

TEXAS INVASIVES'

Research, Programs & Funding

November 19, 2024

Gulf & South Atlantic Regional Panel on AIS

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Director of Research & Education

Texas Invasive Species Institute

Huntsville, TX



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Sam Houston
State University



TEXAS A&M
AGRI LIFE
EXTENSION



TEXAS A&M
FOREST SERVICE



THE TEXAS
STATE
UNIVERSITY
SYSTEM

Texas Invasive Species Institute

Focuses on **Early Detection and Rapid Response (EDRR)** to newly invasive pests and **Enhance Public Education** about invasive species.

PUBLIC EDUCATION: the best way to make progress against Invasive Species. By showing *what* Invasive Species are and how humans spread them - prevention and management can take lead!

– **Citizen Science Workshops & presentations for audiences of all ages:**

- Master Naturalists/Gardeners & Garden Clubs
- Townships, Conservancies and Restoration
- Public, Private & Home School students
 - **Invasives curriculum with SHSU Ag Science & Engineering Tech depts.**
- State Stewardship & Natural Resource Meetings/Roundtables

TEXASINVASIVES.ORG: TISI now runs **website and reporting database;** expanding on reporting capabilities and updating invasive species information.

Focuses on **Early Detection and Rapid Response (EDRR)** to newly invasive pests and **Enhance Public Education** about invasive species.

- **Early detection trainings**
 - **Invaders of Texas**
 - **Sentinel Pest Network presentations**
 - AIS-focused
 - Apple snails, aquatic plant removal, management in aquatic environments
- **Educational programming**
 - **Webinars by Texasinvasives.org**
 - AIS of concern
 - Jumping worms
 - Citrus Pests & Diseases



INVASIVE SPECIES DATABASES

Texasinvasives.org & TSUSinvasives.org

Illustrated Descriptions
Distribution & Habitat
Biology & Spread/Threat
History of Introduction
Control & Management
Native Look-a-likes
References



[ABOUT](#) | [iWiRE](#) | [SPOTLIGHT](#) | [CONTACT](#)
TEXASINVASIVES.ORG HELLO INVASIVE SPECIES. GOODBYE TEXAS.

[INVASIVES 101](#) | [TAKE ACTION](#) | [CITIZEN SCIENTISTS](#) | [PROFESSIONALS](#) | [RESOURCES](#)

INVASIVES DATABASE GO

INVASIVES DATABASE

- INVASIVES DATABASE
- INVASIVE PLANTS
- INVASIVE ANIMALS
- INVASIVE INSECTS
- INVASIVE PATHOGENS
- INVADERS OBSERVATIONS
- MAP INVASIVES
- COUNTY COMPARISONS

KEEP INFORMED

Sign up for the iWiRE to get breaking news, event info and the species spotlight.

your_email [SIGN UP](#)

SALVINIA MOLESTA

GIANT SALVINIA

Synonym(s):
Family: Salviniaceae (Water Fern Family)
Duration and Habit: Annual, Perennial Fern

[Go Back](#) | [Printer Friendly](#) | [Fact Sheet](#)
 ● Federal Noxious Weed
 ● TDA Noxious Weed
 ● TPWD Prohibited Exotic Species
 ● Invasive Plant Atlas of the US
 NOTE: ● means species is on that list.



Additional Images
(opens new window or tab)

Photographer: Keith Bradley
Source: Botanical Conservation Biologist, Bugwood.org

DESCRIPTION

Salvinia is a rootless, floating aquatic fern. Emergent groups of leaves (fronds), oblong and flat (smaller growth forms) or semi-cupped/folded (larger growth forms), grow in chains and float on the water surface forming dense mats. Leaves grow in pairs and grow to approximately 1/2 inches wide and 1 inch long. Brown, thread-like leaves hang underwater, joining at a node along a horizontal, underwater stem and are similar in appearance to a root system. The upper surface of the green leaves is covered with rows of white, coarse hairs, acting as a water repellent. The hairs of giant salvinia are joined at the tips in an egg beater shape.

