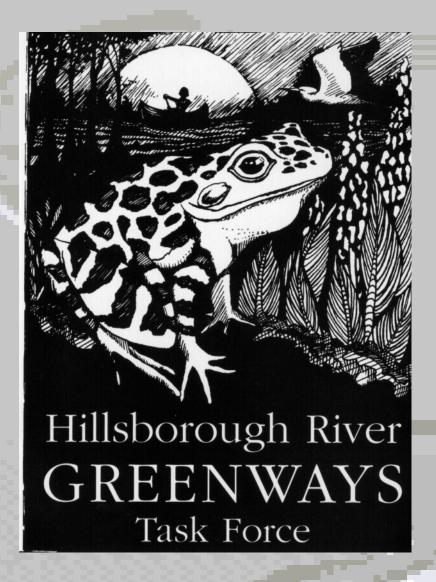
#### HILLSBOROUGH RIVER GREENWAYS TASK FORCE





FROG LISTENING NETWORK



This program is designed to assist you in learning the frogs, and their calls, in the Hillsborough River Greenway System.

Through this program, volunteers can help in local frog and toad research efforts.

#### We use frogs and toads because:

- They are good biological indicators of the river system's health.
- Their lifecycles span from wetland to upland areas.
- They are very susceptible to environmental change.
- They track the hydrologic cycle.
- They are good ecological barometers for the health of the ecosystem.

# Frogs indicative of healthy Ecosystems:

- Gopher Frog
- Certain Tree Frogs

Such As The:

Barking Treefrog and the Pinewoods Treefrog

# Frogs indicative of exotic invasion and conversion to urbanization:

- Cuban Tree Frog
  - Marine Toad

These are non-native species that have been imported or introduced to our area.

### Volunteers are helping by:

Learning the calls.

Listening for calls.

Recording call information

Provide the recorded call information to the HRGTF on the data forms provided. This information will be used to detect changes or trends within frog populations over time.

- This in turn helps to assess the health of the Ecosystem which then benefits:
  - Frogs
  - Other area wildlife
  - Ourselves

### Frog calls are easy to learn!

- They are distinctive and unique.
- We will use mnemonics (phrases that sound like the frog call) to remind us what frog we are listening to.
- Many of the names of the frogs are associated with their calls.
  - For Example: the Bullfrog has a call that sounds like a bullhorn.



### **Frog Diversity**

- 2700 Worldwide
- 82 in the United States
- 28 in Florida
- 21 in the Hillsborough River Greenway (14 Frogs; 4 Toads; 3 Exotics)



First lets look at the six large frogs found in the Hillsborough River Greenway.

- Most live in an aquatic or semi-aquatic environment.
- They are found in the Hillsborough River itself and associated lakes, ponds, streams and wetlands.
- These frogs usually call in areas of standing water.

### Bullfrog Rana catesbeiana

- Florida's largest frog (8 inches).
- Found in permanent bodies of water.
- Calls through spring and summer.
- Sounds like: Bullhorn or Rum rum rum



- •Dark olive skin with cream underside.
- •Webbed hind feet (does not extend to the tips of toes).

### Pig frog Rana grylio



- •Greenish back with pale underside.
- •Stripped hind legs.
- •Webbed hind feet (extends to tips of toes).

- Less than 6 inches.
- Found in standing water or highly vegetated wetlands.
- Calls through spring and summer.
- Sounds like: Grunting of a pig; groups can sound like a roar.

#### Southern Leopard Frog Rana utricularia

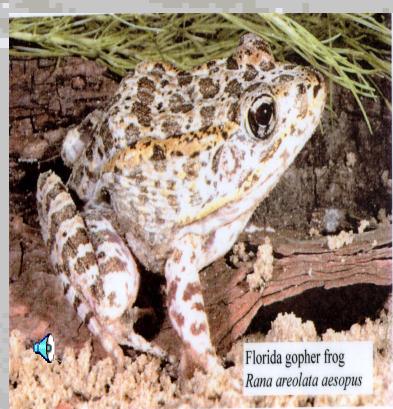
- Can be found in standing water and areas of vegetation away from water.
- The speed of its call is related to the temperature of the frog.
- Sounds like: Juh huh huh huh (Cartoon character laughing); Squeaky balloon; or a distressed cat.



- •Back light brown to dark green; rows of black spots.
- •Lateral Ridges on back.

