

Friends of the Wekiva River's
30th Anniversary Celebration,
the Grand Opening of Katie's
Landing & the BioBlitz Tally

Friends of the Wekiva River



BioBlitz

2012 | Wekiva Basin

30th Anniversary

The Grand Opening of Katie's Landing and FOWR 30-Year Celebration

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Nature Essay Contest

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The BioBlitz Tally

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What is a BioBlitz?

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Goals of the BioBlitz

Document the Basin's biological diversity - from obscure plants, to aquatic and terrestrial invertebrates, migrating birds and black bears



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Goals of the BioBlitz

Provide scientists and students an opportunity to conduct fieldwork together



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Goals of the BioBlitz

Add to the parks' official species list



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Goals of the BioBlitz

Highlight the importance of protecting the biodiversity of the Wekiva Basin



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Goals of the BioBlitz

Celebrate the unique and diverse array of biological organisms that live in the Basin

High Pine (Sandhill) → Scrub → Mesic Forest → Isolated Wetland → Floodplain Forest → River/Spring



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Goals of the BioBlitz

Get people engaged during the bioblitz, and energized to communicate the importance of natural resource protection long-term.



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Plants

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- More than 25 Botanical Observers
- Enthusiastic Beginners to Professional Botanists



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Sideroxylon rufohirtum
Photo by Pete Dunkelberg



Hasteola robertiorum
Photo by Guy Anglin



Arisaema triphyllum
Photo by Ken Marks

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- Previously Known: 544
- Plants and Lichens Found: 584
- Found 69% of Known Taxa
- Added 39% (212) Taxa to the “Known List”
- Total Taxa Known Post-BioBlitz: 756



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Aquatic Invertebrates and Fish

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Why Evaluate Aquatic Invertebrate Communities?

- **Functional Role in Aquatic Ecosystems**

- Critical Position in Food Web
- Essential to Ecosystem Processes

- **Indicators of Aquatic Ecosystem Health**

- Community Structure Indicative of Specific Environmental Conditions - Present and Past
- Important Elements of Community Structure
 - species composition
 - species tolerances
 - relative abundance / evenness of distribution

Aquatic Invertebrate Community Sampling Results

- **80 samples obtained from 15 sites**

- Wekiva Springs and spring run
- Rock Spring and Rock Springs Run
- Mainstem of Wekiva River

- **152 Invertebrate Taxa Representing 67 Families**

- Wekiva Springs and spring run – 72 taxa
- Rock Springs and Rock Springs Run – 99 taxa
- Wekiva River – 77 taxa

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Highlights / Implications

- Overall, species composition and tolerances indicative of good water quality and habitat conditions.
- 6 SGCN species observed or collected.
- Populations of endemic species (snails) appear to be healthy.
- Invasive apple snails (*Pomacea insularum*) absent from sampled locations. Native apple snail population prolific.
- Invasive thiarid snails abundant in Rock Springs at Kelly Park (present, but not abundant at some other sites).
 - apparent absence of *Elimia vanhyningiana*.

Fish Community Sampling Effort

- 3 Study Areas Sampled Using Electro-fishing and Seining
 - FWC: Wekiva River and Rock Springs Run
 - Lee Kissick, SJRWMD: Sulphur Springs, Seminole SF, Mill Creek
 - Kirsten Work, Stetson Univ.: Rock Springs at Kelly Park
 - Tom Morris, Cave Diver: Rock Springs cave



Fish Community Sampling Results

- Documented 40 Fish Species Representing 18 Families
 - Wekiva River – 31 species
 - Rock Springs / Rock Springs Run – 31 species
 - Seminole SF / Mill Creek – 17 species
- Community Composition Indicative of Good Habitat and Water Quality Conditions
- Invasive Species
 - sailfin armored catfish
 - walking catfish
- SSC / SGCN Species
 - bluenose shiner – moderately abundant in Wekiva and RSR

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Terrestrial Invertebrates

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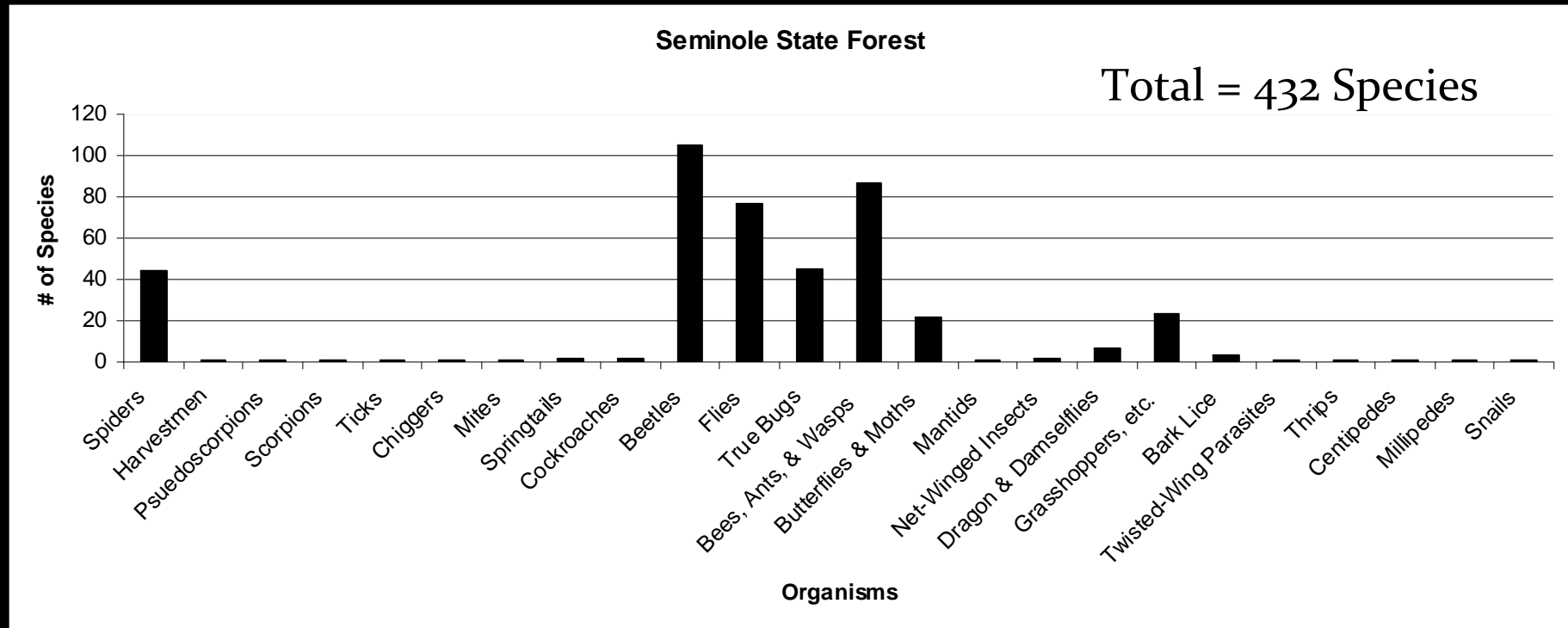


