

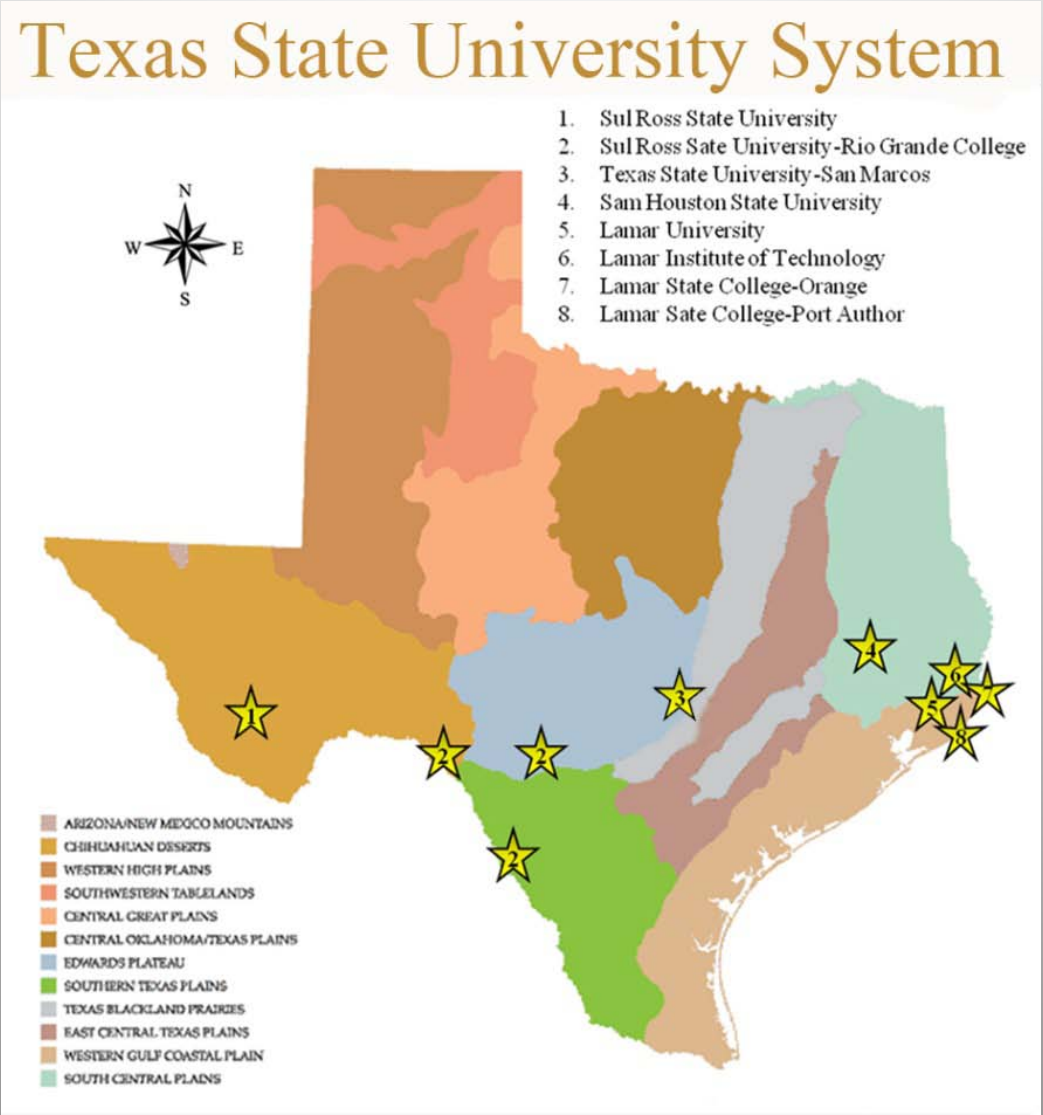
# Institute for the Study of Invasive Species (ISIS)

Jerry L. Cook  
Executive Director

Professor of Biology & Associate Vice Pres. for Research  
Sam Houston State University, Huntsville, TX



# ISIS Collaborating Institutions



# The ISIS Team

- 40+ researchers on faculty in TSUS
- 6 ISIS staff (non-teaching)
- Center at Sam Houston State University



# ISIS Mission

- **Early Detection/Rapid Response**
  - Citizen scientists
  - Strike team
- **Expert Identification**
- **GIS/Modeling**
- **Species research**
- **Outreach**
- **Collaboration with other experts**

