Friends of the Wekiva River’s 30th Anniversary Celebration, the Grand Opening of Katie’s Landing & the BioBlitz Tally
The Grand Opening of Katie’s Landing and FOWR 30-Year Celebration
Nature Essay Contest
The BioBlitz Tally
What is a BioBlitz?
Goals of the BioBlitz

Document the Basin’s biological diversity - from obscure plants, to aquatic and terrestrial invertebrates, migrating birds and black bears.
Goals of the BioBlitz

Provide scientists and students an opportunity to conduct fieldwork together
Goals of the BioBlitz

Add to the parks’ official species list
Goals of the BioBlitz

Highlight the importance of protecting the biodiversity of the Wekiva Basin
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
Goals of the BioBlitz

Get people engaged during the bioblitz, and energized to communicate the importance of natural resource protection long-term.
Plants
Friends of the Wekiva River’s 30th Anniversary Celebration, the Grand Opening of Katie’s Landing & the BioBlitz Tally

• More than 25 Botanical Observers
• Enthusiastic Beginners to Professional Botanists
Friends of the Wekiva River’s 30th Anniversary Celebration, the Grand Opening of Katie’s Landing & the BioBlitz Tally
• 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
Aquatic Invertebrates and Fish
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
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 vanhynningiana*. 
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
Friends of the Wekiva River’s 30th Anniversary Celebration, the Grand Opening of Katie’s Landing & the BioBlitz Tally
Terrestrial Invertebrates
Terrestrial Invertebrate Team (UCF)

Seminole State Forest

Total = 432 Species

Organisms

- Spiders
- Harvestmen
- Pseudoscorpions
- Scorpions
- Ticks
- Chiggers
- Mites
- Springtails
- Cockroaches
- Beetles
- Flies
- True Bugs
- Bees, Ants, & Wasps
- Butterflies & Moths
- Mantids
- Net-Winged Insects
- Grasshoppers, etc.
- Bark Lice
- Trips
- Centipedes
- Millipedes
- Snails

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

**Total = 335 Species**

![Graph of Rock Springs Run State Reserve](image)

**Total = 155 Species**

![Graph of Wekiwa Springs State Park](image)
Some Rare Finds!

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

Pyrgotidae
Reptiles and Amphibians
Amphibians – 16

Frogs – 14
Salamanders – 2

Reptiles – 25

Turtles – 7
Lizards – 7
Snakes – 10
Crocodilians – 1
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
## 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
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!

The hotspot in the Wekiva Basin is mostly due to endemic aquatic invertebrates associated with springs, caves, and associated habitats.

Many other taxa are also rich here.
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

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

Source: Tom Hoctor
Florida Ecological Greenways Network Priorities (2005)

Legend

- Open water
- Existing conservation lands
- Florida Ecological Greenways Network Priorities
  1
  2
  3
  4
  5
  6

Approved by the Florida Greenways and Trails Council
November, 2005
Ocala to Wekiva Greenway Project

Partners:
- The Nature Conservancy
- Department of Environmental Protection

Source: Tom Hoctor
Take Home Message
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
“The first rule of intelligent tinkering is to save all the parts”
Keep the Wekiva Big, Wild and Connected
Total Species Diversity from the BioBlitz
## Results of the BioBlitz

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants</td>
<td>587</td>
</tr>
<tr>
<td>Aquatic Invertebrates</td>
<td>164</td>
</tr>
<tr>
<td>Terrestrial Invertebrates</td>
<td>616</td>
</tr>
<tr>
<td>Reptiles and Amphibians</td>
<td>41</td>
</tr>
<tr>
<td>Fish</td>
<td>40</td>
</tr>
<tr>
<td>Birds</td>
<td>100</td>
</tr>
<tr>
<td>Mammals</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1567</strong></td>
</tr>
</tbody>
</table>