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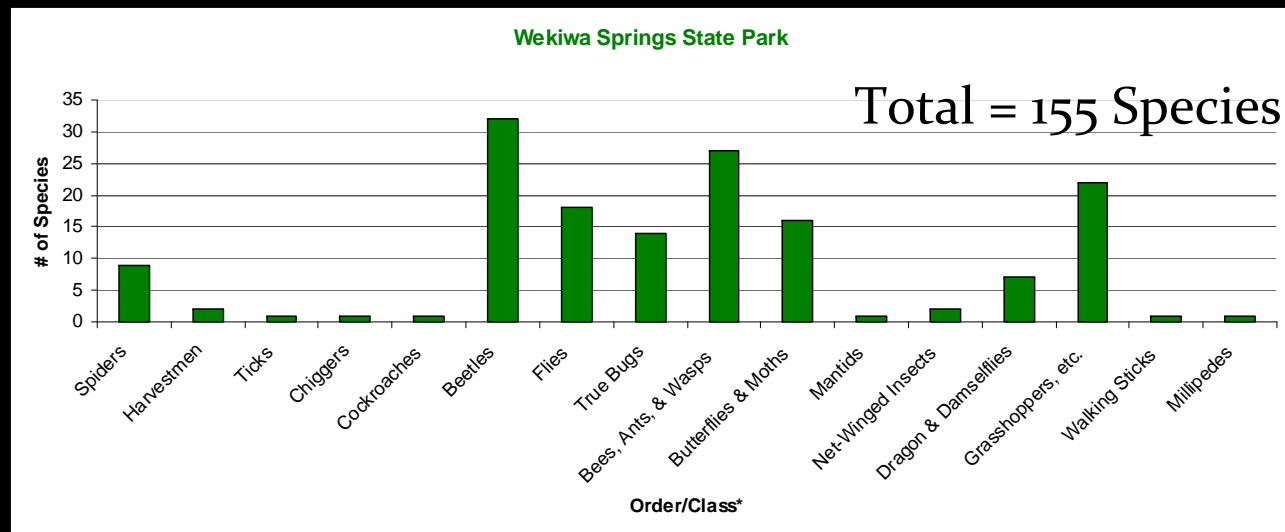
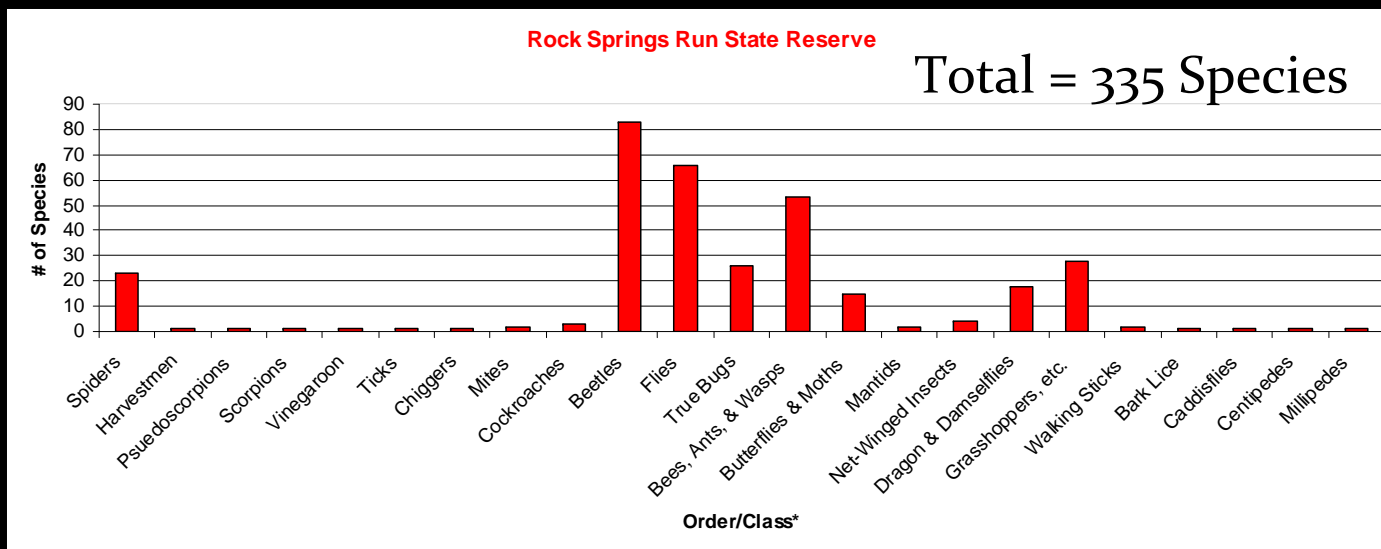
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Terrestrial Invertebrate Team (UCF)



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**Strepsiptera
(male)**



H. Song, 2012



***Orthogonis stygia*
(Asilidae)**



FSCA Norman Lavers

Some Rare Finds!



Pyrgotidae

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Reptiles and Amphibians

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Amphibians – 16

Frogs – 14

Salamanders – 2



Reptiles – 25

Turtles – 7

Lizards – 7

Snakes – 10

Crocodilians – 1



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Birds

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100 Species from 38
different families

Wild turkey



Swallow-tailed kite

Some birds we observed
have very specialized habitat
requirements



Limpkin

Some birds we observed have a very specialized diet



Mammals

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Mammal Remarks About Mammals

Methods and Results

- Active sampling was with Sherman live traps
- Passive observations were made of tracks, scats, calls, and burrows
- Habitats trapped: sand pine scrub, sink hole pond, sandhill, hammock, and slope forest
- Live trapped 5 species and verified 13 or 14 other species

What Species Are Missing?

