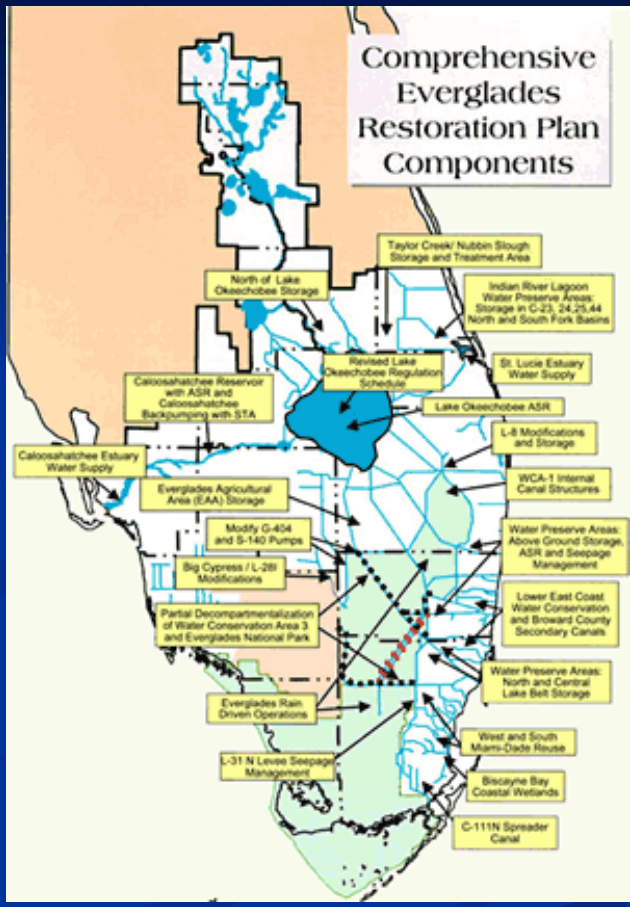
Life History & Ecology of the Wood Stork (*Mycteria americana*)

Hart Rufe, St. Lucie Audubon

Dr. Shawn Liston

Research Manager, SW Region

Audubon OF FLORIDA



Audubon OF FLORIDA


birder's
magazine
Roseate Spoonbill © Mike Landwehr

Wood Stork

Mycteria americana

"Wood Ibis"

- Only stork species currently breeding in the U.S.
- Largest breeding colony in the northern hemisphere @ Corkscrew Swamp Sanctuary
- LENGTH: 33 ½ - 45 ½ inches
- WINGSPAN: 59 – 69 inches
- WEIGHT: 72 – 93 ounces (4 ½ - 5 ¾ lbs)

Wood Stork

Mycteria americana

- Often take advantage of atmospheric thermals – conserves energy (16.0 J/m flapping vs. 1.9 J/m soaring)
- Heights over 1,000 m; travel over 40 km to feeding sites
- When thermal updrafts are strong, WOST can glide 16-24 km (10-15 mi) with wings motionless

Wood Stork

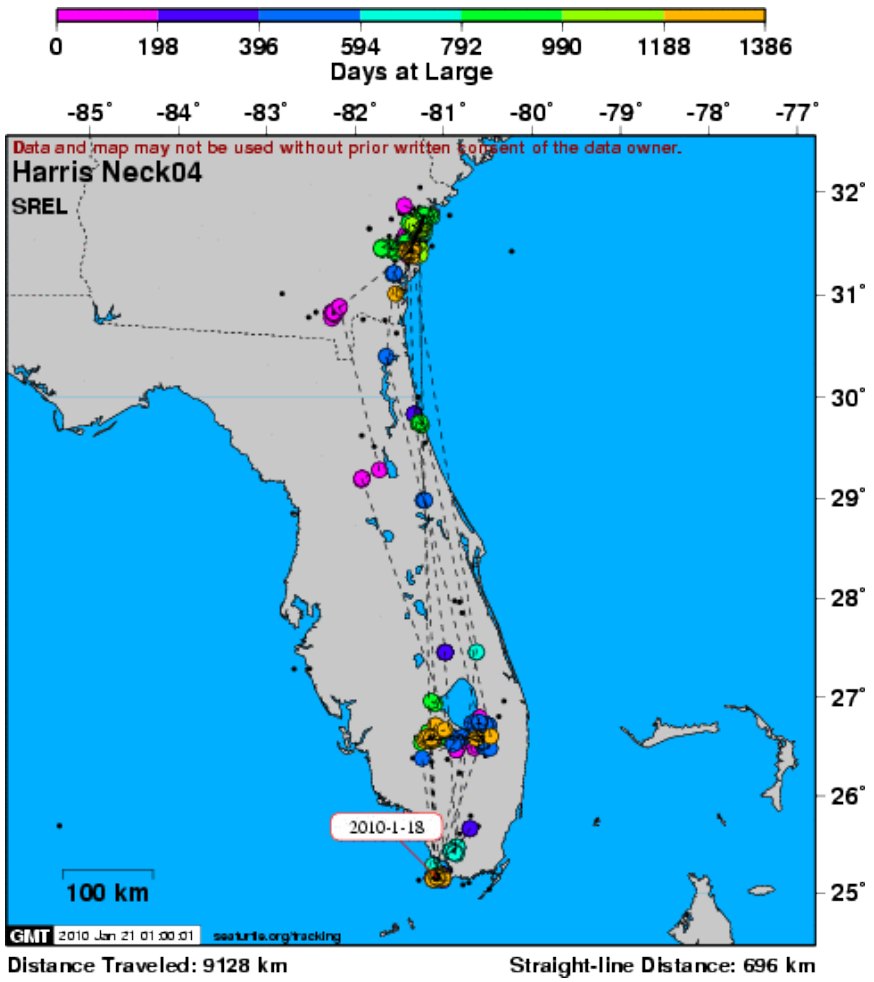
Mycteria americana

Milky Stork
(M. cinerea)

