

Review and Summary of DR/GR-Related Studies Southeastern Lee County, Florida

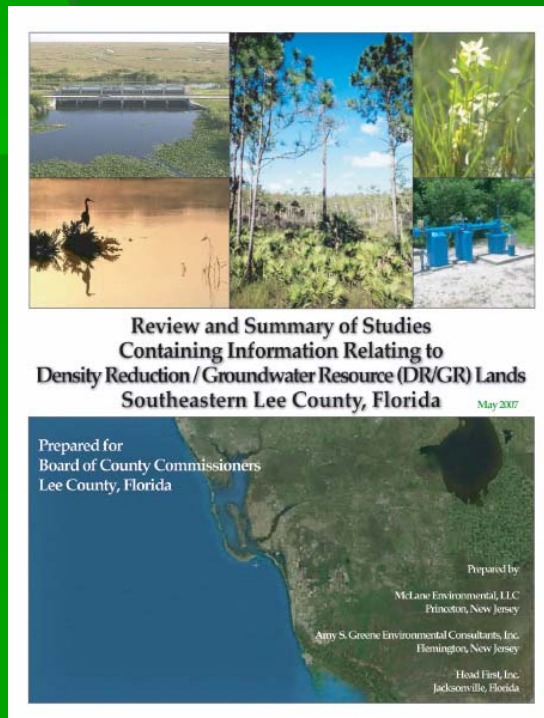
Presented to the Board of
County Commissioners
Lee County, Florida

June 11, 2007

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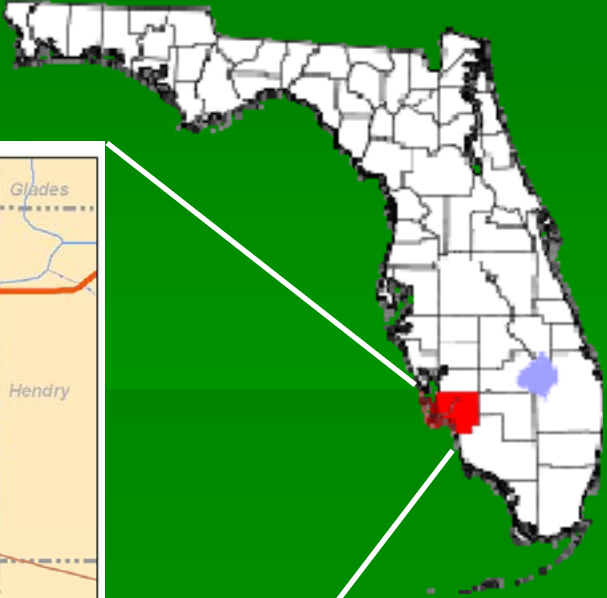
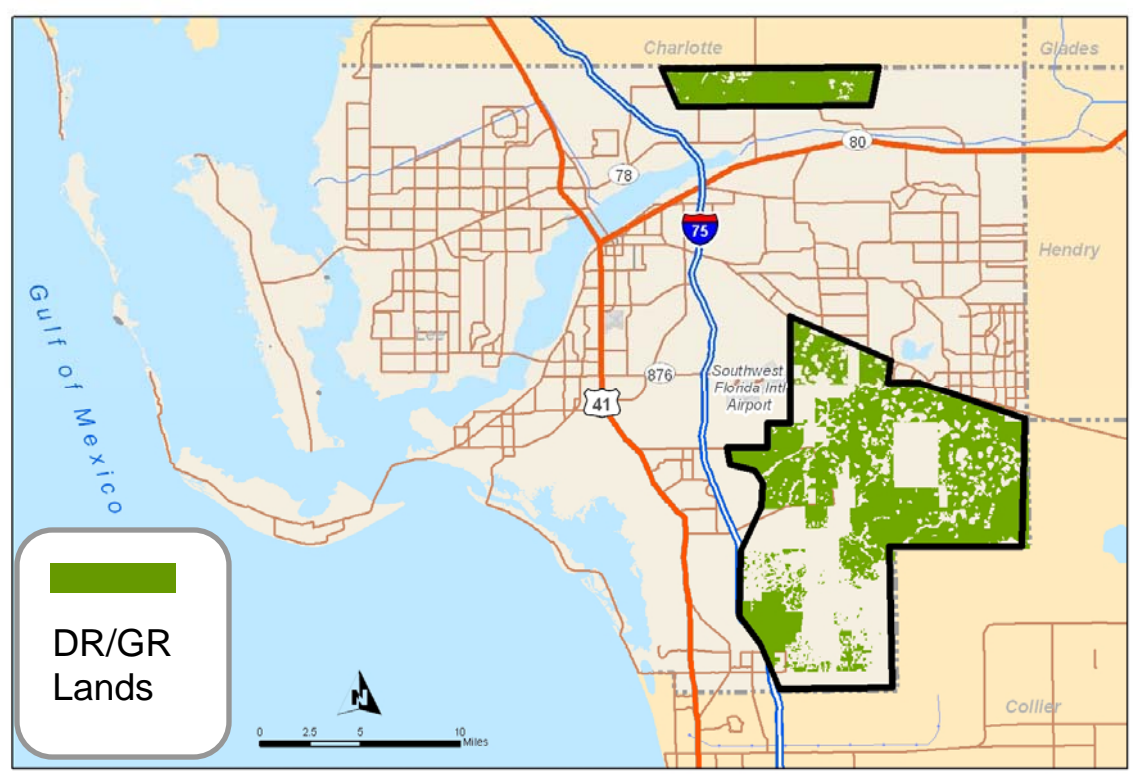
Head First, Inc.
Jacksonville, Florida