# ISIS

*A comprehensive center dealing with invasive species*

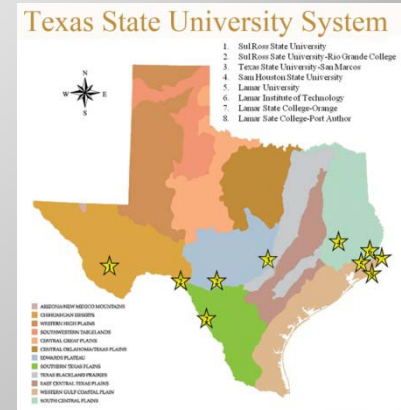
# Database and Outreach

[www.tsusinvasives.org/](http://www.tsusinvasives.org/)

- Alerts
- Invasive species database
- Experts list
- Citizen scientist page
- Early detection/rapid response
- Invasives 101
- Links to resources

# Early Detection Rapid Response

- Team that can be deployed
- Network of institutions and researchers across Texas



# GIS

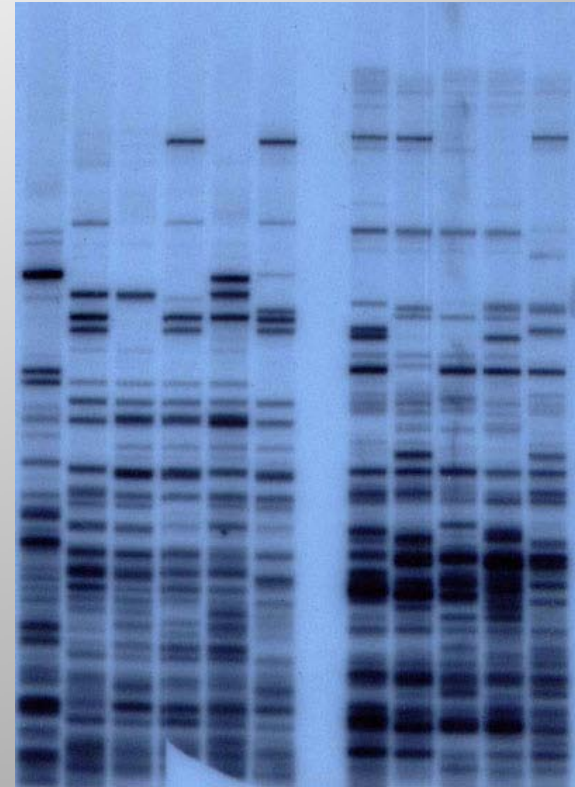




# Analytical Lab



# Molecular Genetics Lab



# Museum Collections



# Insect Toxicology Lab



# Economic Analysis



# How We Compare

- **Georgia Invasive Species Task Force**
  - Mostly database and outreach
- **Florida Invasive Species Partnership**
  - Database and python eradication
- **Mississippi State Geophysical Research Institute**
  - Aquatic plant projects, cactus moth project, GIS
- **Colorado State University**
  - Database and modeling