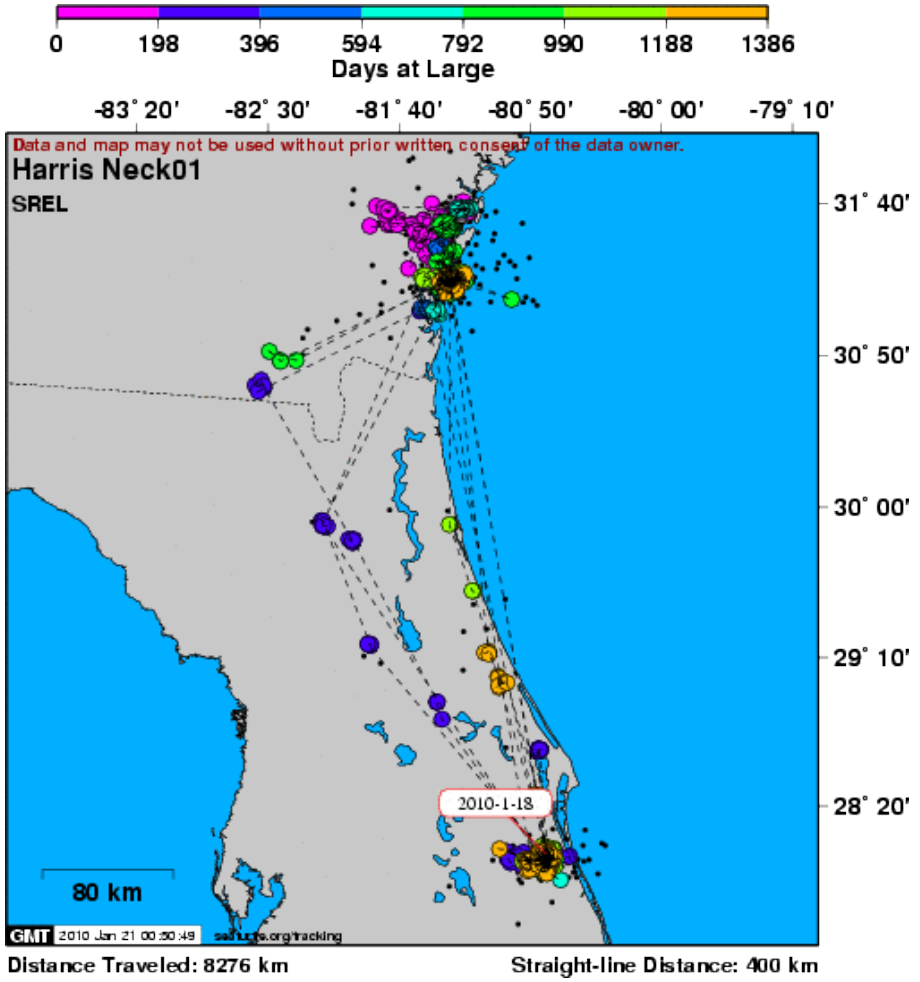
Painted Stork
(M. leucocephala)

Yellow-billed Stork
(M. ibis)

Historically, US population summers in GA & SC and winters in FL

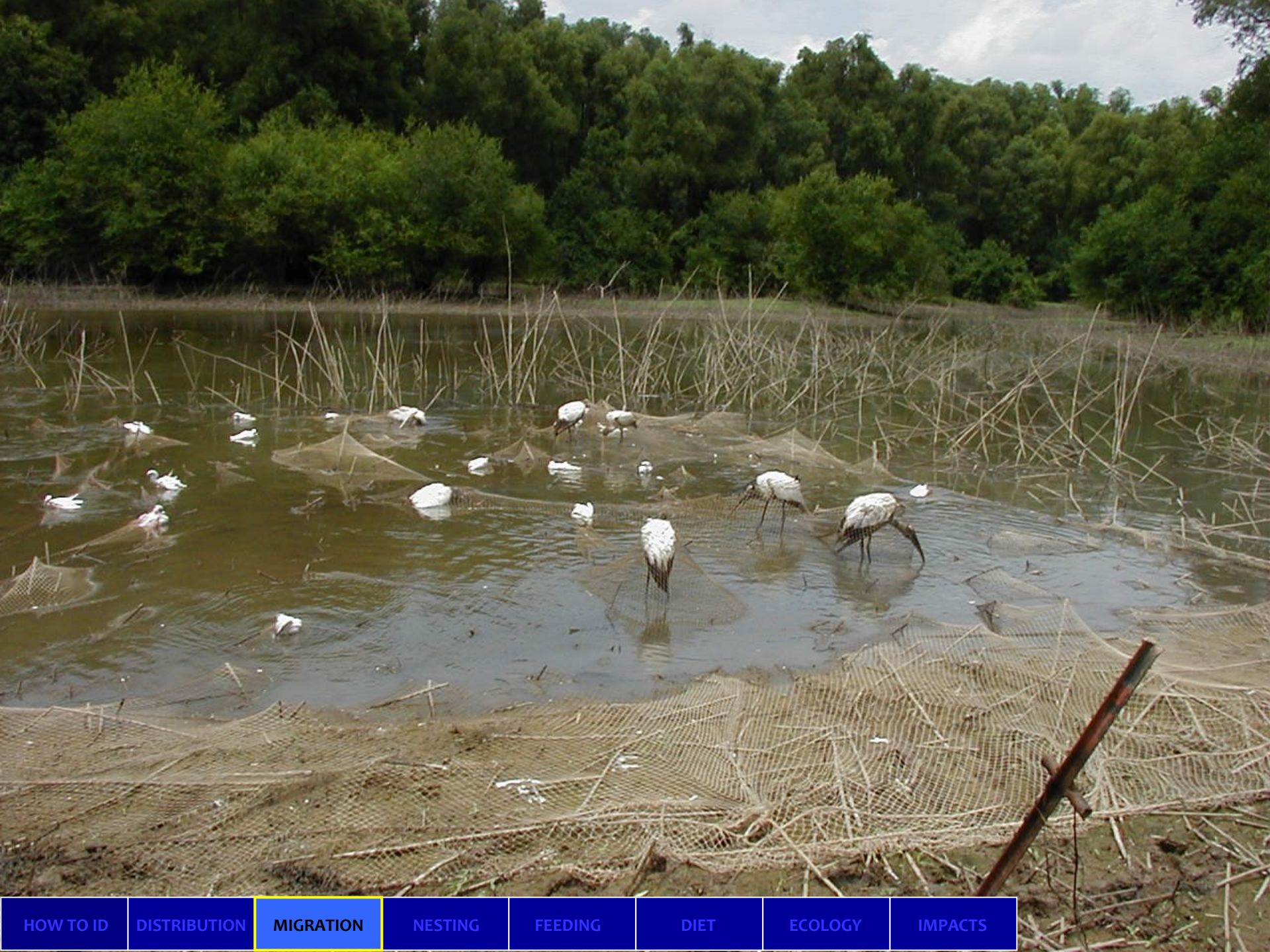


Distance Traveled: 9128 km Straight-line Distance: 696 km



Distance Traveled: 8276 km Straight-line Distance: 400 km

www.seaturtle.org




FLORIDA
STATE 37655


172

COLONY SITES

- Freshwater & marine-estuarine forested habitats
- Inundation of trees deters nest predation

- Monogomous
- Pair bonds likely do not endure for more than a single season
- No apparent site fidelity from year to year
- Male establishes nest site and courts females
- Courtship lasts hours to days
- Male usually initiates nest construction

- Most often nest in mixed-species colonies (esp. ANH, GREG, GBH)

- Clutch size: 2-5 eggs
- Male & female tend nests (equally)
- If 1 adult is lost or abandons, other adult may incubate 2-3 days before abandoning
- Incubation lasts 27-32 days
- Nests attended by at least 1 parent full-time until chicks are ~20 d old
- Young 50-60 d old begin to leave nest
- Fledge rate varies: average 1.2-2.9 fl/nest


2 WKS


4 WKS


6 WKS

FLEDGED

These little guys grow quickly and need lots of food…

FEEDING SITES

- Natural & artificial wetlands (water depth 10-30 cm)