Project Team

- Charles McLane - McLane Environmental
 - Project Management
 - Hydrogeology / Hydrology
 - Computer Modeling
- Amy Greene / Ann Ertman - ASGECI
 - Plant and Animal Science
 - Wetland and Terrestrial Ecology
 - Natural Resources
- Andrew Miller - Head First, Inc.
 - Geology / Hydrogeology
 - Aquifer Characterization
 - Water Resources

Lee County DR/GR Lands



Southeastern DR/GR Area

Lands East of I-75



Southeastern DR/GR Area

Forested Areas



Southeastern DR/GR Area

Agriculture & Mining



Southeastern DR/GR Area

Water Supply



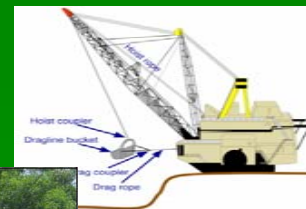
DR/GR Land Use Category

- 1 dwelling unit / 10 acres



- Permitted uses

- Agriculture
- Resource extraction
- Recreational



Project Scope

- Select 12 to 14 documents
- Review documents & prepare summaries
- Prepare project “findings” report

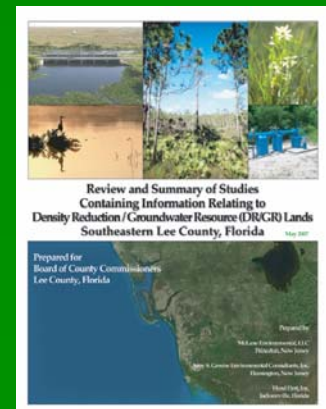


CHOICE

Choosing the Gaps in Florida's Wildlife Habitat Conservation System

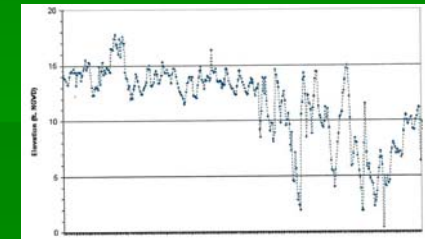
Item	Description	Author	Abstract/Executive Summary
1	Document Title		Choosing the Gaps in Florida's Wildlife Habitat Conservation System
2	Author	Aaron Cox, Randy Kazur, Matthew Mack, Benjamin and Tracy Gillett (Florida Fish and Wildlife Conservation Commission, Florida Wildlife Federation) and Donnie Miller (FLC Conservation)	
3	Date		Florida Fish and Wildlife Conservation Commission - Florida Wildlife Federation
4	Submitting agency/ publisher		
5	Purpose of study or document		To assess the higher conservation needs and identify lands that need be preserved to meet the long-term habitat needs of Florida's threatened and endangered species approach. <ul style="list-style-type: none"> To identify areas important to several globally endangered species of birds and animals. To identify important areas of high biological diversity "hot spots". To focus on-going land conservation efforts where they will provide the most protection to Florida's biodiversity. To provide guidance to decision makers involved in public land acquisition, land-use planning, development regulation, and other land conservation efforts.
6	Reference to DRUGS lands in this year of DRUGS		
7	Reference to DRUGS lands in this year of DRUGS		

Choosing the Gaps



The "Process"

- Identified key DR/GR resources, features and issues
- Reviewed documents to identify information and scientific data for these and similar features
- Identified key maps and overlays for these features
- Prepared report of findings



Document Categories

- Lee County Planning
 - Lee Plan
 - Lee Master Mitigation Plan
- DR/GR or Lee County Focused
 - 1988 Water Resource Management
 - Groundwater Resource and Mining
 - Bonita Springs DR/GR
 - Road 951 Study
 - South Lee County Watershed Plan
 - Estero Bay and Charlotte Harbor Reports

Document Categories (Cont.)

