

# Tom Bennett Park



5<sup>th</sup> National  
Conference

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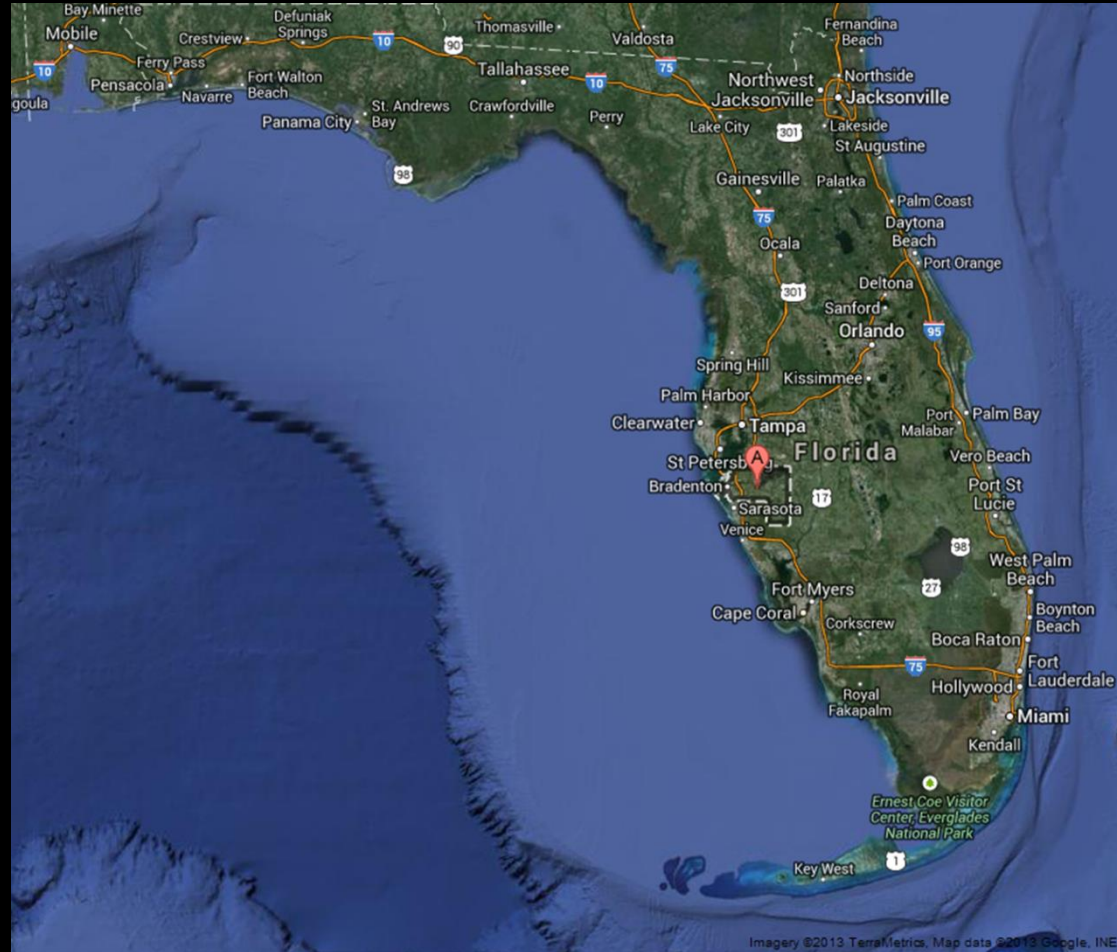
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**Stantec**