- Feed using TACTILOCATION (sim. to WHIB, GLIB, ROSP)
- WOST bill snap is one of the fastest reflex actions among vertebrates (~25 milliseconds)
- Often use foot-stirring and/or wing-flicking
- Feed singly, in groups, in single-file lines, in mixed species aggregations

ENERGY REQUIREMENTS

- Chicks require ~16.5 kg food from hatching to fledging
- Adults require ~0.52 kg/bird/d (courtship, nest building, incubation, caring for chicks) x 120 d

- Small colony (100 pairs): 2 adults/nest fledging 1.5 fledglings/nest requires **~15,000 kg of food**

- 1961 & 1966 CSS colony (6,000 pairs) required 440 lbs food/nest = **~2.6 million kg of food**

(estimates probably low- do not consider many factors)

- Quite particular about water depth & prey density

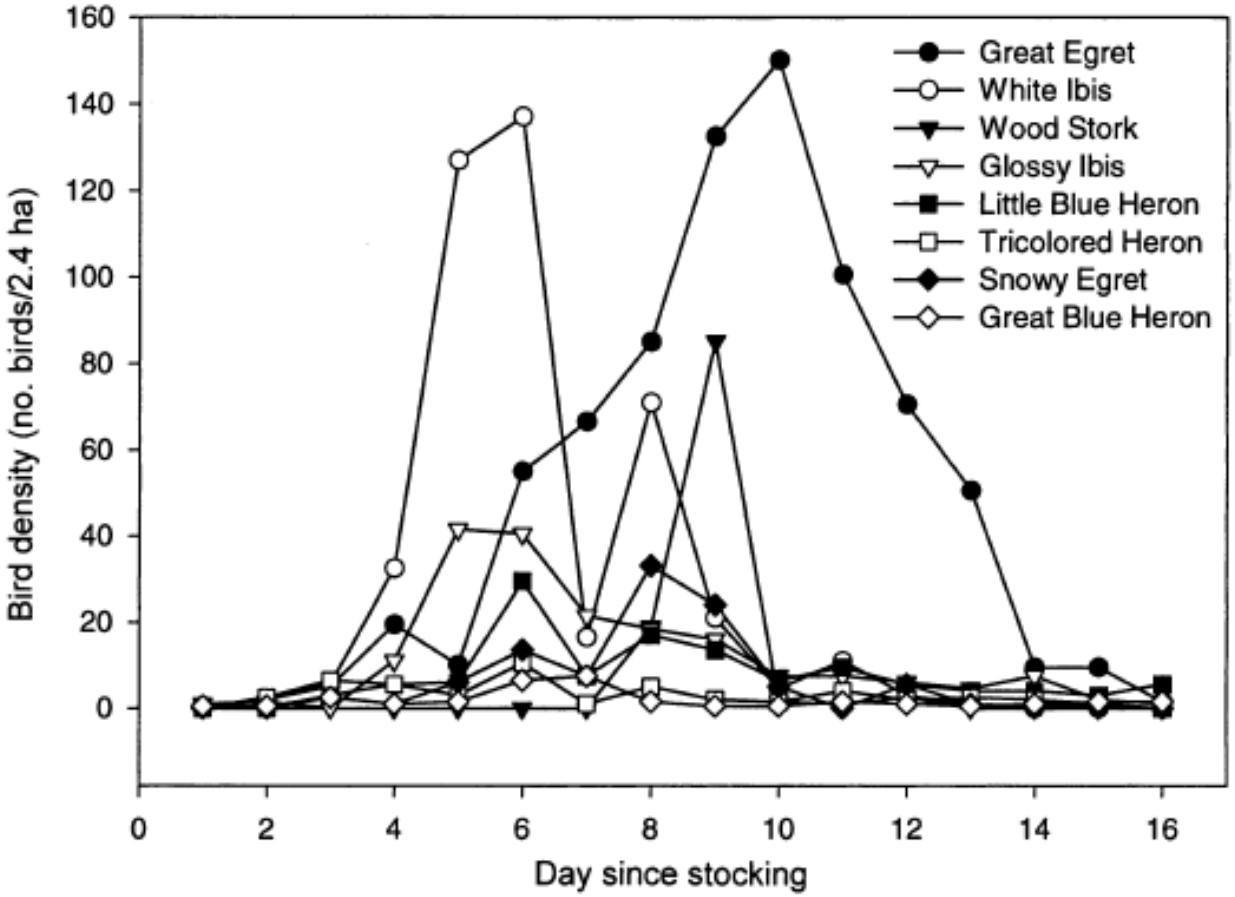


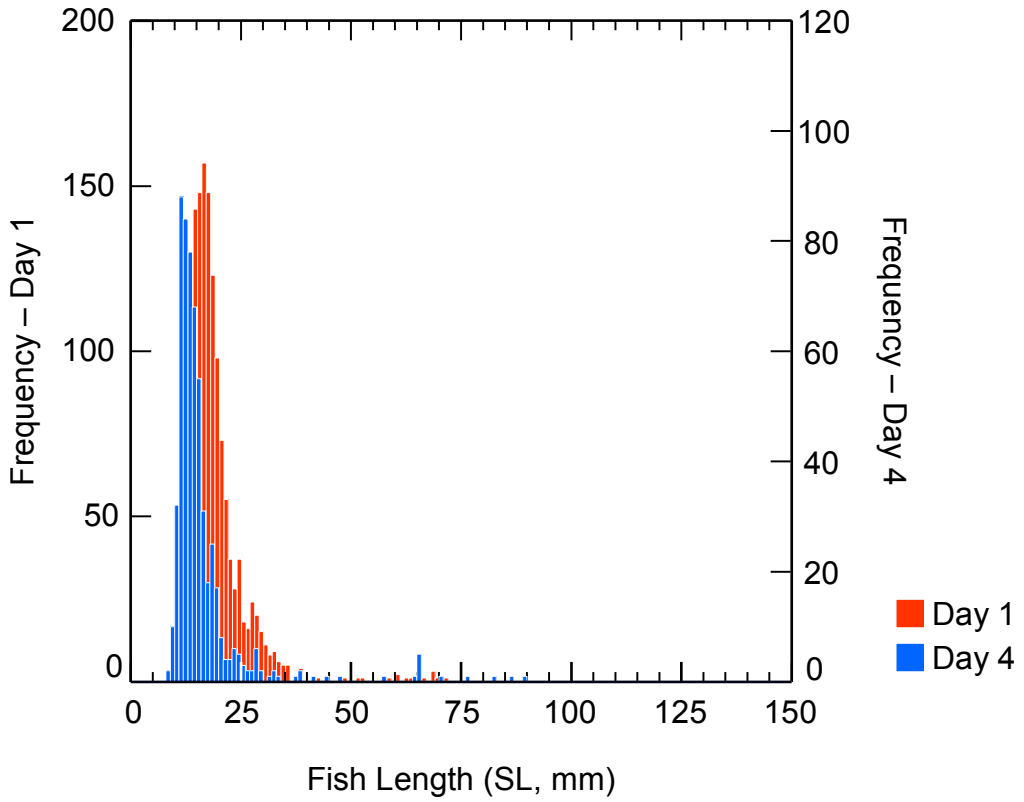
FIG. 4. Daily mean bird density over time varied by species (all treatments pooled). Density was low on day 7 because of rain.