- Broader Studies
 - Florida Panther Study
 - South Florida Multi-Species Recovery Plan
 - Southwest Florida Feasibility Study
 - Closing the Gaps

DR/GR Land - Key Features

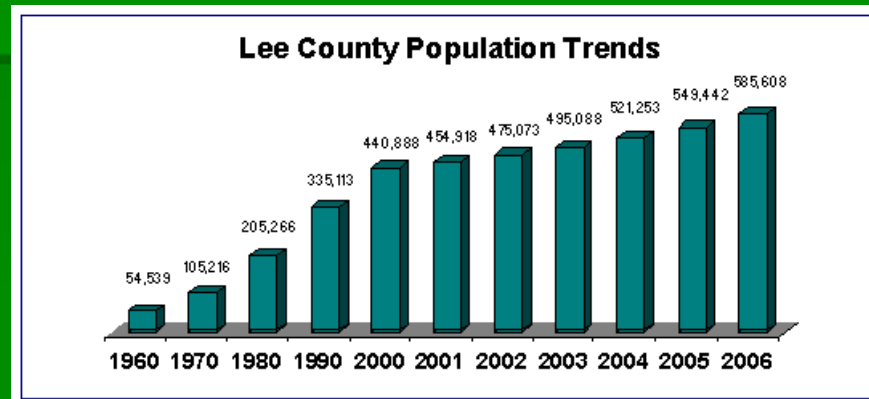
DR/GR Lands:

Only density reduction and groundwater resources?

1. Density reduction
2. Groundwater recharge/resource
3. Ecology
4. Surface water
5. Connections

1. Density Reduction

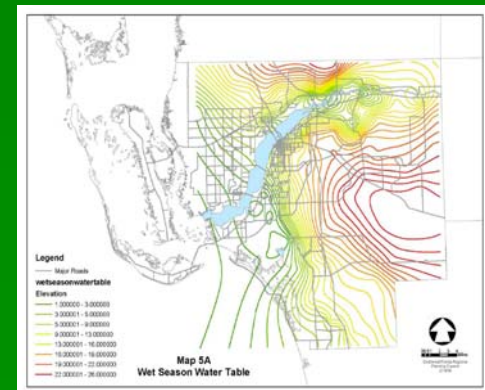
- One of the primary factors considered in 1990
- Still very important today



Source: *University of Florida, Bureau of Economic and Business Research, Population Estimates*

2. Groundwater Recharge/Resource

- Identified as an area of high recharge
 - Primarily agricultural land cover areas
- Aquifers serve as source of potable water
 - Current operating well fields
 - Potential additional future supply



3. Ecology



Ecology

- Wetlands
- Native uplands
- Listed species
- Strategic habitat conservation areas
- Biodiversity “Hot Spots”
- Potential restoration sites

Wetlands

- Studies generally list wetlands as an important ecological resource.

-See Estero Bay State of the Bay Reports, Lower Charlotte Harbor Reconnaissance Report, Closing the Gaps in Florida's Wildlife Habitat Conservation System, and the South Florida Multi-Species Recovery Plan for discussions of wetland community types, functions and values, and management issues.



- Seasonal wetlands are an ecologically important habitat that currently receives inadequate regulatory protection statewide.



See Estero Bay State of the Bay Report (2000), Lower Charlotte Harbor Reconnaissance Report, and Multi-Species Recovery Plan

Native Uplands

- Native uplands are ecologically important to a large range of plant and animal species.

See *Closing the Gaps in Florida's Wildlife Habitat Conservation System* and the *South Florida Multi-Species Recovery Plan* for discussions of upland community types

- Mesic pine flatwoods have been extensively impacted throughout South Florida.



Listed Species

- The DR/GR lands are home to a number of plant and animal species listed as threatened, endangered, or of special concern by state and/or federal agencies.

See Estero Bay State of the Bay Report, Closing the Gaps in Florida's Wildlife Habitat Conservation System and the South Florida Multi-Species Recovery Plan for discussions of each species. See CR 951 studies for a discussion of listed species likely to occur in parts of the DR/GR area.