#### Florida Gopher Frog

#### Rana areolata aesopus



- Dusty gray with black spots.
- •Lateral ridges.

- Unique and endemic to Florida and Georgia.
- Species of special concern by FWC.
- Adults live in sandy places, oak scrub, long leaf pine forests and gopher tortoise burrows.
- Goes to temporary ponds for breeding.
- Sounds like: Snore or creaking door

### River Frog Rana heckscheri

- Less than 5 inches.
- Found in slow moving rivers, swamps and ponds.
- Smooth skin; white spots on the lips.
- Sounds like: a snore (more than the Gopher Frog); 2 3 snores in succession.



#### Bronze Frog

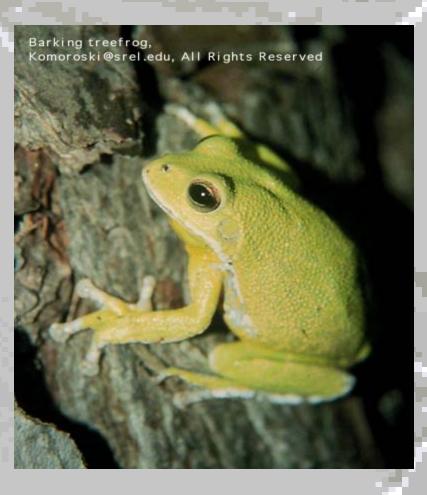
#### Rana clamitans clamitans

- Medium sized frog-Up to 4 inches
- Rich brown to bronze color with cream underside; snout and upper lip green
- Lateral ridges twothirds of body length



- •Sounds like the plucking of a banjo string
- •Found in streams near hammocks
- Aquatic through entire life cycle

### Small frogs found in the Hillsborough River System.



- 8 total; includes
   Treefrogs.
- Small; less than 3 inches long.
- Slender long legs.
- Toe pads allow them to climb on trees and stick on your window or light poles.

#### Small frogs adult life is:

• Spent in semi-aquatic or terrestrial habitat.

- Pastures.
- Systems of trees.

## Green Treefrog Hyla cinerea

- Very Common
- Also called rainfrogs as huge choruses will erupt after warm summer rain.
- Call sometimes sounds like a cowbell (it's local name).
- Also sounds like:
   Nasal gronk gronk or
   Hey baby, hey baby.



- •Bright green with very distinctive white or yellow stripes along sides.
- •Some have yellow spots.

### Barking Treefrog Hyla gratiosa



- •Green with cream underside.
- •May have brown spots.
- •Stripe on upper lip.

- Largest of our native treefrogs; approximately 2 1/2 inches.
- Lives in trees and can be found on the ground as well.
- Sounds like: a dog or group of dogs barking; or a bicycle horn.

## Squirrel Treefrog Hyla squirella

- Changes color from green to brown (with or without spots).
- Can be found in trees, decaying stumps and logs.
- Sounds like: an upset squirrel when it sees a cat or blue jay or a nasal quank quank (like a duck).



•Undefined stripe along sides.

### Pinewood Treefrog Hyla femoralis



- •Dark brown with irregular blotches on back.
- •Light blotches on inner thighs.

- Found high in trees, especially in pines associated with the river floodplain.
- It's red color makes for good camouflage against pine bark.
- Sounds like: Tapping, ticker-tape or Morse code.

## Spring Peeper Hyla crucifer bartramiana

- Abundant in shrubs, trees and even on the ground.
- In summer they breed in pools, ditches and ponds.
- Sounds like sharp piercing bird-like peeps (quick).



- •Small, smooth-skinned.
- •Gray to coppery-rust.
- •Distinct "X" across the back.

### Little Grass Frog Limnaoedus ocularis



- •Beige with broad copper stripes on sides, extends through the eyes.
- •Has thin white stripe on upper lip.

- Our smallest frog: less than 3/4 inch.
- Found in open grassy areas, meadows and ponds with emerging grassy areas.
- Active during the day.
- Sounds like: deet zie, cricket chirp.

#### Florida (Southern) Chorus Frog Pseudacris nigrita verrucosa

- Breeds from November to April.
- Found in grass near water's edge, ditches, temporary pools and flooded fields.
- Sounds like running your finger across the teeth of a comb.



- •Head and back dark gray.
- •Underside is white.
- •Skin is granular.
- •Upper lip spotted with white.