(Gawlik 2002)

Appear to remove larger prey first

Frequency distributions of fish length (SL, mm) collected in 1-m² throw trap on successive days of heavy wading bird foraging

"Day 1" = 3/13/09, "Day 4" = 3/16/2009 (bars represent 1 mm size classes)

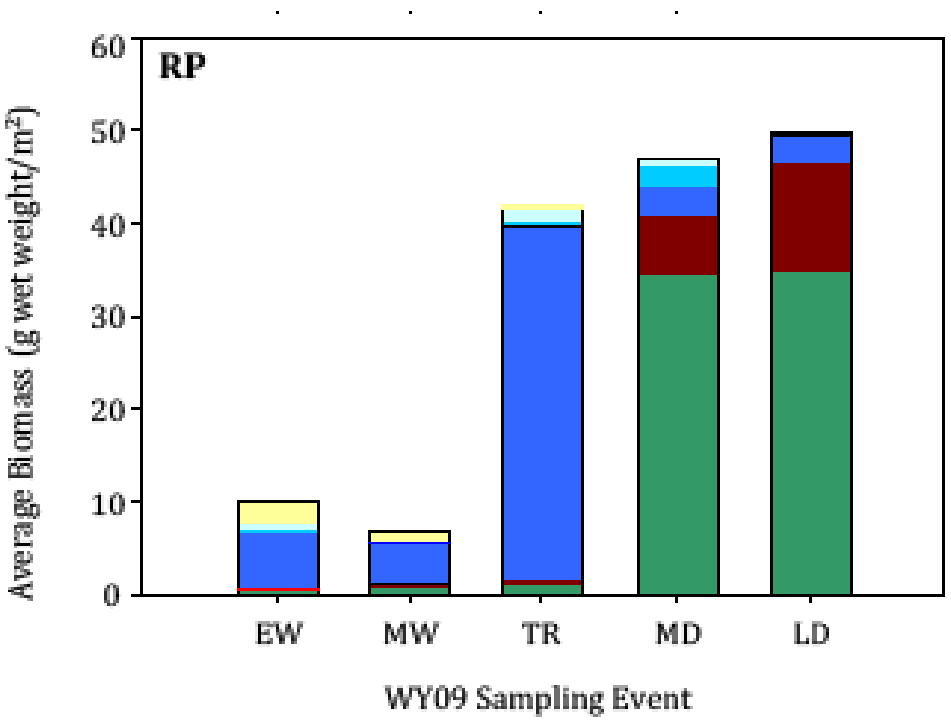


- Not true prey preference (tactile feeders cannot be selective)
- Likely an artifact of prey behavior

- Literature suggests diet is primarily fish
- Ideally: fish 2-10 cm

- Opportunistic: also consume plant material, insects, snails, crayfish, grass shrimp, amphibians, reptiles, small mammals, mammal dung

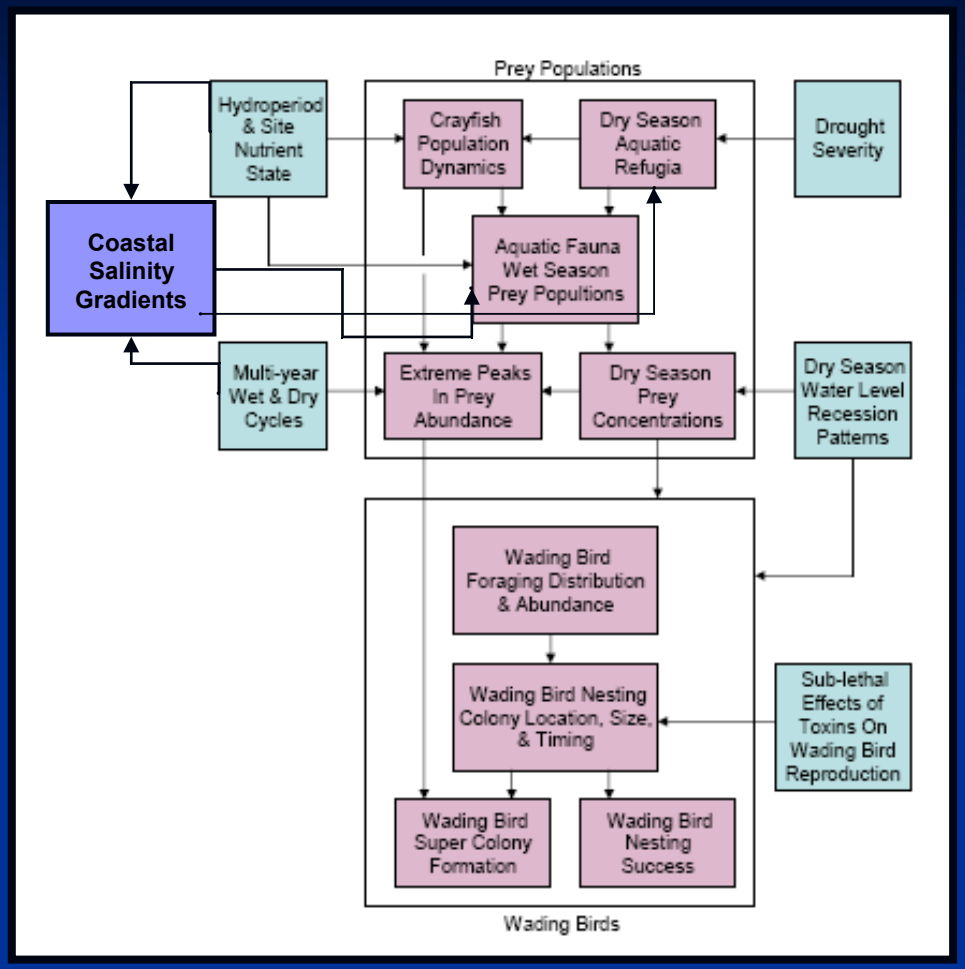
- Our data suggest crayfish are likely an important diet component in the wet season (October-January)