- Bats
- Shrews
- Skunks
- Cats
- Marsh Rice Rats
- Round-tailed Muskrat
- Old-field Mice
- Southern Flying Squirrel

MAMMALS:

- Virginia Opossum
- Nine-banded Armadillo
- Eastern Cottontail
- Gray Squirrel
- Sherman's Fox Squirrel
- River Otter
- Grey Fox
- Southeastern Pocket Gopher
- Eastern Woodrat
- Hispid Cotton Rat
- Florida Mouse
- Cotton Mouse
- Golden Mouse
- Black Bear
- Raccoon
- Coyote
- Feral hog
- White-tailed Deer
- Eastern mole



Our Most Important Captures

Florida Mouse



Eastern Woodrat



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Community Diversity

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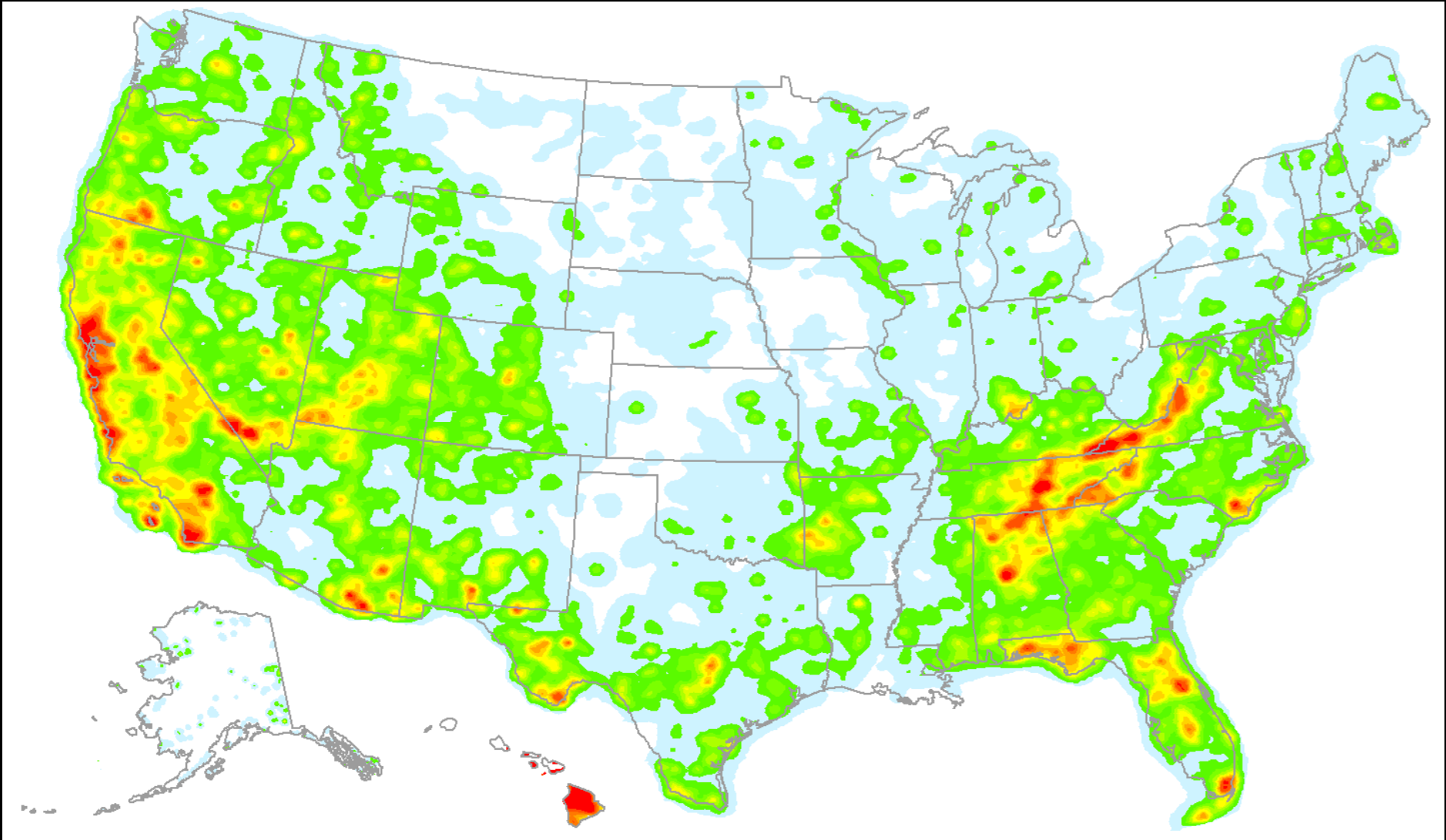
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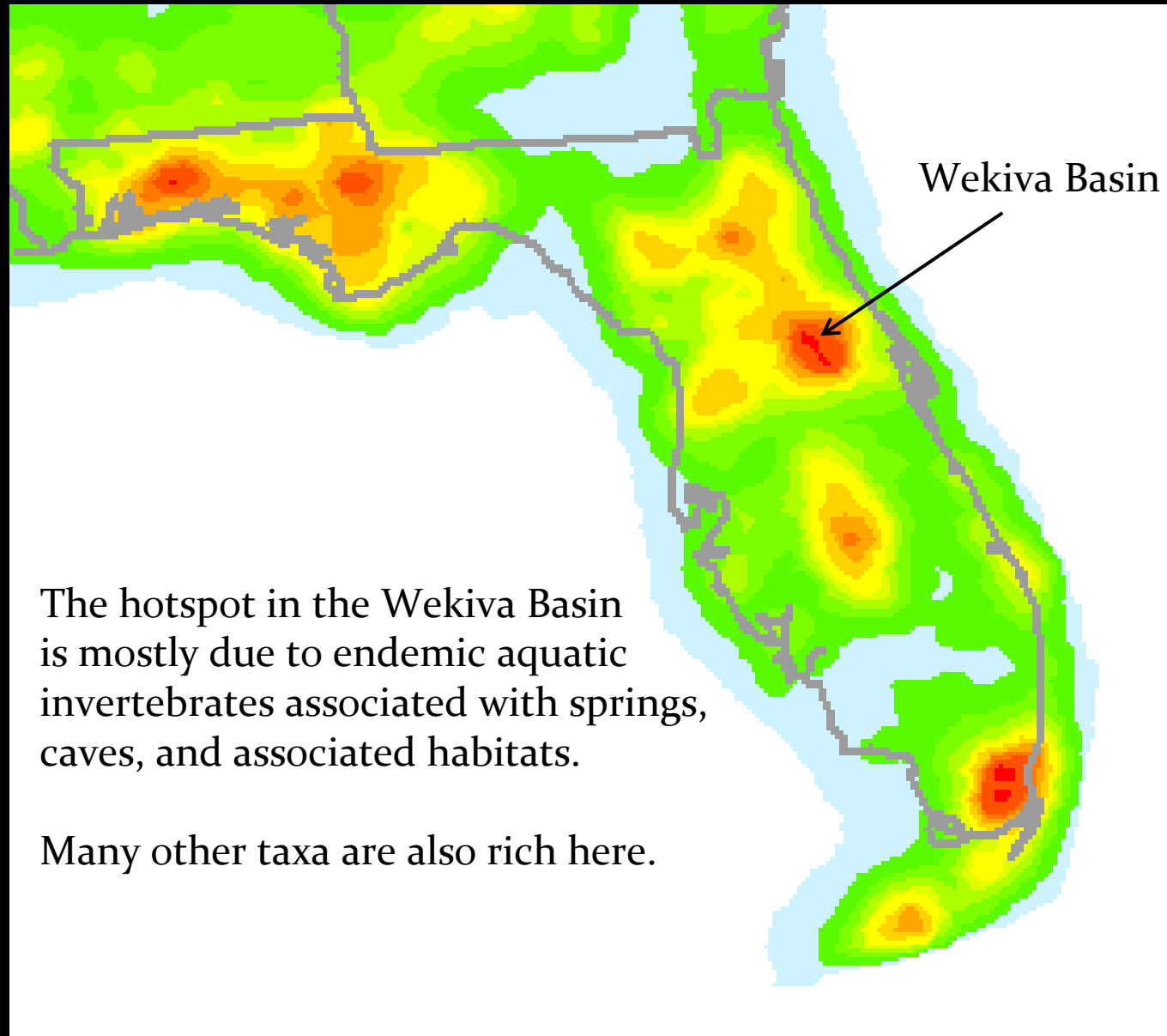