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THE TEXAS STATE UNIVERSITY SYSTEM

Texas Invasive Species Institute

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REDBAY AMBROSIA BEETLE

Xyleborus glabratus

Class: Insecta
Order: Coleoptera
Family: Curculionidae



Photographer: Michael C. Thomas Affiliation:lorida Department of Agriculture and Consumer Services Source:www.bugwood.org Copyright: CC BY-NC 3.0

DESCRIPTION

Adult Description: The redbay ambrosia beetle (*Xyleborus glabratus*) is a dark colored, bullet shaped beetle with small puncture-like dents covering the elytra, and is 2 mm long when mature. The redbay ambrosia beetle is a member of the family Curculionidae along with weevils, which can be identified with a characteristic snout representing modified mandibles for taking up nutrients. Positive identification of *X. glabratus* is impossible without the help of a professional, but the glabrous upper surface and abrupt apical declivity may help distinguish this invasive beetle from other native species.

Larva Description: Redbay ambrosia beetle larvae, consistent with most beetles, are legless, white grubs. The head capsule of the redbay ambrosia beetle grub is amber colored. These flightless grubs are found feeding on infested trees beneath or on the surface of the bark.

NATIVE ORIGIN

India, Japan, Myanmar, and Taiwan

CURRENT LOCATION

U.S. Habitat: The redbay ambrosia beetle can be found in areas where host plants are present, most commonly found on redbay and sassafras hosts. Within the U.S. the redbay ambrosia beetle is found feeding on healthy trees and shrubs. In areas where the beetle is native, stressed or dying trees are shrubs are utilized as host plants.

U.S. Present: FL, GA, LA, MS, SC and TX

MANAGEMENT

You can help prevent the spread of the redbay ambrosia beetle by avoiding the transport of firewood. Wood chips of infested trees should not be transported out of the area, but left on-site as mulch.

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CITIZEN SURVEYS: TISI also relies on its widespread network of engaged citizens to report on invasive species we may not be detecting through survey or cannot fully detect by ourselves.

Citizens have been instrumental in tracking:

- Emerald Ash borer, RAB & ACP
- Apple Snails & Invasive Slugs
- Asian Jumping Worms
- Giant Salvinia
- Zebra Mussels
- Hammerhead flatworms
- New Guinea flatworm
- THOUSANDS of invasive plant reports: Tallow, Privet, Johnsongrass, Giant Reed, Honeysuckle, etc.



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SURVEY MAPPING: Citizen or survey data is shared with invasive species mapping entities, like **EDDMapS**. Also available to researchers across the country including **TPWD, USGS, HARC, & APHIS**.

- **Invasive Plant** locations & densities
 - On Texasinvasives.org
- **Weed Risk Assessments** for TPWD stored on website
- **Invasive/Pest distribution**
 - Presentations over Invasive Mollusk spread
- **Emerging invasive pest sightings**
 - Sent to partners upon receipt & confirmation of ID.

Public Awareness Campaigns

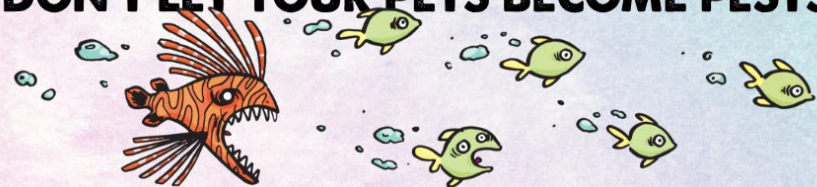
- Protect the Lakes You Love
- Stop Zebra Mussels.
Clean, Drain and Dry.
- Don't Move Firewood
- Never Dump Your Aquarium

PROTECT THE LAKES YOU LOVE.

CLEAN, DRAIN AND DRY.
TPWD.TEXAS.GOV/ZEBRAMUSSELS



DON'T LET YOUR PETS BECOME PESTS.



NEVER DUMP YOUR AQUARIUM.

Texasinvasives.org Public Awareness

The iWire monthly email newsletter

- Important updates
- Invasive species spotlights
- News from TX and beyond
- Workshop Schedules

New Rules to Prevent Zebra Mussel Spread in Texas

In the state's ongoing effort to combat the spread of invasive zebra mussels, the Texas Parks and Wildlife Department has created new rules to halt the spread of the species. Effective December 10th, all boats operating on public water in 17 Northeast Texas counties must be drained after use or face legal consequences.