Mammals

Fox Squirrel



photo from USFWS

Florida Panther



photo from USFWS

Birds

Bald Eagle



photo from USFWS

White Ibis



photo from USFWS

Reptiles and Amphibians

Indigo Snake



photo from USFWS

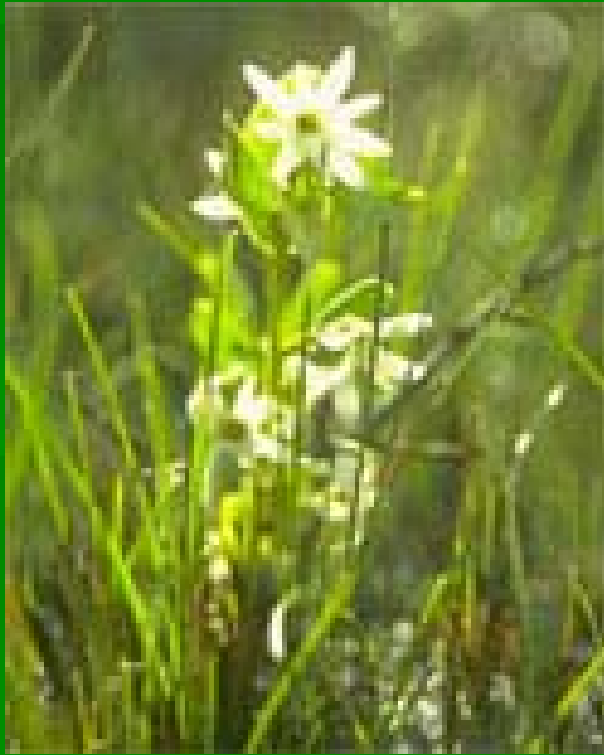
American Alligator



photo from USFWS

Plants

Beautiful Pawpaw



Cinnamon Fern

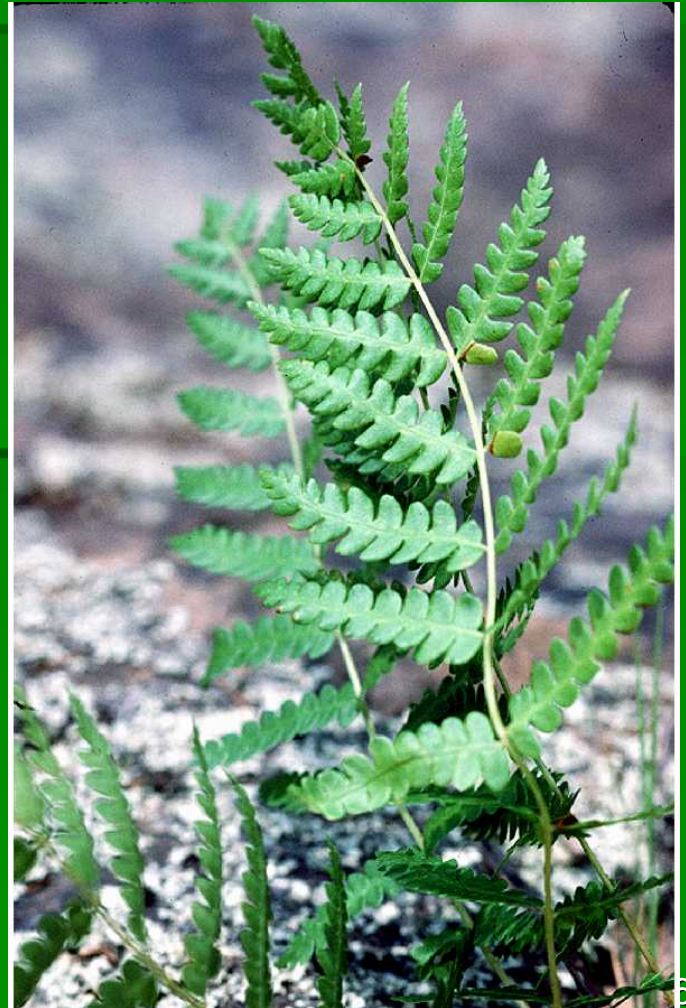


photo from USFWS

Strategic Habitat Conservation Areas (SHCAs)

