

# MANAGEMENT OF THE SAWMILL SLOUGH PRESERVE, UNIVERSITY OF NORTH FLORIDA

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**Slough ('sloo')**: a broad and shallow glade of flowing water in wetland habitats which lack defining banks and persists majority of the year.

## Vision

The Sawmill Slough Preserve will be maintained for the highest natural levels of biodiversity in a natural condition as defined by the Florida Natural Areas Inventory (FNAI) and the Florida Department of Natural Resources.

## Background and History

The University of North Florida opened its doors to students in 1972. Historically, the land was used for logging and turpentine production by the Skinner family, who donated ≈500 acres of the original 1000 acre campus. Unfortunately, due to lack of official records and data, much of the historical ecosystem diversity and environmental condition of the land is unknown.

UNF founding president, Thomas Carpenter, had the entire campus declared a "bird sanctuary" by the Florida Game and Freshwater Fish Commission in 1970. In May 2006 a 383 acre portion of campus was officially designated "Sawmill Slough Preserve" by the UNF Board of Trustees and President John Delaney. Members of the Sawmill Slough Conservation Club (SSCC), originally called "Swamp Stompers," in close cooperation with UNF Physical Facilities, played an integral role in the management of the campus natural areas. Dr. Ray Bowman, SSCC faculty advisor and Environmental Center founder, designed a nature trail system based on old timbering roads and paths cut by Physical Facilities. The system was designated a National Recreational Trail in 1978. Plans for a "Loop Road" sparked a strong protest led by SSCC founder, Dr. Robert Loftin, to whom the nature trails are dedicated. John M. Golden, a SSCC president and UNF Ranger, kept the spirit of the Sanctuary alive and maintained the trails for over 20 years. Other figures dedicated to the project were David Fenner, Michael Woodward, Rissi Cherie, Erin Wiggins and Christopher Shaver. Throughout, several UNF administrators played strong supportive roles in the preservation of the campus natural areas, including Hilton Meadows, George Corrick, Larry Davis, Charlie Bear, Richard Crosby and Chuck Hubbuch. Mapping by Dr. David Lambert and Robert Richardson, and support from Biology faculty Dr. Anthony Rossi and Dr. Kelly Smith also helped shape the Preserve.

The purpose of the official designation is to "assure that the Sawmill Slough Preserve will persist in a natural condition." The Preserve Curator, Chuck Hubbuch, has taken upon the responsibility of managing the Preserve. As a personal interest, Mr. Hubbuch catalogued the flora and fauna of the Preserve. The lists have grown into continuing research and the Campus Natural Assets Inventory (CNAI), and not only act as historical benchmarks, but also as guidance for future projects. Some species may have been lost due to lack of habitat from logging, lack of fire and road construction. Further research is needed to monitor ecosystem health and biodiversity and assess suitable candidates for reintroduction.



## Practices and Projects

### ❖ Prescribed Burns

- Began in 2009
- Formal burn plan reviewed every 5 years
- Reduces fuel load
- Encourages understory plant growth and diversity

### ❖ Invasive Plant Control

- Removal of tallow, camphor, chinaberry, mimosa tree, air potato, climbing fern, soda apple, showy rattlebox, Brazilian pepper
- Watch for coral ardisia and other potential pest plants

### ❖ Campus Natural Assets Inventory (CNAI)

- ✓ Presence/Absence surveys
  - Plants (555+)
  - 36 new vouchers for Duval Co.
  - 12 Carnivorous spp.
  - 10 Orchid spp.
- Birds (163+)
- Reptiles/Amphibians (61+)
- Insects/Invertebrates (180+)
- Mammals (21+)
- Fish (14+)
- Lichens (14+)

### ❖ Water Quality Monitoring

- Inflow/Outflow of preserve

### ❖ Digital Archive

- Online inventory lists
- Interactive map
- Wildlife camera



Dr. Robert "Doc" Loftin in the Sawmill Slough (left). Petition against the Loop Road which would have eliminated the Nature Trailhead (right).



