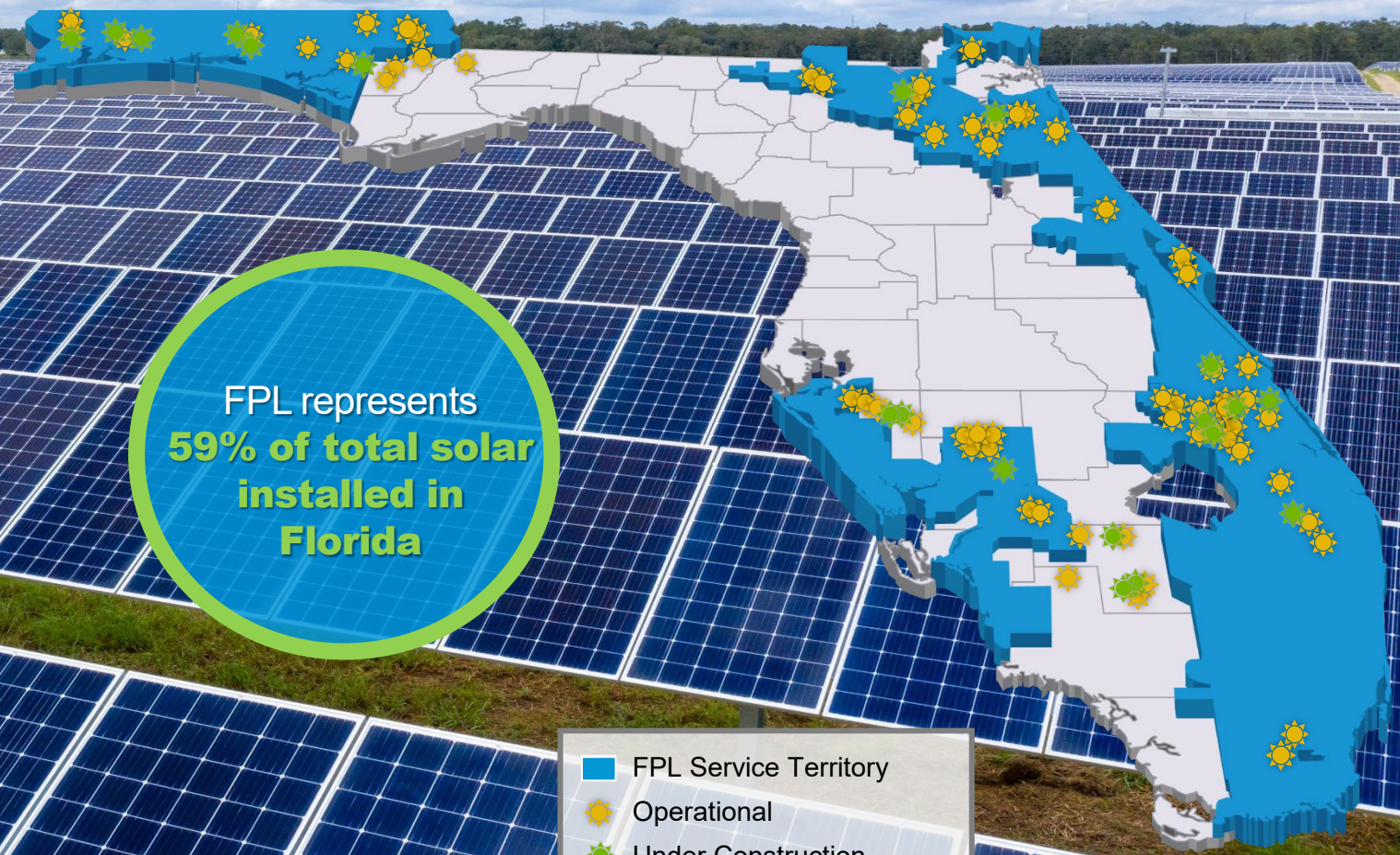
FPL operates 66 universal solar energy centers located in 30 different Florida counties

22 New Sites Under Construction spread across 15 counties:

- Baker
- Brevard
- Calhoun
- Clay
- Desoto x2
- Escambia
- Hendry x3
- Indian River
- Manatee x2
- Martin x2
- Okaloosa
- Palm Beach
- Santa Rosa
- St. Lucie x2
- Walton x2

FPL represents **59% of total solar installed in Florida**

16 FPL solar energy centers have come online in 2023




Thank You!