# *Examples of Activities*

# Emerald Ash Borer

- Part of collaborative effort
- ~1000 traps
- Three ISIS teams





# Emerald Ash Borer, Trap Locations, 2012

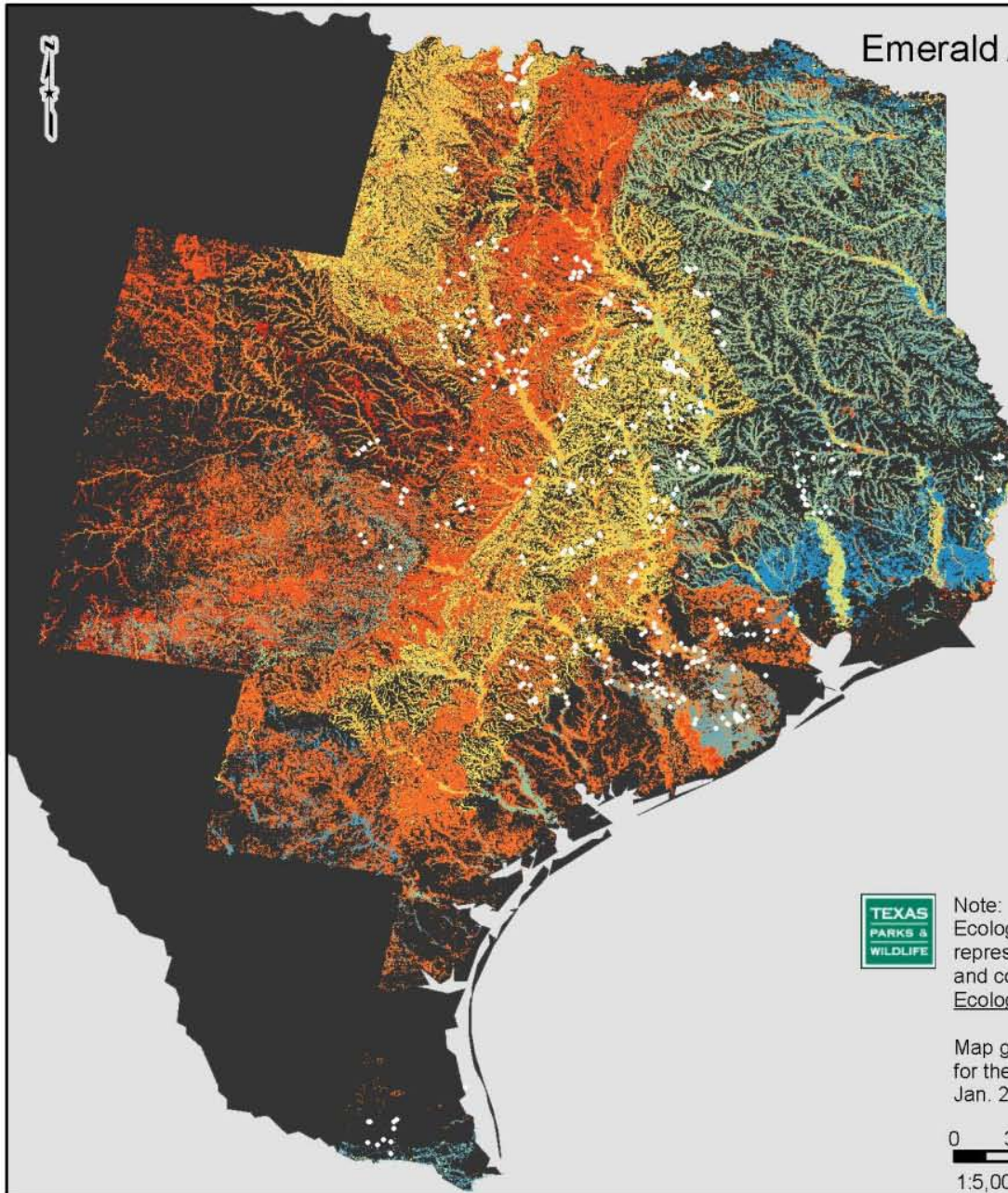


## Legend

EAB Trap Locations: 2012

Phases I-III *Fraxinus sp.*  
CommonName

- Central Texas: Floodplain Baldcypress Swamp
- Central Texas: Floodplain Deciduous Shrubland
- Central Texas: Floodplain Hardwood Forest
- Central Texas: Floodplain Herbaceous Vegetation
- Central Texas: Floodplain Seasonally Flooded Hardwood Forest
- Central Texas: Riparian Deciduous Shrubland
- Central Texas: Riparian Hardwood / Evergreen Forest
- Central Texas: Riparian Hardwood Forest
- Edwards Plateau: Floodplain Hardwood / Ashe Juniper Forest
- Edwards Plateau: Floodplain Hardwood Forest
- Edwards Plateau: Floodplain Live Oak Forest
- Edwards Plateau: Oak / Hardwood Slope Forest
- Edwards Plateau: Riparian Hardwood / Ashe Juniper Forest
- Edwards Plateau: Riparian Hardwood Forest
- Native Invasive: Deciduous Woodland
- Pineywoods: Bottomland Baldcypress Swamp
- Pineywoods: Bottomland Deciduous Successional Shrubland
- Pineywoods: Bottomland Temporarily Flooded Hardwood Forest
- Pineywoods: Hardwood Flatwoods
- Pineywoods: Small Stream and Riparian Deciduous Successional Shrubland
- Pineywoods: Small Stream and Riparian Seasonally Flooded Hardwood Forest
- Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest
- Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed Forest
- Post Oak Savanna: Live Oak Slope Forest
- Post Oak Savanna: Oak / Hardwood Slope Forest
- Red River: Floodplain Deciduous Shrubland
- Red River: Floodplain Hardwood / Evergreen Forest



Note: Points overlaid on Texas Parks and Wildlife - Texas Ecological Systems Data (2012), Phases I-III. Ecological systems representative of Ash Trees (*Fraxinus sp.*) have been extracted and color coded by Vegetation Type as described in the [Texas Ecological Systems Project: Phases I-III Interpretive Booklet](#).

