

# USGS Response to the Recent Invasion of Cuban Treefrogs in Louisiana

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# The Cuban Treefrog

## History of invasion

- ▶ First introduced to U.S. by 1920s in the Florida Keys
- ▶ Established throughout southern Florida by 1970s
- ▶ Established in north-central Florida by 2010s
  - ▶ Breeding is widespread
  - ▶ No problem tolerating climate similar to that across northern Gulf of Mexico

## *Osteopilus septentrionalis*



# The Cuban Treefrog

Living in a window washer bucket at a gas station in Florida



## The Perfect Invader?

- ▶ High fecundity
- ▶ Fast growing/ large adult size
- ▶ Generalist diet
- ▶ Thrives in human dominated habitats
- ▶ Ability to dominate native treefrog community

# USGS Research in Florida

- ▶ We found that Cuban treefrogs could explain the absence of native species.
- ▶ When Cuban treefrogs were removed from experimental plots, populations of native frogs recovered almost immediately.

*Herpetologica*, 67(2), 2011, 105–117

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## RECOVERY OF NATIVE TREEFROGS AFTER REMOVAL OF NONINDIGENOUS CUBAN TREEFROGS, *OSTEOPILUS SEPTENTRIONALIS*

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FRANK J. MAZZOTTI<sup>3</sup>, AND H. FRANKLIN PERCIVAL<sup>4</sup>

# USGS Research in Florida

- We also found that the presence of Cuban Treefrogs at a site reduced the probability of occurrence of native Green and Squirrel Treefrogs.

*Ecological Applications*, 20(5), 2010, pp. 1467–1475  
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## A new parameterization for estimating co-occurrence of interacting species

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# USGS Research in Florida

- ▶ We found that Cuban Treefrogs ate a broad diet including native vertebrates (mostly frogs)
- ▶ We also found evidence that native treefrogs did not avoid Cuban Treefrogs and seemed to be unaware of the threat.

*Caribbean Journal of Science*, Vol. 46, No. 2-3, 346-355, 2012  
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University of Puerto Rico, Mayagüez

## Diet of the invasive Cuban Treefrog (*Osteopilus septentrionalis*) in pine rockland and mangrove habitats in South Florida