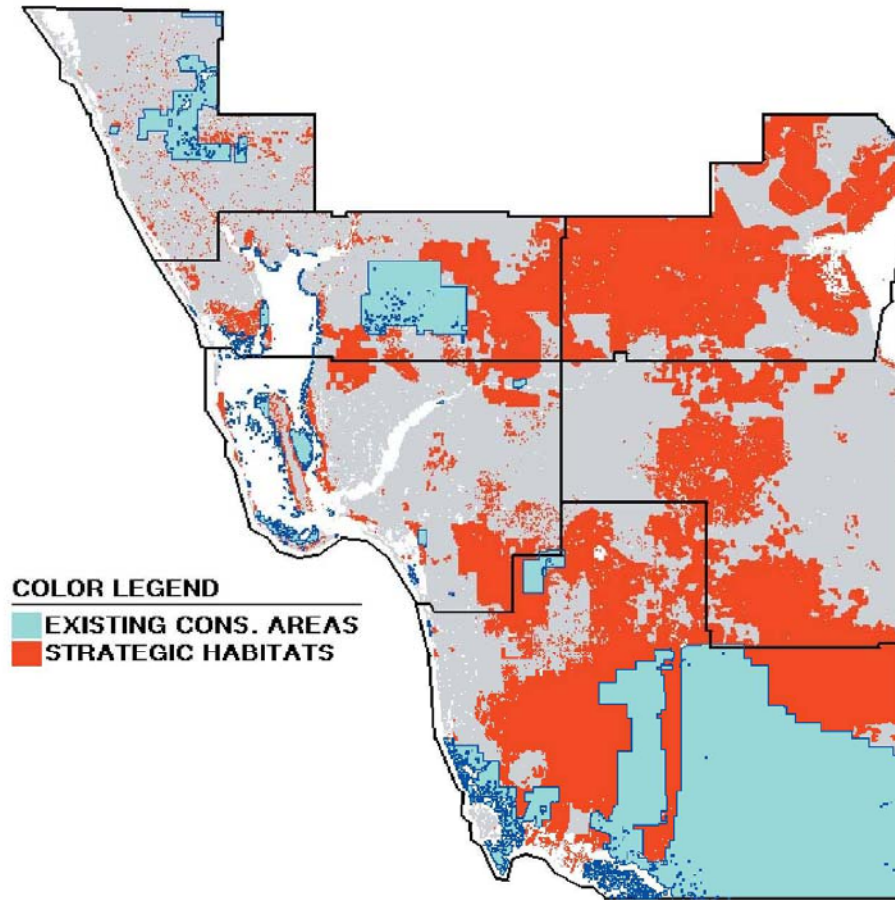


Figure 170b. Strategic Habitat Conservation Areas and existing conservation lands.

Biodiversity "Hot Spots"

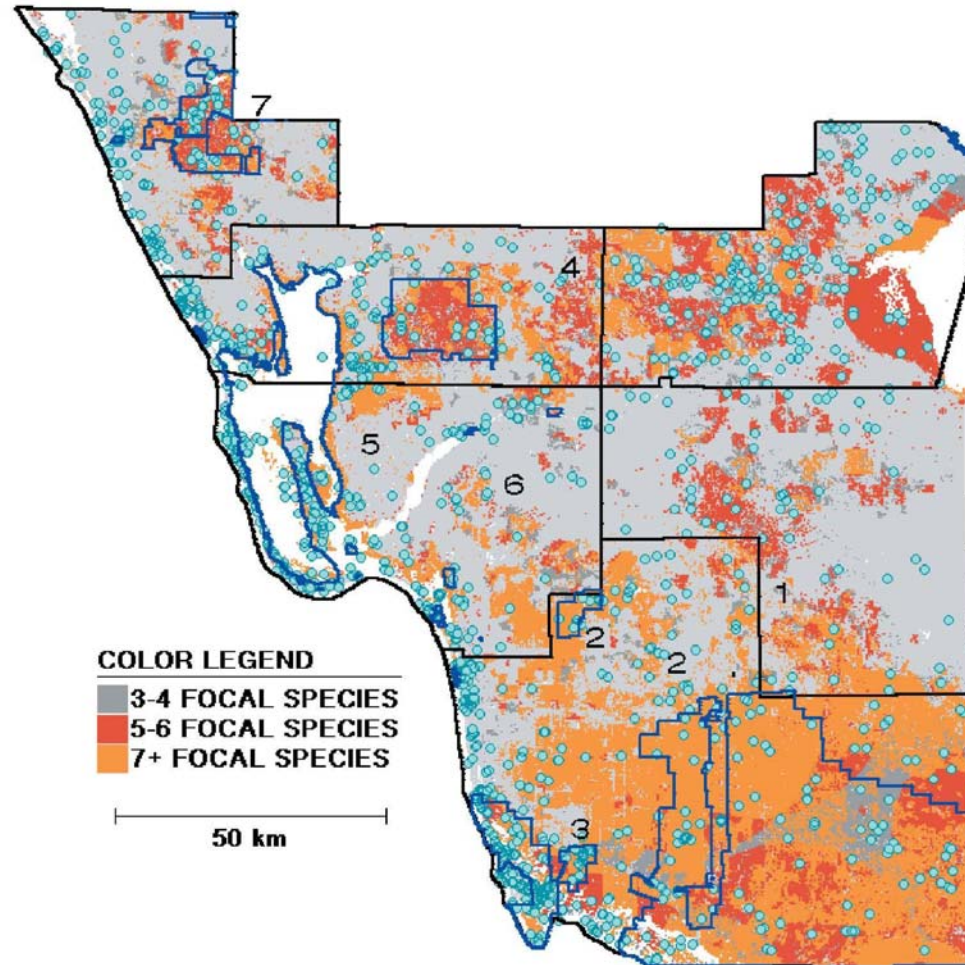


Figure 170c. Hot spots of biological resources and rare species occurrence records.