Audubon
FLORIDA

Corkscrew Swamp Sanctuary Ecosystem Restoration

KEITH LAAKKONEN
SANCTUARY DIRECTOR

Audubon's Corkscrew Swamp Sanctuary

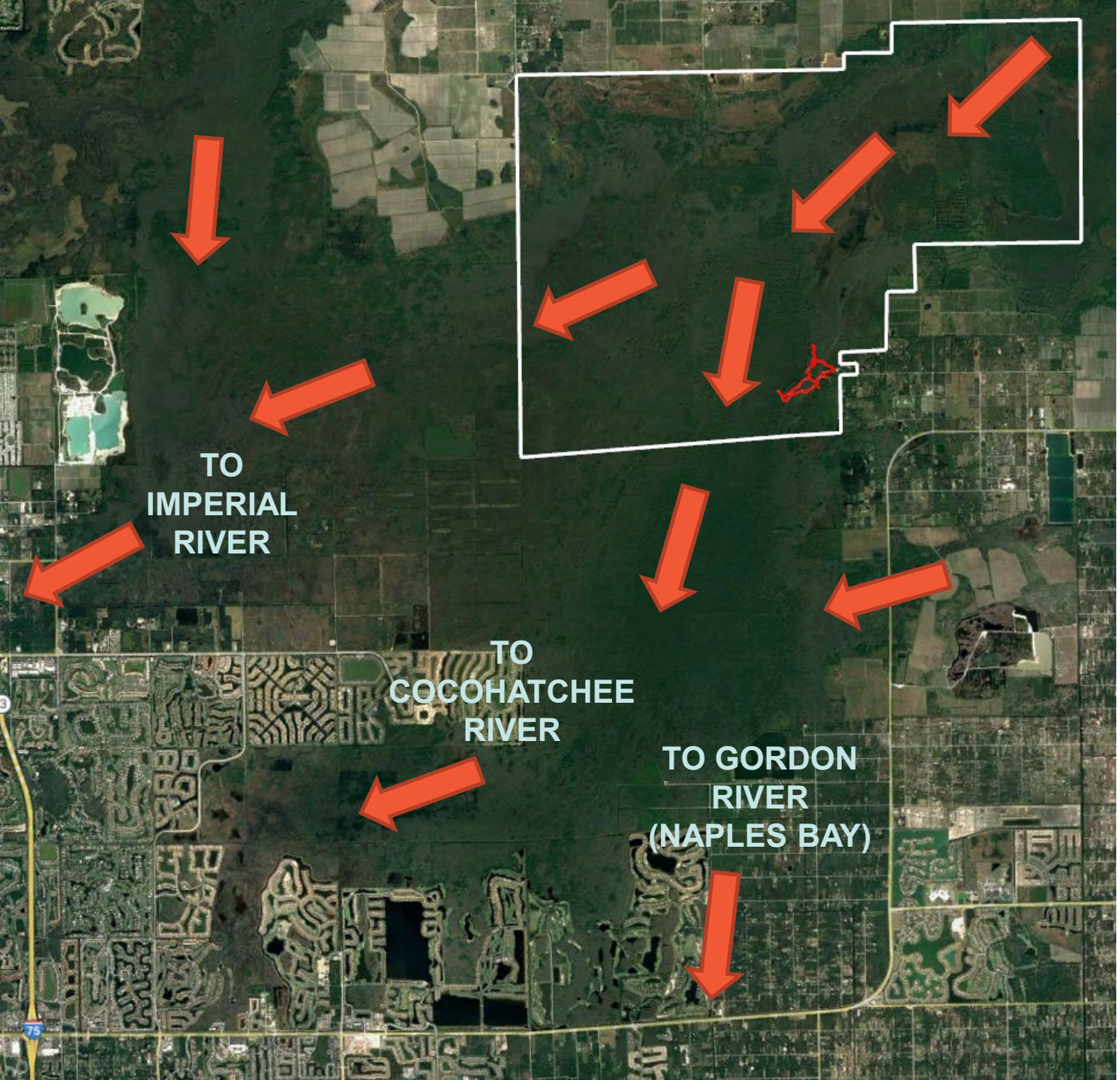
- More than 13,000 acres
- Central to Corkscrew Regional Ecosystem Watershed (CREW)
- Recognized internationally for ecologic importance
- Nearly 70 years in conservation

Largest strand of old-growth cypress forest remaining in the world

- 2.25-mile boardwalk with 100,000 visitors a year
- 500+ years-old cypress trees
- Supports many other plant species and wildlife
- Creates unique microclimates

Audubon

Recent analyses of 60-year hydrologic record revealed dramatic changes in hydrology at Corkscrew Swamp Sanctuary.