Map generated at the Texas State University System, Institute for the Study of Invasive Species, Sam Houston State University, Jan. 2013, DRH



# Survey of Buprestidae (value added survey)

34 species

Distribution map

Specimens deposited



**Red Streaked Leafhopper**  
*Balclutha rubrostriata*

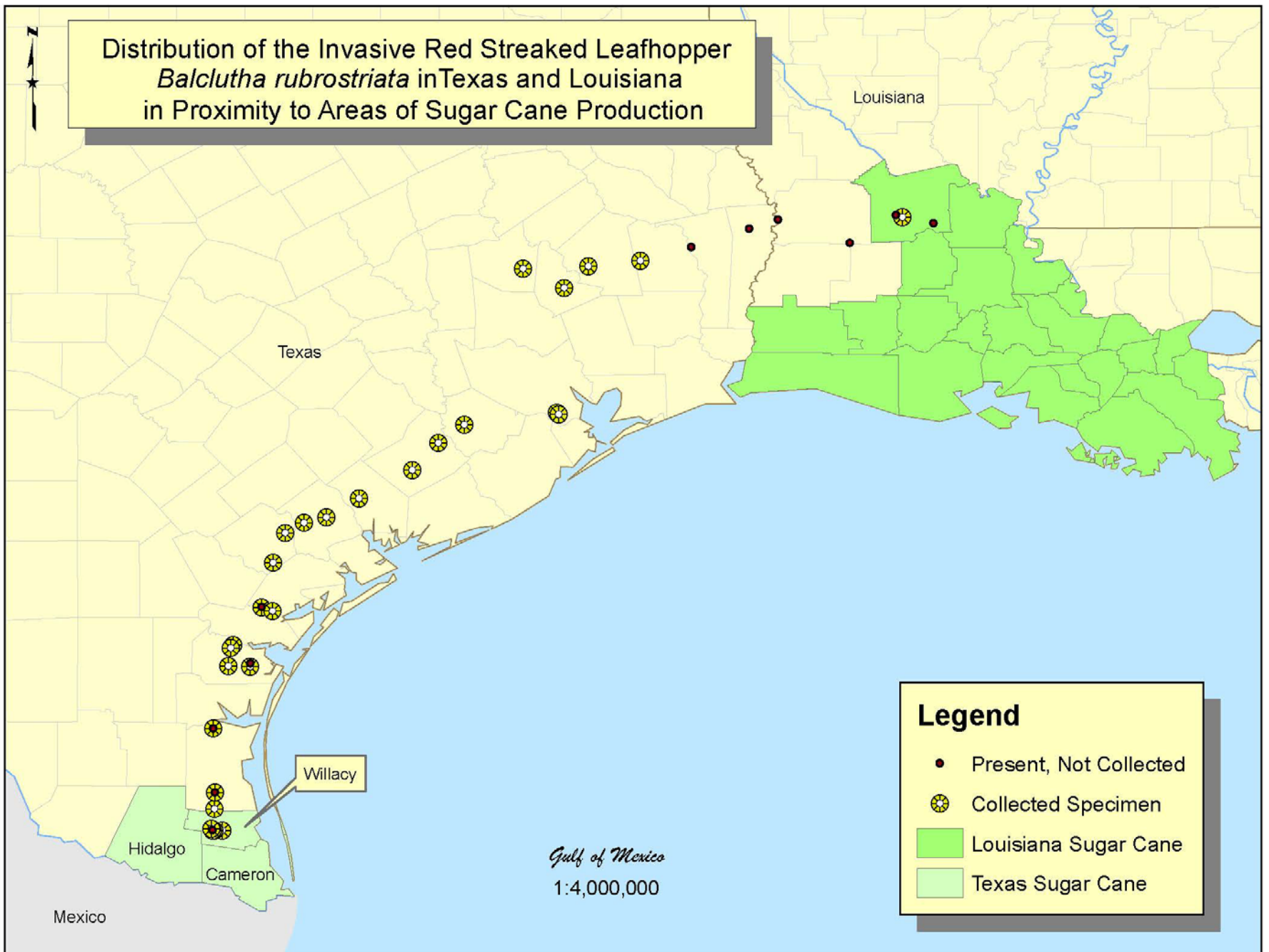




# Phytoplasmas, Leafhoppers, & Imminent Danger

- **Phytoplasmas evolved with leafhoppers**
- **Small group of leafhoppers appear to be involved**
- **Seven phytoplasmas effect sugarcane**
- **Sugarcane may be expanding as biofuel**
- **Monitoring program is needed**

Distribution of the Invasive Red Streaked Leafhopper  
*Balclutha rubrostriata* in Texas and Louisiana  
in Proximity to Areas of Sugar Cane Production



# Red Streaked Leafhopper and KR Bluestem



# Current Status

- **Early genetic testing**
  - Positive test for phytoplasma
  - Negative for white leaf phytoplasma
- **Distribution not fully understood**
- **What is needed**
  - Distribution and association with bluestem
  - Checking phytoplasmas
  - Management strategy
- **Lack of funding for comprehensive project**