Potential Restoration Sites

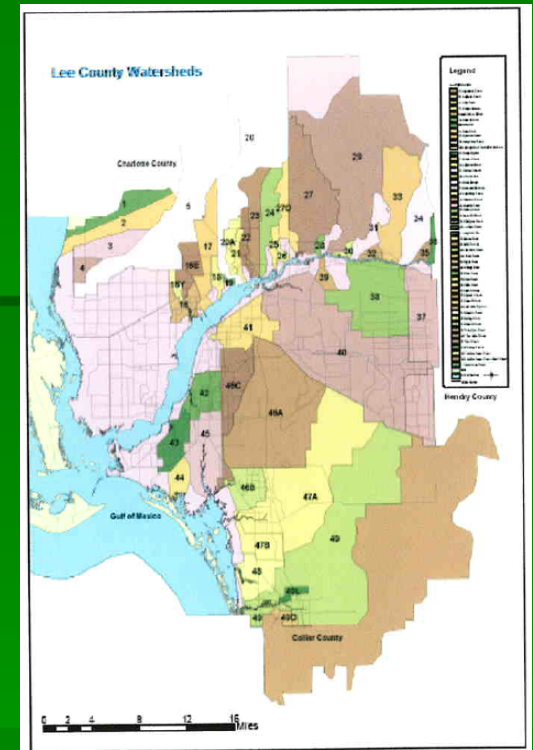
- The DR/GR lands include extensive areas that have been impacted but have good potential to be successful restoration and/or enhancement sites.



See How Much is Enough? Landscape-scale conservation for the Florida Panther for a discussion of degraded Florida Panther habitat and South Florida Multi-Species Recovery Plan for a discussion of the difficulties of creating new habitats, especially pine flatwoods.

4. Surface Water

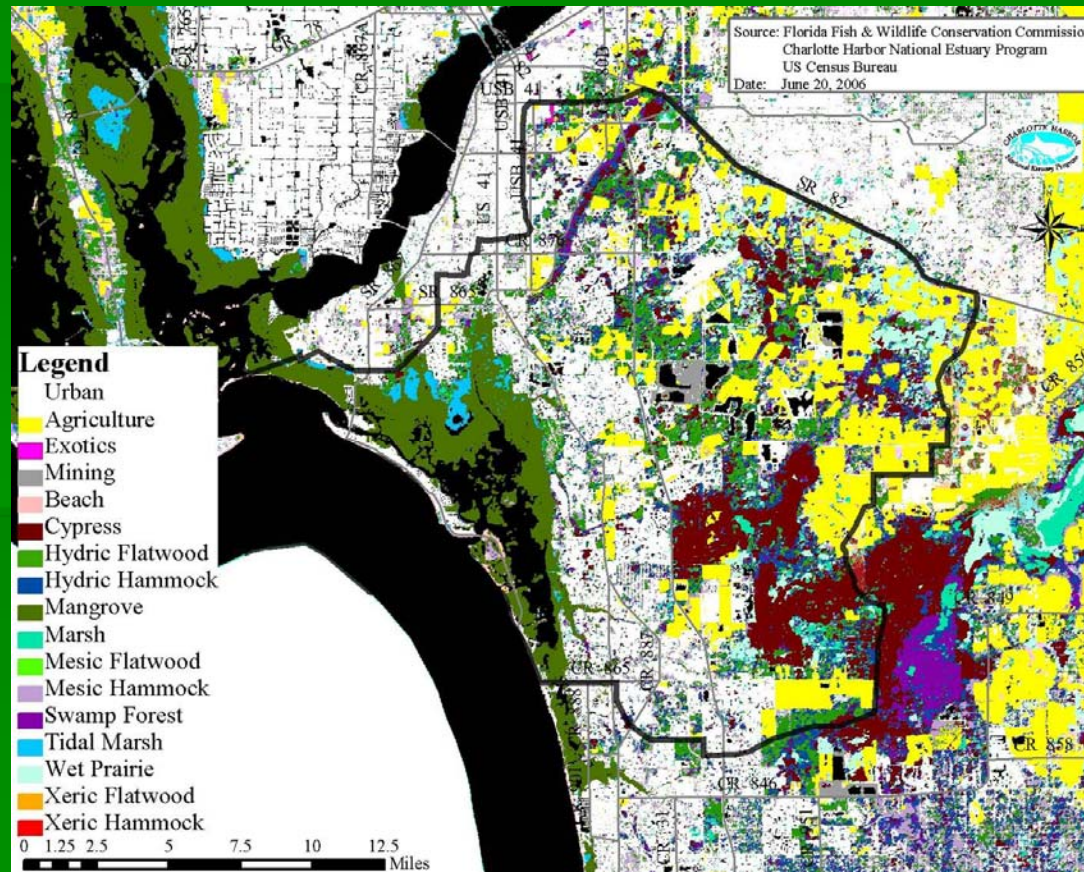
- Surface water – groundwater interactions
- Surface water sustains wetland ecological systems
- Wetlands can “clean” surface water (e.g. sediment, pollutants)
- Flow ways and other surface water conveyances if properly maintained can reduce flooding