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Historically, Corkscrew Swamp served as the headwaters of the Imperial (Corkscrew), Cocohatchee, and Gordon Rivers

Audubon

Reduction in hydroperiod 1960s to 2010s:

Freshwater Marsh

29%

2.6 months shorter

Bald Cypress

18%

1.9 months shorter

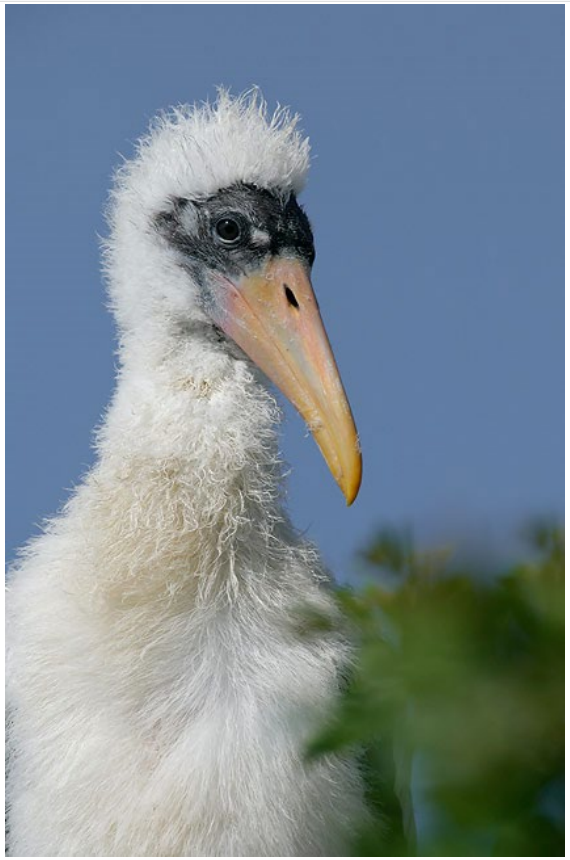
Pond

17%

2.0 months shorter

What are the implications?

- Loss of wetlands inland
  = reduced water quality on the coast
- Changes in vegetation (more woody plants) and wildlife communities
- Change in understory microclimate
- **Cycle of devastating flooding and wildfires**



Hydrology drives aquatic prey production

Food availability limits wading bird populations

Native Shrubs & Trees Expanding in Wetlands

Carolina Willow

Buttonbush

Red Maple


Audubon
• Unable to support fire
• Reduced wildlife habitat
• Increased water loss through ET
• Inaccessible for exotics control

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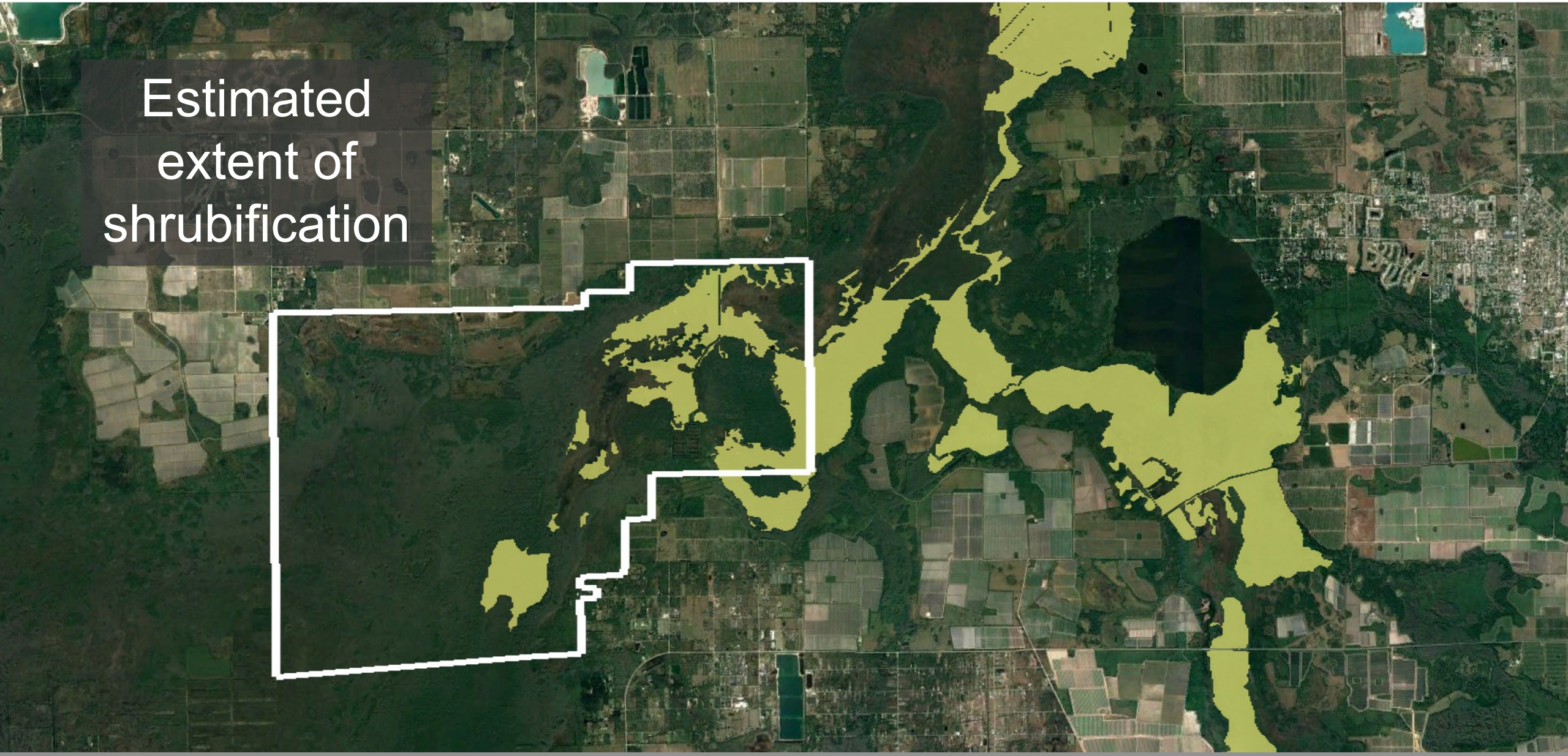

