

**Southwest Florida Amphibian
Monitoring Network
“Frogwatch”**

2002 Annual Summary

Sponsored by

CREW Land and Water Trust
Calusa Nature Center and Planetarium

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BACKGROUND

The worldwide decline in amphibians is a phenomena that is poorly understood and may have significant implications for entire ecosystems. Amphibians have been identified as important indicators of ecosystem health due to their physiology and diversity of ecological requirements. The planetary decline in many species of amphibians has resulted in an increased level of research into their life histories. Scientists and conservation organizations all over the world have initiated monitoring projects to document the status of amphibian populations, to gain insight into why some species are declining and to determine the effects on a larger scale.

One such project is the North American Amphibian Monitoring Program (NAAMP) that is sponsored by the United States Geological Survey. The NAAMP is an international effort to track the health of frog populations in the United States and Canada. The program seeks to develop volunteer teams in Canada and the U.S. to monitor the calls of frogs which can be easily identified by species. The NAAMP has determined uniform protocols for monitoring and coordinating the information which will be described in a later section of this document.

In Southwest Florida very little information exists on amphibian diversity, distribution, abundance and ecology. This is unfortunate since this region is experiencing rapid land development that has led to significant loss of wetland communities on which amphibians depend. All but two species of amphibians in Southwest Florida are considered indicators of hydrologic change because they are dependent on water or wetland habitats for successful reproduction.

In 2000 the Southwest Florida Amphibian Monitoring Network commonly referred to as Frog Watch was established to better understand the status of amphibian populations and to determine the effects of land change on frog populations in Charlotte, Lee and Collier Counties. The program trains volunteers from varied backgrounds to monitor calling frogs during the summer months (one evening during each of June - September). The monitoring season begins with a general orientation and training workshop in April or May. At this workshop new volunteers are provided CDs for identifying frog calls, standard monitoring forms and general information about frog ecology. Monitoring routes, either new or previously established have "Route Leaders" that coordinate the completion of the monitoring forms and provide the information for the comprehensive database of all routes monitored in the region. The "Route Leaders" also coordinate their team of volunteers for when and where the monitoring will occur for that route. Having multiple volunteers in addition to the "Route Leader" helps to prevent conflicts on monitoring dates and a smooth transition between years if the "Route Leader" is unable to continue.

The Southwest Florida Amphibian Monitoring Network has now completed three seasons of monitoring (2000, 2001, 2002). During 2002, 17 routes were monitored in the three county area. Three routes are monitored in Charlotte County, 13 routes in Lee County and one route in Collier County.

PURPOSE AND GOALS

The primary objectives of the Southwest Florida Amphibian Monitoring Network (SFAMN) are: 1) Establish frog call listening routes in Southwest Florida using the standard protocols of the NAAMP; 2) Develop, train and coordinate teams of citizen volunteers to monitor frog call listening routes in Southwest Florida; 3) Establish and maintain a database on frog populations derived from the monitoring network and provide information on frog populations of Southwest Florida to NAAMP.

MONITORING PROTOCOLS

The protocols identified by the NAAMP were used as the basic structure for the SWFAMN and were incorporated directly onto the monitoring field sheets. Parameters monitored included the Beaufort Wind Scale, sky code, calling code, habitat data, temperature, start and stop times. Note Appendix A for the first two pages of the standard field sheet with protocol descriptions.

All monitoring was to begin 30 minutes after sunset and the beginning stop was varied on each monitoring date so that each stop would not be monitored in the same sequence each time.

PRECIPITATION SUMMARY

Rainfall in the area is very sporadic where some areas can receive significant precipitation from a specific storm event while other locations in the same general area may receive no rainfall.

FROGWATCH WEB SITE

In an effort to improve communication among volunteers, a web site was set up to help facilitate the network. The site www.frogwatch.net has information about the program, related links on other monitoring efforts, articles on amphibian decline, downloadable monitoring forms, contact information for route leaders among other features. The annual report will also be available as a downloadable product.

Route C-1

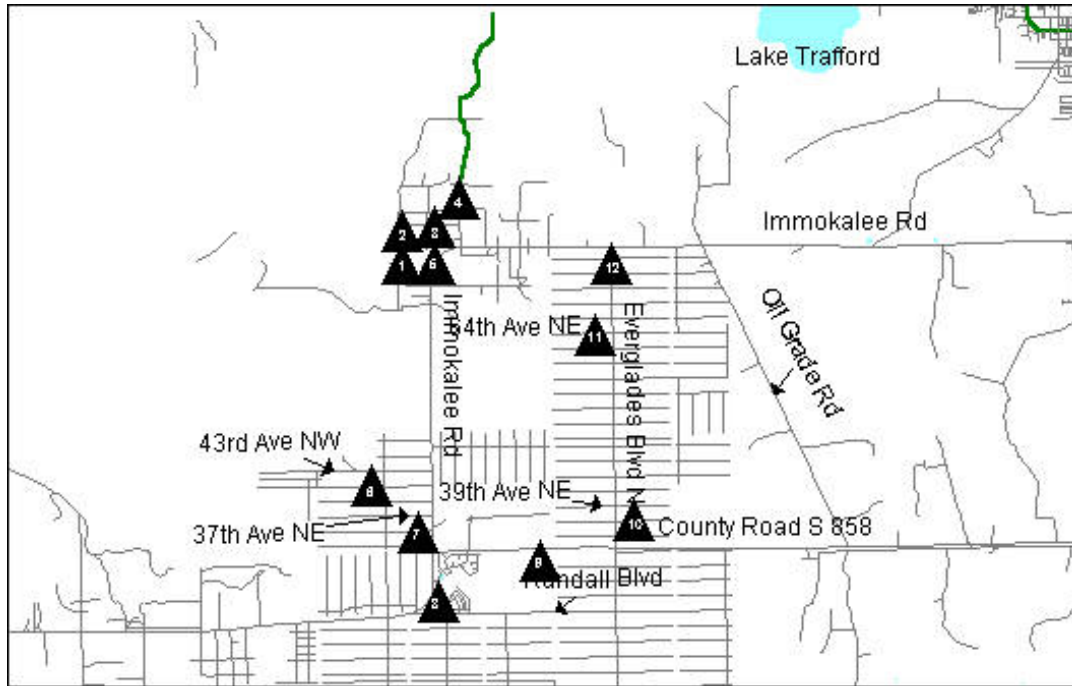
General description: Corkscrew Swamp Sanctuary area, Collier County

Route leader: Maureen Bonness

Route participants: Jean McCollom, Mike Duever, Robbie Wooster, Dick Brewer

Dates monitored in 2001: 6/21, 7/19, 8/16, 9/19

Dates monitored in 2002: 6/19, 7/17, 8/21, 9/19



Stop locations:

- 1 S. end of Rookery Lane, N26°22.003' W081°36.207'
- 2 W. end of Sanctuary Rd. near entrance of Corkscrew Swamp Sanctuary, N26°22.448' W081°36.137'
- 3 Sanctuary Rd., 0.6 miles east of CSS, N26°22.51'0 W081°35.644'
- 4 N. end of Sanctuary Rd. N at intersection with Eagle Island Rd., N26°22.850' W081°35.264'
- 5 Hwy 846 at big curve in road near Sanctuary Rd., N26°21.896' W081°35.536'
- 6 Shady Hollow Blvd. W. (=43rd Ave. NW), 0.1 miles west of canal culvert (=0.2 miles west of Wilson Blvd.). Golden Gate Estates Unit 52, N26°18.714' W081°36.714'
- 7 37th Ave. NE, 0.2 miles east of Wilson Blvd. Golden Gate Estates Unit 37, N26°18.054' W081°36.697'
- 8 "Orange Tree", Cherry Blossom Drive, N26°17.316' W081°35.590'
- 9 Oilwell Rd. 1.3 miles east of 846, N26°17.569' W081° 34.415'
- 10 39th Ave. NE. 0.4 miles east of Everglades Blvd., N26°18.210' W081°32.363'
- 11 64th Ave. NE. 0.4 miles west of Everglades Blvd., N26°20.939' W081°33.231'
- 12 Intersection of Hwy 846 and Everglades Blvd., N26°21.924' W081°32.778'

C-1 Route Summary: This route was monitored for the first time in 2001 and represents an area with high quality wetlands near Corkscrew Swamp Sanctuary. However, a variety of habitats including uplands and residential areas were monitored. Stop locations were modified slightly in July of 2001 and represent permanent locations thereafter. This route had a relatively high diversity of frogs calling with 13 species detected (Table 1). A notable exception is the Barking Treefrog.

Table 1. Frog species rank and frequency of occurrence at Route C-1.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|--------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 2 | Green Treefrog | 19.5 | 16.2 |
| 2 | 1 | Pig Frog | 15.1 | 19.1 |
| 3 | 4 | Cricket Frog | 11.9 | 9.2 |
| 4 | 10 | Narrow-mouth Toad | 9.4 | 4.6 |
| 4 | 7 | Southern Toad | 9.4 | 6.4 |
| 5 | 5 | Squirrel Treefrog | 8.2 | 8.7 |
| 6 | 3 | Greenhouse Frog | 6.9 | 9.8 |
| 6 | 6 | Oak Toad | 6.9 | 8.1 |
| 7 | 8 | Cuban Treefrog | 3.8 | 5.8 |
| 8 | 9 | Pinewoods Treefrog | 3.1 | 5.2 |
| 9 | 11 | Little Grass Frog | 2.5 | 2.9 |
| 10 | 12 | Leopard Frog | 1.3 | 1.2 |
| 10 | 13 | None detected | 1.3 | 0.6 |
| 11 | -- | Chorus Frog | 0.6 | -- |

Route CH-1

General description: Burnt Store Road, Charlotte County

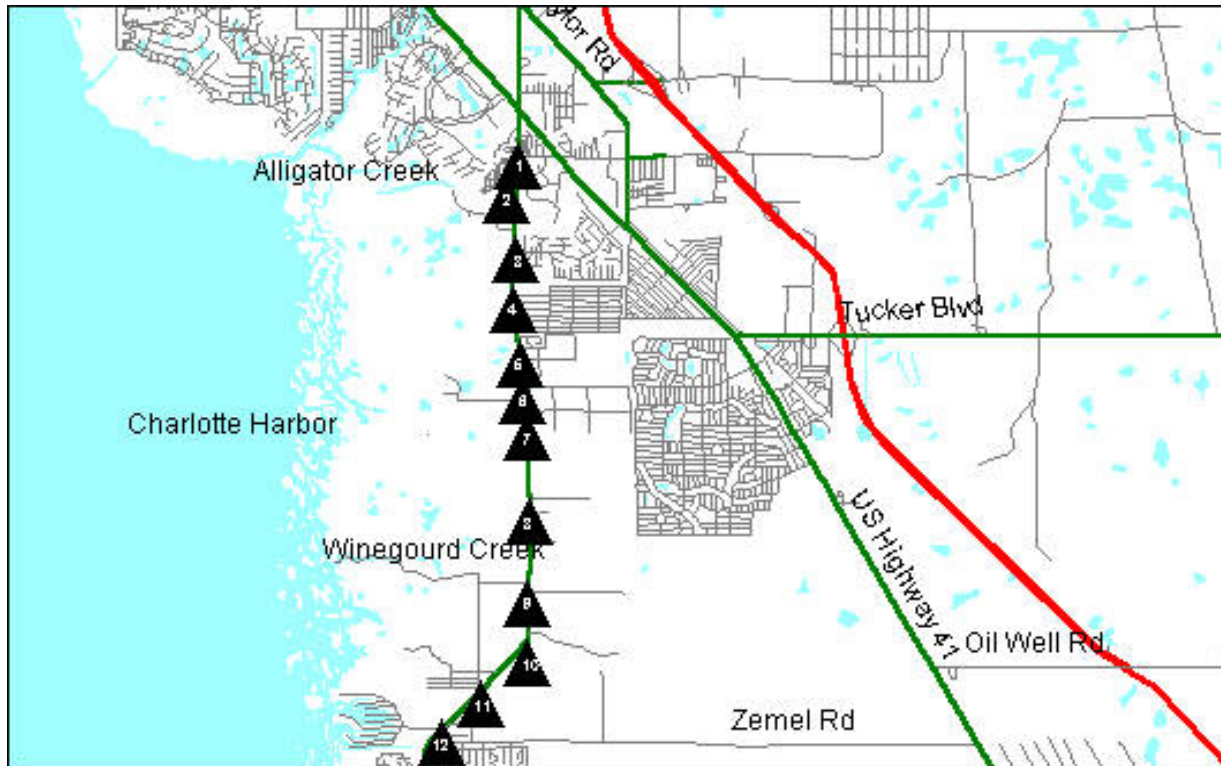
Route leader: John Aspiolea

Route participants (2002): Penny Aspiolea, Kristian Aspiolea

Dates monitored in 2000: 6/21, 7/21, 8/17, 9/2

Dates monitored in 2001: 6/18, 7/18, 8/15, 9/19

Dates monitored in 2002: 6/17, 7/17, 8/21, 9/18



Stop Locations

- 1 Behind K-mart at Punta Gorda Fire Station II, next to picnic tables
- 2 200 yards west of Burnt Store Road, end of access rd. For the Punta Gorda tower
- 3 At the 1st drainage ditch south of the Char. Harbor Envirn. Center driveway
- 4 Across the road from Burnt Store Presbyterian Church
- 5 At the 1st drainage ditch south of the FPL substation
- 6 At the Char. Harbor Aquatic and State Buffer Preserves driveway
- 7 Small asphalt pulloff on side of road after the 1st drainage ditch south of the Preserve driveway
- 8 Dirt road across from melon farm
- 9 Across from the road with seven mailboxes
- 10 Dirt trail pulloff south of the 1st big turn on the east side of the road
- 11 2nd paved road south of big turn. Septic dump road
- 12 At the Star Centre Shopping Plaza on the corner of Zemel Road and Burnt Store Road

CH-1 Route Summary: This route represents a variety of habitats along Burnt Store Road in southwestern Charlotte County with Hydric pine flatwoods as the predominant habitat type. This site has the highest occurrence of Pinewood Treefrogs and Barking Treefrogs. The high occurrence of Barking Treefrogs is indicative of relatively undisturbed conditions, however this species declined notably in 2002.