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*Herpetological Review*, 2013, 44(3), 406-409.  
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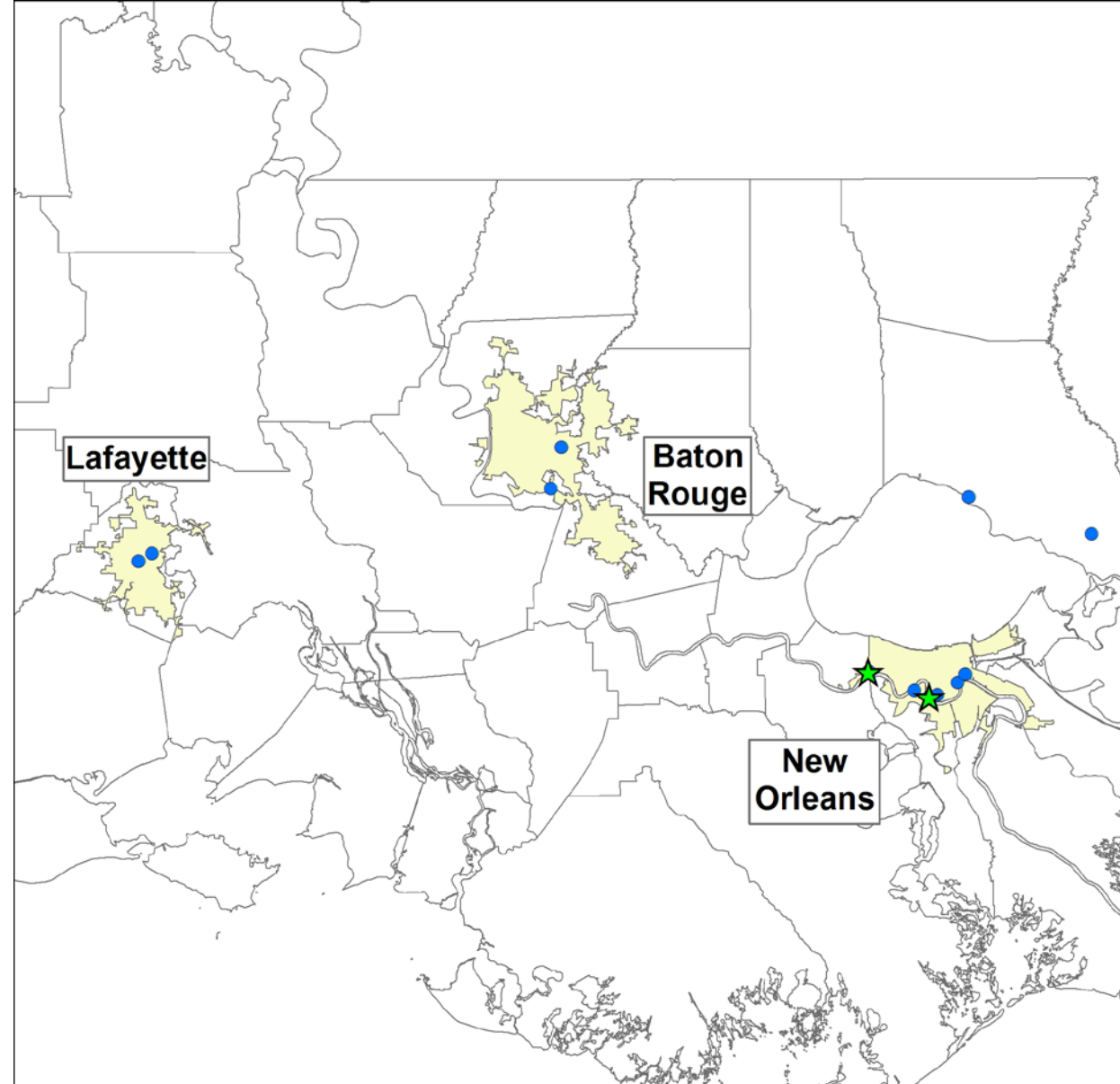
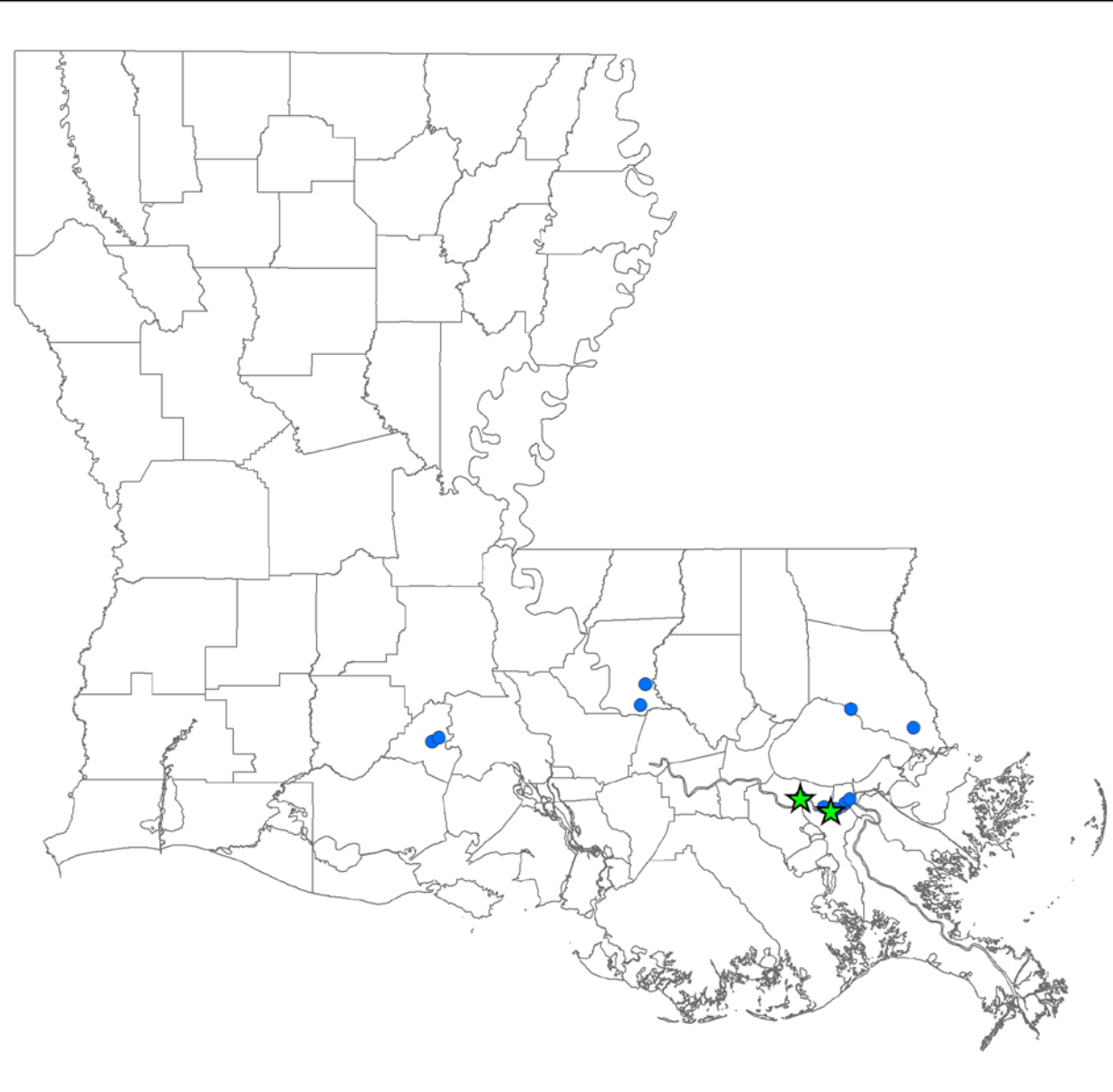
## Co-Occurrence of Invasive Cuban Treefrogs and Native Treefrogs in PVC Pipe Refugia