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Developed 3-Step Restoration Strategy

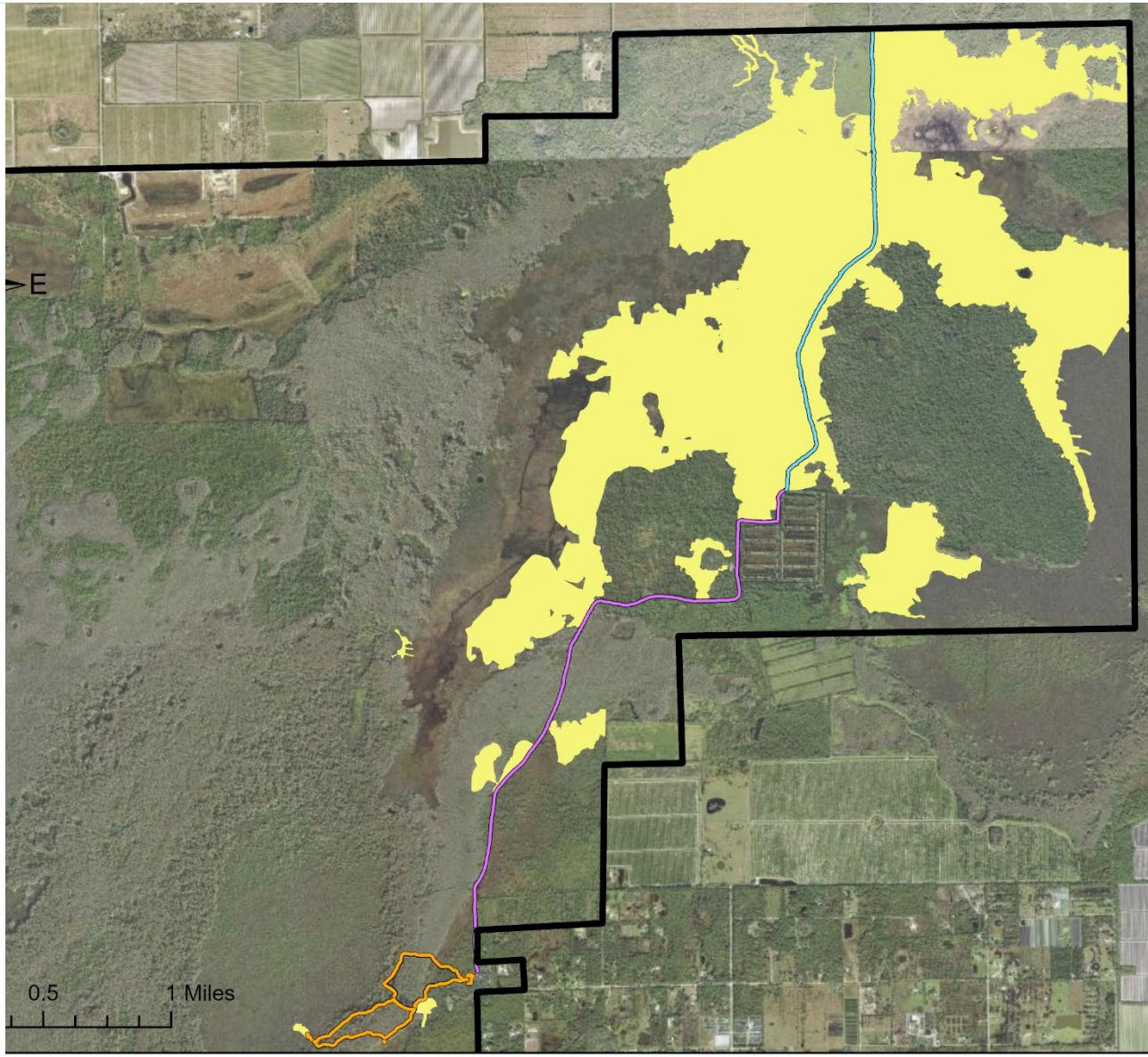
Mulching Shrubs

Spot Treat (3-5 years)

Reintroduce Fire

Since 2013, we've

- Mulched **1,377 acres**
- Shared our experience with other land managers
- Provided feedback and a model for regulatory processes



Prepared By: Jacob Zetzer - Corkscrew Swamp Sanctuary, Basemap Source: Esri, Collier and Lee County FL, Stat

Pre-restoration (early May 2022)

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Post-restoration (late May 2022)

Audubon

Post-restoration (late May 2022)

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3 months post-restoration (Sept. 2022)

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12 months post-restoration (May 2023)

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Restoration of foraging habitats for wading birds, waterbirds, and other wildlife

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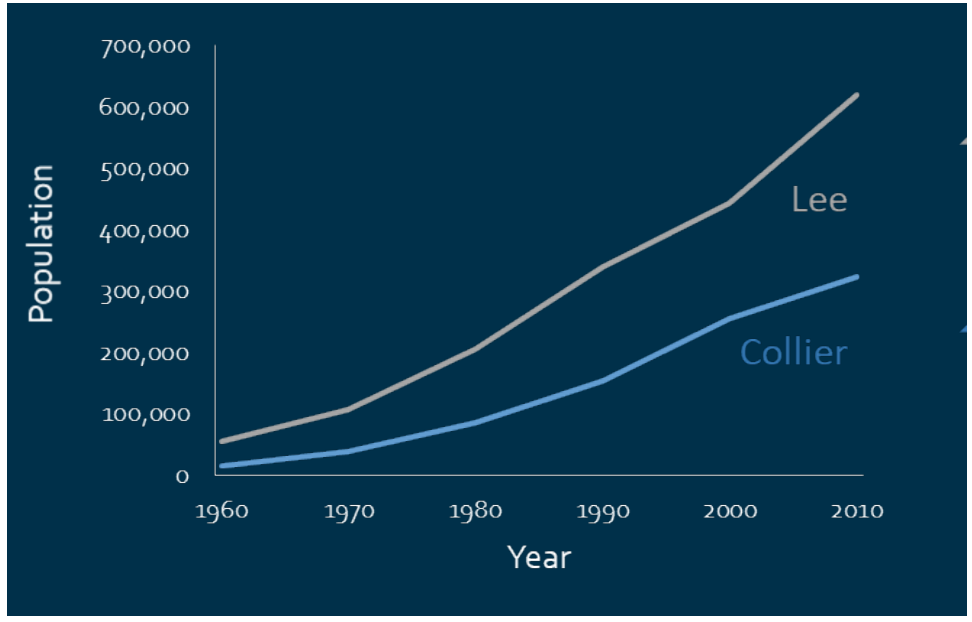
Aerial herbicide- Upper St. John's River Basin