[Read More.](#)

The Texas Parks and Wildlife Commission is inviting public comments on a proposal to add 30 additional counties to the recently-implemented rules preventing zebra mussel spread.

[Read More.](#)

potential additions can be made in
OWN Inland Fisheries, 14 by



1 IN

Invaders of Texas

a Citizen Science Program to Detect and Report Invasive Species

If you would like to highlight a successful invasive species project or nominate a special person to be highlighted in an upcoming iWire, please send the details to iwire@texasinvasives.org.

Citizen Scientists Spotlight

Heartwood Invaders Have Heart, Dedication... And Potatoes?

We would like to shine the spotlight on The Woodlands Township Task Force and the Heartwood Invaders of Texas, and congratulate them on their very successful Martin Luther King National Day Service workday!

On January 16, a group of 22 Woodlands Township Task Force volunteers marched along one of the public pathways in Grogan's Mill Village (the oldest of 8 villages in The Woodlands). This group was made up of made up of 16 dedicated Task Force members, 4 new volunteers and 2 Student Ambassadors with the Woodlands Green



The Woodlands Task Force, February 2020 workday.

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DETECTION SURVEYS: Through grant and contracts, we have assisted USDA-APHIS, USFS, USGS, TPWD, TAMU Forest Service with **invasive pest surveys**.

- Emerald Ash borer
- Pine, Oak & Redbay bark beetles
- Honeybee parasites
- Asian Citrus Psyllid
- Asian Pine-Defoliating Moths
- Apple Snails & Invasive Slugs



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WATER QUALITY & E. COLI TESTING: TISI has the unique opportunity of sharing a facility with the **TRIES Analytical Research Laboratory** allowing us to become a partner for TCEQ's Texas Clean Rivers Program (CRP).

- **Quarterly CRP sampling (2016-present)**
 - East Fork San Jacinto, Neblett's Creek, Winters & Tarkington Bayous
- **Bacterial Monitoring Projects (2023)**
 - White Oak Creek, Conroe
 - Unnamed Tributary Greens Bayou, Houston
- **TMDL Sampling (2024)**
 - Tarkington & Luce Bayous and Marsh Branch



Take Action!

What YOU can do...



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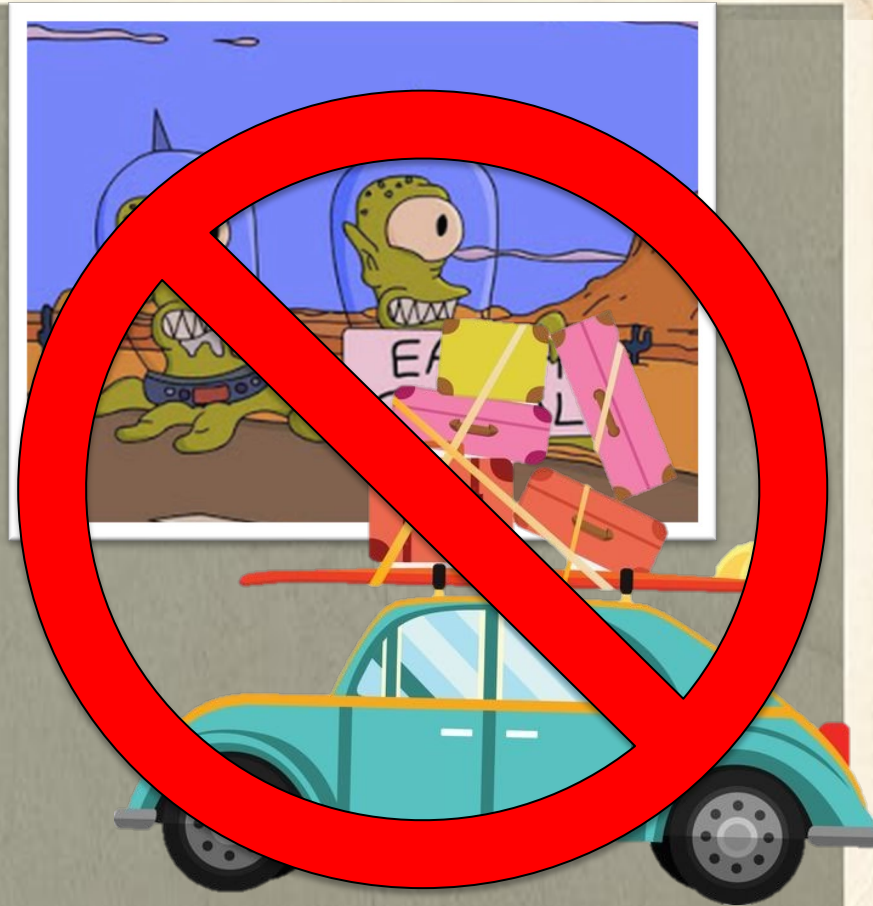
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How to Stop Species from Spreading?