**The Wekiva Basin is a
Biodiversity Hotspot**

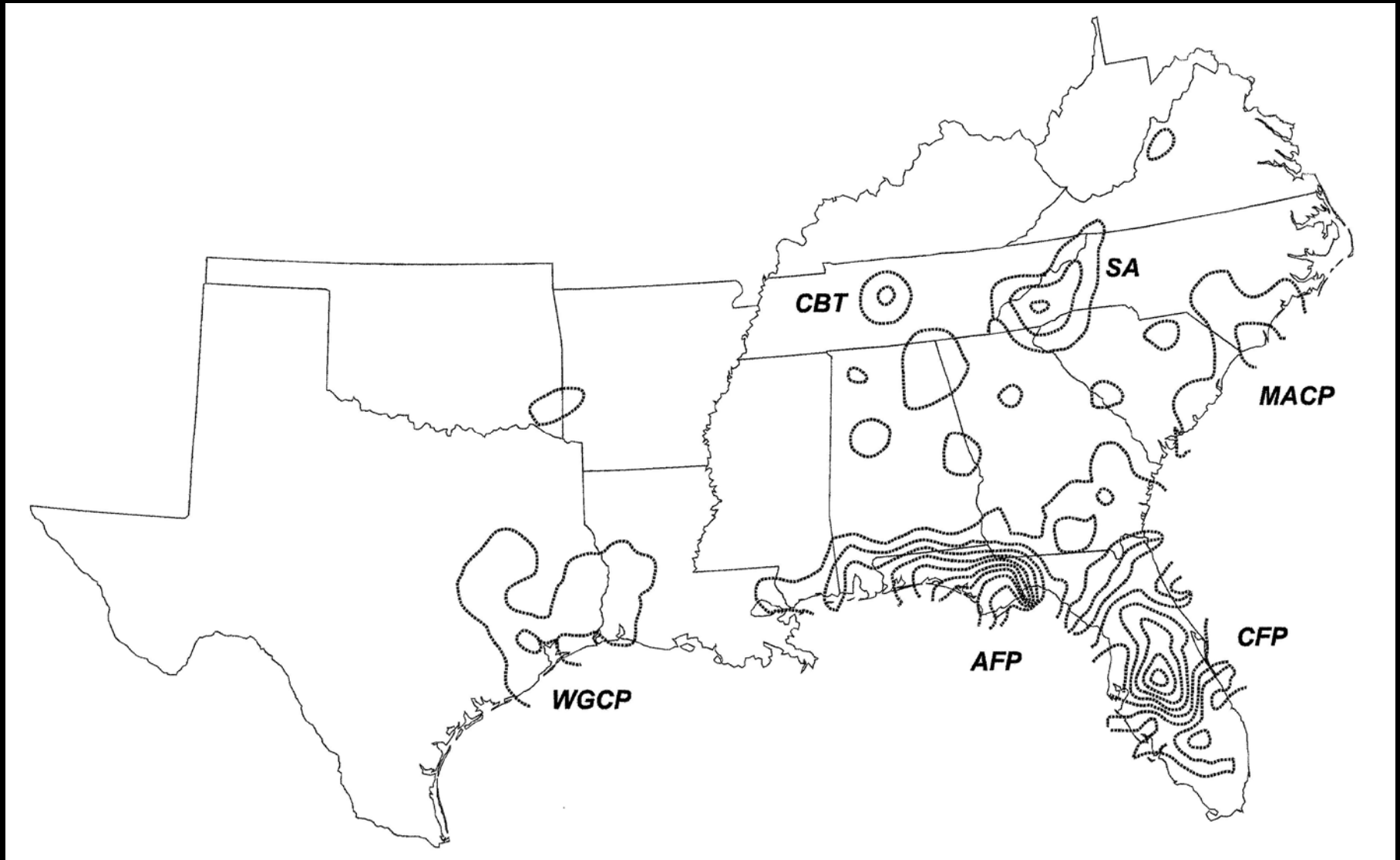
Hotspots of rarity-weighted richness for globally critically imperiled (G₁) and imperiled (G₂) species in the United States. The index weights species richness of imperiled taxa by the narrowness of their geographical distributions. From NatureServe