Audubon

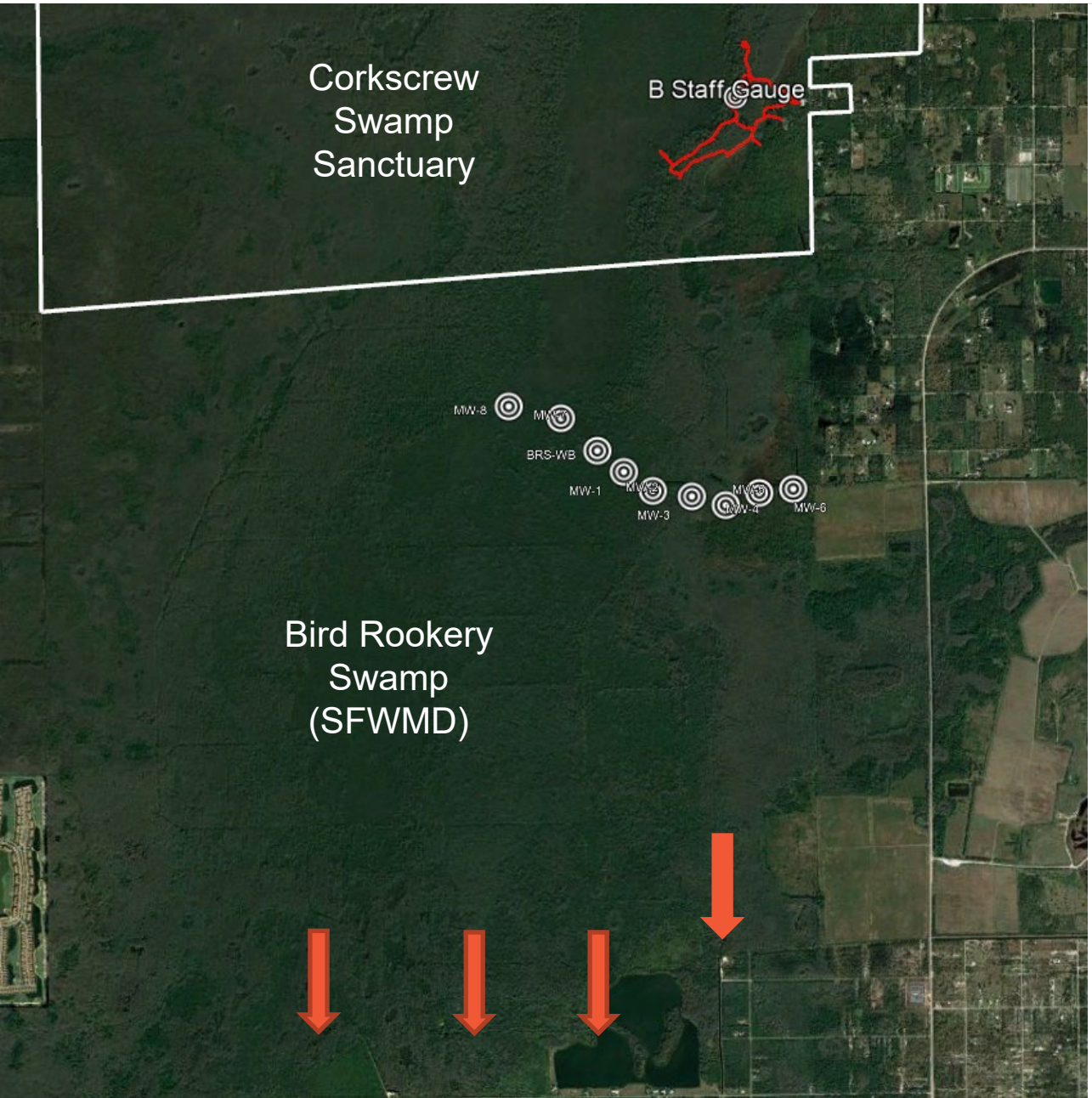
Figure 1a. Flooding from Corkscrew Canal on 43rd Ave., 2001