## Eco-road Monitoring

- ❖ Three wildlife crossings installed (1 large mammal, 2 small mammal)
- ❖ Roadkill data collected by Dr. Rossi and his Ecology students compared UNF Eco-road to the main campus Loop road
- ❖ Roadkill study results illustrate significantly less mortality along the Eco-road (Fig. 1, 2)
- ❖ Camera traps demonstrate wildlife consistently utilize each crossing
  - White-tailed deer
  - Bobcat
  - Raccoon
  - Opossum
  - Armadillo
  - Marsh rabbit
  - Gray squirrel

## Threatened and Endangered\* Species

- ❖ Crested yellow orchid (*Platanthera cristata*)
- ❖ Hooded pitcher plant (*Sarracenia minor*)
- ❖ Blueflower butterwort (*Pinguicula caerulea*)
- ❖ Yellow butterwort (*Pinguicula lutea*)
- ❖ Pine lily (*Lilium catesbaei*)
- ❖ American alligator (*Alligator mississippiensis*)
- ❖ Gopher tortoise (*Gopherus polyphemus*)
- ❖ Fox squirrel (*Sciurus niger*)
- ❖ Wood stork (*Mycteria americana*)\*

## Natural Communities

- ❖ Sandhill
- ❖ Mesic flatwoods
- ❖ Wet flatwoods
- ❖ Wet prairie
- ❖ Bottomland forest
- ❖ Dome swamp
- ❖ Seepage stream
- ❖ Blackwater stream



Species by taxonomic group (left to right, bottom to top) – Lichens: *Cladonia subtenus* + *Cladonia evansii*, *Haematomma accolens*, *Cryptothecia rubrocincta*, *Cladonia leporina*, *Graphis affzelii*; Plants: *Passiflora incarnata*, *Polypogon catesbaei*, *Lilium catesbaei*, *Dioscorea brevifolia*, *Sarracenia minor*, *Platanthera cristata*, *Pinguicula lutea*; Insects: *Arphia granulata*, *Bruneria borealis*, *Acanthocinus nodosus*, *Schinia sanguinea*, *Perithemis tenera*, *Ascolapha odorata*; Fish: *Etheostoma fusiforme*, *Lucania goodei*, *Gambusia holbrooki*; Reptiles/Amphibians: *Pseudacris ocularis*, *Gopherus polyphemus*, *Sistrurus miliarius barbouri*, *Hyla femoralis*, *Akistron piscivorus*; Birds: *Mycteria americana*, *Strix varia*, *Pandion haliaetus*.