Table 2. Frog species rank and frequency of occurrence at Route CH-1.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|---------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 3 | 1 | 4 | Pinewoods Treefrog | 10.9 | 16.7 | 10.5 |
| 1 | 1 | 3 | Green Treefrog | 15.2 | 16.7 | 12.3 |
| 4 | 2 | 10 | Barking Treefrog | 9.8 | 12.8 | 3.5 |
| 5 | 3 | 8 | Greenhouse Frog | 8.7 | 11.5 | 4.4 |
| 7 | 4 | 7 | Pig Frog | 4.3 | 10.3 | 6.1 |
| 2 | 5 | 1 | Oak Toad | 13.0 | 7.7 | 18.4 |
| 3 | 6 | 2 | Narrow-mouthed Toad | 10.9 | 5.1 | 13.2 |
| 4 | 6 | 7 | None detected | 9.8 | 5.1 | 6.1 |
| 7 | 7 | 6 | Squirrel Treefrog | 4.3 | 3.8 | 7.9 |
| 9 | 8 | 9 | Cricket Frog | 2.2 | 2.6 | 4.3 |
| 10 | 8 | 11 | Cuban Treefrog | 1.1 | 2.6 | 2.6 |
| 10 | 9 | --- | Bull Frog | 1.1 | 1.3 | --- |
| 10 | 9 | --- | Little Grass Frog | 1.1 | 1.3 | --- |
| 8 | 9 | 5 | Southern Toad | 3.3 | 1.3 | 8.8 |
| 6 | --- | --- | Leopard Frog | 5.4 | --- | --- |

Route CH-2

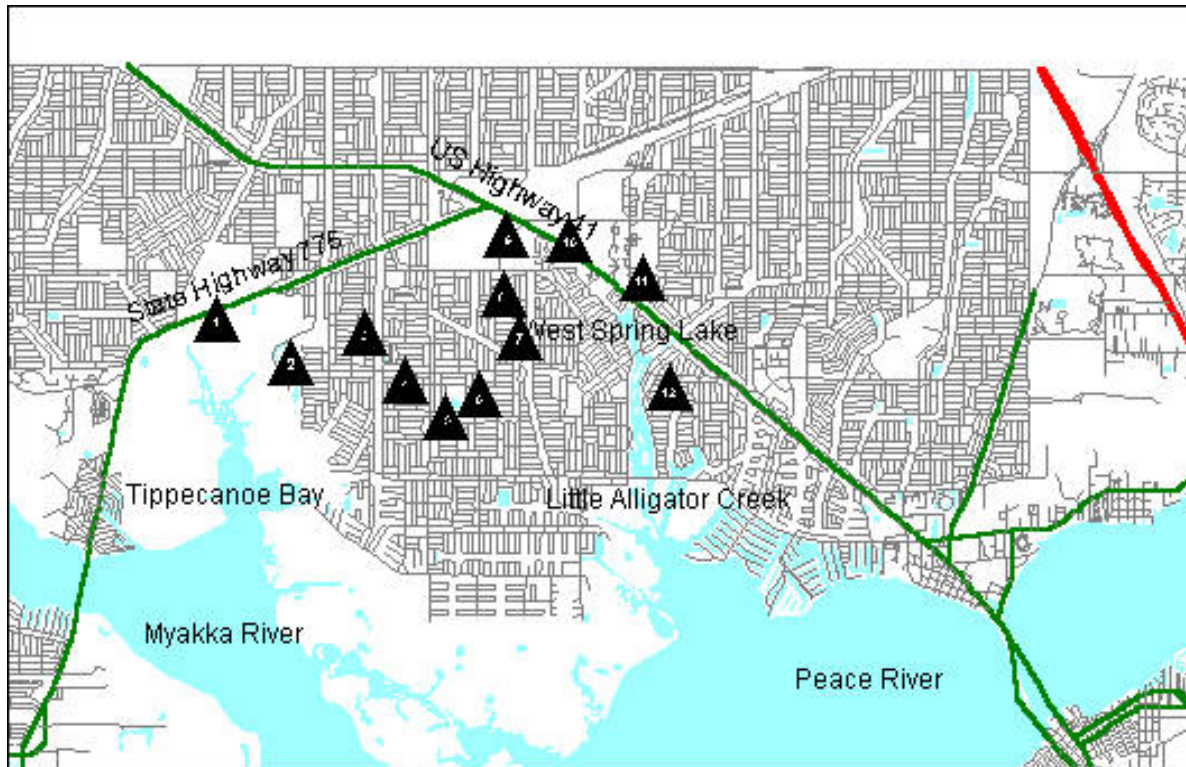
General description: Residential area near Mudock, Charlotte County

Route leader: Cathy Olson

Route participants in 2002: Gregg Klowden

Dates monitored in 2001: 6/20, 7/19, 8/15, 9/19

Dates monitored in 2002: 6/20, 7/17, 8/22, 9/18



Stop Locations

- 1 Large retention pond between Tippeconoe and Ranger Stadium, 2300 El Jobean, STR 14-40-21
- 2 Area between two small retention ponds, 2300 El Jobean, STR 14-40-21
- 3 Corner of Johns and Como, STR 13-40-21
- 4 Wintergarden and Cabaret, STR 13-40-21
- 5 Feldo and Bly, Ollie's Pond, STR 19-40-22
- 6 Avon and Dutton, STR 19-40-22
- 7 Locklane and Sunninglow, STR 18-40-22
- 8 Tinker and Twilite, STR 18-40-22
- 9 18500 Murdock Circle, STR 07-40-22
- 10 Franz Ross Park, Parking lot next to YMCA, STR 08-40-22
- 11 1380 Forrest Nelson, STR 09-40-22
- 12 466 Azalea, STR 21-40-22

CH-2 Route Summary: Diversity is relatively low at this route, possibly indicative of a

mostly residential, urban area. Exotic species such as the Greenhouse Frog and the Cuban Treefrog were among the most frequently occurring species.

Table 3. Frog species rank and frequency of occurrence at Route CH-2.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|---------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 1 | Green Treefrog | 25.0 | 21.6 |
| 2 | 4 | Greenhouse Frog | 21.0 | 13.4 |
| 3 | 3 | Southern Toad | 19.0 | 14.4 |
| 4 | 6 | Cuban Treefrog | 11.0 | 7.2 |
| 4 | 5 | None | 11.0 | 9.3 |
| 5 | 5 | Oak Toad | 8.0 | 9.3 |
| 6 | --- | Barking Treefrog | 2.0 | --- |
| 6 | 2 | Narrow-mouthed Toad | 2.0 | 17.5 |
| 7 | 7 | Pig Frog | 1.0 | 4.1 |
| --- | 8 | Bull Frog | --- | 1.0 |

Route CH-3

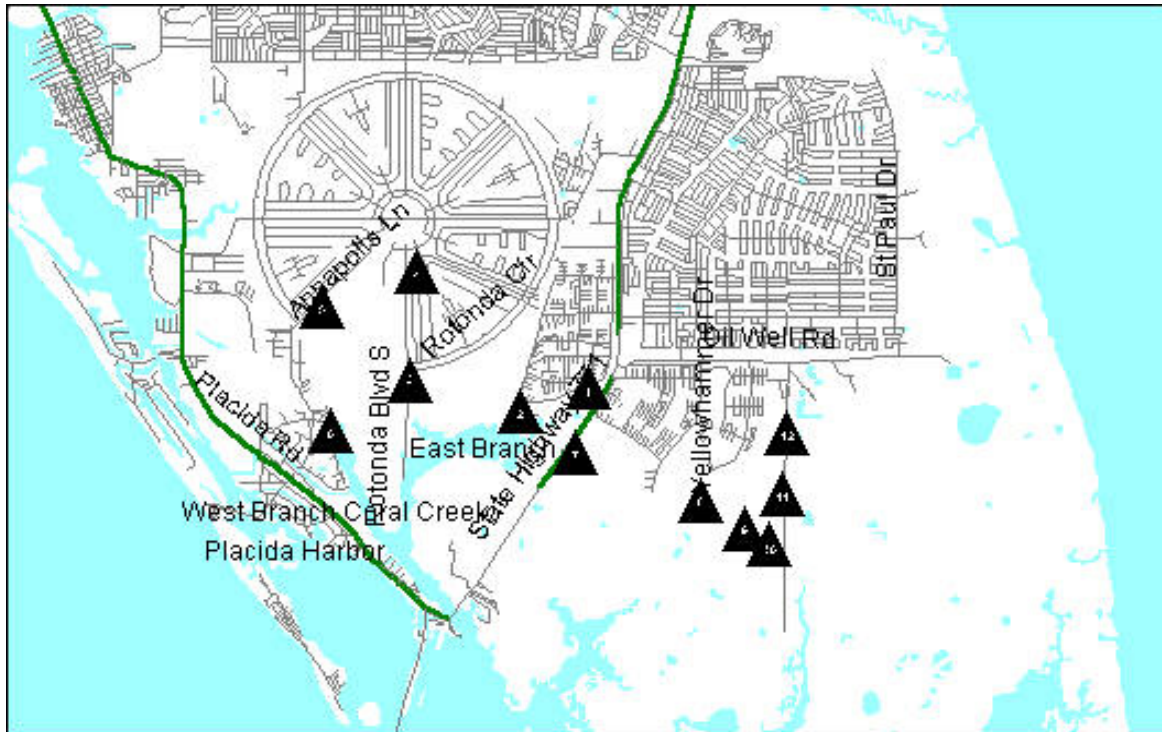
General description: Cape Haze / Rotonda area of Charlotte County

Route leader: Keith Laakkonen

Route participants in 2002: Chris Reed

Dates monitored in 2001: 6/20, 7/20, 8/16, 9/19

Date monitored in 2002: 6/19



Stop Locations

- 1 Brig Circle, West End, N26°52.03' W082°14.50'
- 2 Corner of Brig Circle and West Brig Circle, N26°51.93' W082°15.22'
- 3 Corner of Boundary Blvd. And S. Rotonda Blvd., N26°52.21' W082°16.34'
- 4 North end of S. Rotonda Blvd (NE Corner of West Branch Coral Creek)
N26°53.04' W082°16.34'
- 5 Annapolis Lane (Coral Creek), N26°52.83' W082°17.15'
- 6 East end of Ann Underwood Dr., West Branch Coral Creek at the weir,
N26°51.73' W082°17.06'
- 7 SR 771 across from Rotonda airstrip, N26°51.52' W082°14.68'
- 8 Corner of Sargassum Rd. And Barracuda Rd., N26°50.65' W082°13.39'
- 9 half mile from end of Sargassum Rd., N26°50.37 W082°12.98'
- 10 Corner of Sargassum Rd. and Blue Marlin Circle, N26°50.08'
W082°12.57'
- 11 End of Greenling Way, N26°51.02' W082°12.50'
- 12 North end of Chimera Place, adjacent to sand mine, N26°51.60'
W082°12.40'

CH-3 Route Summary: CH-3 incorporates a variety of habitats including high marsh, mangrove creeks, brackish marsh, pine flatwoods and freshwater lakes. This route had a relatively high diversity of frog species calling. There were no “non-detects” at this route (Table 4). Data for only one sampling date in June were available for this route in 2002.