Now, water moves south into the canal system

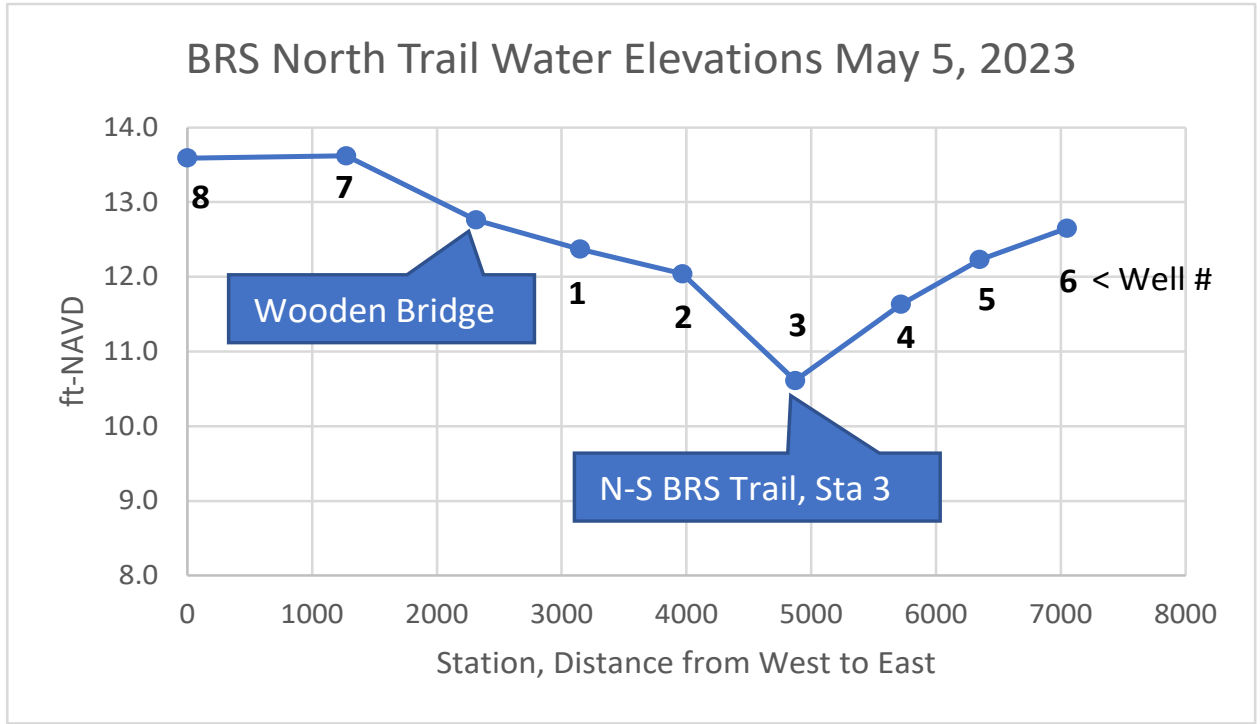


How <u>exactly</u> is our water moving downstre am into the canal system?