5. Connections

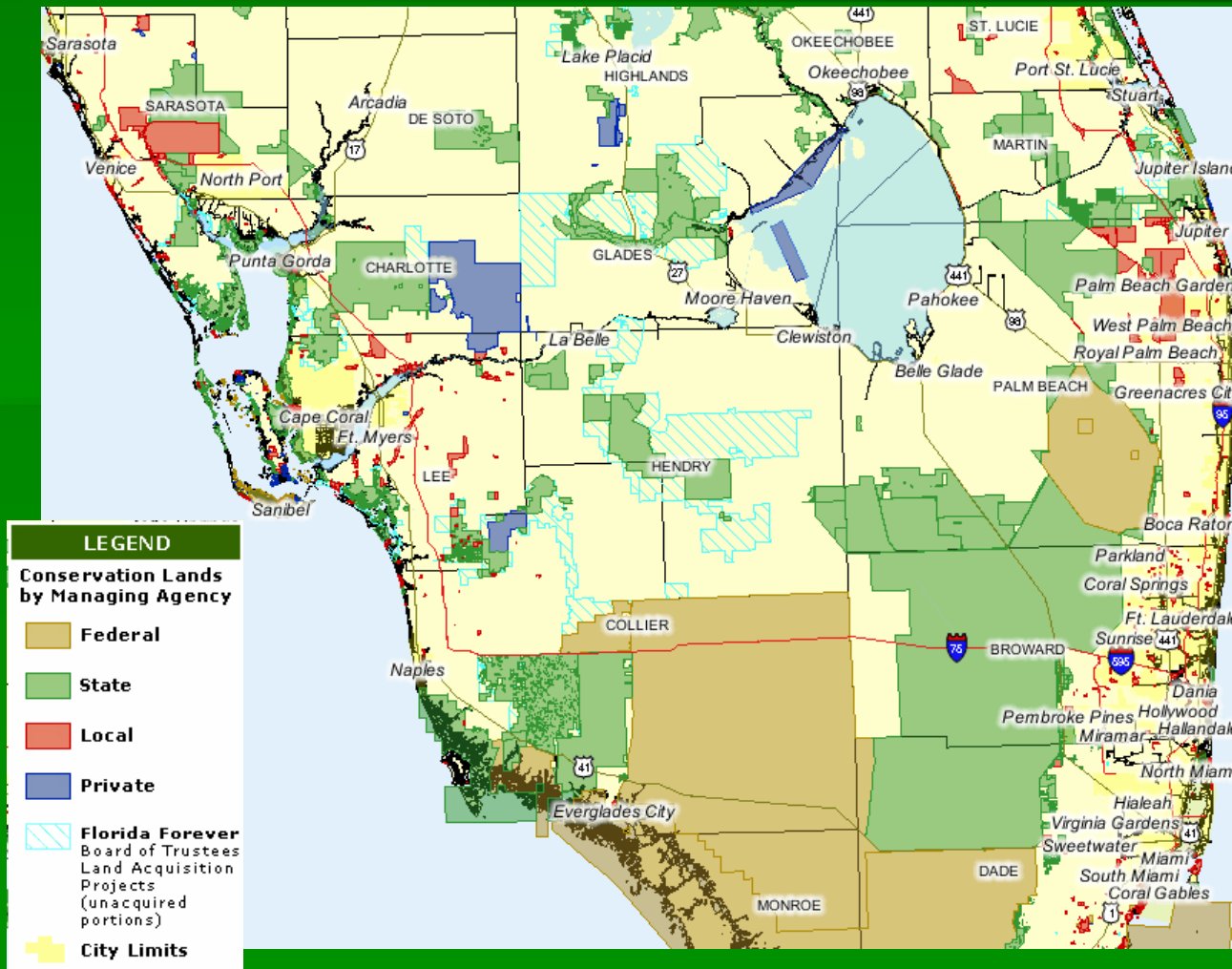
- Landscape mosaic
 - Interconnected, interdependent habitats
 - Habitat for wide-ranging species (e.g. Florida panther)
- Connection to other portions South Florida ecosystem (“link” in the “chain”)
- Migratory bird pathways
- Groundwater discharges to surface water
- DR/GR lands drain to Estero Bay