Table 4. Frog species rank and frequency of occurrence at Route CH-3.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|---------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 2 | Pig Frog | 20.3 | 13.5 |
| 2 | 1 | Green Treefrog | 16.1 | 24.3 |
| 3 | --- | Greenhouse Frog | 11.9 | --- |
| 3 | 3 | Pinewoods Treefrog | 11.9 | 8.1 |
| 4 | --- | Cricket Frog | 10.5 | --- |
| 5 | 2 | Narrow-mouthed Toad | 9.1 | 13.5 |
| 6 | 4 | Squirrel Treefrog | 7.0 | 5.4 |
| 7 | --- | Oak Toad | 4.2 | 24.3 |
| 8 | 3 | Southern Toad | 3.5 | 8.1 |
| 9 | --- | Barking Treefrog | 2.1 | --- |
| 9 | --- | Giant Toad | 2.1 | --- |
| 10 | --- | Cuban Treefrog | 0.1 | --- |
| 10 | --- | Little Grass Frog | 0.1 | --- |
| --- | 5 | Chorus Frog | --- | 2.7 |

Route L-1

General description: West Bonita Springs area, Lee County

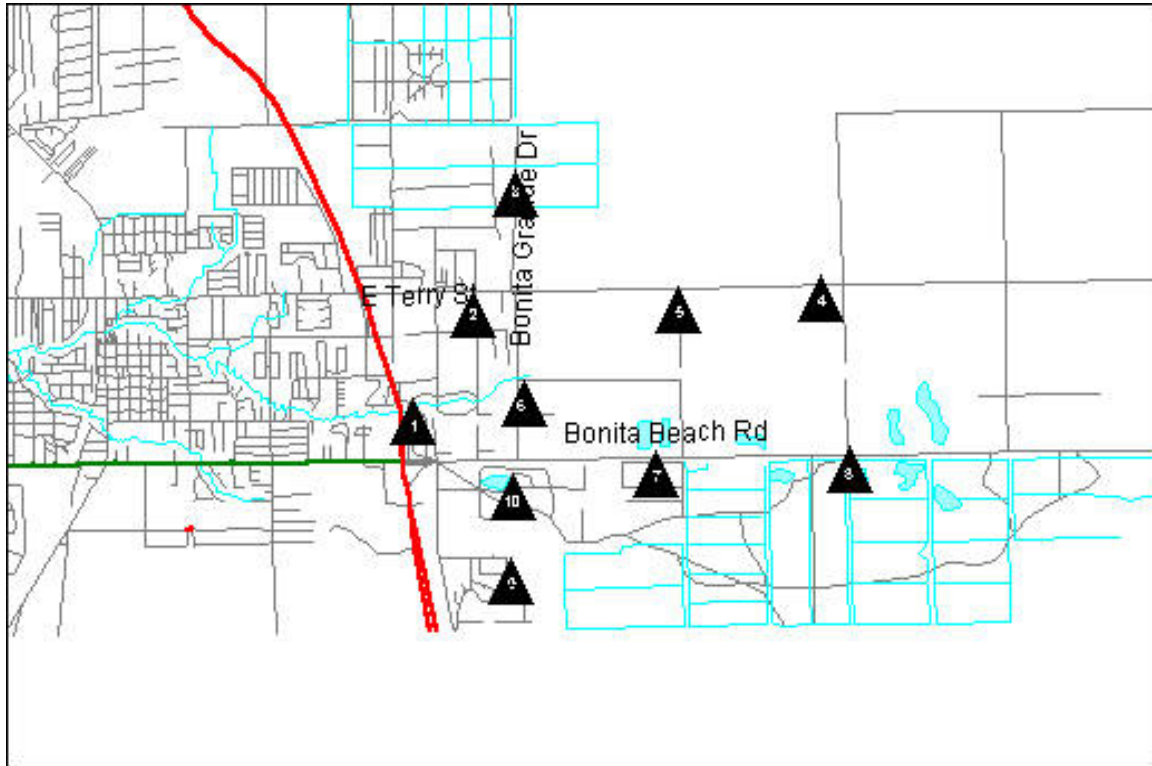
Route leader: Cullum Hasty

Route participants (2002): Rob McKee

Dates monitored in 2000: 6/21, 7/20, 9/21

Dates monitored in 2001: 6/22, 8/15, 9/1

Dates monitored in 2002: 6/19, 7/17, 8/21, 9/18



Stop Locations

- 1 Kent Road Bridge over the Imperial River, N26°2.176; W81°44.964
- 2 Corner of East Terry and Kent Road, N26°20.708; W81°44.804
- 3 Corner of Bonita Grande Drive and Sandy Lane, N26°21.204; W81°44.317
- 4 Terry Street about 1.75 mi east of Bonita Grande Drive, N26°20.782; W81°43.362
- 5 Terry Street 0.5 miles east of Bonita Grande Drive, N26°20.776; W81°43.848
- 6 South side of Weir on the Kehl Canal near Bonita Grande Drive, N26°20.309; W81°44.311
- 7 Bonita Beach Road at South Hampton, N26°19.891; W81°42.879
- 8 Bonita Beach Road 1 mile east of Faygin Lane, N26°19.883; W81°43.627
- 9 Bonita Grande Drive near Burnham Road intersection, N26°19.007; W81°44.230
- 10 Bonita Grande Drive near intersection of Trade Way Drive, N26°19.651; W81°44.307

Route L-1 Summary: The detection of calling Cope’s Gray Treefrogs represents a significant departure from its published distribution of the northern third of peninsular Florida where it is a common to abundant species. Chorus Frogs were not detected in 2001 or 2002. The Florida Gopher Frog was reported from this site in 2002 and represents the only time this species was heard calling at any route since the project began in 2000. Gopher Frogs are normally expected to be heard calling much earlier in the season.

Table 4. Frog species rank and frequency of occurrence at Route L-1.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|------------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 7 | 1 | 1 | Southern Toad | 3.7 | 21.8 | 23.9 |
| --- | 2 | 2 | Cope’s Gray Treefrog | -- | 17.9 | 15.2 |
| 3 | 2 | 3 | Cricket Frog | 11.1 | 17.9 | 10.9 |
| 4 | 3 | 5 | Cuban Treefrog | 9.3 | 10.3 | 7.6 |
| 5 | 4 | 6 | Pig Frog | 7.4 | 7.7 | 5.4 |
| 2 | 5 | 6 | Greenhouse Frog | 14.8 | 6.4 | 5.4 |
| --- | 6 | 7 | Narrow-mouthed Toad | --- | 5.1 | 1.1 |
| - | 7 | 7 | Little Grass Frog | --- | 3.8 | 1.1 |
| 1 | 7 | 4 | Oak Toad | 22.2 | 3.8 | 8.7 |
| 4 | 8 | 3 | Green Treefrog | 9.3 | 2.6 | 10.9 |
| 8 | 9 | --- | Eastern Spadefoot Toad | 1.9 | 1.3 | --- |
| 2 | 9 | 6 | None detected | 14.8 | 1.3 | 5.4 |
| 6 | --- | --- | Chorus Frog | 5.6 | --- | --- |
| --- | --- | 7 | Florida Gopher Frog | --- | --- | 1.1 |
| --- | --- | 7 | Pinewoods Treefrog | --- | --- | 1.1 |
| --- | --- | 7 | Squirrel Treefrog | --- | --- | 1.1 |

Route L-2

General description: Cape Coral north or SR 78, Lee County

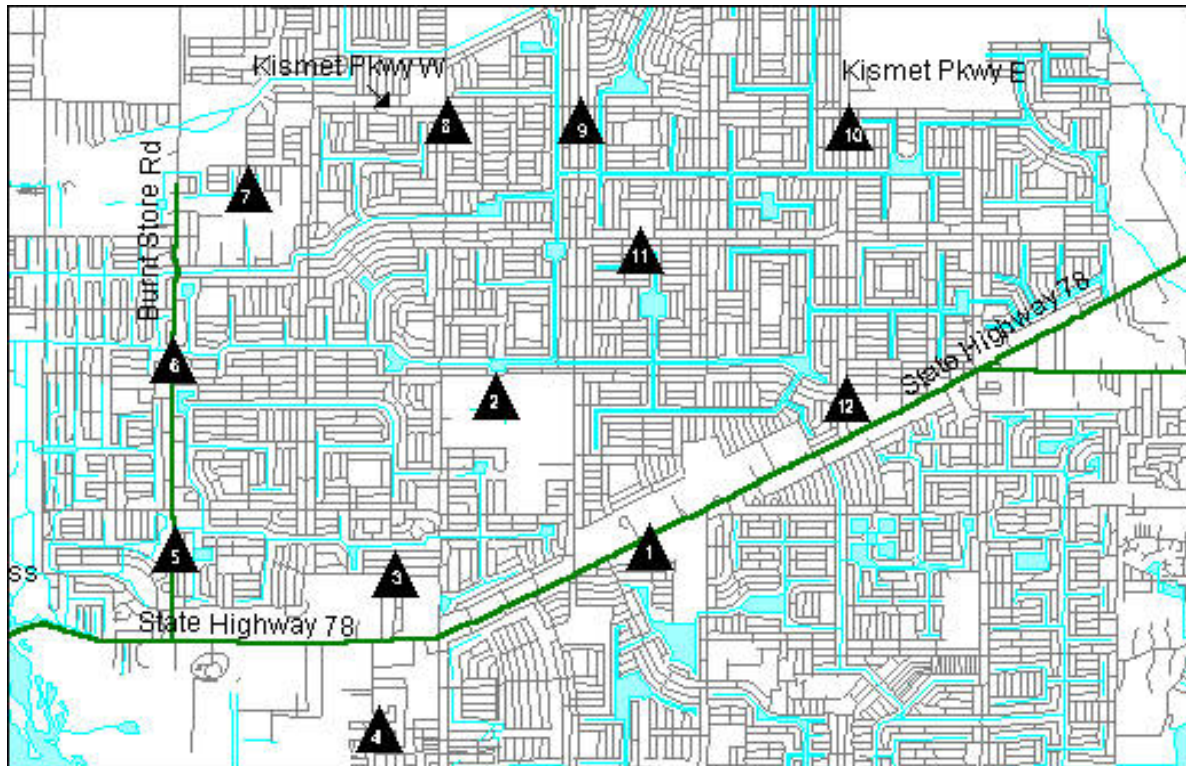
Route leader: Dan VanNorman

Route participants (2002): Carla Kappmeyer

Dates monitored in 2000: 6/21, 7/20, 8/23, 9/20

Dates monitored in 2001: 6/20, 7/18, 8/15, 9/19

Dates monitored in 2002: 6/19, 7/17, 8/21, 9/18



Stop Locations

- 1 SE corner of Pine Island Rd. and 3rd Pl. SW, N26°38.891; W81°58.858
- 2 NW corner of Tropicana Pkwy. and 12th Ave. NW, N26°40.039; W81°59.939
- 3 NE corner of 4th St. NW and 19th Pl. NW, N26°38.699; W82°00.775
- 4 NE corner of 20th Ave. SW and 12th Ter. SW, N26°37.786; W82°00.904
- 5 NW corner of Burnt Store Rd. and 1st Ter. NW, N26°38.998; W82°02.373
- 6 NW corner of Burnt Store Rd. and 9th St. NW, N26°40.159; W82°02.367
- 7 NW corner of Van Buren Pkwy. and 28th Ave. NW, N26°41.429; W82°01.865
- 8 NW corner of Kismet Pkwy. and Chiquita Blvd., N26°41.834; 82°00.390
- 9 NW corner of Kismet Pkwy. and Nelson Rd., N26°41.836; W81°59.418
- 10 NE corner of Kismet Pkwy. and Andalusia Blvd., N26°41.804; W81°57.419
- 11 SE corner of Diplomat Pkwy. and 3rd Ave. NW, N26°40.916; W81°58.085
- 12 SW corner of Andalusia Blvd. and Tropicana Pkwy., N26°39.899; W81°57.452

Route L-2 Summary: Route L-2 incorporates mostly disturbed or urban areas where historic wetlands have been extensively drained. Frog species diversity is relatively low at this route with 8 or fewer species recorded between 2000 and 2002. This route had “none detected” as the most frequently occurring result each year. The green treefrog declined significantly at this site during 2002.

Table 6. Frog species rank and frequency of occurrence at Route L-2.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|---------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 3 | 1 | 1 | None detected | 14.4 | 28.1 | 33.8 |
| 3 | 2 | 6 | Green Treefrog | 14.4 | 17.5 | 4.4 |
| 2 | 2 | 2 | Oak Toad | 26.1 | 17.5 | 23.5 |
| 1 | 2 | 3 | Southern Toad | 27.5 | 17.5 | 22.1 |
| 5 | 3 | 4 | Squirrel Treefrog | 2.9 | 10.5 | 7.4 |
| 6 | 4 | --- | Barking Treefrog | 1.4 | 3.5 | --- |
| 6 | 5 | --- | Greenhouse Frog | 1.4 | 1.8 | --- |
| 4 | 5 | 5 | Narrow-mouthed Toad | 5.8 | 1.8 | 5.9 |
| 5 | 5 | --- | Pig Frog | 2.9 | 1.8 | --- |
| 5 | --- | --- | Cricket Frog | 2.9 | --- | --- |
| --- | --- | 7 | Pinewoods Treefrog | --- | --- | 1.5 |
| --- | --- | 7 | Cuban Treefrog | --- | --- | 1.5 |

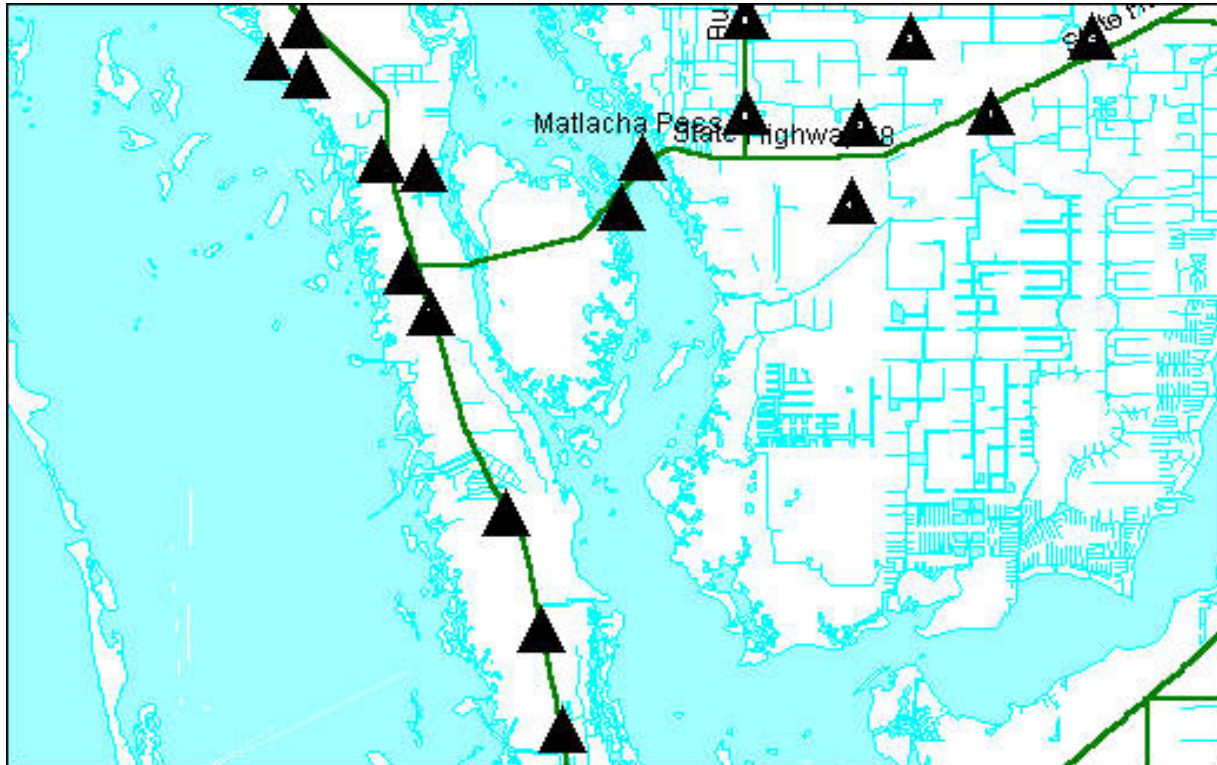
Route L-3

General description: Pine Island, Matlacha area.