Transect of wells help us see the groundwater profile in this area

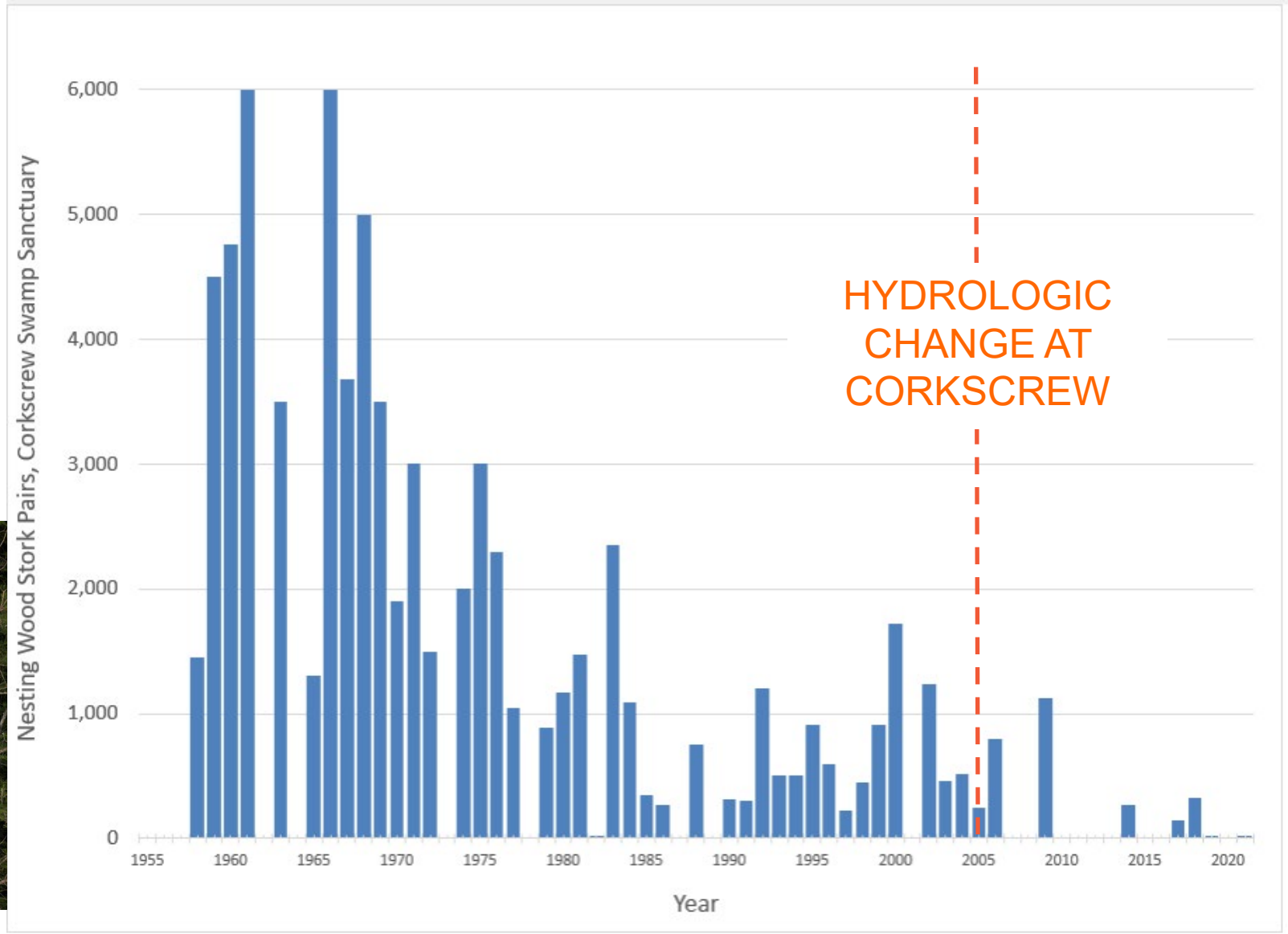


- Data indicate <u>significant</u> drainage along eastern tram roads/Corkscrew Canal