# Introduction – Tampa Bay Region

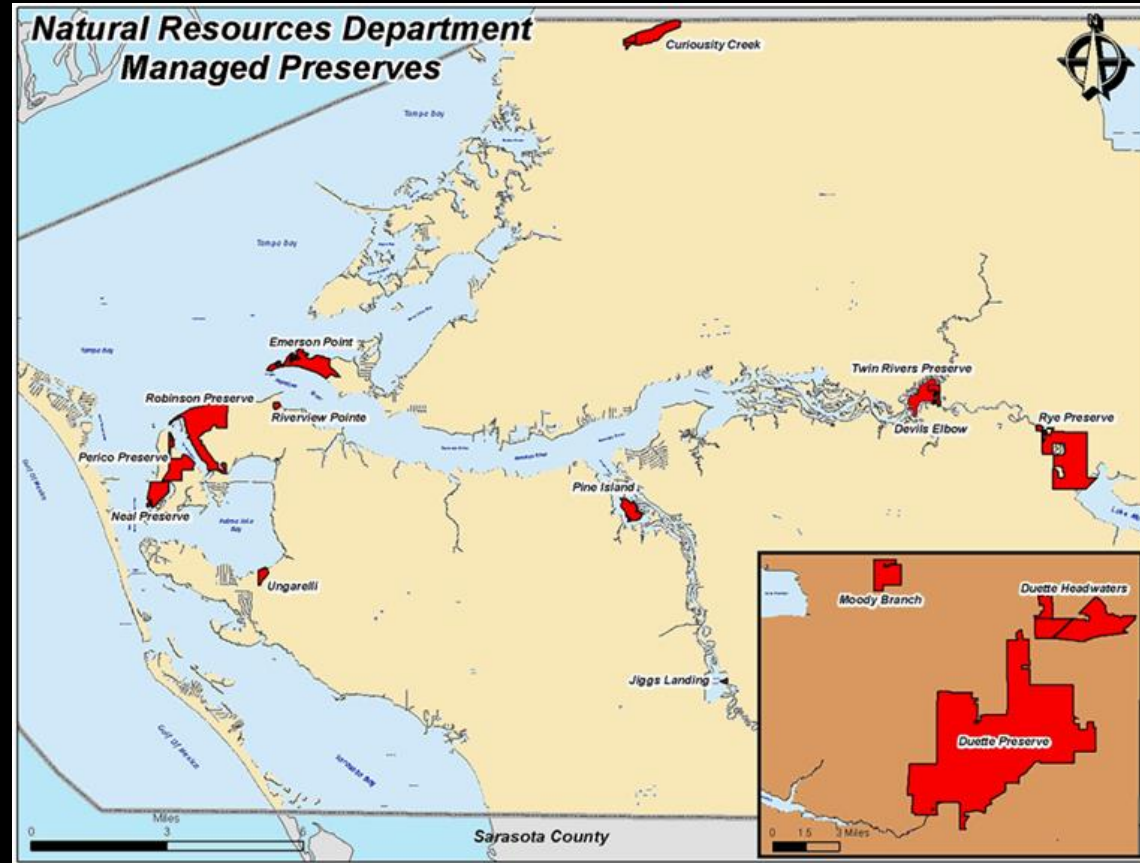
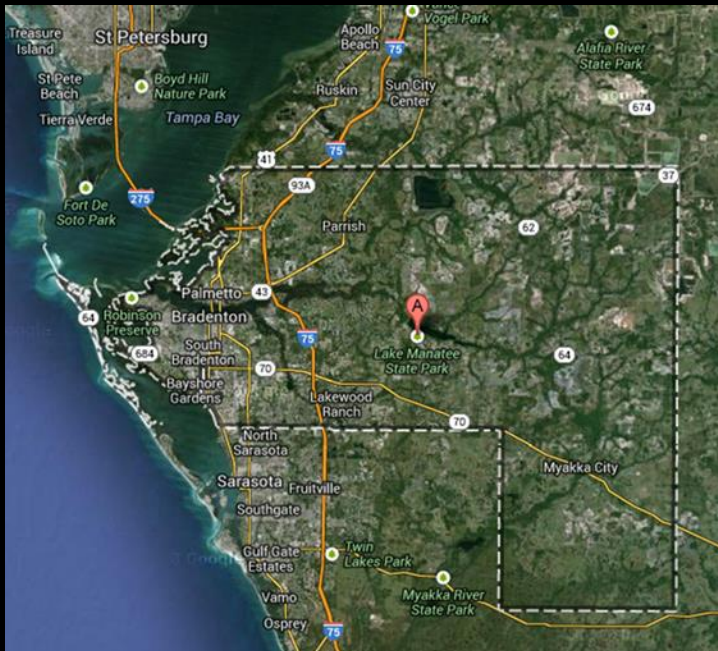
- Conservation priority by regional and local governments
  - Salt marsh and coastal hammock
- Large losses due to extensive coastal land use conversion





# Introduction – Manatee County, Florida

- Manatee County, Florida
- 29,000 acres within 12 public preserves



# Introduction

- 180.5± acres along Manatee River
- Designated a “Remarkable Coastal Place” by FDEP
- Acquired 2003



- Uplands: improved pasture, excavated surface waters, and tidal wetlands surrounded by mesic hammock
- Historical agricultural use, highly infested with exotic vegetation.