Route leader: Edie DuBay

Route participants 2002: Cynthia DuBay

Dates monitored in 2002: 6/20, 7/08, 8/21, 9/23



Stop locations (west of Burnt Store Road)

1. Junction of Bohman Rd. and Marina Rd., N26°38.160; W82°07.75
2. Plouff Dr. and Holy Mackerel Street, N26°38.244; W82°07.563
3. Intersection of Capri Lane and Roberts Road, N26°39.540; W82°08.688
4. Waterfront Drive and Kayak ramp, N26°39.561; W82°09.175
5. Pomegranate and Stringfellow, N26°40.115; W82°08.721
6. Turtle Trail Lane and Stringfellow, N26°37.684; W82°04.172
7. St. Jude Blvd. and Stringfellow, N26°30.744; W82°04.992
8. KOA Campground front of office, N26°32.65; W82°05.174
9. Jamerston Ave. and Stringfellow, front of bank, N26°36.240; W82°06.864
10. Pine Island and Frankie Road, N26°36.836; W82°07.237
11. Matlacha Park, front of fishing pier, N26°38.390; W82°03.879
12. End of Shoreview Drive, N26°38.380; W82°03.878

Route L-3 Summary: The detection of bronze and river frog species at this route are

dubious and would represent significant range extensions for both species. Pine Island is relatively undisturbed yet this route had the highest frequency of “none detected” which may be related to its being a barrier island.

Table 7. Frog species rank and frequency of occurrence at Route L-3.

| Rank 2002 | Species | % Frequency of Occurrence 2002 |
|-----------|-------------------|--------------------------------|
| 1 | None | 43.9 |
| 2 | Oak Toad | 12.1 |
| 3 | Southern Toad | 9.1 |
| 3 | Narrow-mouth Toad | 9.1 |
| 3 | Green Treefrog | 9.1 |
| 4 | Chorus Frog | 4.5 |
| 5 | Cricket Frog | 3.0 |
| 5 | Barking Treefrog | 3.0 |
| 6 | Bronze Frog | 1.5 |
| 6 | Little Grass Frog | 1.5 |
| 6 | River Frog | 1.5 |
| 6 | Squirrel Treefrog | 1.5 |

Route L-4

General description: SR 82 Corridor, Lee County

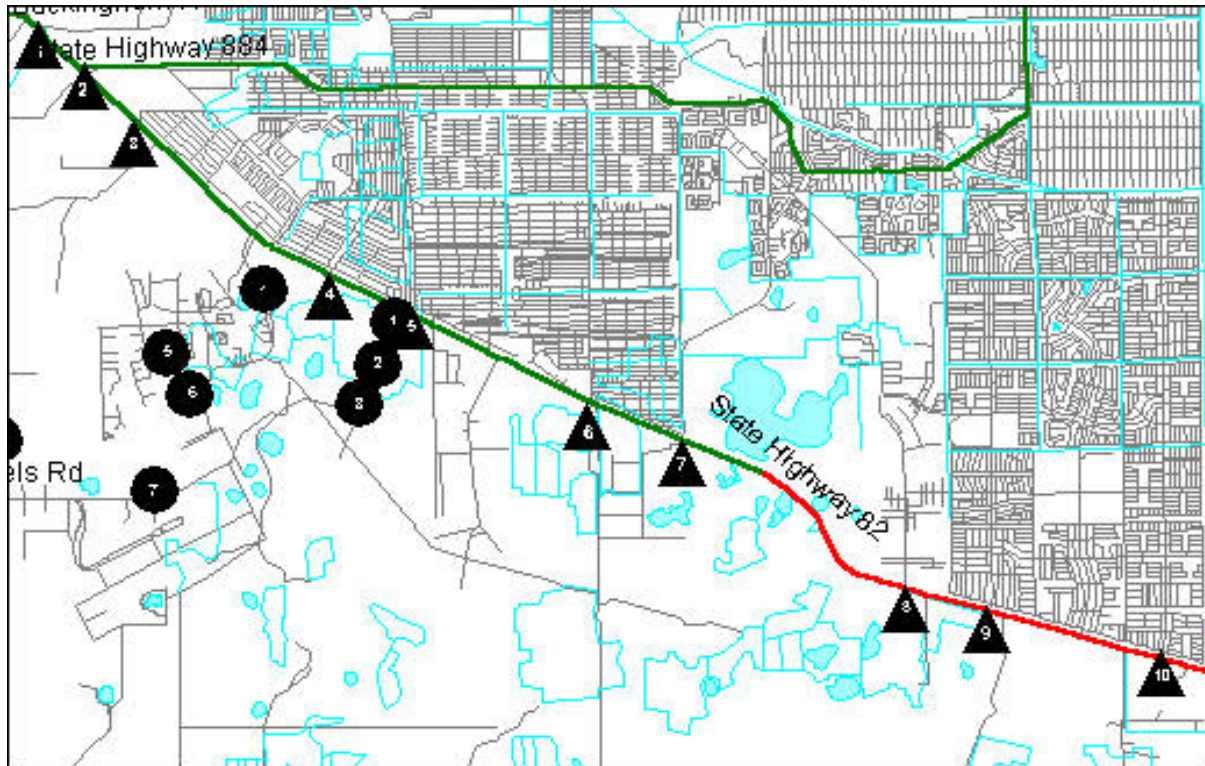
Route leader: John Cassani

Route participants (2002): David and Derek Burr, Brenda and Rick Solveson, Julie Rose, Dana White

Dates monitored in 2000: 6/21, 7/20, 8/16, 9/21

Dates monitored in 2001: 6/20, 7/18, 8/15, 9/19

Dates monitored in 2002: 6/19, 7/17, 8/22, 9/18



Stop Locations (Triangles)

- 1 Buckingham Road at SR 82, Lat. 26°37.59', Long. 81°46.55'
- 2 Lee Blvd. at SR 82, Lat. 26°37.06', Long. 81°46.02'
- 3 Wallace at SR 82, Lat. 26°36.62', Long. 81°45.51'
- 4 Haviland at SR 82, Lat. 26°35.20', Long. 81°43.44'
- 5 Gunnery at SR 82, Lat. 26°34.85', Long. 81°42.74'
- 6 Sunshine at SR 82, Lat. 26°33.94', Long. 81°40.63'
- 7 Alabama at SR 82, Lat. 26°33.53', Long. 81°39.70'
- 8 Homestead at SR 82, Lat. 26°31.58', Long. 81°37.26'
- 9 Bell at SR 82, Lat. 26°31.73', Long. 81°36.32'
- 10 Columbus at SR 82, Lat. 26°31.23', Long. 81°34.38'

Route L-4 Summary: The Oak Toad remained the most frequently detected species at

this route again in 2002. Pig frog detections increased significantly at this route in 2002.

Table 8. Frog species rank and frequency of occurrence at Route L-4.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|---------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 1 | 1 | 1 | Oak Toad | 29.9 | 24.4 | 30.8 |
| 3 | 2 | 3 | Green Treefrog | 10.3 | 18.3 | 12.1 |
| 5 | 3 | 4 | Cricket Frog | 6.9 | 15.9 | 8.9 |
| 5 | 4 | 6 | Pinewoods Treefrog | 6.9 | 11.0 | 5.5 |
| 4 | 5 | 2 | Pig Frog | 8.0 | 8.5 | 13.2 |
| 6 | 6 | 5 | Narrow-mouthed Toad | 3.4 | 6.1 | 6.6 |
| 5 | 6 | 7 | None detected | 6.9 | 6.1 | 4.4 |
| 2 | 6 | 6 | Squirrel Treefrog | 11.5 | 6.1 | 5.5 |
| 5 | 7 | 8 | Barking Treefrog | 6.9 | 3.7 | 3.3 |
| 8 | 8 | 9 | Cuban Treefrog | 1.1 | 1.2 | 2.2 |
| 5 | --- | 5 | Southern Toad | 6.9 | --- | 6.6 |
| 8 | --- | 10 | Greenhouse Frog | 2.3 | --- | 1.1 |
| 9 | --- | --- | Chorus Frog | 1.1 | --- | --- |

Route L-5

General description: North River Rd. area west of Alva

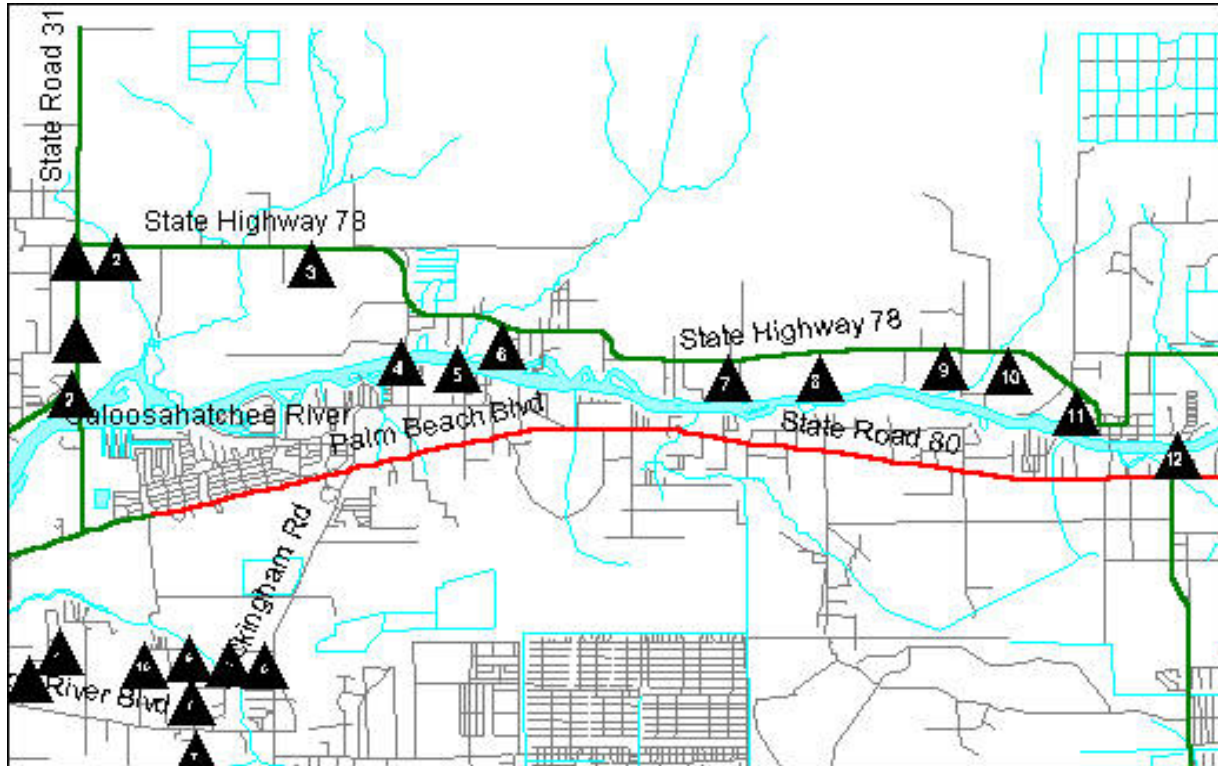
Route leader: Susan Brookman

Route participants (2002): Steve Brookman

Dates monitored in 2000: 6/22, 7/21, 8/17

Dates monitored in 2001: 6/20, 7/18, 8/15, 9/19

Dates monitored in 2002: 6/19, 7/19, 8/21, 9/18



Stop Locations

- 1 North River Rd. at SR 31, N26°48.524' W081°44.353'
- 2 North River Rd. near Greenwell property, N26°43.522' W081°43.622'
- 3 North River Rd. note map, 26°43.639' W081°43.242'
- 4 note map, 26°43.550' W081°42.765'
- 5 Brookman residence? note map, 26°43.834' W081°42.107'
- 6 North River Rd. near Telegraph Creek crossing, N26°43.531' W081°41.567'
- 7 North River Rd. note map, N26°43.379' W081°40.339'
- 8 North River Rd. near Caloosahatchee River Regional Park, N26°43.513' W081°39.316'
- 9 North River Rd. note map, N26°43.852' W081°40.957'
- 10 North River Rd. note map, N26°43.628' W081°42.413'
- 11 North River Rd. note map
- 12 Boat ramp park note map

Route L-5 Summary: This route has relatively high frog species diversity with no “non-detects” for any year. A variety of upland and wetland habitats occur along this route with minimal residential or commercial development. The Cuban Treefrog remains the most frequently heard species again in 2002 (Table 9).