In the 17 nesting seasons since 2007, Corkscrew has only seen Wood Stork nesting 7 times

"No nesting years" coincide with shortened hydroperiod at CSS



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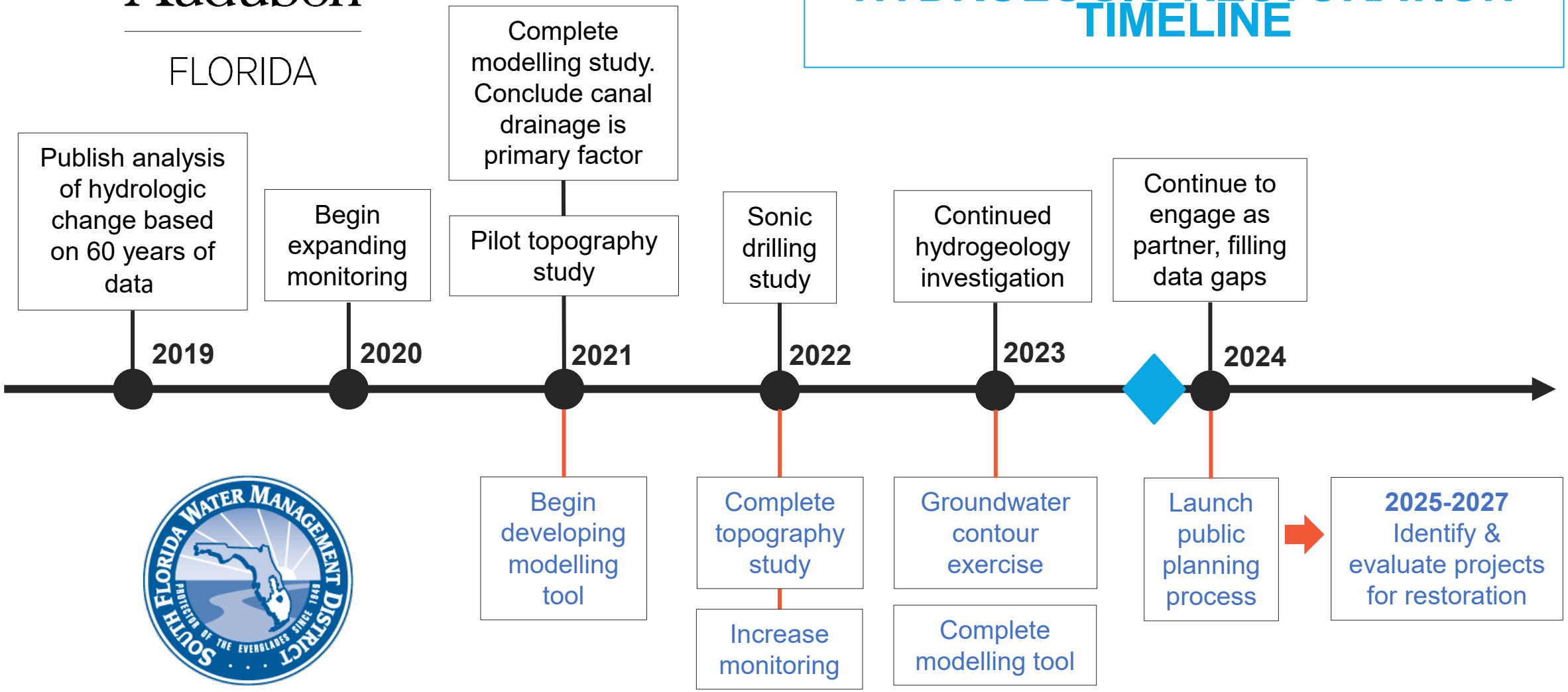
HYDROLOGIC RESTORATION TIMELINE



SOUTH FLORIDA WATER MANAGEMENT DISTRICT
PROTECTION OF THE EVERGLADES SINCE 1949

Next Steps

- Continuing to work with partners to advance restoration science
- Developing best practices to guide permitting
- Hydrologic restoration is ultimately needed to make this habitat restoration more sustainable

Thank you!

Credits - Shawn Clem, PhD

Photos: R J Wiley, Charlie MacDonald, Mac Stone