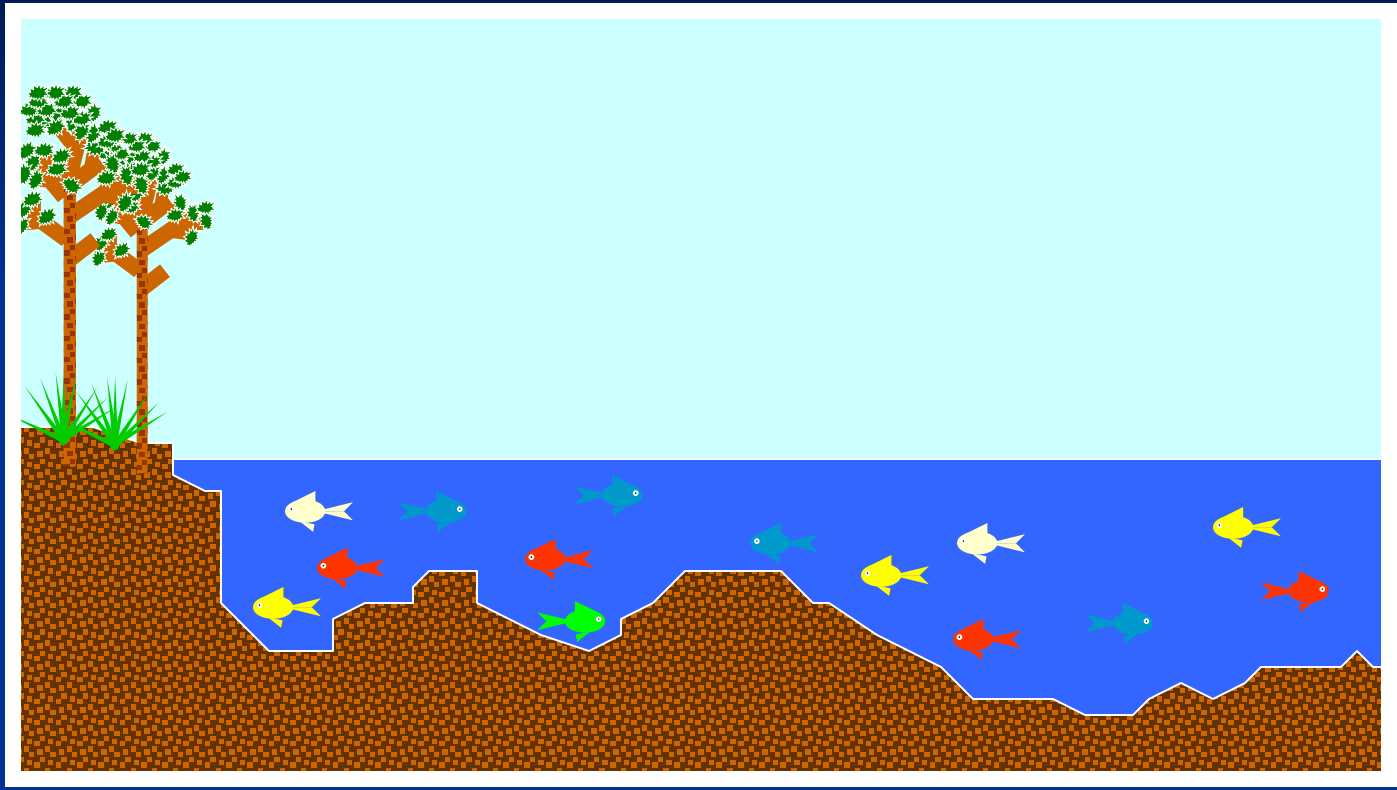


Fish
Grass shrimp
Everglades crayfish
Slough crayfish
Other invertebrates*
Amphibians**