Table 9. Frog species rank and frequency of occurrence at Route L-5.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|------------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 3 | 1 | 1 | Cuban Treefrog | 7.4 | 32.7 | 35.6 |
| 5 | 2 | 2 | Narrow-mouthed Toad | 4.4 | 11.2 | 13.5 |
| 2 | 2 | 4 | Southern Toad | 26.5 | 11.2 | 8.7 |
| 5 | 3 | 7 | Greenhouse Frog | 4.4 | 8.2 | 1.0 |
| 6 | 3 | 7 | Little Grass Frog | 2.9 | 8.2 | 1.0 |
| 1 | 4 | 5 | Cricket Frog | 29.4 | 7.1 | 3.8 |
| --- | 5 | 5 | Pig Frog | --- | 6.1 | 3.8 |
| 3 | 5 | 5 | Squirrel Treefrog | 7.4 | 6.1 | 3.8 |
| 4 | 6 | 2 | Green Treefrog | 5.9 | 3.1 | 13.5 |
| --- | 7 | --- | Chorus Frog | --- | 2.0 | --- |
| 7 | 7 | --- | Eastern Spadefoot Toad | 1.5 | 2.0 | --- |
| 4 | 7 | 3 | Oak Toad | 5.9 | 2.0 | 11.5 |
| 5 | --- | 7 | Leopard Frog | 4.4 | --- | 1.0 |
| --- | --- | 6 | Barking Treefrog | --- | --- | 2.9 |

Route L-6

General description: Bayshore Rd. area N. Ft. Myers, Lee County

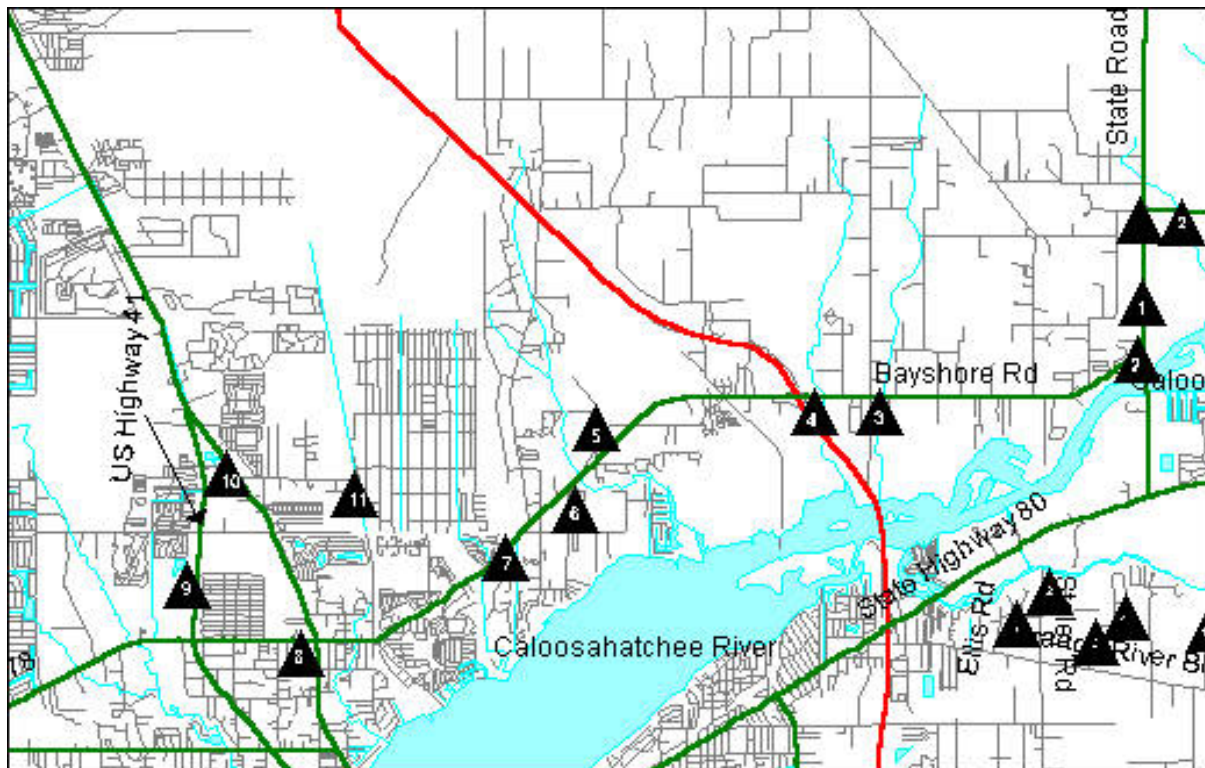
Route leader: Laura Wewerka

Route participants (2002): Jenny White, Debbie Preston

Dates monitored in 2000: 6/21, 7/22, 8/20, 9/22

Dates monitored in 2001: 6/20, 7/18, 9/19

Dates monitored in 2002: 6/26, 7/17, 8/22, 9/18



Stop Locations

- 1 SR 31 near intersection of SR 78, N26°43.622; W81°45.664
- 2 Civic center pond, farthest west pond, N26°43.158; W81°45.887
- 3 N. side of SR 78 near Stroud Creek, N26°42.903; 81°47.964
- 4 Pritchett Pkwy near Pop Ash Creek, N26°42.945; W81°48.513
- 5 SE corner of Bayshore Elementary School campus, N26°42.692; W81°50.450
- 6 Daughtry's Creek lagoon near intersection of Sean Lane, N26°42.355; W81°50.289
- 7 Retention pond near Kash and Kary store, N26°41.288; W81°51.781
- 8 Retention pond at Juicy Lucy restaurant, N26°40.969; W81°53.050
- 9 Wal Mart center retention pond, N26°40.850; W81°53.839
- 10 Bowling alley on Old 41 across from Shell Factory, N26°42.435; 81°53.828
- 11 Canal where Laurel Rd. turns north in Suncoast Estates, N26°42.559; W81°52.719

Route L-6 Summary: This route could be characterized as urban or outlying suburban. Wetland habitats are probably more ephemeral in this area due to substantial drainage associated with an urban land use. The “none detected” category remains relatively high at this route in 2002.

Table 10 . Frog species rank and frequency of occurrence at Route L-6.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|---------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 5 | 1 | 1 | Green Treefrog | 8.2 | 29.8 | 25.4 |
| 4 | 2 | 6 | Southern Toad | 9.8 | 12.8 | 6.3 |
| 3 | 2 | 3 | Squirrel Treefrog | 14.8 | 12.8 | 14.3 |
| 2 | 3 | 6 | Narrow-mouthed Toad | 16.4 | 10.6 | 6.3 |
| 1 | 4 | 2 | None detected | 29.5 | 8.5 | 15.9 |
| 7 | 5 | 6 | Greenhouse Frog | 3.3 | 6.4 | 6.3 |
| 6 | 6 | 5 | Cuban Treefrog | 4.9 | 4.3 | 7.9 |
| --- | 6 | 8 | Little Grass Frog | --- | 4.3 | 1.6 |
| --- | 6 | --- | Pinewoods Treefrog | --- | 4.3 | --- |
| 8 | 7 | --- | Chorus Frog | 1.6 | 2.1 | --- |
| 8 | 7 | 7 | Leopard Frog | 1.6 | 2.1 | 3.2 |
| 8 | 7 | 8 | Pig Frog | 1.6 | 2.1 | 1.6 |
| 5 | --- | 4 | Oak Toad | 8.2 | --- | 11.1 |

Route L-7

General description: East and West of I-75 between Alico and Corkscrew Road

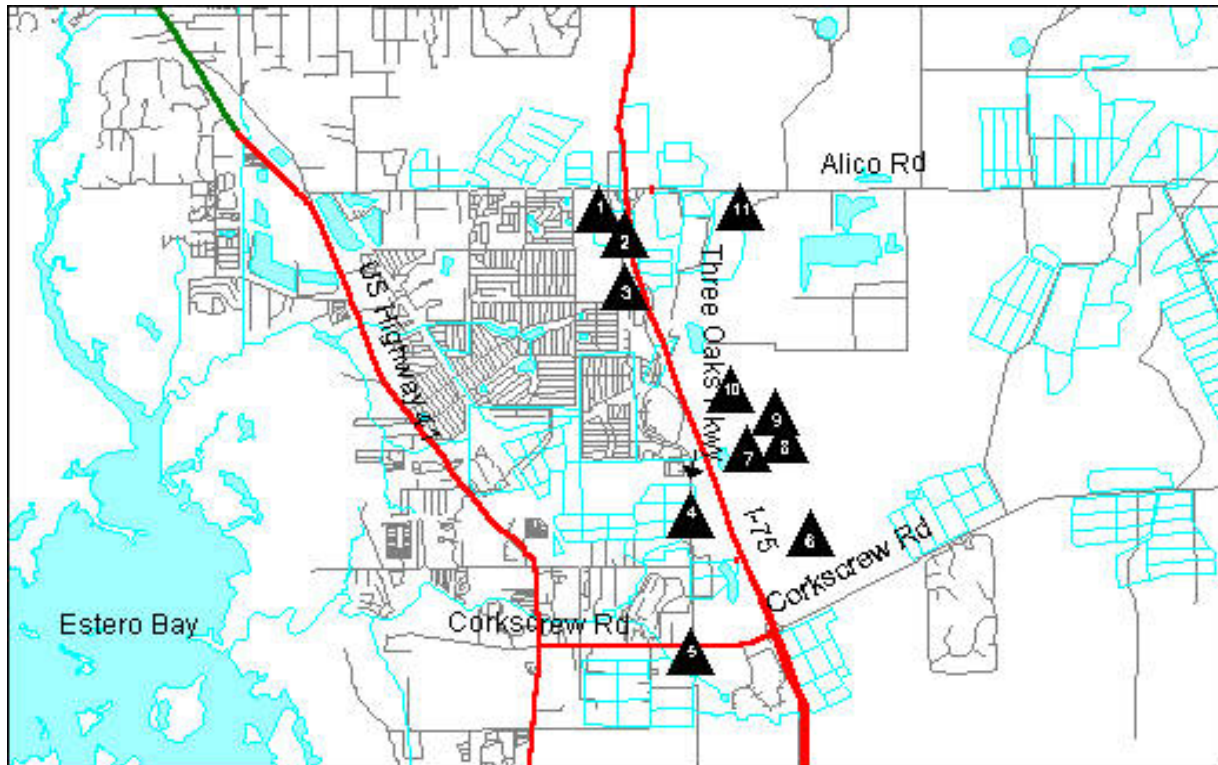
Route Leader: Win Everham

Route participants in 2002: David Finney, Stephanie Timperley, Ginger Campbell, David Hoppa

Dates monitored in 2000: 7/20, 9/21

Dates monitored in 2001: 7/18, 8/15

Dates monitored in 2002: 6/19, 7/24, 8/21, 9/19



Stop Locations (coordinates are in UTM format)

- 1 Alico Road 1/2 mile west of I-75 at the Hess station, 2930480N 419665E
- 2 Three Oaks Pky at regional mall site (note map), 2929970N 420335E
- 3 Three Oaks Pky at San Carlos Park (note map), 2928665N 420785E
- 4 Three Oaks Pky at Koreshan Blvd., 2925730N 421330E
- 5 Three Oaks Pky at South County Library, 2923980N 421350E
- 6 Ben Hill Griffen Pky at TECO Arena entrance, 2924920N 422990E
- 7 Ben Hill Griffen Pky .9 miles north of stop 6, 29262700N 422560E
- 8 PBS TV Station Bldg. on FGCU campus, 2927620N 422720E
- 9 Access Road leaving campus note map, 2927855N 423010E
- 10 Exit road from campus note map, 2928015N 421660E
- 11 Ben Hill Griffen Pky at Alico Road, 2930480N 421930E
- 12 Mining to south, 2930515N 424660E

Route L-7 Summary: The stop locations west of I-75 could be characterized as

outlying suburban and those east of I-75 have experienced considerable change in land cover due to residential and university development. The Barking Treefrog, Leopard Frog and Pig Frog were heard during the first two years at this site but not in 2002. The number of species detected has declined each year at this route.

