



THE UNIVERSITY OF GEORGIA  
**CENTER FOR INVASIVE SPECIES  
AND  
ECOSYSTEM HEALTH**

WARNELL SCHOOL OF  
FORESTRY AND NATURAL RESOURCES

COLLEGE OF AGRICULTURAL  
AND ENVIRONMENTAL SCIENCES



1785

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The University of Georgia

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®

# Center Personnel

- **David Moorhead, Co-Director and Professor - Silviculture**
- **Keith Douce, Co-Director and Professor – Entomology**
- **Chuck Bargeron, Technology Director**
- **Joe LaForest, Program Coordinator – IPM/Forest Health**
- **Karan Rawlins, Program Coordinator – Invasive Species**
- **Erin Griffin, Program Coordinator – Outreach**
- **Salina McAllister - Administrative Assistant**
- **Christa Barlow – Web and Publication Specialist**
- **Joel Onomo – Web and Database Programmer**
- **Walt Sikora – PhD Insect Taxonomy**
- **Michasia Harris - Student Assistant**



Forestry

Agriculture



Invasive  
Species

Information  
Technology

# **Center for Invasive Species and Ecosystem Health & The Bugwood Network**

- **Partnership between College of Agriculture and School of Forestry and Natural Resources**
- **Work with insects, pathogens, plants & animals of forests, agriculture & natural areas**
- **Use Information Technology to provide information to scientists, professionals & the public**
- **Operate and serve 30 Websites**

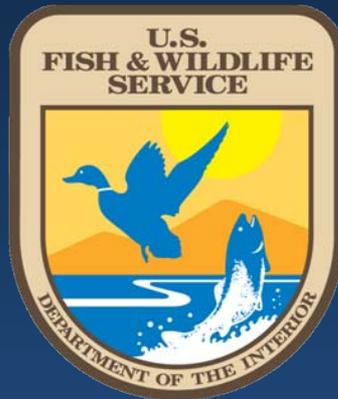
# **We**

- **develop, provide & deliver programs & information**
- **foster collaboration between our university and state, other university, federal & international partners**
- **bring together “traditional” agriculture, regulatory agencies, educational institutions, forestry & natural areas interests,**

# Things that distinguish us:

- Concept of **TOOLS FOR USE**
- Information Technology
  - Focused on **HOW “IT” CAN HELP US DO OUR JOBS BETTER**
  - In-house expertise
  - Very robust “taxonomic” dbms
- Ecosystem-wide / Multidiscipline / All Taxa Approaches
- Outreach Focus
- Extensive Collaboration

# Support from:



## **Other Cooperators**

- **University IPM programs across U.S.**
- **CAPS program – U.S. & state-levels**
- **Exotic Pest Plant Councils**
- **NPDN - SPDN & GPDN**
- **HP-IPM CSU & MSU**
- **CIPM Bozeman & NNIPC**
- **State Departments of Agriculture**
- **State Departments of Forestry & Natural Resources**
- **Non-Governmental Organizations (NGOs)**

# **Cooperators Outside of NA**

- **European Universities, Research Institutes & Agencies in: Hungary; Slovakia; Czechia; Croatia; Austria; Poland; Italy; Slovenia; France & Others**
- **International Union of Forest Research Organizations (IUFRO) Cooperators**
- **European & Mediterranean Plant Pest Organization (EPPO)**
- **Museum Victoria, Australia**
- **Photographers Worldwide**



# Center for Invasive Species and Ecosystem Health BUGWOOD NETWORK

Search:



The University of Georgia  
Warnell School of Forestry and Natural Resources  
College of Agricultural and Environmental Sciences

[All Publications](#)

[All Image Archives](#)

## Topics:

[Agriculture](#)

[Bark Beetles](#)

[Bugwood Wiki](#)

[Christmas Trees](#)

[Cogongrass](#)

[EDDMapS](#)

[EPPC](#)

[Forest A Syst](#)

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[Forest Productivity](#)

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[Trees](#)

[Tropical Soda Apple](#)



[Forestry Images](#)

[IPM Images](#)

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[Forest Pests](#)

[Bark Beetles](#)

## What's New

[Invasive species cause \\$1.4 trillion of losses a year!](#)

[15,000 reasons to worry about invasive species](#)

[NECIS Joint Statement on H.R. 2811](#)

[Invasion of the Exotic Wildlife! Video](#)

[New Pest - Megacopta cribraria \(Bean plataspid\) found on kudzu in Georgia](#)