# Site Assessment – Physical

- 7 soil map units
- Shallow limestone in some areas
- Historically exposed to intense agricultural production



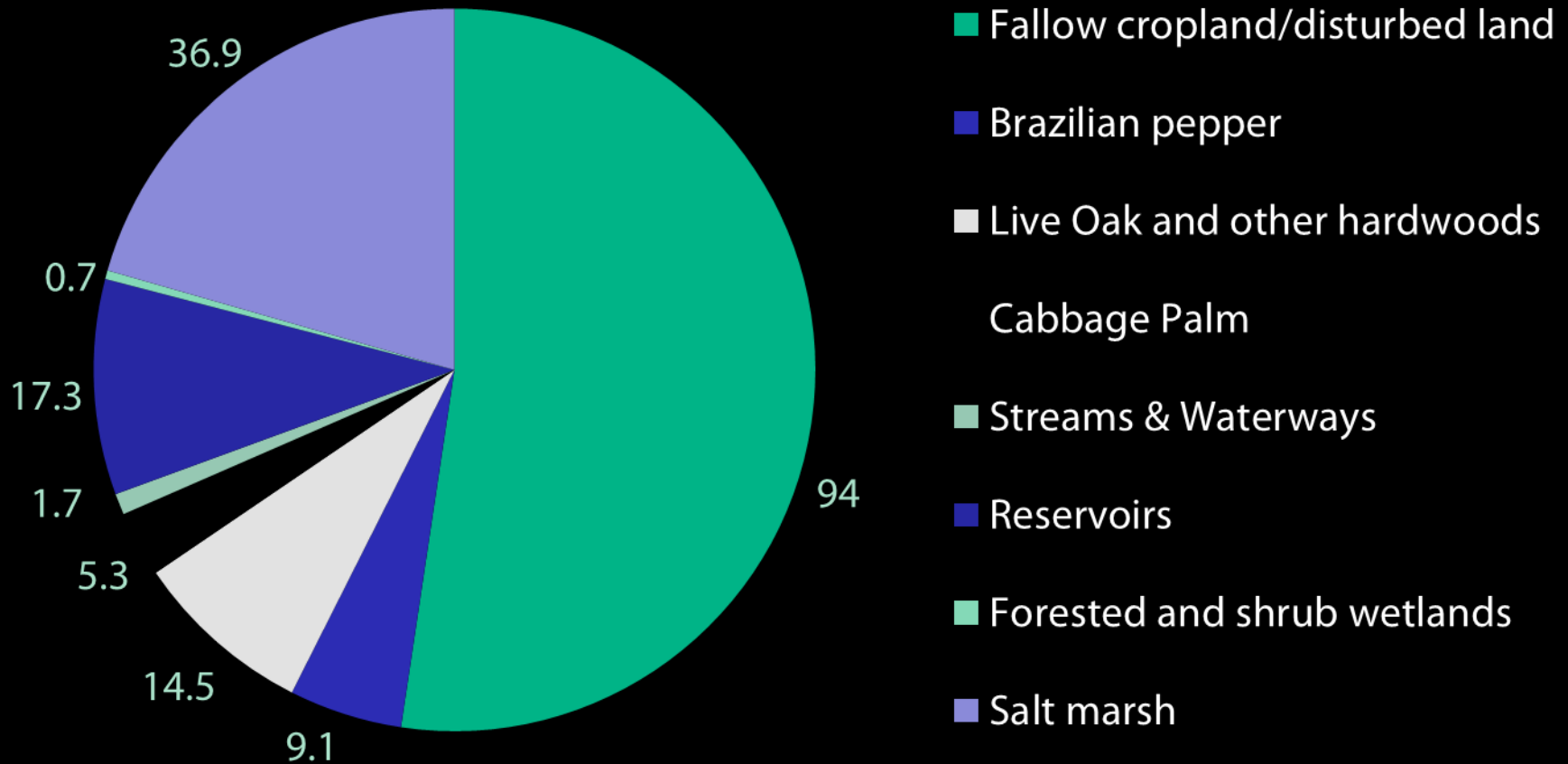
# Site Assessment – Hydrologic Site Conditions



- Elevations ranged from 2' to 11'
- Drainage generally from the SE to NW via existing conveyances
- Off-site flow needs to be maintained through site
- Lower Manatee River watershed - within limits of an impaired water body for nutrients
- 100-year flood elevation for the Manatee River is 4.8'
- Surficial ground water seasonal high from 1.3' to 2.2' below surface