* Primarily juvenile crayfish (*Procambarus* spp.)
** Primarily tadpoles

CONCEPTUAL ECOLOGICAL MODEL

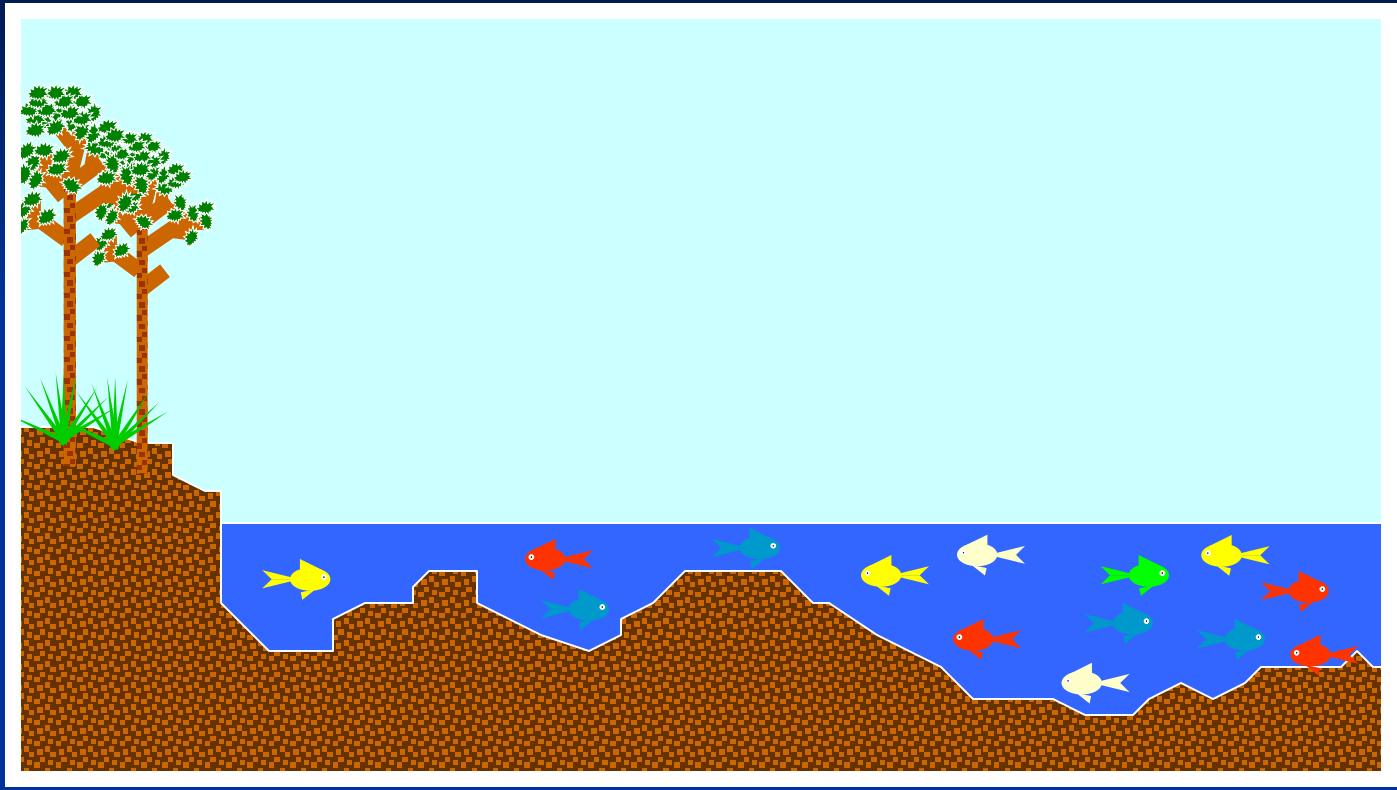




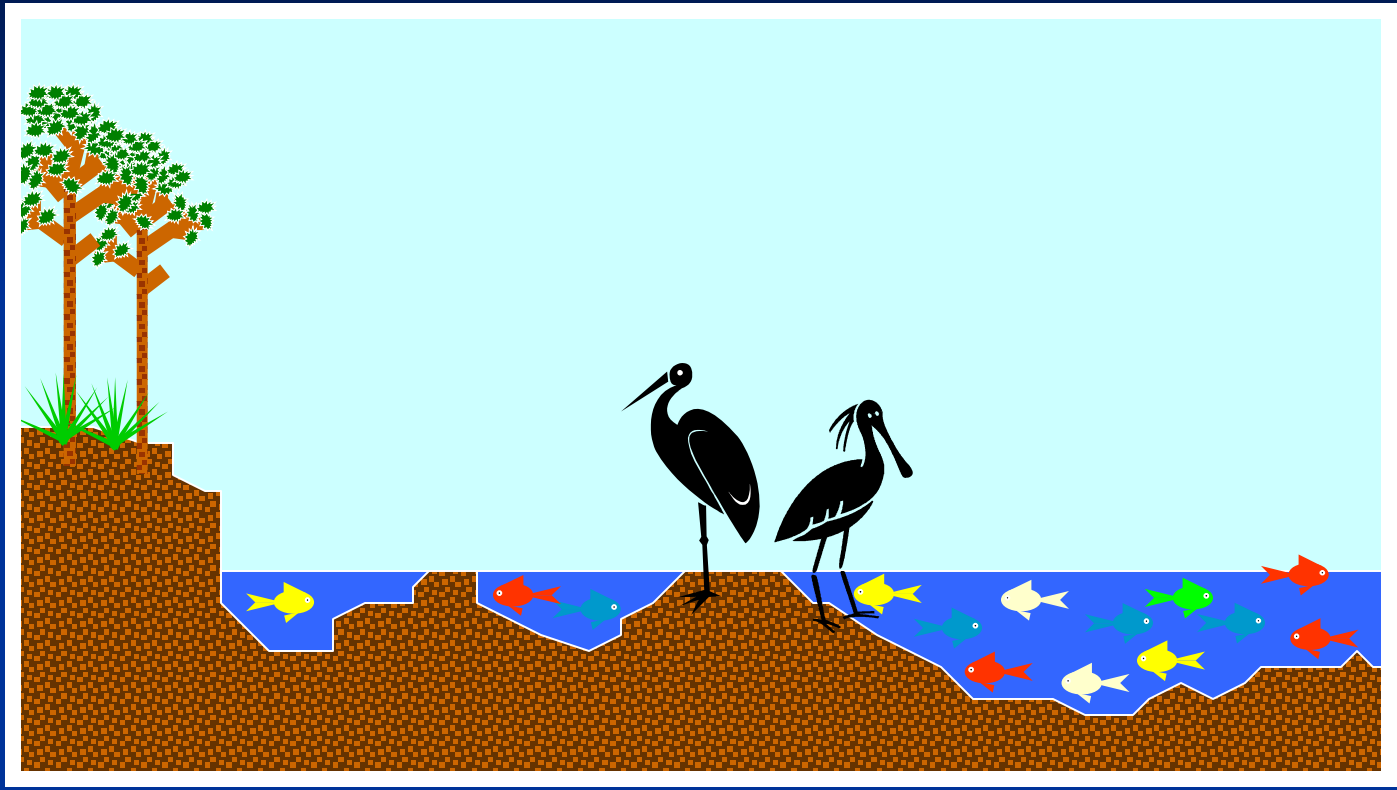
WET SEASON

Most of the landscape is inundated

Aquatic fauna are dispersed throughout the system