[Smithsonian magazine article about Asian Longhorned Beetle](#)

[New Book - Homeopathy for the Garden and Landscape - German Version](#)

[National Invasive Species Awareness Week](#)

[More News from the Bugwood Blog](#)

## Features & Quick Links:

[Georgia Invasive Plant Management Handbook](#)

[Invasive Plants of the United States: Identification, Biology and Control](#)

[Cogongrass Conference Proceedings](#)

[Invasive Plant Responses to Silvicultural Practices in the South](#)



LEARN MORE ABOUT THE  
CENTER FOR INVASIVE SPECIES  
AND  
ECOSYSTEM HEALTH



INFORMATION  
FOR  
GEORGIA



BUGWOOD  
GLOBAL  
RESOURCES

# Bugwood Information Systems:

- Are database driven
- Are fully-searchable
- Are “taxonomically – based”
- Are focused on providing images & information for educational uses

## **In 2009 Bugwood Systems:**

- Received 165 million hits**
- Served 38 million pages of information**
- Were accessed by 9 million users**

# Location of User Audience



Archiving and making quality digital images for educational use is **ONE OF OUR MAIN FOCUSES**, although we also do training and develop new information

**We see Images AS TOOLS that can be accessed & used at no cost for education (but must credit photographer & Bugwood)**

**We believe that increases their educational value and allows more effective education**

# *“A picture is worth a thousand words”*



# BUGWOOD

Image Database System  
images.bugwood.org

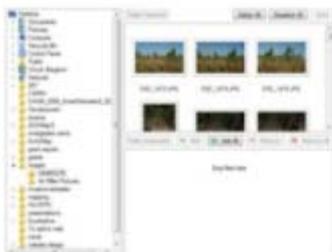
THE UNIVERSITY OF GEORGIA  
**CENTER FOR INVASIVE SPECIES  
AND  
ECOSYSTEM HEALTH**  
WARNELL SCHOOL OF FORESTRY AND NATURAL RESOURCES    COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES



UGA2651041

red heart of pine - David J. Moorhead, Bugwood.org

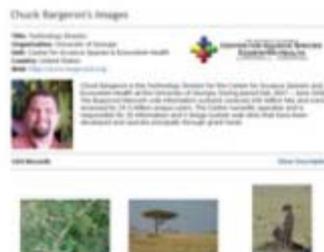
## Tools



**Upload Images**



**Review Images**



**Edit Profile**

## Websites



**Forestry Images**



**IPM Images**



**Invasive.org**



**Insect Images**

# Bugwood Image Database System

<http://images.bugwood.org/>

<b>Images:</b>	<b>116,564 (20,109 non-U.S.)</b>
<b>Photographers:</b>	<b>1,617</b>
<b>Subjects:</b>	<b>13,478</b>
<b>Members:</b>	<b>51,564</b>

**Started in 1994**

**Node at Colorado State Univ. and  
International Society of Arboriculture**

Search: [Advanced Search](#)Welcome back, Chuck Bargeron, [logout?](#)

## General Info

[What is Forestry Images?](#)[Contribute](#)[Cooperators](#)[Photographers](#)[Statistics](#)[Contact Us](#)

## Membership Info

[Join Now!](#)[Sign in](#)[Membership Benefits](#)[Help](#)

## Related Sites

[The Bugwood Network](#)[Forest Pests](#)[IPM Images](#)[Invasive and Exotic Species](#)[Insect Images](#)

# Forestry Images

The Source for Forest Health, Natural Resources & Silviculture Images.  
 A joint project of the University of Georgia and the USDA Forest Service.  
 Project Coordinators: [Keith Douce](#), [David Moorhead](#) & [Charles Bargeron](#).

## Image Categories

### Forest Pests

#### Insects

[| Bark Beetles](#) | [Foliage Feeding](#) | [Wood Boring](#) | [Invasive](#) |

#### Diseases

[| Foliage Diseases](#) | [Root & Butt Diseases](#) |

#### Other Damage Agents

[| Invasive Plants](#) | [Parasitic Plants](#) | [Human](#) | [Animal](#) |

### Trees, Plants, and Stand Types

#### Trees

[| Conifers](#) | [Hardwoods](#) | [Mixed Stands](#) |

#### Understory and Rangeland Plants

[| Forbs](#) | [Shrubs](#) | [Vines](#) | [Grasses](#) |

### Silvicultural Practices

[| Fire](#) | [Harvest Operations](#) | [Natural Regeneration](#) |

### Urban Forestry

[| General](#) | [Tree Defects](#) | [Urban Tree Care](#) |

### Wildlife

[| Mammals](#) | [Birds](#) | [Reptiles & Amphibians](#) |

### People, Places and Scenes

[| North America](#) | [Africa](#) | [Miscellaneous](#) |

## Random Image



**mountain pine beetle**  
 Photo by Jerald E. Dewey

## Statistics

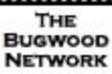
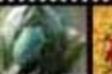
106856 Images