#### Florida (Southern) Cricket Frog

#### Acris gryllus dorsalis

The last of our native treefrogs

- Breeds April summer.
- Found in bodies of water, edges of vegetation, ponds and streams.
- Sounds like a cricket or a rail.
- Usually brown, gray or greenish with rough skin and a triangular mark between its eyes to behind its head.





Cricket Frog

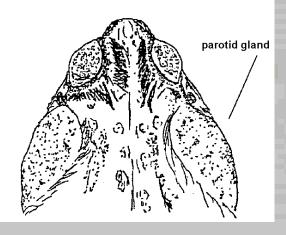


Yellow Rail



#### Toads

- True toads are very resistant to dehydration and have horizontal pupils.
- Toads can be found far from wetlands.
- Toads are protected by parotoid glands.
- There are 4 true toads found in the Hillsborough River Greenway.



#### Southern Toad

Bufo terrestris



- •Light stripe down the middle of the back; warty skin.
- •Two large bony ridges between the eyes.
- •Kidney shaped parotoid glands.

- Calls from March to June, especially after rain storms.
- Breeding occurs in ponds, pools and ditches.
- Sounds like a 5 10 second trill.

## Oak Toad Bufo quercicus

- Lives in forest systems (pine and pine/oak) and woodlands.
- Seen in the day, it will burrow for protection during dry periods.
- Sounds like chick peeps or a rubber ducky.



- •Light orange to white stripe down center of back.
- •Kidney shaped parotoid glands.
- •Warty skin.

### Eastern Spadefoot Toad Scaphiopus holbrooki



- Seen during warm rainy periods
- Active only when feeding and breeding
- Not a true toad (vertical pupil).
- Likes dry, loose soils or sand.
- Sounds like the ERRR in Budweiser.

### Eastern Narrow-mouthed Toad Gastrophryne carolinensis

This is the last of our native amphibians.

- Found in a variety of habitats and is very secretive.
- Calls from the spring through autumn after heavy rains.
- Breeds in ponds, lakes, pools and ditches.
- Sounds like: Sheep baaa.





#### Exotic Frogs

These are non-indigenous and non-native frogs that have been introduced into our environment.

### Giant Toad

Bufo marinus

- From the South Americas
- Entered into our area through exotic importation.
- Found in urban areas and is spreading with urbanization in the Hillsborough River
- Sounds like a screech owl.





Screech Owl





Marine Toad

### Cuban Tree Frog Osteopilus septentrionalis



- Originally from in Cuba.
- Brought to Florida by boats and rafts and is well established in urban areas.
- Largest treefrog.
- Will eat our native
   species when no other
   food source is available !
- Call sounds like a chuckle located in urban areas.





### Greenhouse Frog Eleutherodactylus planirostris

- Originally from Cuba.
- Can reproduce without having to go back to water.
- · Lays eggs in moist soil.
- Tadpole stage in egg.
- Associated with exotic plant nurseries.
- Insect cheep.



The evening symphony of calls is the most conspicuous banner of environmental health in West Central Florida.

 Presence of native calls assures us that our wetlands and uplands are working well.

 Presence of exotics indicate the spread of civilization with development and urbanization into natural habitats.



We hope this program has enriched your appreciation for the calls of West Central Florida's native frogs and toads and that this program has also alerted you to the sounds of exotic species found here

Next time you hear a spring symphony you will know who is singing and you will be able to send us your critical data to help further our understanding and environmental study of the Hillsborough River Basin.

# Let's take a moment to create our own symphony!













#### PARTNERS IN THIS EFFORT INCLUDE:

Hillsborough River Greenways Task Force

Florida Fish and Wildlife Commission

University of South Florida

Department of Environmental Protection

**Busch Gardens** 

The Florida Aquarium

The Southwest Florida Water management District

Hillsborough County

AND YOU!

Special thanks to the following contributors of pictures and sounds:

NatureSound Studio (Lang Elliot) http://ww1.naturesoundcom/webpages2/naturesound/frogs/frogs.html, University of Georgia Museum of Natural History (Mark Komoroski)http://museum.nhm.uga.edu/herpphotos/herpphoto1.html, National Center for Supercomputing (Mike Pingleton) http://gto.ncsa.uiuc.edu/pingleto/herps/frogpix.html, Herplink (Kirk Taylor) and Ken Felsman, University of Illinois, College of Medicine.