Landscape Mosaic



See “Closing the Gaps in Florida’s Wildlife Habitat Conservation System”, “The South Florida Multi-Species Recovery Plan” and “How Much is Enough? Landscape-scale conservation for the Florida Panther” for discussion.

Connections to other South Florida Ecosystems



Migratory Bird Pathways

Kirtland's Warbler



photo from USFWS

Chuck-Will's-Widow

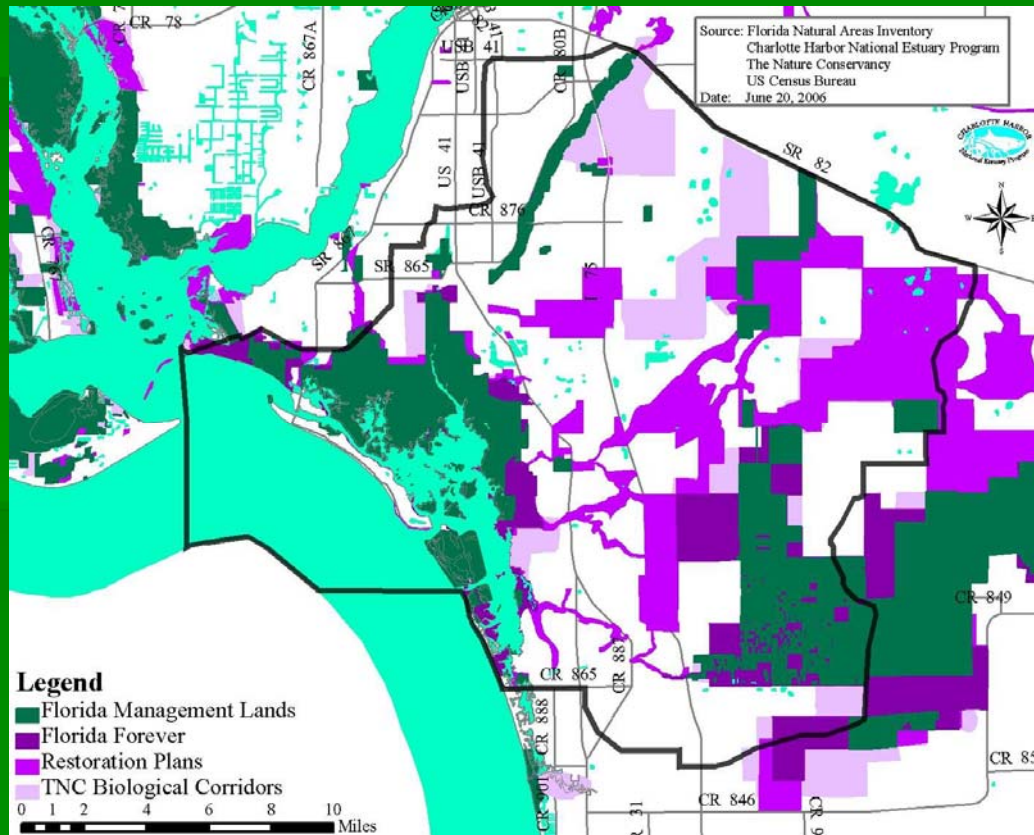


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photo from Cornell Lab of Ornithology

See “The Multi-species Recovery Plan”, the “Closing the Gaps” Report, and the Estero Bay State of the Bay Report (2000) for discussion.

Connection to Estero Bay



See “Estero Bay State of the Bay Report (2000) and “State of the Bay Update (2004), Lower Charlotte Harbor Reconnaissance Plan”, and “Water Quality Analysis Report” for discussion

Findings

- List of specific findings provided in project summary report
- Grouped under 5 categories of key features

Conclusions

- Widespread awareness of the DR/GR area important resources, features and issues
- Studies show resources and ecological systems are present and are interrelated in complex ways

Conclusions (cont.)

- Functioning of the DR/GR environmental system can be adversely impacted by certain land uses
- Potential for balance between use of the land and protection of ecological and groundwater resources – need to consider the science
- Potential for restoration of impacted lands

END