Prevent Dispersal!

Two-pronged approach:

1. Early detection
2. Prevent transport by humans
 - Different for terrestrial vs. aquatic species



How to Stop Species from Spreading?

Prevent Transport

- WE aid the spread of invasives
- WE can help prevent the spread of invasives
 - **Clean, Drain, Dry**



5396755



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INVASIVE SPECIES HIDE IN YOUR BOAT



CLEAN your boat, trailer and gear by removing all plants, animals and foreign objects.

DRAIN all water from the boat, including the motor, bilge, livewells and bait buckets.

DRY the boat and trailer for a week or more. If unable to let it dry for a week, wash it with a high-pressure washer and hot (140-degree), soapy water.

STATE LAW
REQUIRES THAT YOU DRAIN
ALL WATER BEFORE APPROACHING
OR LEAVING THIS LAKE

www.texasinvasives.org

To report a violation, call 1 (800) 792-4263.



Life's better outside!

How to Stop Species from Spreading?

Prevent Transport

- WE aid the spread of invasives
- WE can help prevent the spread of invasives
 - **NEVER DUMP YOUR AQUARIUM**

DON'T LET YOUR PETS BECOME PESTS.



NEVER DUMP YOUR AQUARIUM.



How to Stop Species from Spreading?

Prevent Transport

- WE aid the spread of invasives
- WE can help prevent the spread of invasives
 - Clean, Drain, Dry
 - Don't Move Firewood
 - Remove seeds/egg casings from boots, clothes
 - CHECK NEW PLANTS



Trees destroyed by ANY bark beetle (NATIVE OR INVASIVE)

Remove trees ASAP!!

Do not keep it for firewood!

Do not share with neighbors!

Mulch & bag before disposal (BURN, if possible)



PREVENTION: Invasive Pests

Monitor (seed bank/resprout) & Repeat!

Plant Natives!

Check our website for invasive plants

THINK about which plants you bring back.

Exotic plants can host *invasive* pests





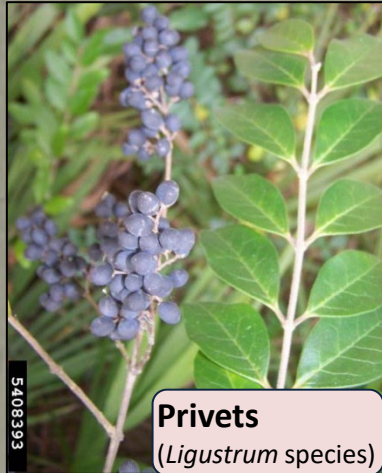
WATCH OUT!



Invasive plants often sold at nurseries!

“Invasive” does NOT mean “Prohibited to sell”

Heavenly Bamboo
(*Nandina domestica*)



Privets
(*Ligustrum* species)



Golden Bamboo
(*Phyllostachys aurea*)

Elephant Ears
(*Colocasia*, *Alocasia*, & *Xanthosoma*)



Honeysuckles
(*Lonicera* species)



Tree-of-Heaven
(*Ailanthus altissima*)



Mimosa Tree
(*Albiza julibrissin*)