# Site Assessment – Ecology

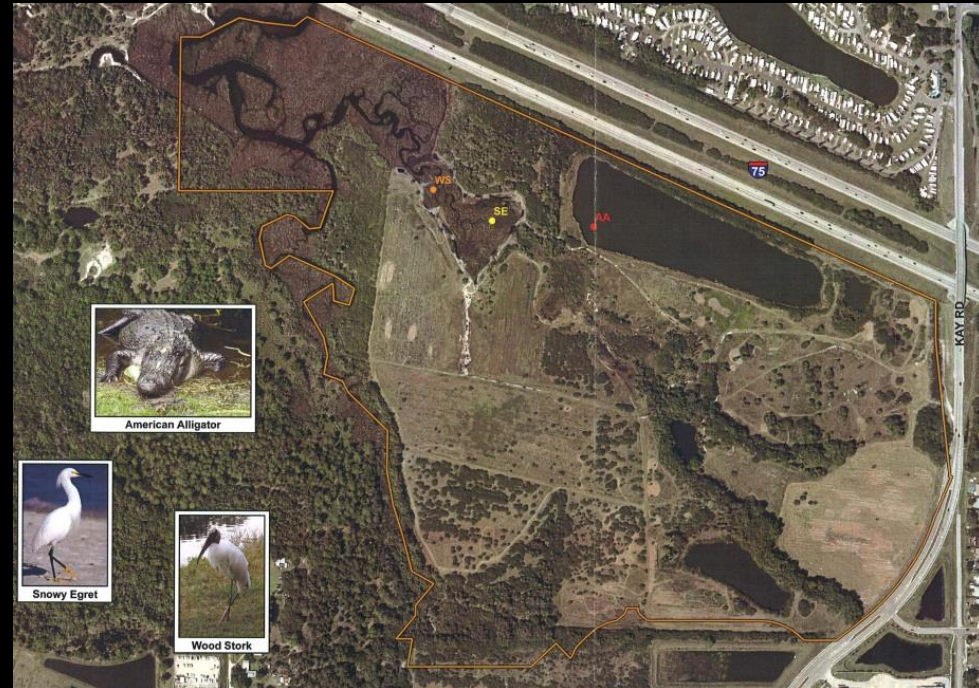
## Land Cover (Acres)





# Site Assessment – Wildlife Survey

- Low wildlife utilization during onsite surveys of listed species
- Potential for several species based on habitat types, soils present, and known occurrences in similar habitat.
- 3 active waterbird colonies within 10 miles
  - little blue heron
  - snowy egret
  - brown pelican
  - wood stork
  - roseate spoonbill
  - white ibis
- 5 bald eagle nests within 5 miles





# Recommendations

- Improve hydrology of saltmarsh habitats



- Control exotic vegetation
- Remove agricultural debris



# Project Goals



- Restore and create a mosaic of high quality native habitats
- Reduce invasive and nuisance plants
- Provide opportunities for nesting , denning , breeding, and foraging for threatened and endangered species
- Offer educational opportunities for users to learn about regional ecosystems
- Offer opportunities for passive recreation



# Project Goals

- Restoration
  - 25 acres of wetlands (12.3 ac freshwater/15.5 ac saltwater)
  - 50.8 acres of Uplands (restored and enhanced habitats)
    - Coastal Palm Hammock 19.3 ac
    - Oak/Pine 9 ac
    - Pine Flatwoods 17.4 ac
    - Dry Prairie 5.1 ac
  - Remainder used for active and passive recreational facilities
- Rookery Creation



# Planning

- Disturbed uplands (pastures, Brazilian pepper)
  - Buffers/ecotones to adjacent salt marsh
  - Reverse decline of coastal hammock
  - Nesting and denning habitat
  - Shelter for wildlife
  - Reduce seed source of nuisance plants
- Methods
  - Mechanical control
  - Chemical treatment
  - Revegetate





# Planning

- Forested uplands (Cabbage palm hammock, Oak/Pine)
  - Foraging for migrating/wintering birds
  - Nesting and denning habitat for Sherman's fox squirrel
  - Shelter for wildlife
  - Reduce seed source of nuisance plants





# Planning

- Methods
  - Hand removal
  - Chemical treatment
  - Allow natural recruitment





# Design

- Create/Restore Freshwater Marsh
  - In pastures and degraded marsh
  - Create/restore breeding and foraging habitat for listed wading birds
  - Multispecies management/varying water depths and regimes
  - Improve water quality in Manatee River/Tampa Bay
  - Target wood stork, sandhill crane, roseate spoonbill, ibis
- Methods
  - Excavate at gentle slopes to 3' depth at SHWL
  - Mulch/Replant
  - Provide island and nesting platforms/trees