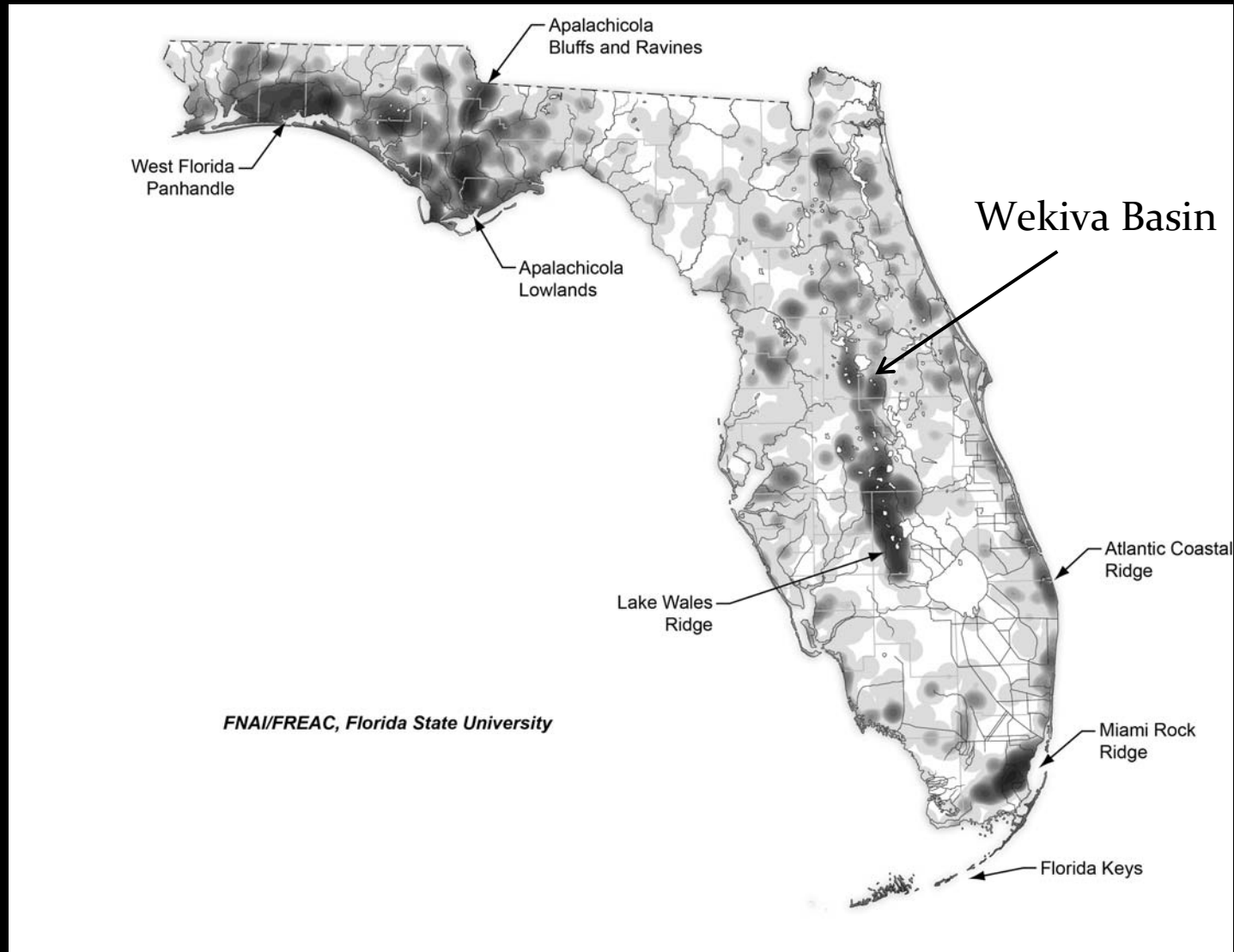
The Wekiva Basin is a major hotspot within Florida – even hotter than the Lake Wales Ridge!



Centers of plant endemism in the South, with an endemic defined as a plant species (i.e., not infraspecific taxa) restricted to 25 or fewer counties across the region. From Estill and Cruzan (2001).



Rare plant hotspots in Florida, based on rarity-weighted richness of restricted range (endemic) plant species. Adapted from Knight et al. (2011).