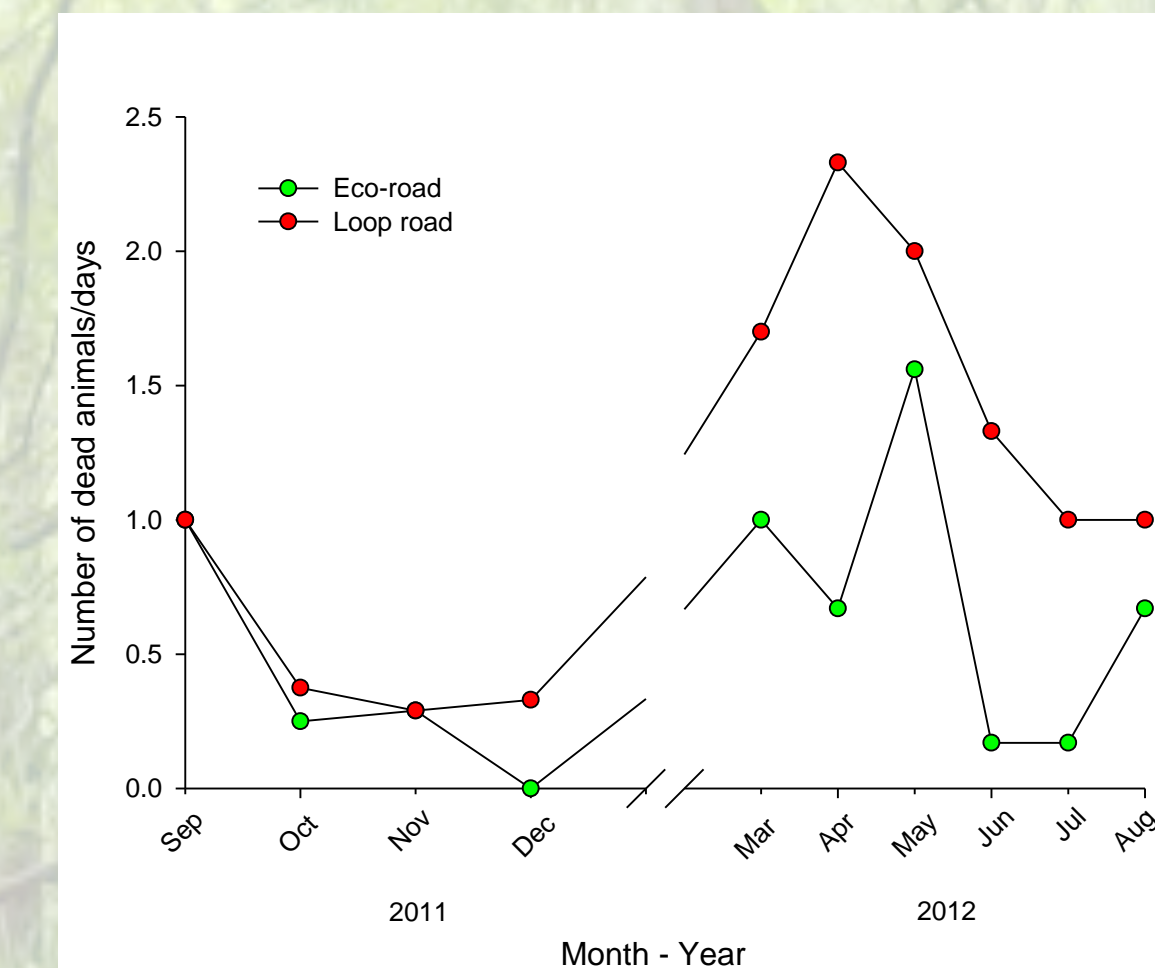


Figure 1: number of dead animals along the Eco-rd. and Loop rd. reflecting sampling effort (days) from 2011-2012.