# Cuban Treefrogs in Louisiana

- ▶ April 2013 – November 2016
  - ▶ We were made aware of several occurrences of single Cuban Treefrogs in Louisiana that almost all could be associated with recent plant acquisitions from retail nurseries.
- ▶ December 2016
  - ▶ First contacted by Audubon Zoo in New Orleans that they were finding what they believed to be Cuban Treefrogs on their property.
- ▶ September 2017-Present
  - ▶ We have conducted ~monthly trips to search for and remove Cuban Treefrogs at Audubon Zoo and surrounding park property.
- ▶ September 2018
  - ▶ USGS made aware of another potential breeding population in Saint Rose, LA. A commercial nursery is located adjacent to the site.



# Cuban Treefrogs in Louisiana



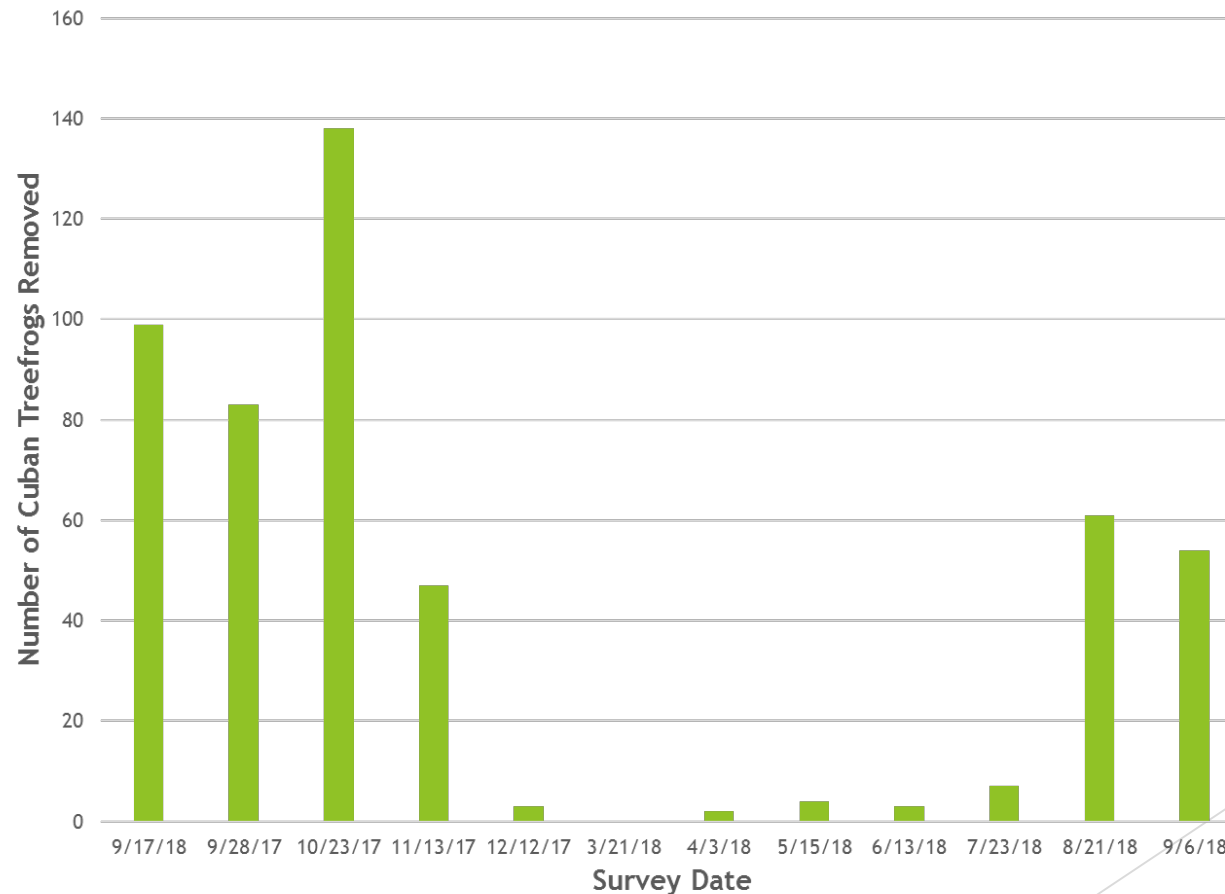


# USGS Research on Cuban Treefrogs in Louisiana

- ▶ Acoustic monitoring in protected natural areas
  - ▶ Automated audio recording devices in use as sentinel for Cuban Treefrog invasion in Jean Lafitte National Park and Gulf Islands National Seashore.
- ▶ Continued removal efforts at Audubon Park and Zoo
  - ▶ About to begin dissections for diet study
  - ▶ Developing disease research and possible genetics study
  - ▶ Working with collaborators to have student led research as well
- ▶ Documenting and responding to all of the Cuban Treefrog sightings in the state that we hear about

# Audubon Zoo Study Site

- ▶ So far we have removed over 500 Cuban Treefrogs.
- ▶ Captures went down when it got cold, and took a while to recover.
- ▶ The source of the Cuban Treefrogs believed to be palms planted in Elephant enclosure



# Next Steps / Future Directions

- ▶ An EDRR program could be developed to attempt to eradicate the known breeding populations before they spread into natural areas.
- ▶ Management actions to decrease the spread of Cuban Treefrogs on landscape plant shipments could be explored.
- ▶ More research on the thermal tolerance of the species to better define the areas vulnerable to invasion.