As water levels recede, fish instinctively move toward deeper areas



DRY SEASON

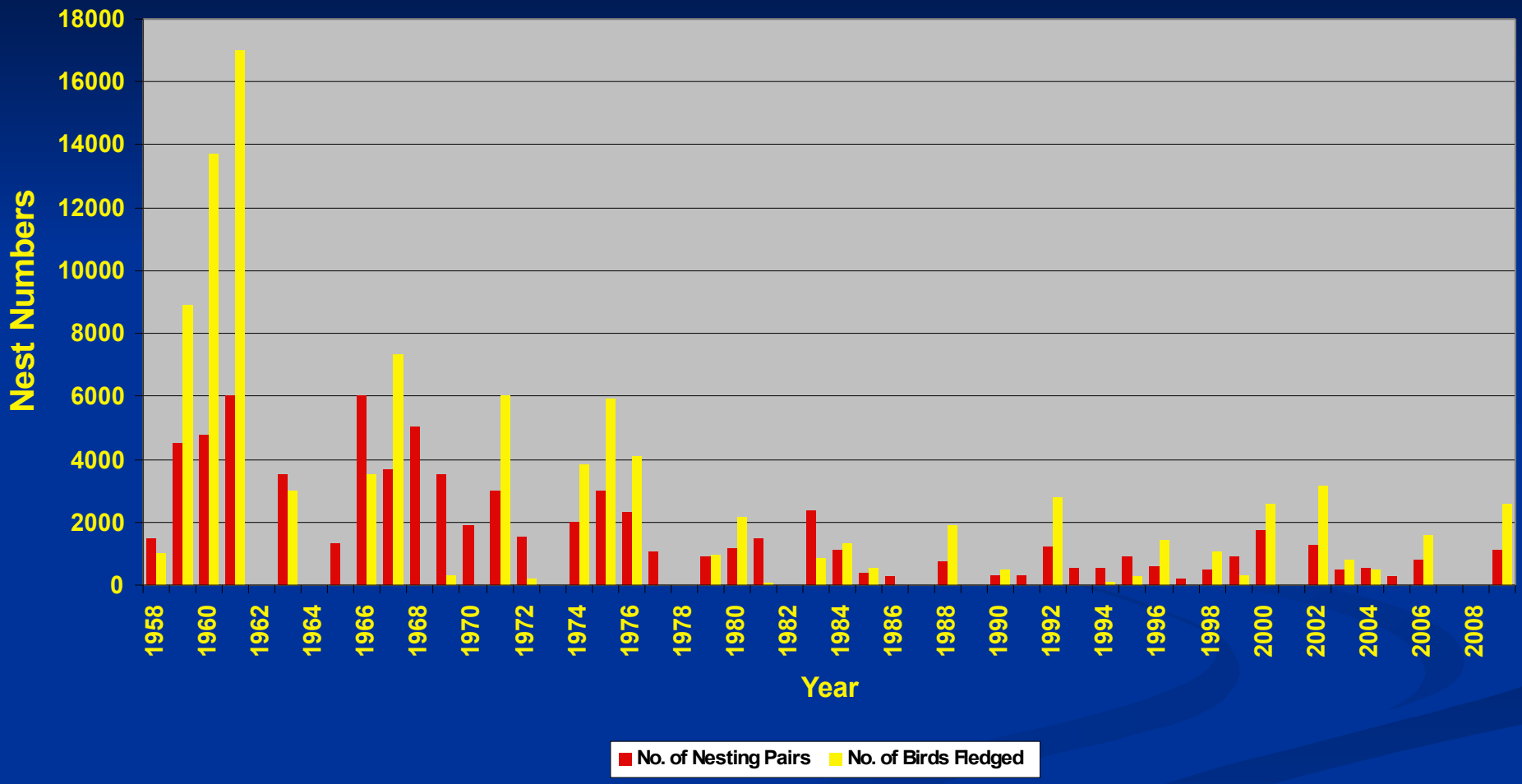
Fauna become trapped in refuges

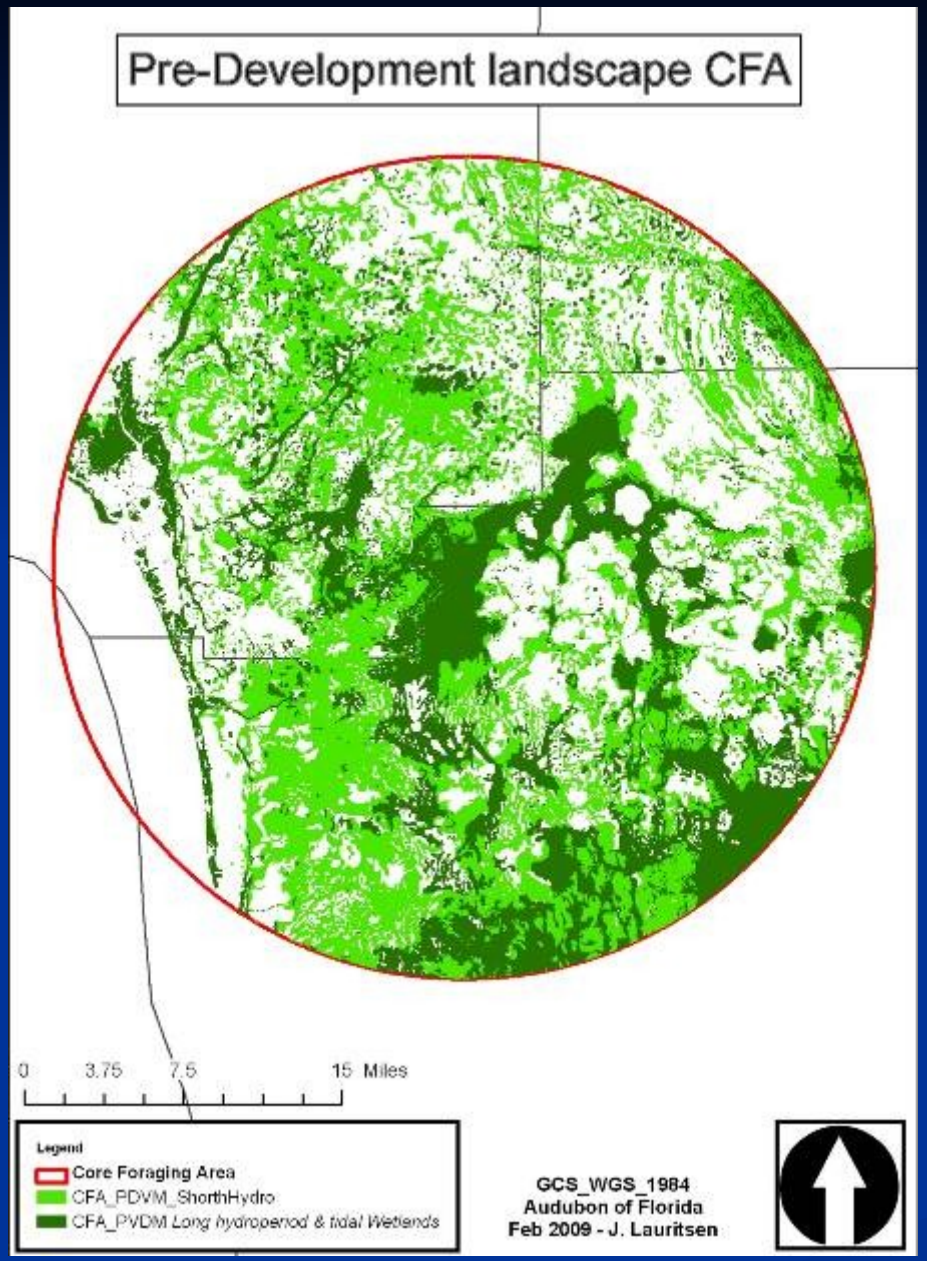
Wading birds & other predators take advantage of high prey density