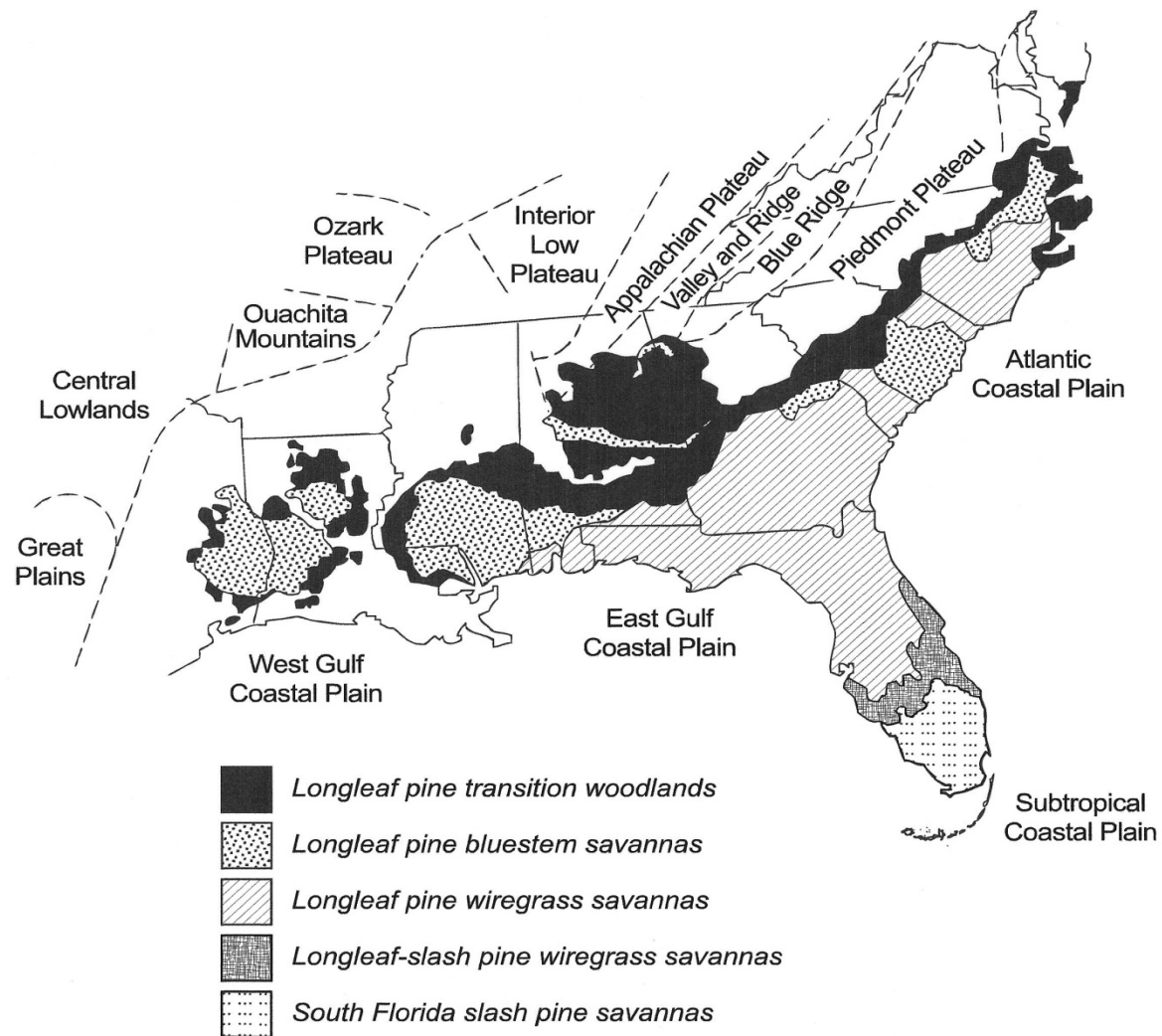
The Longleaf Pine Ecosystem

A detailed oil painting of a Longleaf Pine Ecosystem. The foreground is filled with tall, golden-brown grasses. In the middle ground, several tall, slender longleaf pine trees stand prominently, their green needles contrasting with the dry grass. A dense line of more trees forms a horizon line in the background. The sky is a pale, clear blue, and the overall atmosphere is serene and naturalistic.

Painting by Philip Juras

Distribution of pine savanna and woodland types in the southeastern U.S.


These communities formed the matrix vegetation across the Coastal Plain.
Adapted from Platt (1999)



- 927 endemic plants (53% of Coastal Plain endemics) are associated with the longleaf pine ecosystem and its embedded communities.
- In comparison, the entire Prairies Floristic Province (the Great Plains and Midwest) has only 87 endemic plants.
- Only the California Floristic Province in temperate North America is a slightly more impressive hotspot for plants.



Celestial Lily
(*Nemastylis floridana*)

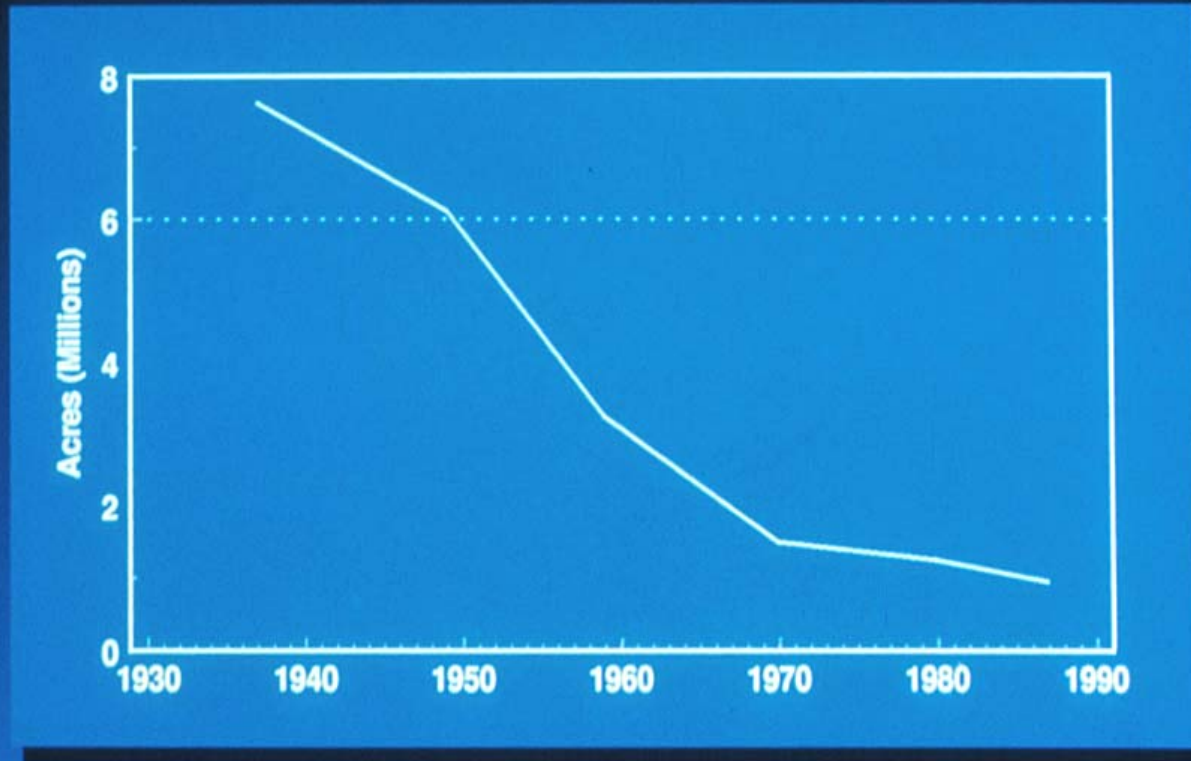


More than 50 plant species have
been found in 1 m² plots in some
longleaf pine savannas

This is higher fine-scale richness
than in tropical forests and among
the highest known in the world

Recent history in Florida

LONGLEAF PINE FOREST 1936-1987 88% Decline in 50 Years



Source: Randy Kautz

Restoring populations of large, wide ranging-species, such as black bear, is another statewide conservation priority, for which the Wekiva Basin plays a key role