Table 11. Frog species rank and frequency of occurrence at Route L-7.

| Rank | | | Species | % Frequency of Occurrence | | |
|------|------|------|---------------------|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 4 | 1 | 1 | Oak Toad | 11.5 | 25.6 | 34.2 |
| 1 | 2 | 4 | Cricket Frog | 23.1 | 18.6 | 8.9 |
| --- | 2 | 2 | Southern Toad | --- | 18.6 | 11.4 |
| --- | 3 | 3 | None detected | --- | 11.6 | 10.1 |
| --- | 4 | 6 | Green Treefrog | --- | 7.0 | 6.3 |
| 7 | 5 | --- | Barking Treefrog | 3.8 | 4.7 | --- |
| 8 | 5 | --- | Leopard Frog | 1.9 | 4.7 | --- |
| 8 | 6 | 7 | Cuban Treefrog | 1.9 | 2.3 | 2.5 |
| 6 | 6 | 5 | Narrow-mouthed Toad | 7.7 | 2.3 | 7.6 |
| 7 | 6 | --- | Pig Frog | 3.8 | 2.3 | --- |
| 7 | 6 | 3 | Squirrel Treefrog | 3.8 | 2.3 | 10.1 |
| 2 | --- | --- | Pinewoods Treefrog | 17.3 | --- | --- |
| 3 | --- | --- | Chorus Frog | 13.5 | --- | --- |
| 5 | --- | 6 | Greenhouse Frog | 9.6 | --- | 6.3 |
| 8 | --- | --- | Giant Toad | 1.9 | --- | --- |

Route L-8

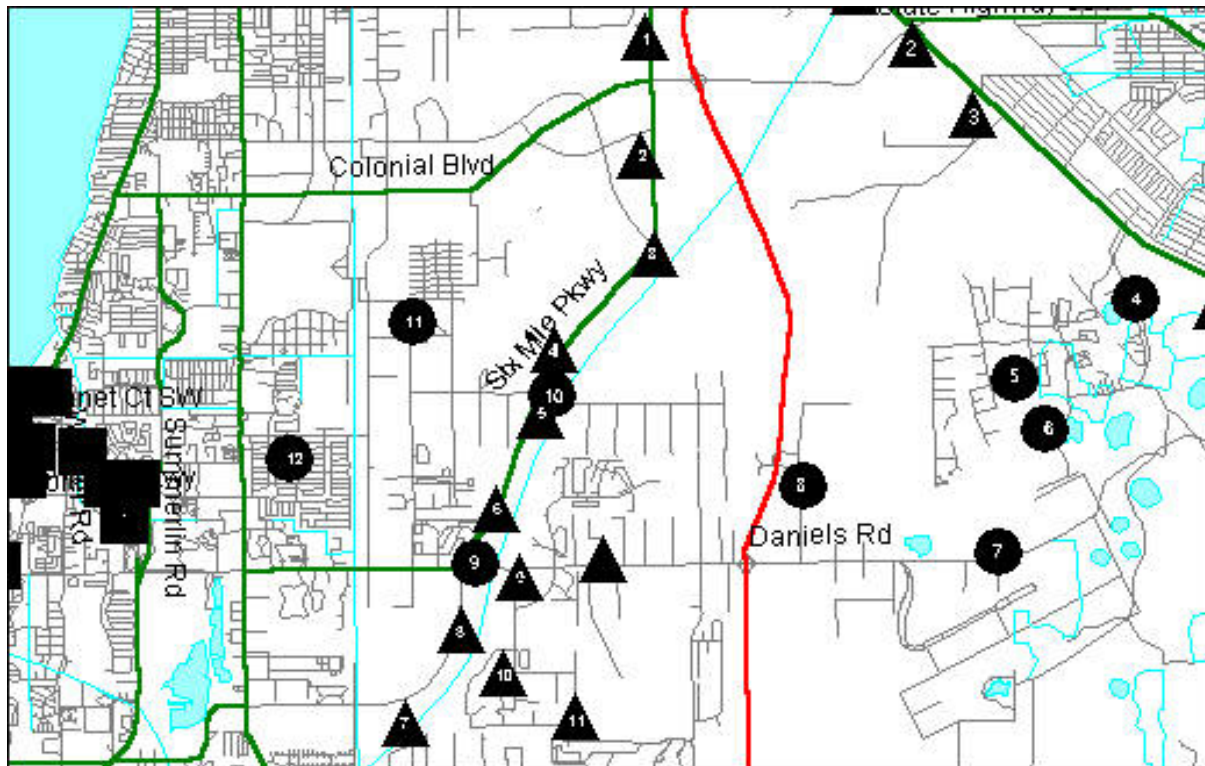
General description: Six-mile Cypress Parkway between Eastwood Golf Course and Metro Parkway, Lee County

Route leader: Dena Beecher

Route participants (2002): Denys Beecher

Dates monitored in 2001: 6/20, 7/18, 8/16, 9/1

Dates monitored in 2002: 6/20, 7/18, 8/21, 9/18



Stop Locations (Triangles in center of map)

1 Ortiz Ave., 1/4 mi. N of Colonial at Bruce Heard Lane, Eastwood G.C., N26°37.202' W081°48.708'

2 West on Bernwood Pl. Dr. to corner from Six-mile Cypress, N26°36.104' W081°48.470

3 Six-mile Cypress at Winkler; east to frontage, South to end, N26°35.467' W081°48.872

4 Six-mile Cypress at Key Deer Ct. N26°34.572' W081°49.523'

5 Six-mile Cypress at Penzance, N26°34.235' W081°49.583'

6 Six-mile Cypress at dirt road west of S.M.C., N26°33.477' W081°50.003

7 Six-mile Cypress at Trader 1/4 mile North of U turn at Metro, N26°31.671' W081°50.885'

8 Six-mile Cypress at entrance to Lee County Sports Complex, N26°32.124' W081°50.473'

9 Daniels Pky. at Eagle Ridge Rd., Friendship Community Church, N26°32.708' W081°49.869'

10 Aries Way 150 yards West of Eagle Ridge Road S.D. entrance, N26°32.147' W081°50.013'

11 Eagle Ridge Rd. approx. 14700 Bald Eagle Drive, N26°31.744' W081°49.356

12 Daniels Pkw. at Shire Lane, Unitarian Church, N26°32.960' W081°49.023'

Route L-8 Summary: This route has the Six Mile Cypress Slough Preserve located to

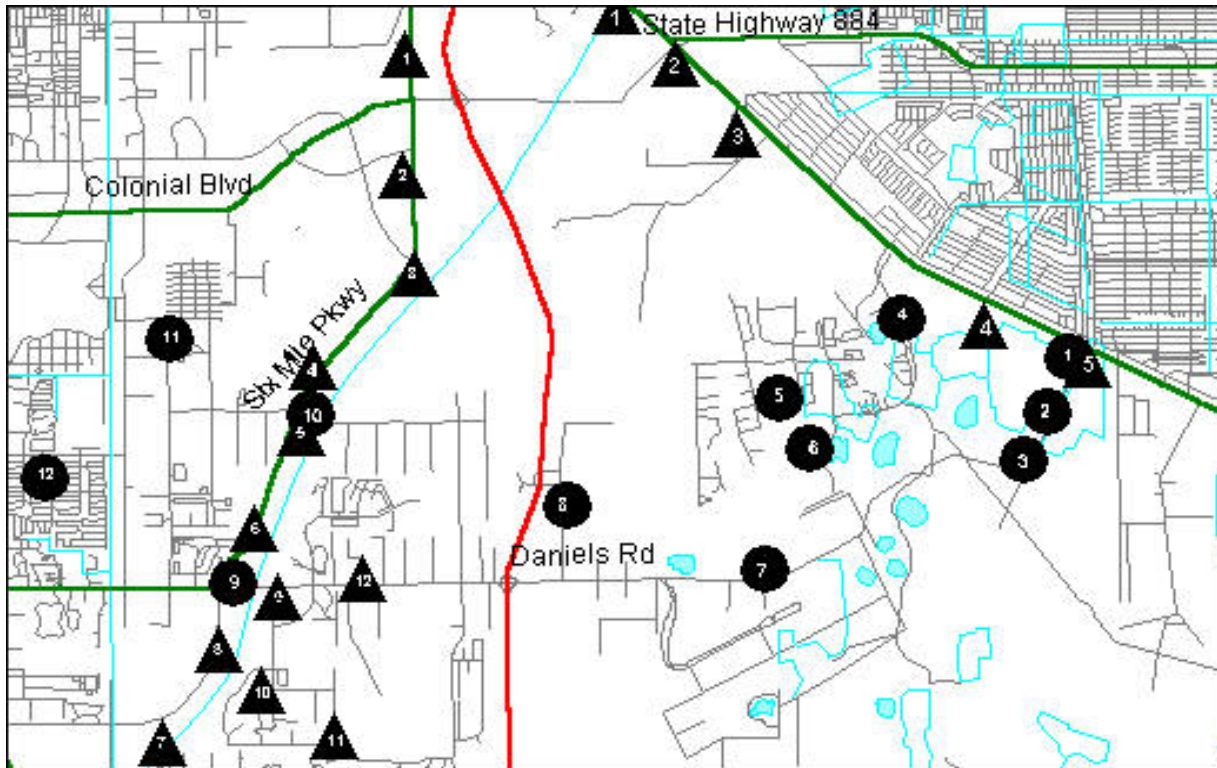
the east of most stops and represents a relatively undisturbed wetland habitat. Ten species were detected with the Pig Frog as the most frequently encountered species in 2001 but declined somewhat in 2002 (Table 11). Larval pig frogs require an extended period of development supported by wetlands having relatively long hydroperiods.

Table 12. Frog species rank and frequency of occurrence at Route L-8.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|---------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 3 | Pig Frog | 24.6 | 13.8 |
| 2 | 6 | None detected | 20.3 | 10.1 |
| 3 | 1 | Green Treefrog | 18.8 | 23.9 |
| 4 | 2 | Oak Toad | 13.0 | 15.6 |
| 5 | 8 | Greenhouse Frog | 8.7 | 2.8 |
| 6 | 5 | Narrow-mouthed Toad | 5.8 | 11.0 |
| 7 | 10 | Southern Toad | 2.9 | 0.9 |
| 8 | --- | Chorus Frog | 1.4 | --- |
| 8 | --- | Leopard Frog | 1.4 | --- |
| 8 | --- | Little Grass Frog | 1.4 | --- |
| 8 | 4 | Squirrel Treefrog | 1.4 | 12.8 |
| --- | 9 | Cricket Frog | --- | 1.8 |
| --- | 7 | Cuban Treefrog | --- | 7.3 |

Route L-9

General description: Daniels Road corridor and Gateway, Lee County
Route leader: Ellen Lindblad
Route participants (2002): Rick Tully, Brandon Kingsbury
Dates monitored in 2001: 6/20, 7/18, 8/15, 9/19
Dates monitored in 2002: 6/17, 8/21



Stop Locations (circular markers), triangles represent stops routes (L-4 and L-8)

- 1 Daniels 0.21 mi. West of SR 82, N26°34.733', W081°43.018'
- 2 Daniels 1/2 mi. West of Stop 1, N26°33.993' W081°43.853'
- 3 Daniels Extension,
- 4 Gateway Elementary School pond, N26°34.652' W081°44.174'
- 5 Gateway cypress dome, N26°34.330' W081°45.009'
- 6 Gateway ponds near Commerce L. Dr., N26°33.652' W081°45.288'
- 7 Daniels turn off by Cougar business bldg, N26°33.299' W081°46.104'
- 8 Treeline north of Daniels, N26°33.769 W081°47.196'
- 9 Six Mile Pky at Daniels weir, N26°32.823' W081°50.056'
- 10 Six Mile Slough entrance gate, N26°34.241' W081°49.644'
- 11 Chico's east pond, N26°34.793' W081°50.872'

Route L-9 Summary: This route had a mixture of land use types and habitats including

pasture, hardwood swamp and residential communities on the East side of Ft. Myers. The diversity of frog species detected was relatively high with 13 species reported (Table 12). The frequency of Narrow-mouthed toads calling increased dramatically at this route in 2002. Spring peepers were heard at this site for the first time and coincide with the first occurrence of this species in Cape Coral at Route L-12. Cuban treefrogs and narrow-mouthed toads increased significantly during 2002.