1596 Photographers

12849 Subjects

## Features

[Invasive Plants CD-ROM](#)[Nursery Management](#)[4-H/FFA Field Day](#)[Bark Beetles CD-ROM](#)

Search: [Advanced Search](#)Welcome back, Chuck Bargeron, [logout?](#)

## General Info

[What is Insect Images?](#)[Contribute](#)[Cooperators](#)[Photographers](#)[Statistics](#)[Contact Us](#)

## Membership Info

[Join Now!](#)[Sign in](#)[Membership Benefits](#)[Help](#)

## Related Sites

[The Bugwood Network](#)[Forest Pests](#)[IPM Images](#)[Invasive and Exotic Species](#)[Forestry Images](#)

# Insect Images

The Source for Entomology Photos

A joint project of the University of Georgia and the USDA Forest Service.  
Project Coordinators: Keith Douce, David Moorhead & Charles Bargeron.

## Image Categories

### Categories:

[ants, bees, sawflies, wasps, and allies](#)[beetles and weevils](#)[bugs, cicadas, aphids and scale insects](#)[butterflies, moths, and skippers](#)[cockroaches](#)[damselflies and dragonflies](#)[earwigs](#)[flies](#)[grasshoppers, katydids, crickets](#)[lacewings, antlions and others](#)[lice](#)[mantids](#)[silverfish, firebrats](#)[termites](#)[thrips](#)[walkingsticks](#)

### Insect Orders:

[Blattodea](#)[Coleoptera](#)[Dermaptera](#)[Diptera](#)[Mantodea](#)[Neuroptera](#)[Odonata](#)[Orthoptera](#)

## Random Image

**bollworm**

Photo by Ronald Smith

## Statistics

35242 Images

836 Photographers

5713 Subjects



## Browse by:

[Commodity](#)

[Taxonomy](#)

[Damage Types](#)

[Photographers](#)

[Organization](#)

[Location](#)

## General Information

[What is IPM Images?](#)

[How to Contribute?](#)

[Statistics](#)

[Contact Us](#)

## Membership

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## Bugwood Sites

[Bugwood Network](#)

[Forestry Images](#)

[Insect Images](#)

[Invasive.org](#)

[Forest Pests](#)

[Widely Prevalent Fungi](#)

## Commodity Groups

### Agronomic Crops

[Barley](#)

[Canola](#)

[Corn](#)

[Cotton](#)

[Grain Sorghum and Small Grains](#)

[Millet](#)

[Oats](#)

[Peanuts](#)

[Rice](#)

[Rye](#)

[Safflower](#)

[Soybeans](#)

[Sugarcane](#)

[Sunflowers](#)

[Tobacco](#)

[Wheat](#)

### Vegetables

### Fruits and Nuts

### Grain Sorghum and Small Grains

### Human and Household Pests

### Ornamentals

### Pasture and Forage

### Lawn and Turf

### Honey Bees and Beekeeping

### Livestock and Poultry

### Post Harvest

### Crop Management

### Irrigation

### Forestry, Wildlife and Natural Resources

## Random Image



**southern armyworm**

Photo by Eddie McGriff, University of Georgia

## Statistics

106,856 images

12,849 subjects

1,596 photographers

## News and Site Updates

[Launching of the Widely Prevalent Virus site](#)

[Georgia under federal quarantine for citrus greening](#)

[Thousand Cankers disease hits walnuts in Boulder, Colorado](#)

## Invasive and Exotic Species to North America

any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem; and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Plants

Insects

Pathogens

Other Species

### NEWS

- Scientists Find Evidence of Casuarina Hybrids
- 40 new species found in New Guinea
- How prepared is the U.S. to meet future botanical challenges?
- Aquatic Invasives by Cruise Level

# Clearinghouse for Species Level Information & Images

23,982 Files (html, pdf and images)

183 Million hits from 19 Million Users since 2002

#1 on Google for “Invasive Species”

#2 on Google for “Invasive Plants”

 Invasive Species and Ecosystem Health. More info...