Approximate Occupied Bear Range

 County boundaries

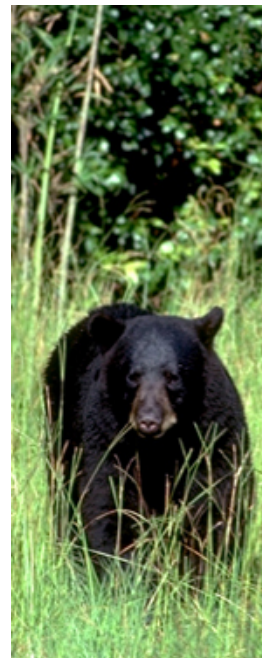
 Open water

Florida black bear range

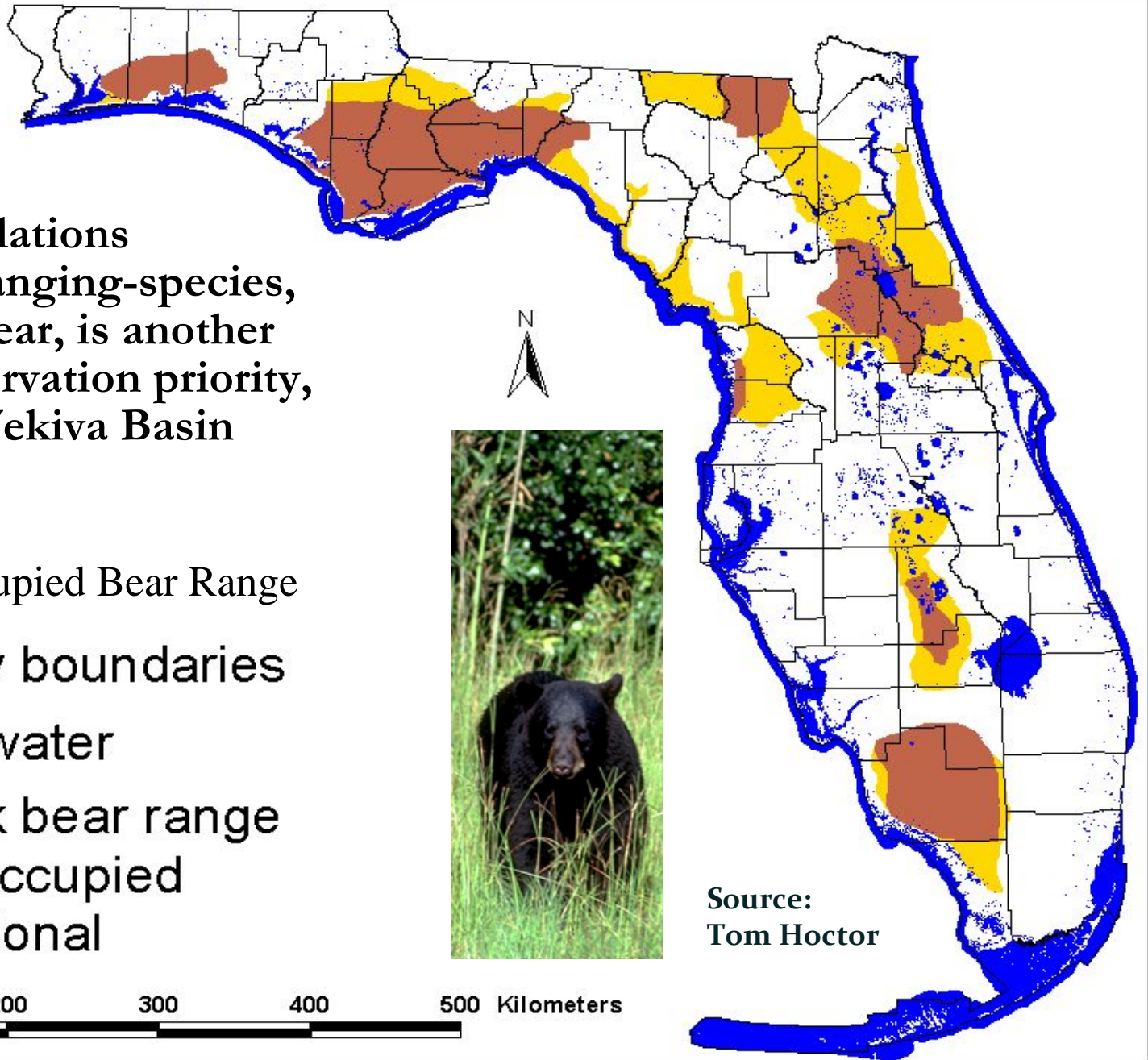
 Core occupied

 Occasional

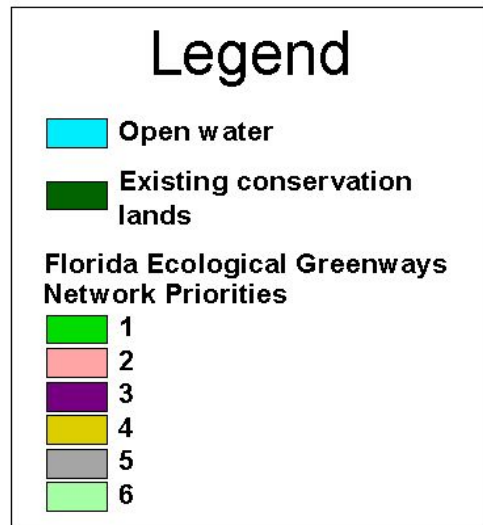
0 100 200 300 400 500 Kilometers



Source:
Tom Hctor

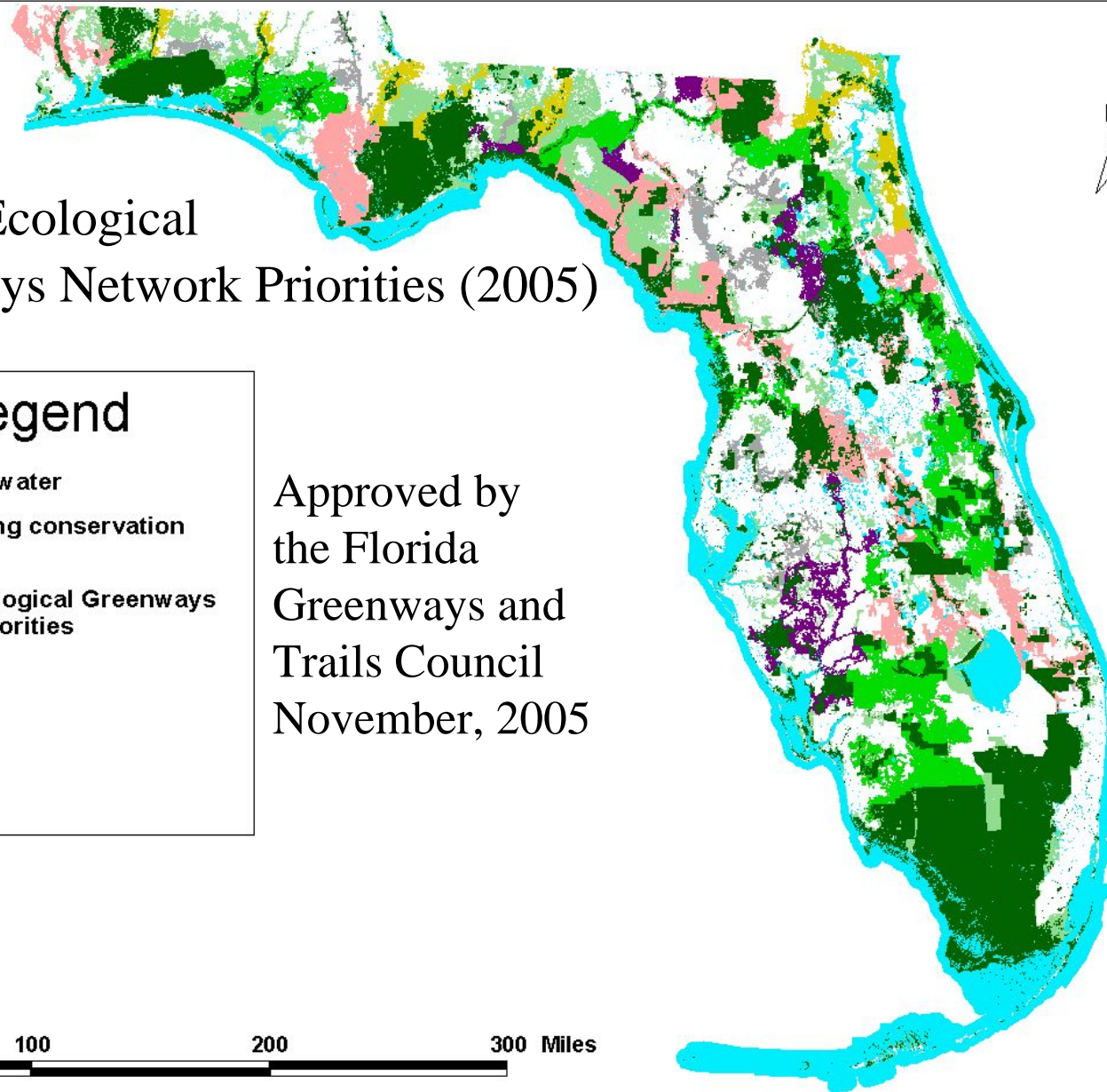


Florida Ecological Greenways Network Priorities (2005)



Approved by
the Florida
Greenways and
Trails Council
November, 2005

0 100 200 300 Miles

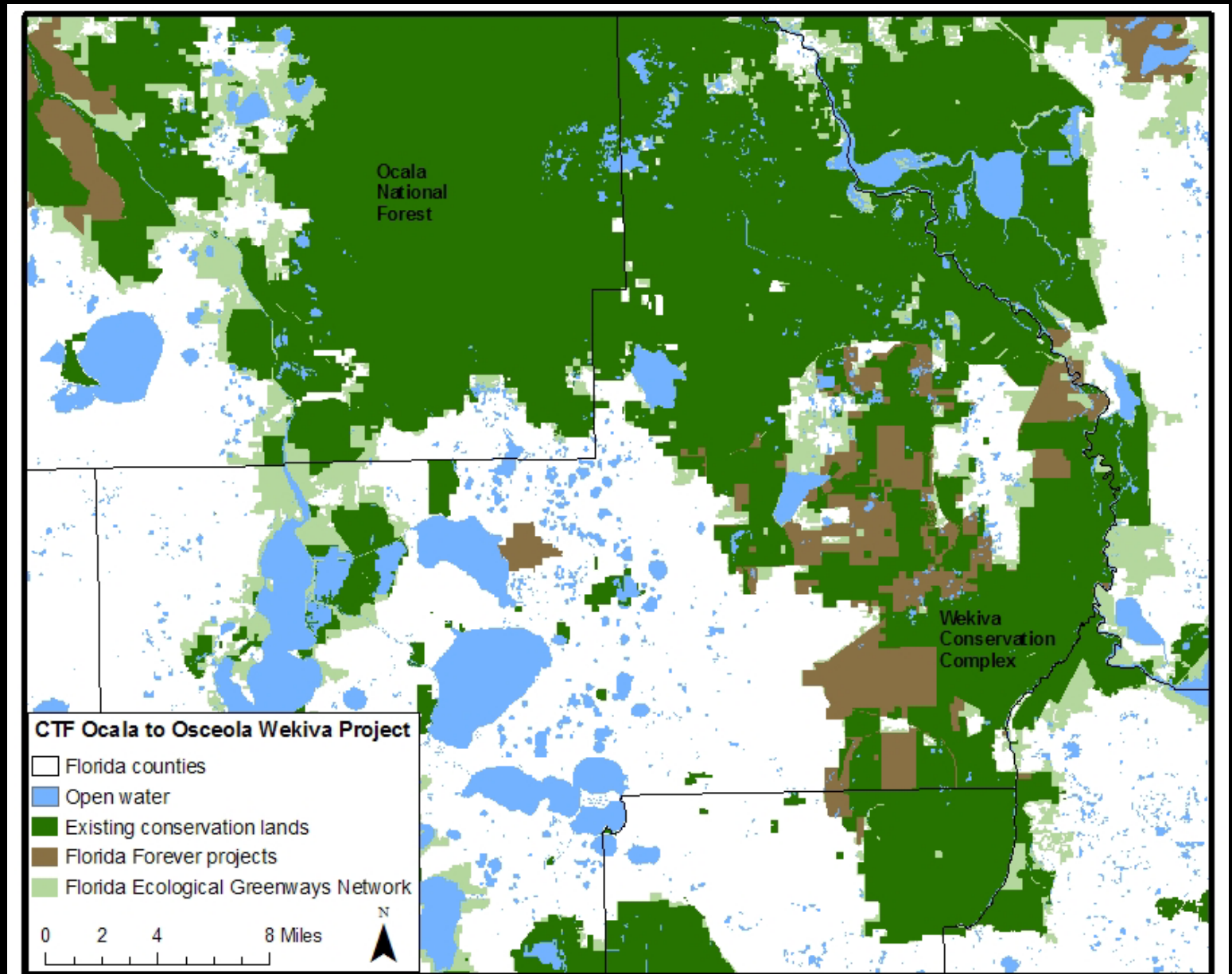


Ocala to Wekiva Greenway Project

Partners:

- The Nature Conservancy
- Department of Environmental Protection

Source:
Tom Hctor



Take Home Message

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There is a lot of enthusiasm for natural resources in the Wekiva Basin – Thank You for participating

- FOWR
- Natural Resource Agency biologists
- Environmental organizations
- University professors and students
- Environmental consultants
- Photographers and videographers
- Volunteers

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“The first rule of intelligent tinkering is to save all the parts”



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Keep the Wekiva Big, Wild and Connected



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Total Species Diversity from the BioBlitz

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Results of the BioBlitz

Plants	587
Aquatic invertebrates	164
Terrestrial Invertebrates	616
Reptiles and Amphibians	41
Fish	40
Birds	100
<u>Mammals</u>	<u>19</u>
Total	1567

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