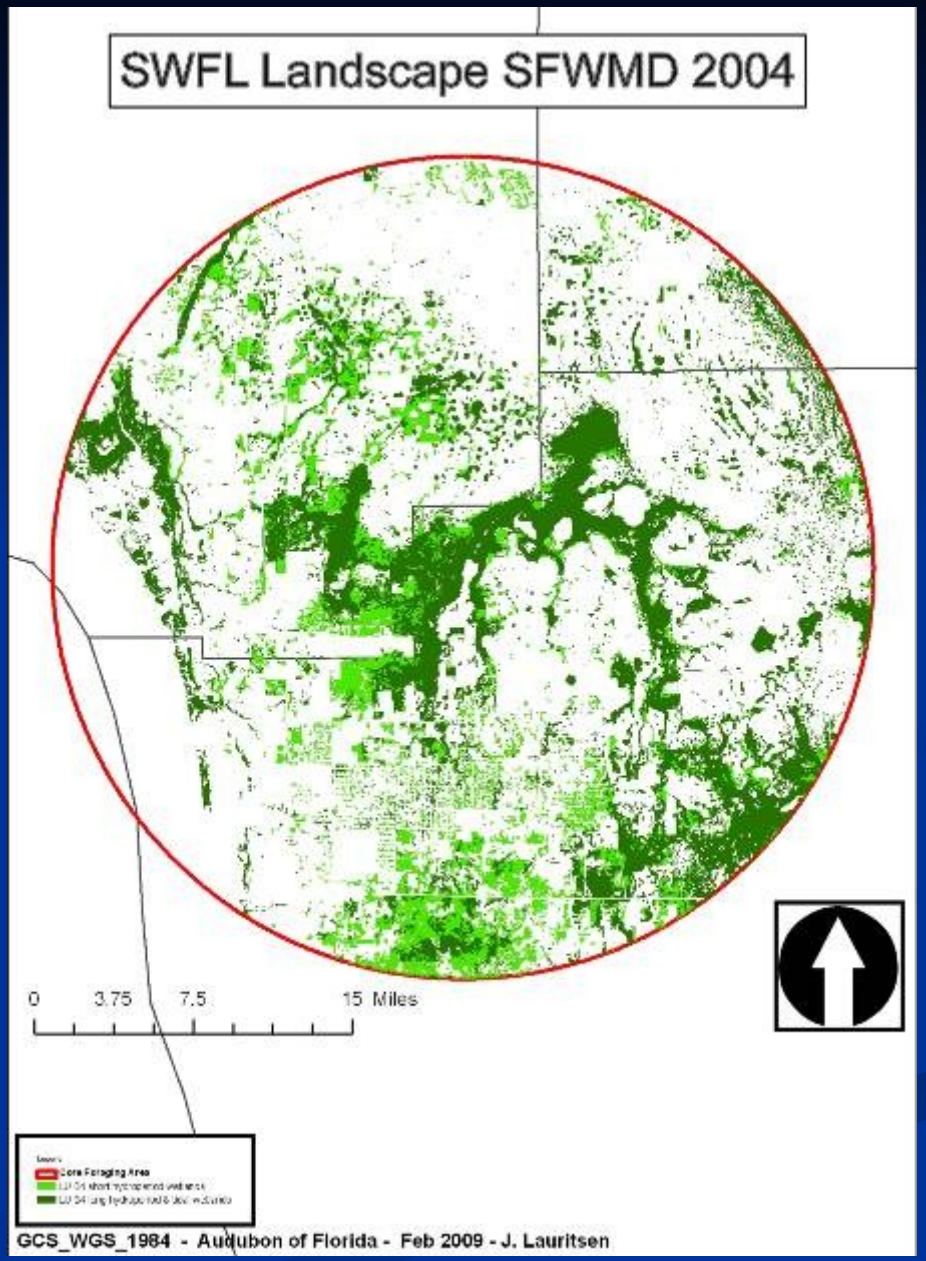
Crayfish burrow underground

- From flat sheetflow with shallow dimpled pools to a patchwork of ditches, roads, dikes, deep lakes.
- This systemic alteration has degraded wetland ecology - from primary productivity to top predators

Wood Stork Nesting at Corkscrew




Pre-Development landscape CFA
0 3.75 7.5 15 Miles
Legend
Core Foraging Area
CFA_PDVM_ShorthHydro
CFA_PVDM Long hydroperiod & tidal Wetlands
GCS_WGS_1984
Audubon of Florida
Feb 2009 - J. Lauritsen


SWFL Landscape SFWMD 2004
0 3.75 7.5 15 Miles
GCS_WGS_1984 - Audubon of Florida - Feb 2009 - J. Lauritsen

Short Hydroperiod Wetlands provide a critical function for Wood Storks and other wading birds

- **Wetlands available for foraging in Nov/Dec - short hydroperiod wetlands**
- **Productivity plummeted as a result of loss of Nov/Dec foraging habitat**
- **Major shift in nest initiation from Nov/Dec to Jan/Feb in late 70's**
- **Preservation/restoration of Nov/Dec wetlands is vital to Stork recovery**

Future WOST population trends in South Florida

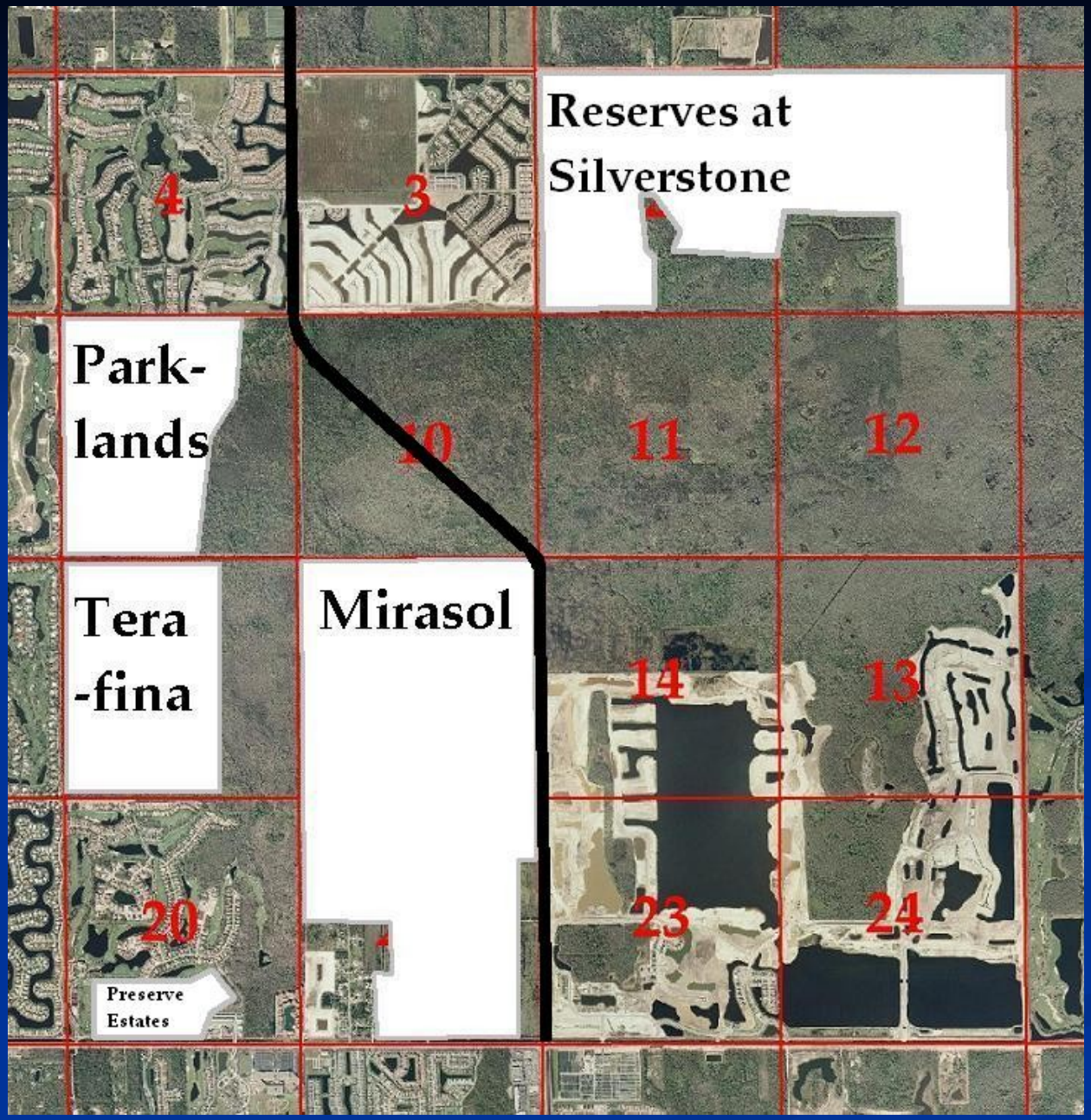
If they initiate nesting early (Nov-Dec)

28% increase over next 30 years

If they continue to nest late (late Jan-Mar)

38% decrease over next 30 years

(unpublished data, Rena Borkataria, UF)



Pressure to develop these few remaining short hydroperiod wetlands increases threat to WOST in SW FL

Special thanks to Jason Lauritsen (Assistant Manager, Corkscrew Swamp Sanctuary)

Audubon OF FLORIDA