 Invasive Plants of the United States: Identification, Biology and Control  
This web site includes 218 invasive

 have in the South. This link contains information and resources for Extension agents to conduct a short informational training program for their county road crews. More info...

 Invasive Plant Responses to Silvicultural Practices in the South

### SUPPORTERS



Forest Health  
Technology Enterprise Team

TECHNOLOGY  
TRANSFER

Biological Control

Biological Control of Invasive Plants  
in the Eastern United States



Roy Van Driesche Bernd Blosssey Mark Hoddle  
Suzanne Lyon Richard Reardon

Forest Health Technology Enterprise Team—Morgantown, West Virginia



FHTET-2002-04  
August 2002

Forest Health Technology  
Enterprise Team

TECHNOLOGY  
TRANSFER

Biological  
Control

BIOLOGY AND BIOLOGICAL CONTROL  
OF DALMATIAN AND YELLOW TOADFLAX



LINDA M. WILSON, SHARLENE E. SING, GARY L. PIPER,  
RICHARD W. HANSEN, ROSEMARIE DE CLERCK-FLOATE,  
DANIEL K. MACKINNON, AND CAROL BELL RANDALL

Forest Health Technology Enterprise Team—Morgantown



FHTET-2002-11  
September 2002

Forest Health  
Technology Enterprise Team

TECHNOLOGY  
TRANSFER

Biological Control

Invasive Plants of Asian Origin  
Established in the United States  
and Their Natural Enemies  
Volume 1



FHTET 2004-05  
September 2004

Forest Health Technology  
Enterprise Team

TECHNOLOGY  
TRANSFER

Biological  
Control

BIOLOGY AND BIOLOGICAL CONTROL  
OF PURPLE LOOSESTRIFE



LINDA M. WILSON, MARK SCHWARZLAENDER,  
BERND BLOSSSEY, AND CAROL BELL RANDALL

Forest Health Technology Enterprise Team—Morgantown



FHTET-2004-07

Forest Health Technology  
Enterprise Team

TECHNOLOGY  
TRANSFER

Biological  
Control

BIOLOGY AND BIOLOGICAL CONTROL  
OF KNAPWEED



LINDA M. WILSON AND CAROL BELL RANDALL



FHTET-2001-07  
2<sup>nd</sup> Ed., April 2001

Forest Health Technology  
Enterprise Team

TECHNOLOGY  
TRANSFER

Biological  
Control

BIOLOGY AND BIOLOGICAL CONTROL  
OF YELLOW STARHISTLE



LINDA M. WILSON, CYNTHIA JETTE, JOHN CONNETT,  
JOSEPH McCAFFREY



FHTET-1998-17  
2<sup>nd</sup> Ed., July 2001

United States Department of Agriculture  
Forest Service  
Southern Region

# Insects and Diseases of Trees in the South



June 1989  
Protection Report RR-09-10

## The Southern Pine Beetle



United States Department of Agriculture  
Forest Service  
Southern Region  
Forest Experiment Station  
New Orleans, Louisiana

General Technical Report  
GTR-188  
September 1980

J. D. Sobotnik, T. D. Leisinger, A. G. Wilson, R. L. Anderson, L. C. Thompson, and F. L. McCracken

## Ash Pests

### A Guide to Major Insects, Diseases, Air Pollution Injury, and Chemical Injury



United States Department of Agriculture  
Forest Service  
Southern Region  
Forest Experiment Station  
New Orleans, Louisiana

General Technical Report  
GTR-188  
September 1980

J. D. Sobotnik, T. D. Leisinger, A. G. Wilson, R. L. Anderson, L. C. Thompson, and F. L. McCracken

## OAK PESTS

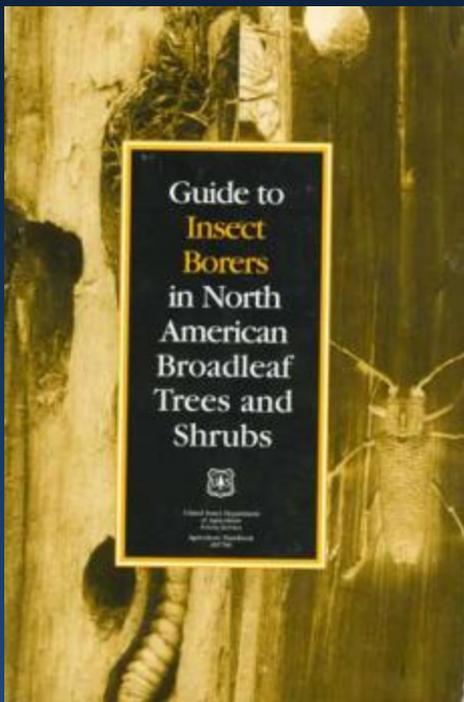
### A Guide to Major Insects, Diseases, Air Pollution and Chemical Injury