Table 13. Frog species rank and frequency of occurrence at Route L-9.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|------------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 1 | Cricket Frog | 21.3 | 15.6 |
| 2 | 5 | Squirrel Treefrog | 13.5 | 6.3 |
| 3 | 5 | Southern Toad | 12.4 | 6.3 |
| 4 | 6 | Oak Toad | 9.0 | 4.7 |
| 4 | 7 | Pig Frog | 9.0 | 3.1 |
| 5 | 3 | Green Treefrog | 6.7 | 12.5 |
| 6 | 5 | Barking Treefrog | 5.6 | 6.3 |
| 6 | 8 | Chorus Frog | 5.6 | 1.6 |
| 7 | --- | Little Grass Frog | 4.5 | --- |
| 8 | 3 | Cuban Treefrog | 3.4 | 12.5 |
| 8 | 4 | Greenhouse Frog | 3.4 | 7.8 |
| 9 | 8 | Eastern Spadefoot Toad | 2.2 | 1.6 |
| 9 | 8 | None detected | 2.2 | 1.6 |
| 10 | 2 | Narrow-mouthed Toad | 1.1 | 14.1 |
| --- | 5 | Spring Peeper | --- | 6.3 |

Route L-10

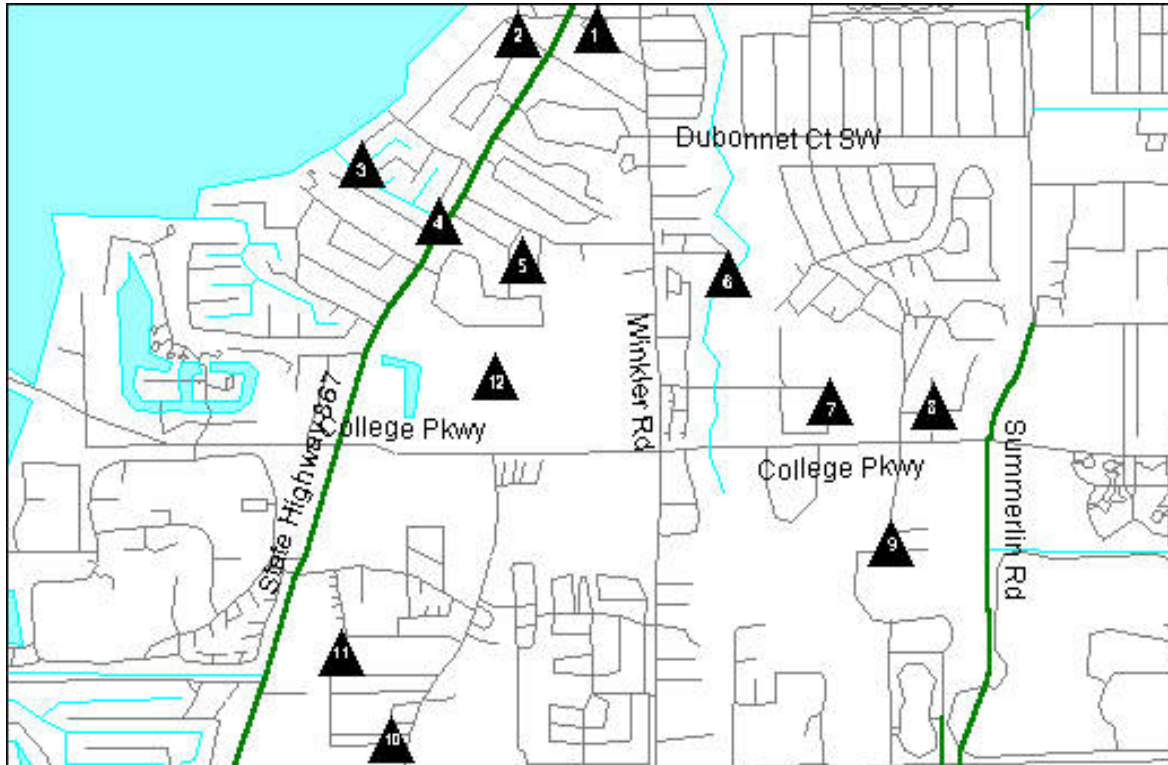
General description: SW Ft. Myers residential area, Lee County

Route Leader: Edie Dubay (2001), Anik Smith (2002)

Route participants (2002): Brad Smith

Dates monitored in 2001: 6/20, 7/19, 8/16, 9/20

Dates monitored in 2002: 6/19, 7/17, 8/21, 9/18



Stop Locations

- 1 Memory Lane at Shaddelee Lane East, N26°34.287'; W81°54.037'
- 2 Parker Drive at Shaddelee Lane West, N26°34.271'; W81°54.222'
- 3 Riverside Lane at end of Cul-de-sac, N26°34.016'; W81°54.584'
- 4 Silvery Lane at end of cul-de-sac, N26°33.893'; W81°54.401'
- 5 Sunset Vista Drive at Casablanca Court
- 6 Hidden Harbour Blvd. at end
- 7 Riverwalk Park Boulevard at end, N26°33.547; W81°53.644
- 8 Corporate Court at end, N26°33.563'; W81°53.264'
- 9 Edison Community College at University Center, N26°33.193'; W81°53.349'
- 10 Foxglove Circle at end-front of lake, N26°32.871'; W81°54.548
- 11 Lennex Lane at end-front of lake, N26°33.003'; W81°54.644'
- 12 South Pointe Blvd. at end

Route L-10 Summary: This route could be characterized as predominantly residential and commercial development in the urban core area of SW Ft. Myers. No frog species were detected nearly 60% of the time and overall diversity was relatively low.

Table 14. Frog species rank and frequency of occurrence at Route L-10.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|---------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 1 | None detected | 59.6 | 27.4 |
| 2 | 6 | Southern Toad | 9.6 | 4.8 |
| 3 | --- | Cricket Frog | 7.7 | --- |
| 3 | 7 | Squirrel Treefrog | 7.7 | 3.2 |
| 4 | --- | Barking Treefrog | 3.8 | --- |
| 4 | 5 | Cuban Treefrog | 3.8 | 11.3 |
| 4 | 4 | Green Treefrog | 3.8 | 14.5 |
| 5 | 3 | Narrow-mouthed Toad | 1.9 | 16.1 |
| 5 | --- | Oak Toad | 1.9 | --- |
| --- | 2 | Greenhouse Frog | --- | 22.6 |

Route L-11

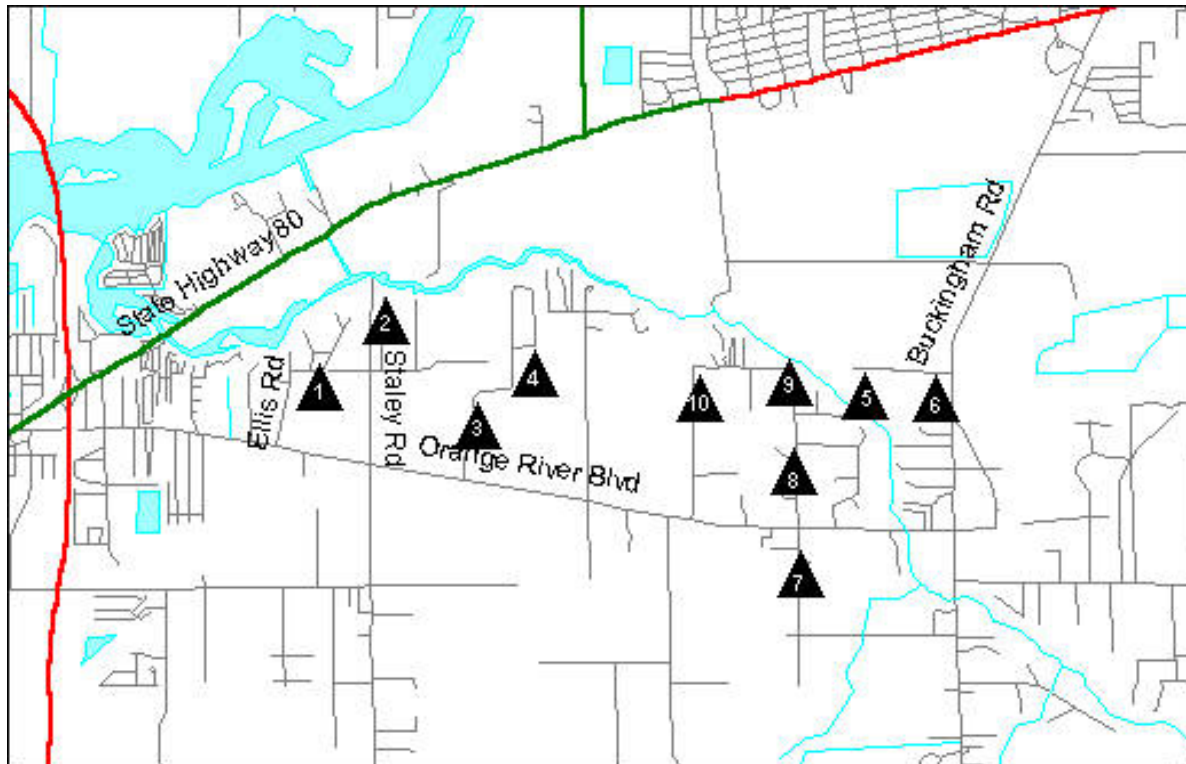
General description: Orange River Blvd. corridor in east Ft. Myers -
Buckingham area, Lee County

Route leader: Jeff Gerberick

Route participants (2002): Ginnie Gerberick, Alexandra Gerberick, Bob
Sanford

Dates monitored in 2001: 6/20, 7/18, 8/15, 9/14

Dates monitored in 2002: 6/18, 7/17, 9/19



Stop Locations

- 1 Ellis Rd., N26°41.22' W081°46.78'
- 2 Little Creek Road, N26°41.40' W081°46.53'
- 3 River Grove Lane, N26°41.02' W081°46.21'
- 4 3125 River Grove Cir., N26°41.25' W081°45.92'
- 5 West Bird Road, N26°41.14' W081°44.43'
- 6 East Bird Road, N26°41.13' W081°44.12'
- 7 Higgenbotham Rd., N26°40.37' W081°44.63'
- 8 Orange River Loop and Idlewild, N26°40.85' W081°44.64'
- 9 N.E. Orange River Loop, N26°41.15' W081°44.67'
- 10 N.W. Orange River Loop, N26°41.16, W081°45.11

Route L-11 Summary: Route L-11 encompasses a variety of habitats in a rural area east of Ft. Myers known as Buckingham. The diversity of frog species calling was relatively high at this site with 12 species detected. Notable exceptions were the Cuban Treefrog and Pinewoods Treefrog.

Table 15. Frog species rank and frequency of occurrence at Route L-11.

| Rank | | Species | % Frequency of Occurrence | |
|------|------|------------------------|---------------------------|------|
| 2001 | 2002 | | 2001 | 2002 |
| 1 | 1 | None detected | 16.9 | 29.2 |
| 1 | 3 | Southern Toad | 16.9 | 8.3 |
| 2 | 2 | Green Treefrog | 12.7 | 16.7 |
| 3 | 3 | Narrow-mouthed Toad | 11.2 | 8.3 |
| 3 | 3 | Squirrel Treefrog | 11.2 | 8.3 |
| 4 | 4 | Little Grass Frog | 9.6 | 6.3 |
| 5 | --- | Oak Toad | 5.6 | --- |
| 6 | 6 | Leopard Frog | 4.2 | 2.1 |
| 6 | 3 | Pig Frog | 4.2 | 8.3 |
| 7 | --- | Giant Toad | 2.8 | --- |
| 8 | --- | Cricket Frog | 1.4 | --- |
| 8 | --- | Eastern Spadefoot Toad | 1.4 | --- |
| 8 | 4 | Greenhouse Frog | 1.4 | 6.3 |
| --- | 6 | Barking Treefrog | --- | 2.1 |
| --- | 5 | Cuban Treefrog | --- | 4.2 |

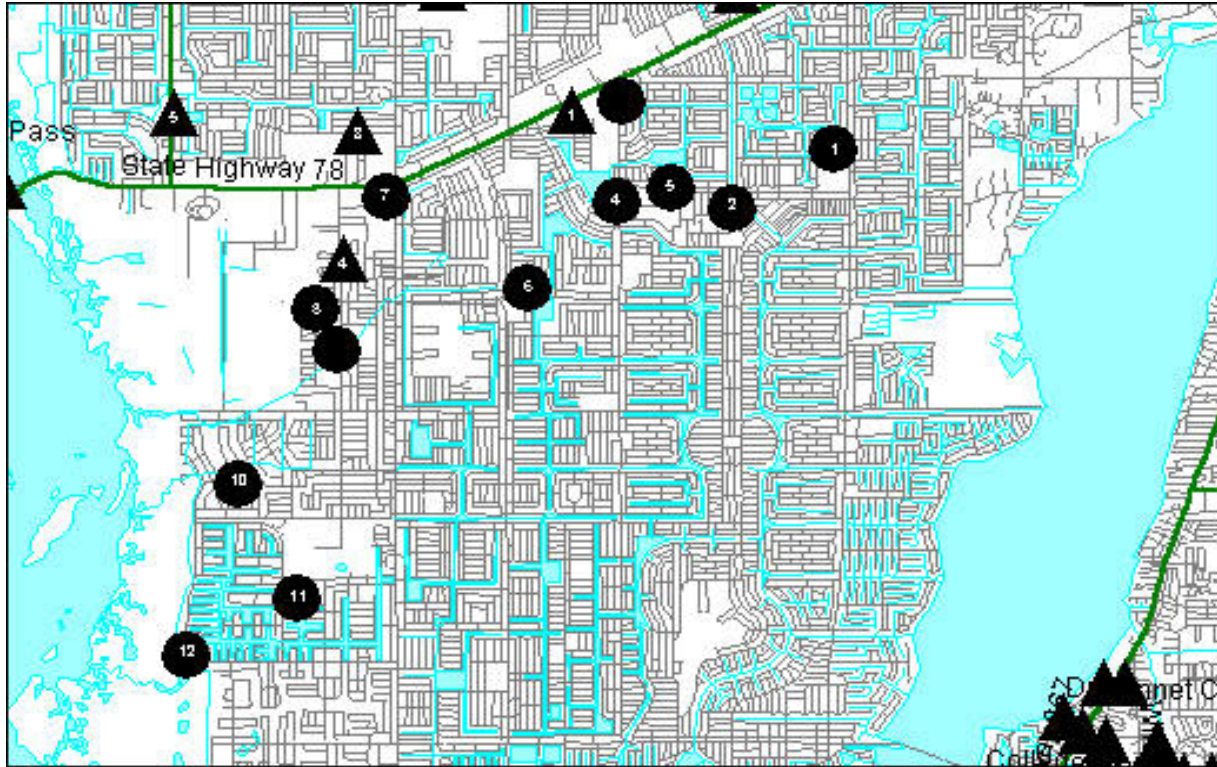
Route L-12

General description: Central Cape Coral

Route Leader: Cathy Loyola

Route participants: Carlos Loyola, Sue Scott, Sarah ?