# Design

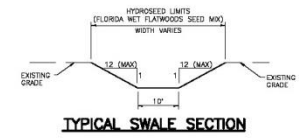
- Create/Restore Salt Marsh
  - In pastures and degraded marsh
  - Nursery for inverts, larval/juvenile fish
  - Shelter for fish, birds, wildlife
  - Improve water quality in Manatee River/Tampa Bay
  - Target wood stork, roseate spoonbill, ibis



- Methods
  - Divide from freshwater marsh with an overflow structure set at MHWL
  - Excavate at gentle slopes to 2' depth at MHWL
  - Replant with saltmarsh cordgrass and black needlerush
  - Provide mangrove recruitment opportunity



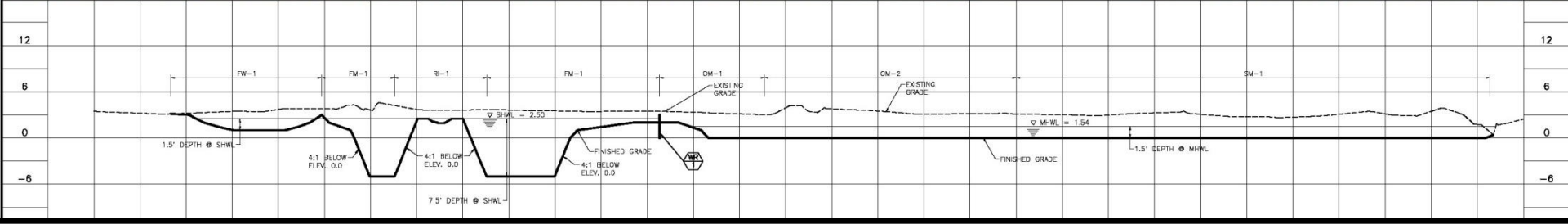
# Design



**LEGEND**

	JURISDICTIONAL WETLAND
	EXCAVATION LIMITS
	WEIR STRUCTURE
	FINISHED GRADE CONTOUR
	CREATION AREA REFERENCE ID

- NOTE:**
1. ALL EXCAVATED MATERIAL TO BE STOCKPILED AT A LOCATION ON-SITE AS DIRECTED BY OWNER.
  2. SEE PROJECT SPECIFICATIONS (SHEET 12A)





# Construction

- Excavation



# Construction

- Cypress installation with nesting poles





# Construction – Revisions



- Revisions to SM-3 tidal connection

# Construction – Plant Installation



- Saltmarsh cordgrass
- Black needlerush



# Construction – Plant Installation



- Installed plant mortality (requiring replacement) SM-1

# Construction – Plant Installation

- Plant installation PF-2 in progress





# Construction – Direct Seeding

- Direct seeded plants emerging



# Construction – Plant Installation



- Nuisance herbaceous species cover and installed plants
- *Celtis laevigata* requires replacement



# Project Costs

Assessment & Planning	\$ 82,515.00
Design	\$ 49,927.00
Construction	\$700,096.82
<b>Total:</b>	<b>\$832,538.82</b>
<i>Cost per acre (75 ac)</i>	<i>\$ 11,100.52</i>

# Lessons Learned - Successes

- Foraging and Nesting Habitat
- Emergent Freshwater Marsh
- Saltmarsh/Intertidal Habitat
- Nesting Structures





# Lessons Learned – Challenges

- Environmentally Sensitive Mechanical Removal
- Topsoil Excavation
- Seeding/Plant Material Sourcing
- Timing of Direct Seeding
- Tropical Storm Debby
- Plant material quality/sizing/installation
- Maintenance
- Contractor Qualifications



# Lessons Learned

- Existing conditions, restoration design, and weather must dictate the schedule
- Experienced Contractor is essential; even with good oversight
- Schedule must allow sufficient time for eradication of existing nuisance plants and seed stock





# Questions?



# Lessons Learned – Project Schedule

- Project Inception (February 2009)
- Kickoff (April 2009)
- Site assessment and conditions (May 2009)
- Conceptual Plan (February 2010)
- Habitat restoration grant (February 2010)
- Final Design, Construction Documents and Permitting (May 2010-May 2011)
- Construction (May 2011-November 2012)
- Project Completion (November 2012)
- Final Certification (January 2013)