United States Department of Agriculture  
Forest Service  
Southern Region  
Forest Experiment Station

Protection Report RR-PB-7  
Chattanooga, TN-GA F-1  
September 1987

## Guide to Insect Borers in North American Broadleaf Trees and Shrubs



United States Department of Agriculture  
Forest Service  
Southern Region  
Forest Experiment Station

## A FIELD GUIDE TO DISEASES & INSECT PESTS OF NORTHERN & CENTRAL ROCKY MOUNTAIN CONIFERS




HAGLE GIBSON TUNNOCK

United States Department of Agriculture  
Forest Service  
Northern and Insectarium Regions

ERDESZETI TUDOMÁNYOS INTÉZET

CSÓKA GYÖRGY-KOVÁCS TIBOR

## Xilofág rovarok

By GY. CSÓKA and T. KOVÁCS!

## Xylophagous insects



FOREST RESEARCH INSTITUTE

ERDESZETI TUDOMÁNYOS INTÉZET

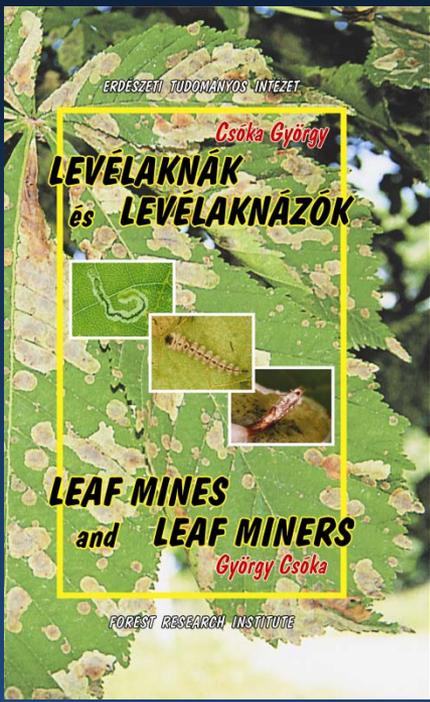
CSÓKA György

## LEVÉLAKNÁK és LEVÉLAKNÁZÓK

György Csóka

## LEAF MINES and LEAF MINERS

FOREST RESEARCH INSTITUTE



# **Layout and Creation of “Customized” Publications**

- **Invasive Plants of Eastern U.S. CD-ROM**
  - 200,000 copies
- **Invasive Plants of Georgia's Forests**
  - 120,000 copies
- **Invasive Plant Responses to Silvicultural Practices in the South**
  - 20,000 copies
- **Cogongrass ID Card**
  - 210,000 copies
- **Field Guide to the Identification of Cogongrass**
  - Over 100,000 copies

# **Web Services / Image Support**

- **National Agricultural Pest Information System**
- **USDA APHIS Global Pest & Disease Database**
- **National Plant Diagnostic Network / Southern Plant Diagnostic Network**
- **Lucid Key Development Software**
- **InvasiveSpeciesInfo.gov**
- **US Forest Service Invasive Species Program**
- **Many University Extension web sites**
- **Many private educational web sites**

# *Agrilus planipennis*, EAB



D. Cappaert, MSU

UGA2106098



Pest and Diseases Image Library, AU



S-E Spichiger, PA-DCNR

UGA



D Cappaert, MSU



S. Katovich, USDA Forest Service

GA1398090



D. R. McKay, USDA APHIS PPQ

UGA1439002



DT. Almquist, University of Florida *Dendroctonus terebrans* (Olivier)

Search: 

go

[Advanced Search](#)First time visitor? Please [sign up](#) for free membership![Insects](#)[Weeds](#)[Diseases](#)[Other Invasives](#)[Publications](#)[Collections](#)[Contribute](#)

## Benghal dayflower

Plants: Forbs/Herbs

[Liliopsida](#) > [Commelinales](#) > [Commelinaceae](#) > *Commelina benghalensis* L.