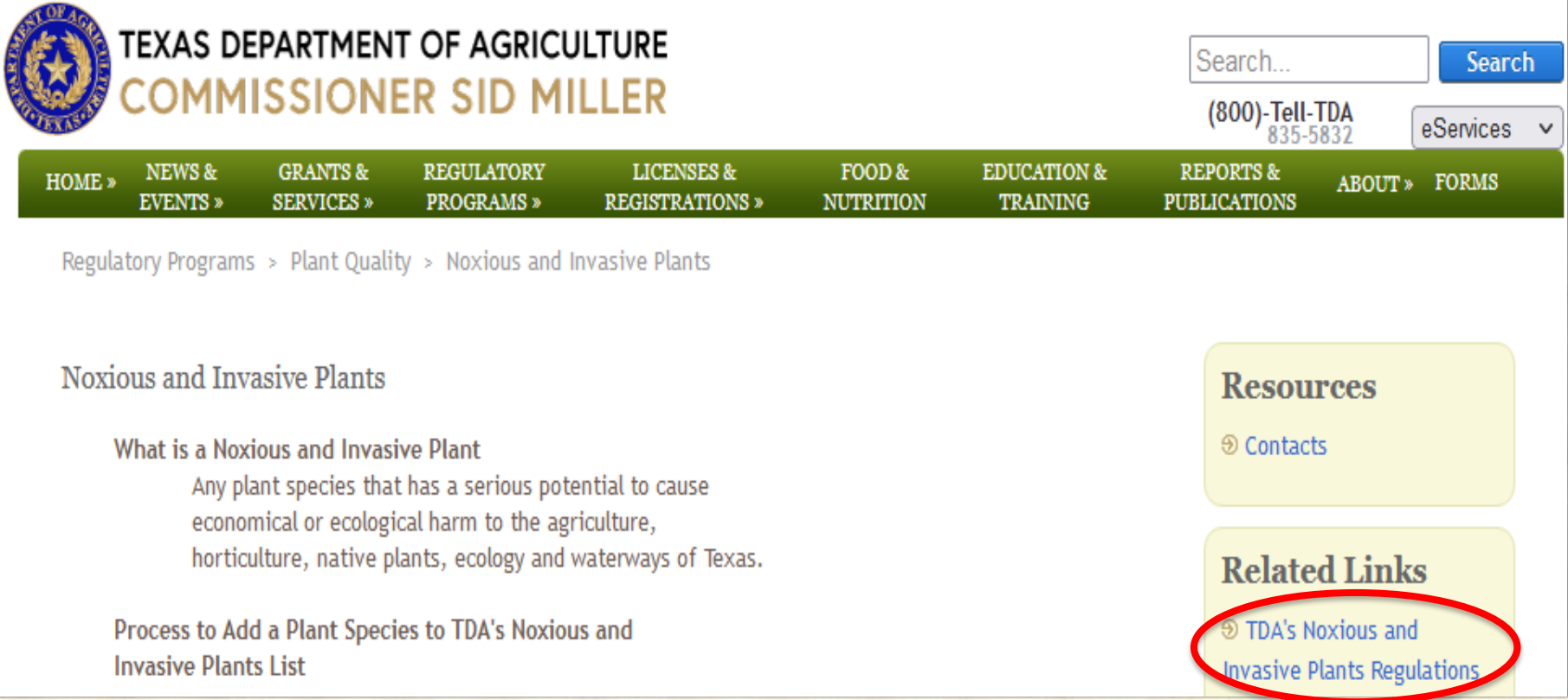
Noxious and Invasive Plants List


TX Department of Agriculture- Complies this list.

CHECK THIS AND TEXASINVASIVES.ORG BEFORE PURCHASE

REPORT NURSERIES SELLING THESE ILLEGAL PLANTS

Contact: ARM001@shsu.edu



 **TEXAS DEPARTMENT OF AGRICULTURE**
COMMISSIONER SID MILLER

Search... (800)-Tell-TDA 835-5832 eServices

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[Regulatory Programs](#) > [Plant Quality](#) > [Noxious and Invasive Plants](#)

Noxious and Invasive Plants

What is a Noxious and Invasive Plant
Any plant species that has a serious potential to cause economical or ecological harm to the agriculture, horticulture, native plants, ecology and waterways of Texas.

