Anurans, Cypress Domes and Minimum Flows and Levels

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Previous research established a strong correlation between hydroperiod and anuran reproduction Strong correlation between calling males and tadpole production Calling male anurans are excellent indicators of wetland health Anurans are know to be sensitive to environmental perturbations

Research Design

Two year study to use anurans as wetland health indicators Use only MFL designated sites Three well fields – Starkey, Cypress Creek, and Morris Bridge Two reference sites – Green Swamp and Hillsborough River State Park

Goals

 Minimum Flow and Level designated cypress domes - established to serve as barometers of hydrological conditions at well fields

 This research will establish base level anuran populations at MFL sites for future reference

Designed for long term research

Cypress Creek Cypress Dome



Hillsborough River



Methods

- Cypress domes were visited every two weeks from May to October
 Two researchers independently identified calling anurans at the edge of each dome
- Weather conditions and water levels were recorded or obtained from SWFWMD

Call Intensity

◆ 0 = no calls
◆ 1 = <10 individuals
◆ 2 = 10 to 50
◆ 3 = > 50

Results

15 species detected at the 5 sites
Cypress Creek – 14
Morris Bridge – 12
Green Swamp -12
Hillsborough River – 11
Starkey – 8

Expected but not observed

Scaphiopus holbrookii – spade foot
Rana capito – gopher frog
Bufo marinus – marine toad

Scaphiopus holbrookii



Rana capito



Bufo marinus



Observed but not welcome

 Osteopilus septentrionalis – Cuban tree frog

 Heard at Cypress Creek & Hillsborough River State Park

Osteopilus septentrionalis



Note the large toe pads



Abundance

 Acris gryllus, Hyla cinerea, Hyla femoralis, Pseudacris nigrita
 Rana grylio, Hyla gratiosa, Gastrophryne carolinensis, Hyla squirella, Pseudacris ocularis, Rana catesbeiana

 Rana utricularia, Bufo quercicus, Bufo terrestris, (Osteopilus)

Hyla cinerea



Variation Among Domes

Starkey – 4-7 species per dome
Green Swamp – 3-10
Morris Bridge – 7-10
Hillsborough River – 8-10
Cypress Creek – 8-10









Conclusions

 We detected the vast majority of expected resident species

- All species found at the reference sites were represented at well fields
- Cypress Creek had the highest species richness

Starkey had the lowest

 Variation can be high among domes at the same location

Plan for 2006

- Continue monitoring same five locations
- Add four sites at Cypress Bridge Well Field, an urbanized setting
- Hire Post Doctoral researcher
- Conduct vegetation surveys on surrounding uplands
- Evaluate locations at landscape level