*Synonym(s):* tropical spiderwort, jio

52 records

Sort by: 

go

[<View Descriptions>](#)

Results 1 - 15

Images per page: [15] 30 60 all

[< Next >](#)

5309045

Control  
plots weeded at 2 weeks after  
planting  
Theodore Webster



1336001

Feature(s)  
The underground flowers appear as  
swollen nodes. Thomas County, GA  
Byron Rhodes



1336004

Feature(s)  
The underground flowers appear as  
swollen nodes. Thomas County, GA  
Byron Rhodes



1381001



1381002



UGA0001077



UGA0016032



UGA4054012



UGA4723001



UGA0016



UGA0017



UGA58070



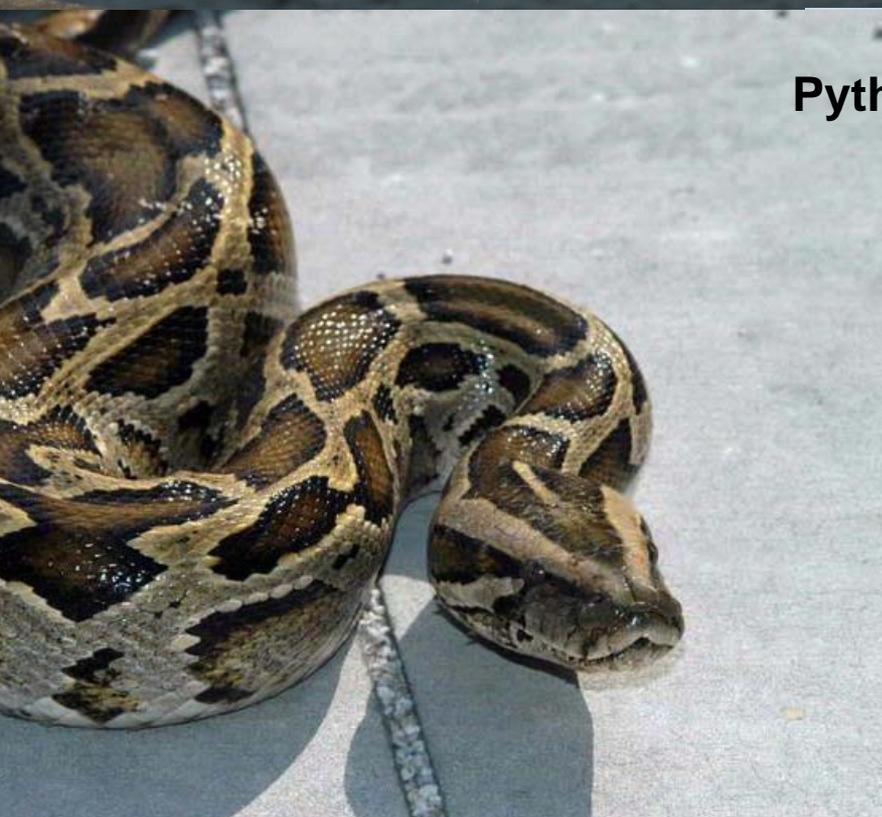
UGA3694018



**Egyptian Goose**



**Black Throated Monitor**



**Pythons**



# Bugwood Wiki

- Started in 2007 as USDA CSREES IPM Capstone project
- **Closed authorship** – BugwoodWiki Scholars
  - People who contact us and actually know something
- Full access to the Bugwood Image Database
  - Use the 7-digit ID number
  - Citation (or other info) is automatically included
- Allows “embedding” of projects

# What is a Wiki?

- Hawaiian word – FAST
- Content Management System
- Relatively easy formatting
- Easy structure and addresses
- Consistent web design
- No special editing software
- Work from anywhere (with internet access)
- Collaborative articles
- Full history of changes...
- and the ability to revert changes



# Welcome to the BugwoodWiki!

## High Plains IPM

The **High Plains IPM** website covers current effective management options for insect, weed, pathogen and environmental problems affecting all major field crops grown in the High Plains. Here are some examples of the informational resources HPIPM offers:

- Bacterial Spot
- Fusarium Head Scab
- Eggplant, Pepper, and Tomato Nematodes
- Small Grains Armyworm
- Tomato Psyllid
- Jointed goatgrass

## Diagnostician's Cookbook

This is an effort to compile standard recipes and techniques used by plant diagnosticians. Here are some of the latest additions:

- Malt salt agar
- Erythromycin test
- Kings Medium B
- Arginine dihydrolase test
- Tobacco hypersensitivity reaction
- Tetrazolium medium
- Synthetically nutrient poor agar
- Ohio medium

## Crop Management

### Commercially available biological controls

A list of the commercially available biological controls and the suppliers that sell them

### Integrated Pest Management

## Invasive Species

### The new home of Invasipedia!!

This project was started by The Nature Conservancy and has found a new home at BugwoodWiki. Please become a **Scholar** to contribute.