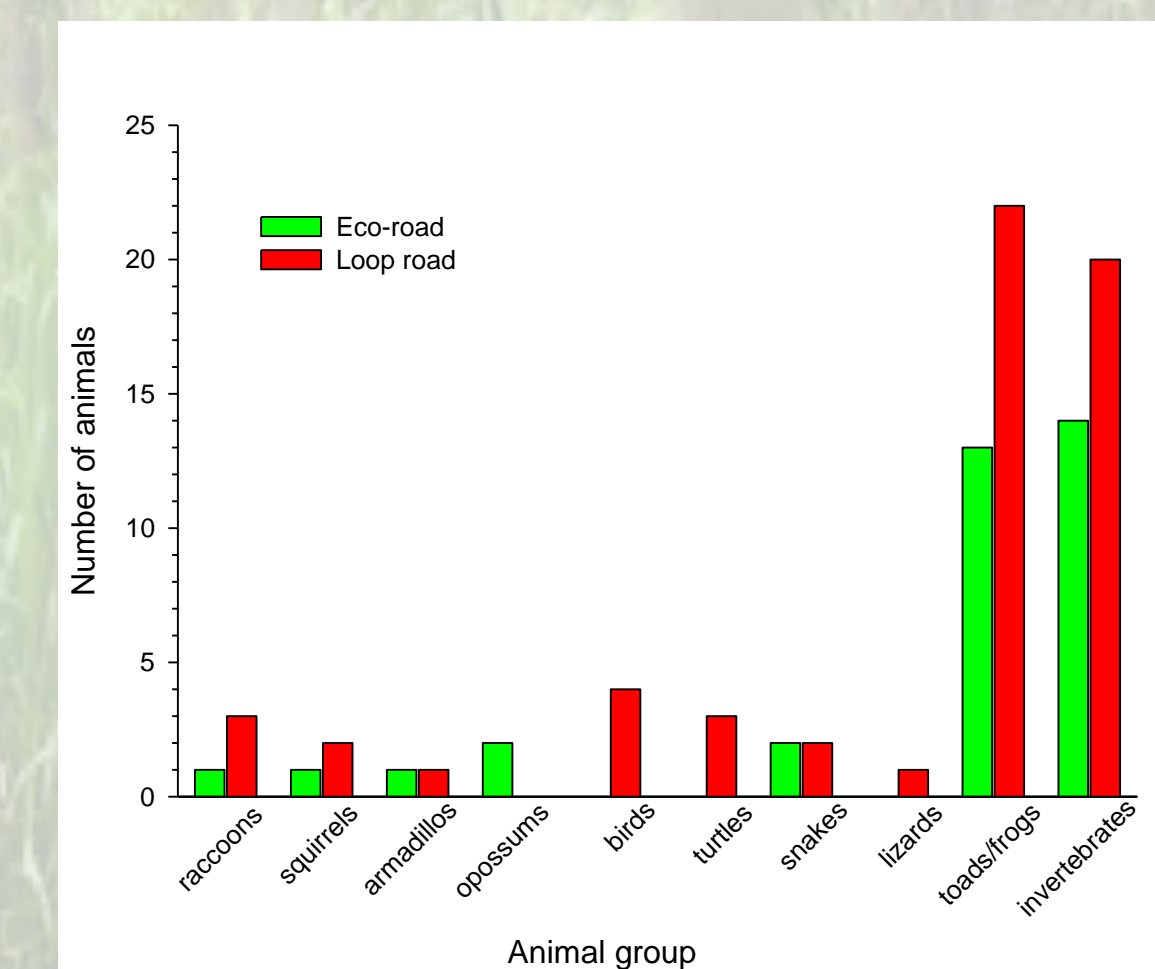


Figure 2: diversity and quantity of roadkill along the Eco-rd. and Loop rd. from 2011-2012.



June 2013 prescribed burn in gopher tortoise habitat.

## Discussion

The Preserve is a unique natural resource to UNF and functions as a living laboratory for research, education and recreation. The Preserve also serves as a small wildlife corridor which may be in range for some large transient animals. The southern portion is open for recreation, but the other sections are designated for research and conservation. As development continues and the Preserve becomes an urban island there is increasing need for long-term ecological research and monitoring.

The mission of the Preserve is to encourage natural biodiversity. Florida is home to a rich biodiversity and proper conservation plans are crucial for protecting rare species and their habitats.<sup>2,3,4</sup> Fire plays a vital role in promoting biodiversity among understory plant communities and is known to benefit carnivorous plants.<sup>1,2</sup> Florida threatened species such as the hooded pitcher plant, blueflower and yellow butterwort, pine lily and crested yellow orchid benefit from an open canopy and decrease in competitive vegetation, while gopher tortoises take advantage of open habitat and fresh herbaceous growth. However, some species such as the crested yellow orchid and fox squirrel have not been observed in a few years.

The ongoing inventory lists not only act as historical benchmarks, but also as guidance for future investigations. Attention is needed for rodents, bats and candidates suitable for reintroduction. Further research is necessary to support Preserve expansion, build inventories and monitor ecosystem health and biodiversity.

## Faculty Research on the Preserve

- ❖ Anthony Rossi, Ph.D. (Biology)
- Pitcher plants, turkey oak, laurel wilt
- ❖ Daniel Moon, Ph.D. (Biology)
- Pitcher plants, baccharis
- ❖ Joseph Butler, Ph.D. (Biology)
- Gopher tortoise monitoring
- ❖ Kerry Clark, Ph.D. (Public Health)
- Tick associated pathogens

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