[Process to Add a Plant Species to TDA's Noxious and Invasive Plants List](#)

Resources

- [🔗 Contacts](#)

Related Links

- [🔗 TDA's Noxious and Invasive Plants Regulations](#)

TDA

Noxious Plants List



5396755

Noxious plants

alligatorweed

balloonvine

Brazilian peppertree

broomrape

camelthorn

Chinese tallow tree

Eurasian watermilfoil

giant duckweed

giant reed

hedge bindweed

hydrilla

itchgrass

Japanese dodder

kudzu

lagarosiphon

paperbark

purple loosestrife

rooted waterhyacinth

saltcedar

salvinia

serrated tussock

torpedograss

tropical soda apple

water spinach

waterhyacinth

waterlettuce

Invasive plants

chinaberry

Chinese tallow tree

Japanese climbing fern

kudzu

saltcedar

tropical soda apple



UGA0001090



UGA1264074



UGA2132033

TPWD Prohibited Fish, Shellfish & Aquatic Plants



TX Department of Parks & Wildlife - Complies this list.

REPORT AQUARIUMS SELLING THESE ILLEGAL SPECIES

Contact: aquatic.invasives@tpwd.texas.gov

FISH



Photo Credit: David Ruecks University of Illinois



UCA1354053

Amazon Freshwater Stingrays



SHELLFISH



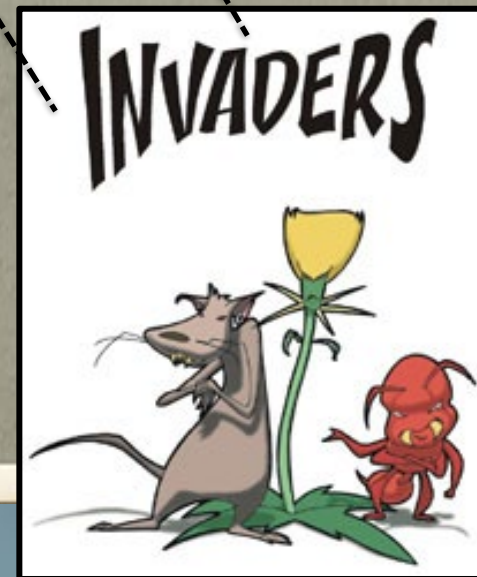
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How to Stop Species from Spreading?

Detection

- Trapping
- Monitoring
- **Vigilance**

Texas: **Sentinel Pest Network**



Sentinel Pest Network: Background

Serves as a **sentinel network**

- increase the probability of early detection of pests of *high regulatory significance*.

What are “**pests of high regulatory significance**”?

- From the APHIS PPQ (Plant Protection and Quarantine):
 - plant pests that can create an economic impact on the nation’s natural resources and agriculture
 - can affect the nation’s food supply
 - can impact the nation’s ability to facilitate safe trade of agricultural products (protect export markets)
 - threaten America’s trees and forests

Take Action!

Sentinel Pest Network Species & How to Report

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Common Name	Type of Organism	Category of Animal	In Original Dirty Dozen?	Currently in Texas?
Apple Snail	Non-insect	Mollusk		Y
Cactus Moth	Insect	Lepidoptera	Y	Y
Soapberry Borer	Insect	Coleoptera		Y
Crested Floating Heart	Plant			Y
Cogongrass	Plant		Y	Y*
Tropical soda apple	Plant		Y	Y*
Gypsy Moth	Insect	Lepidoptera	Y	
Lionfish, Red Lionfish	Non-insect	Fish		Y
Brown Fir Longhorned Beetle	Insect	Coleoptera	Y	Y
Tawny Crazy Ant	Insect	Hymenoptera		Y
Giant African Land Snail	Non-insect	Mollusk	Y	
Tropical Spiderwort	Plant		Y	
Giant Hogweed	Plant		Y	
Spotted Lanternfly	Insect	Hemiptera		
Emerald Ash Borer	Insect	Coleoptera	Y	Y
Giant Salvinia	Plant			Y
Sirex Woodwasp	Insect	Hymenoptera	Y	
Japanese climbing fern	Plant			Y
Zebra Mussels	Non-insect	Mollusk		Y
Brown marmorated stink bug	Insect	Hemiptera		Y
Yellow Floating Heart	Plant			Y
Onionweed	Plant		Y	
Asian Longhorned Beetle	Insect	Coleoptera	Y	
Redbay Ambrosia Beetle	Insect	Coleoptera		Y
Asian Citrus Psyllid	Insect	Hemiptera		Y
Citrus Greening / Huanglongbing	Pathogen	Pathogen		Y
Asian Jumping worms	Non-insect	Annelid		Y