### Early Detection and Distribution Mapping System

A free online tool for reporting invasive species and looking at their distribution.

### Urban environments and structures

## Urban Forest Inventory Pest Evaluation and Detection (IPED)

The **Inventory Pest Evaluation and Detection, (I-PED) protocol** provides a portable, accessible and standardized method of observing a tree for possible insect or disease problems. It is intended to be a modern protocol for long-term national urban pest networking, detection, and monitoring. Explore the online resources for this protocol including:

- The IPED Manual
- The Early Detection Targets
- Glossary

## Fruits and Nuts

- Apples
- Blueberry
- Grape
- Pecan
- Peaches

Other articles have been requested in this section. See [the discussion page](#) to see the requested areas.

## Field Crops

- Soybean
- Peanuts
- Tobacco
- Cotton
- Wheat

Other articles have been requested in this section. See [the discussion page](#) to see the requested areas.

## NPDN First Detector Training Materials

A list of pests, diseases, and weeds that the National Plant Diagnostic Network Education and Training Committee is creating factsheets and Power Point materials for. They will be use by first detectors and other educators. Browse [the entire list](#) or look at some of the latest additions:

- Oak Wilt (*Ceratocystis fagacearum*)
- Apple Scab (*Venturia inaequalis*)
- Winter Moth (*Operophtera brumata*)

## Forestry

- Christmas trees
- Conifers
- Other forestry topics

### navigation

- Main Page
- Community portal
- Current events
- Recent changes
- Random page
- Help

### participation

- BugwoodWiki Scholar!
- The Bugwood Blog
- Wiki Authorship
- Submitting Images

### our image sites

- ForestryImages
- IPM Images
- InsectImages
- Invasive.org

### export current page

- Adobe Acrobat
- Microsoft Word

### search

Go Search

### toolbox

- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link

### in other languages

- Magyar
- Complete list

[help page](#)

[discussion](#)

[view source](#)

[history](#)

## Help:BugwoodWiki Scholar

**BugwoodWiki Scholars** are users who have been given permission to edit and create articles in this wiki. To qualify as a Scholar, you must have experience, education, or training specific to the articles you plan to edit.

Examples of individuals who qualify as BugwoodWiki Scholars include:

- Graduate Students
- Faculty and Staff of Educational Institutions
- Industry Professionals
- Plant Diagnosticians
- Government Scientists

If you wish to become a BugwoodWiki Scholar so that you can contribute to wiki articles Use the following contact information:

- E-mail: [bugwood@uga.edu](mailto:bugwood@uga.edu) 
- Call: 229 (386 – 3298) – Ask for Joe

You can also contact the [Bugwood Network Staff](#) or a [BugwoodWiki Bureaucrat](#) to receive permission to edit articles. You may also look at our [current events](#) to find a project leader in an area you are interested in. General requests to become a BugwoodWiki Scholar can be sent to the [Bugwood Webmaster](#) .

If you would like an training on how to use the wiki, you use the following information to request an online training session:

- E-mail: [bugwood@uga.edu](mailto:bugwood@uga.edu) 
- Call: 229 (386 – 3298) – Ask for Joe

or you can try the [Self-Help section](#) on the wiki which has plenty of examples.

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- [Kings Medium B](#)
- [Tobacco hypersensitivity reaction](#)
- [Synthetically nutrient poor agar](#)
- [Erythromycin test](#)
- [Arginine dihydrolase test](#)
- [Tetrazolium medium](#)
- [Ohio medium](#)

# Welcome to the High Plains IPM Wiki!

(Redirected from HPIPM)



HIGH PLAINS Integrated Pest MANAGEMENT



This guide is intended to provide current effective management options for insect and other arthropod pests, for weeds, and for plant pathogens affecting all major field crops grown in Colorado, Montana, Wyoming, and Western Nebraska. Chemical and non-chemical control practices, when available, are described in detail for individual pests and pathogens. These practices include cultural and biological control options, and host plant resistance. By including alternatives to pesticides, we hope to create a ready reference of management strategies growers will consider when faced with a pest problem.

## High Plains Integrated Pest Management Guide for Colorado, Western Nebraska, Wyoming, Montana and Western South Dakota

A cooperative effort of the Universities of Nebraska, South Dakota, Wyoming, Colorado and Montana supported by USDA, Western Region IPM and EPA Region VIII. The search and indexing features of the High Plains IPM Guide developed by DMO Productions.