Dates monitored in 2002: 6/20, 7/17, 8/21, 9/18



Stop locations (circles)

1. N26°36.905; W81°59.733
2. N26°38.052; W81°27.608
3. N26°38.881; W81°58.652
4. N26°38.488; W81°58.520
5. N26°38.603; W81°58.123
6. N26°37.457; W81°59.412
7. N26°38.035; W82°00.481
8. N26°37.299; W82°01.125
9. N26°36.738; W82°00.908
10. N26°35.979; W82°01.635
11. N26°35.126; W82°01.433
12. N26°34.712; W82°02.245

Route L-12 Summary: Detections of Bird-voiced Treefrog and Ornate Chorus Frog are potentially mistaken call identifications since the reported range for both species does not include south Florida. It is of note that no “non detects” were reported (Table 16). The relative abundance of Spring Peepers is unusual in that this is the only route reporting this species as a dominant species.

Table 16. Frog species rank and frequency of occurrence at Route L-12.

| Rank 2002 | Species | % Frequency of Occurrence 2002 |
|--------------|------------------------|--------------------------------------|
| 1 | Cricket Frog | 19.6 |
| 2 | Narrow-mouth Toad | 12.7 |
| 3 | Spring Peeper | 11.8 |
| 4 | Green Treefrog | 10.8 |
| 5 | Oak Toad | 8.8 |
| 6 | Southern Toad | 6.9 |
| 7 | Cope’s Gray Treefrog | 4.9 |
| 8 | Little Gress Frog | 3.9 |
| 8 | Pinewoods Treefrog | 3.9 |
| 9 | Chorus Frog | 2.9 |
| 10 | Bull Frog | 2.0 |
| 10 | Barking Treefrog | 2.0 |
| 10 | Greenhouse Frog | 2.0 |
| 10 | Squirrel Treefrog | 2.0 |
| 10 | Cuban Treefrog | 2.0 |
| 11 | Bird-voiced Frog | 1.0 |
| 11 | Eastern Spadefoot Taod | 1.0 |
| 11 | Ornate Chorus Frog | 1.0 |
| 11 | Pig Frog | 1.0 |

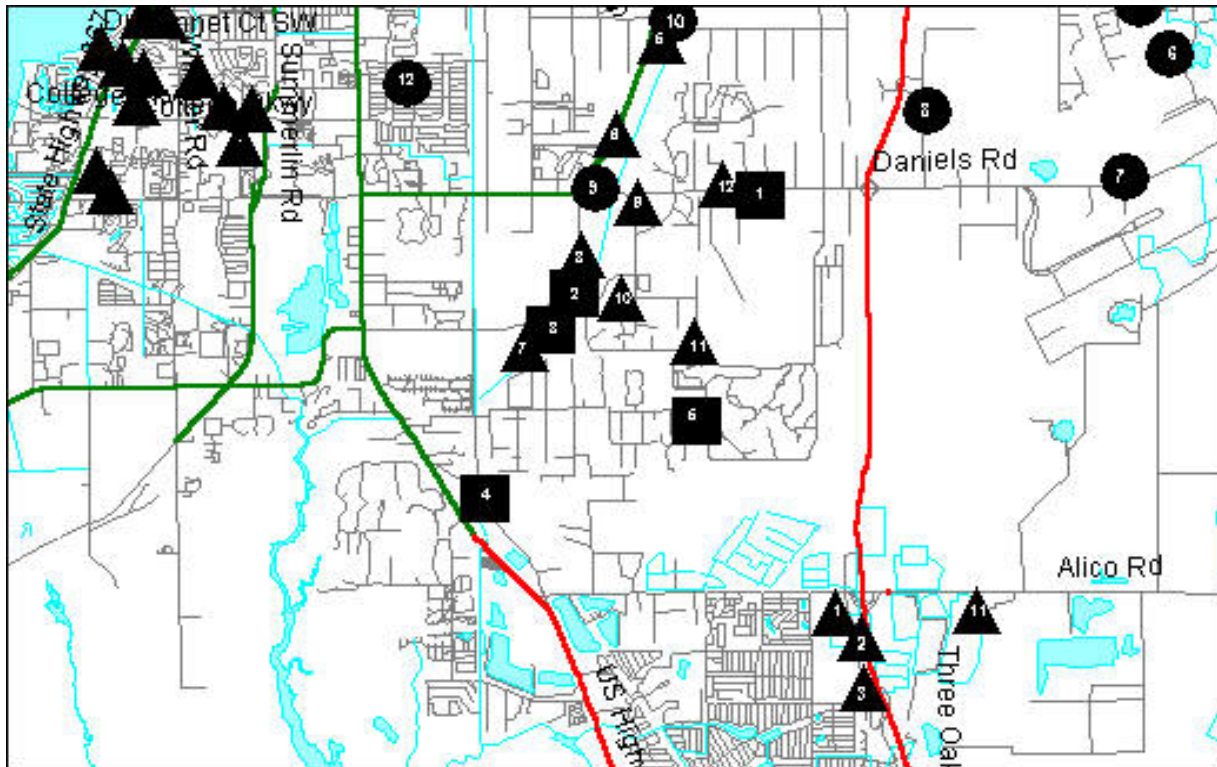
Route L-13

General description: South end of Six Mile Cypress Slough Preserve

Route Leader: Sarah Jamieson

Route participants: Rod Rodriguez, Roger Clark

Dates monitored in 2002: 6/19, 7/17, 8/21, 9/18



Stop locations (squares)

1. Daniels Pky. Weir
2. Stadium
3. Sun Harvest (Molly St.)
4. Ten Mile Canal weir
5. Briar Crest berm

Route L-13 Summary: This route includes the south end of the Six Mile Cypress Preserve. The Preserve is dominated by a cypress slough swamp type habitat. Only five stops were monitored.

Table 17. Frog species rank and frequency of occurrence at Route L-13.

| Rank 2002 | Species | % Frequency of Occurrence 2002 |
|-----------|-------------------|--------------------------------|
| 1 | Oak Toad | 23.0 |
| 2 | Leopard Frog | 18.0 |
| 3 | Cuban Treefrog | 13.0 |
| 4 | Little Grass Frog | 10.0 |
| 4 | None | 10.0 |
| 4 | Pig Frog | 10.0 |
| 5 | Squirrel Treefrog | 8.0 |
| 6 | Chorus Frog | 5.0 |
| 7 | Bull Frog | 3.0 |
| 7 | Narrow-mouth Toad | 3.0 |

Overall Summary

Assumptions when evaluating the data: Between-year comparisons for the species in Table 18 are potentially misleading and should be assessed with caution. There are several reasons for this. The information (number of routes, and habitat and associated hydrology differences) that the percent frequency of occurrence is determined from in Table 18 is not the same for each year. Additional routes were added to the network in each succeeding year and these new routes may have represented habitat that was favorable or unfavorable for the various frog species therefore creating a “bias”. A more valid comparison for evaluating changes in frog diversity and abundance over time should be made at the “route” level comparing changes within a specific route between years. Where routes span relatively large geographic areas (ie.linear routes covering 8 or 10 miles) a more accurate comparison would be between the same “stop” locations over time where habitat homogeneity is more probable and frog species trends in diversity and abundance would be more realistically represented.

However, some rather general assumptions could be made from the data in Table 18. As a result of a rather large number of routes covering a broad geographic area and representing a broad but potentially skewed range of habitat types, it is reasonable to assume that the most common species (those having the highest frequency of occurrence) are probable estimates of the actual abundance of species in the area of question. More caution, however, is needed in evaluating rare species. Species may be rare as determined from this survey but the rarity may be a result of monitoring methodology. For example the Florida Gopher Frog has been heard calling only once during any year of the survey but this may be explained by the fact that Gopher Frogs are more normally heard calling in the early spring in South Florida when monitoring does not occur as part of this survey. Further examples may include species that call very late or early in the day not normally during the hours monitored (30 minutes after sunset to usually no later than 2300 hour). An example of this second hypothesis is the Leopard Frog which can often be heard calling near dawn but rarely in the late evening when monitoring normally occurs. Monitoring at other times of the day would be required to validate this hypothesis.

Species Accounts: Several species new to the SWFAMN were reported in 2002. The Southern Spring Peeper was reported for the first time at Routes L-9 and L-12 where it was heard calling at a total of 14 different stop locations for both routes. The Cope’s Gray Treefrog was reported for the first time in 2001 at Route L-1 and again in 2002 at L-1 and at L-12. Further varification of this species is needed since it represents a significant range extention.

The Bull Frog was reported at three routes (L-12, L-13 and CH-2) in 2002. Previous records of the Bull Frog from the other surveys included parts of Charlotte County as the southern range boundary of this species in peninsular Florida. However, two routes in Lee County (L-12 and L-13) also reported Bull Frogs calling in 2002 and may represent range extensions for this species. Incidental reports have also been made of Bull Frogs calling in or near the Six Mile Cypress Slough Preserve. The addition of the

Bull Frog, a voracious predator, as a new resident in this system may warrant further observation.

The Bird-voiced Treefrog, Bronze Frog and River Frog were reported rarely during 2002 but were not included in Table 18. Further verification for these three species is needed since they represent significant departures from their reported ranges.

Several species have continued to decline over the three year period when assessed across all routes. They include the Pinewoods Treefrog, Barking Treefrog and Florida Chorus Frog. The occurrence estimates for these three species should be evaluated with caution as described above under "Assumptions when evaluating data". The Florida Chorus Frog remains a rare species at most routes and was only reported at one of the same routes during 2002 as compared to 2001. The Florida Chorus Frog was only reported from five routes during 2002 (L-3, L-9, L-12, L-13, CH-3).

The overall percent occurrence of calling OaK Toads had declined substantially in 2001 but the occurrence of this species had rebounded in 2002 similar to the 2000 level. Occurrence of other species remaining relatively stable across all routes over the three year period include; Green Treefrog, Southern Toad, Florida Cricket Frog, Greenhouse Frog and Squirrel Treefrog. The Cuban Treefrog has shown slight but progressive increases each year across all routes.

Table 18. Frog species rank and occurrence across all routes.

| RANK | | | FROG SPECIES | % FREQUENCY OF OCCURRENCE | | |
|------|------|------|--|---------------------------|------|------|
| 2000 | 2001 | 2002 | | 2000 | 2001 | 2002 |
| 5 | 1 | 1 | Green Treefrog, <i>Hyla cinerea</i> | 18.8 | 14.4 | 14.2 |
| 3 | 2 | 5 | Southern Toad, <i>Bufo terrestris</i> | 10.3 | 10.5 | 9.1 |
| 10 | 3 | 7 | Pig Frog, <i>Rana grylio</i> | 3.8 | 9.6 | 6.9 |
| 2 | 4 | 3 | None | 13.1 | 9.2 | 10.2 |
| 4 | 5 | 9 | Florida Cricket Frog, <i>Pseudacris nigrita</i> | 9.0 | 8.7 | 6.1 |
| 1 | 6 | 2 | Oak Toad, <i>Bufo quercicus</i> | 17.1 | 8.5 | 14.0 |
| 7 | 7 | 10 | Greenhouse Frog, <i>Eleutherodactylus planirostris</i> | 6.3 | 7.3 | 5.6 |
| 8 | 8 | 4 | Narrow-mouthed toad, <i>Gastrophryne carolinensis</i> | 5.7 | 6.4 | 9.9 |
| 6 | 8 | 8 | Squirrel Treefrog, <i>Hyla squirella</i> | 7.6 | 6.4 | 6.4 |
| 12 | 9 | 6 | Cuban Treefrog, <i>Hyla septentrionalis</i> | 3.2 | 5.9 | 7.6 |
| 9 | 10 | 11 | Pinewoods Treefrog, <i>Hyla femoralis</i> | 4.8 | 3.9 | 2.5 |
| 15 | 11 | 12 | Little Grass Frog, <i>Limnaeodius ocularis</i> | 0.6 | 2.7 | 1.5 |
| 11 | 12 | 13 | Barking Treefrog, <i>Hyla gratiosa</i> | 3.4 | 2.5 | 1.4 |
| --- | 13 | 13 | Cope's Gray Treefrog, <i>Hyla chrysoscelis</i> | --- | 1.2 | 1.4 |
| 13 | 14 | 16 | Florida Chorus Frog, <i>Pseudacris nigrita verrucosa</i> | 2.9 | 0.9 | 0.7 |
| 14 | 15 | 15 | Southern Leopard Frog, <i>Rana sphenoccephala</i> | 2.5 | 0.8 | 0.9 |
| 18 | 16 | 18 | Giant Toad, <i>Bufo marinus</i> | 0.2 | 0.5 | 0.1 |
| 16 | 17 | 18 | Eastern Spadefoot Toad, <i>Scaphiopus holbrooki</i> | 0.4 | 0.5 | 0.1 |
| 17 | 18 | 17 | Bull Frog, <i>Rana catesbeiana</i> | 0.2 | 0.1 | 0.3 |
| --- | --- | 18 | Florida Gopher Frog, <i>Rana capito aesopus</i> | --- | --- | 0.1 |
| --- | --- | 14 | Southern Spring Peeper, <i>Pseudacris crucifer bartramiana</i> | --- | --- | 1.1 |

Data Management

Because the database has grown so large, it is not practical to list all of the information in this summary. All of the field data are entered into a Microsoft Access Database. This enables summarizing very specific information gathered from the surveys. For example the database could be queried for species of frogs calling according to date, wind, cloud cover characteristics and other variables listed on the field monitoring forms. Requests for specific queries of the database should be directed to John Cassani (239-694-5844).

Acknowledgment

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