Sentinel Pest Network

Type of organisms:

Plant: 9

Parasite/Disease: 1

Insect: 11

Non-Insect Animal: 5

Fish: 1

Mollusk: 3

Annelid: 1

Coleopteran: 5

Hemipteran: 3

Hymenopteran: 2

Lepidopteran: 2

SENTINEL PEST NETWORK: **REPORT IT!**

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INVASIVES 101 TAKE ACTION CITIZEN SCIENTISTS PROFESSIONALS RESOURCES

INVASIVES DATABASE GO

PROTECT THE LAKES YOU LOVE. STOP ZEBRA MUSSELS.

Zebra mussels are having a devastating effect on the state's natural resources. They negatively impact native fish and mussels and foul beaches with their sharp shells. They wreak havoc for boaters by damaging boat hulls and reducing the performance of boating equipment. Zebra mussels can clog water intakes, costing taxpayers millions of dollars. Zebra mussels have already invaded several Texas lakes, and could take over all freshwater sources in Texas.

Do your part to save our lakes – clean, drain and dry your boat every time you leave a lake. [LEARN MORE](#)

SPOTLIGHT Invasive Species News and Events [MORE](#)

DO YOUR PART TO STOP THE SPREAD!

ALERT ▲
GIANT SALVINIA
Salvinia molesta
BRAZIL / AQUATIC INVASIVE

ALERT ▲
EMERALD ASH BORER
Agrilus planipennis
EAST ASIA / WOOD BORING BEETLE

ALERT ▲
LIONFISH
Pterois volitans
INDO-PACIFIC / SALTWATER INVASIVE

INVASIVES 101 TAKE ACTION

DOES NOT REQUIRE LOGIN!



Managing Invasive Plants



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Best Management Practices

Use an Integrated Pest Management strategy

Treat early!

Choose the appropriate management technique:

mechanical

biological

chemical



License required?

Read AND FOLLOW label instructions

Caution near aquatic habitats

Wear protective gear

Beware “drift”

Monitor (seed bank/resprout) & Repeat!

Plant Natives!

Cut and Treat



Direct Foliar Spray*



Aquatic-approved herbicides
essential near waterways

Basal Spray



Hack-n-Squirt





BAG IT UP!!

Seeds will form new plants...

- If cutting during a seeing-period **BAG UP** any of the seeded portions and tie it closed.
 - Tedious but severely lowers the invasive plant's chance for success.

The most important step...

The Rehabilitation Phase

- **Do not just cut down invasive plants! They will regrow!**
 - Replanting and reseeding native species is vital to keep down re-sprouting invasives and prevent soil from washing out.



American Beauty Berry



Native Seaots



Eastern Redbud

Submitting Reports on Texasinvasives.org



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WHY report directly to Texasinvasives.org?

 SIREX WOODWASP <i>SIREX NOCTILIO</i> EUROPE KILLS PINE TREES	 GIANT HOGWEED <i>HERACLEUM MANTEGAZZIANUM</i> EURASIA HABITAT THREAT	 APPLESNAIL <i>POMACEA MACULATA</i> SOUTH AMERICA FRESHWATER INVASIVE
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Data collected is sent **DIRECTLY** to our federal and state partners!
 No searching through iNaturalist for important invasive species needed... you can help us alert them **ASAP**



Reporting Invasive Species Sentinel Pest Network

TEXASINVASIVES.ORG
Click species to REPORT IT!



INVASIVES
DATABASE
GO

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Invasive Species News and Events
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DO YOUR PART TO
STOP THE SPREAD

ALERT

GIANT SALVINIA
SALVINIA MOLESTA
TROPICAL AQUATIC INVASIVE

ALERT

EMERALD
ASH BORER
AGRILUS PLANIPENNIS
EAST ASIA WOOD BORING BEETLE

ALERT

LIONFISH
PTEROIS VOLITANS
INDO-PACIFIC SALTWATER INVASIVE



Stop the Spread!

RESOURCES

Invasive Species Info & Management at:
texasinvasives.org or TSUSinvasives.org

Report Sentinel pests via:
texasinvasives.org

Other sightings:
invasives@shsu.edu

Citrus Sampling or
Invasive Workshop:
arm001@shsu.edu