## Specific Chapters

■ [Crops](#)

■ [Horticulture](#)

## High Plains Integrated Pest Management Guide for Colorado, Western Nebraska, Wyoming, Montana and Western South Dakota



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### Specific Chapters

---

- [Crops](#)
- [Livestock](#)
- [Horticulture](#)
- [Weed Links](#)

### General Chapters

---

#### Screen Versions

- [HPIPM: Integrated Pest Management](#)
- [Disease Management](#)
- [Pest Sampling and Management Tactics](#)
- [Protection of Pollinators](#)
- [Index - Organic Pesticides](#)
- [Index - Biological Control of Arthropod Pests](#)
- [Pesticides: Section 18 Exemptions](#)
- [Calibration](#)
- [Field Records for Restricted Use](#)

#### Print Versions

- [Integrated Pest Management](#)
- [Disease Management](#)
- [Pest Sampling and Management Tactics](#)
- [Protection of Pollinators](#)
- [Calibration](#)
- [Field Records for Restricted Use](#)

# First Detector Training for the Master Gardener



The [National Plant Diagnostic Network](#) Training and Education Committee has created this page to provide an easily accessible source of information, presentation materials, and images related to the detection of exotic or newly introduced plant pests. Below, you will find links to fact sheets on the species of concern to the NPDN. Links in red are currently pending material. At the end of the fact sheet, you will find a gallery of images that are representative of these organisms and a link to download presentation materials that may be used to educate various groups such as master gardeners, garden clubs and homeowners about these pests.

## Contents [\[hide\]](#)

[1 Insects](#)

[2 Diseases](#)

[3 Weeds](#)

## Insects

- [African Citrus Psyllid \(\*Trioza erytrae\*\)](#)
- [Arrowhead scale \(\*Unaspis yanonensis\*\)](#)
- [Asian Ambrosia Beetle \(\*Xyleborinus saxeseni\*\)](#)
- [Asian Gypsy Moth \(\*Lymantria dispar dispar\*\)](#)
- [Asian Longhorned Beetle \(\*Anoplophora glabripennis\*\)](#)
- [Citrus Longhorned Beetle \(\*Anoplophora chinensis\*\)](#)
- [Bed Bugs \(\*Cimex lectularius\*\)](#)
- [Sweetpotato whitefly \(\*Bemisia tabaci biotype Q\*\)](#)
- [Brown marmorated stink bug \(\*Halyomorpha halys\*\)](#)
- [Cassava mealybug \(\*Phenacoccus manihoti\*\)](#)
- [Chilli Thrips \(\*Scirtothrips dorsalis\*\)](#)
- [Coffee mealybug \(\*Planococcus lilacinus\*\)](#)
- [Colorado Potato Beetle \(\*Leptinotarsa decemlineata\*\)](#)
- [Hemlock Woolly Adelgid \(\*Adelges tsugae\*\)](#)
- [Japanese wax scale \(\*Ceroplastes japonicus\*\)](#)
- [Light Brown Apple Moth \(\*Epiphyas postvittana\*\)](#)
- [Old World Bollworm \(\*Helicoverpa armigera\*\)](#)
- [Pine Shoot Beetle \(\*Tomicus piniperda\*\)](#)
- [Potato psyllid \(\*Russelliana solanicola\*\)](#)
- [Red Palm Mite \(\*Raoiella indica\*\)](#)
- [Redbay Ambrosia Beetle \(\*Xyleborus glabratus\*\)](#)
- [Sirex Woodwasp \(\*Sirex noctilio\*\)](#)
- [Spodoptera litura](#)
- [Sugarcane silk floss aphid \(\*Ceratovacuna lanigera\*\)](#)
- [Suni Bug \(\*Eurygaster integriceps\*\)](#)
- [Swede Midge \(\*Contarinia nasturtii\*\)](#)

# Lymantria dispar dispar

Authors: *Espinosa, A. and A.C. Hodges* University of Florida

## Contents [\[hide\]](#)

- [1 Distribution and Hosts](#)
- [2 Introduction](#)
- [3 Description of Damage](#)
- [4 Identification Characteristics](#)
- [5 Life History](#)
- [6 Control](#)
- [7 Image Gallery](#)
- [8 References](#)
- [9 Presentation Materials](#)

## Distribution and Hosts

Established populations of Asian Gypsy Moth have been detected in China, Russia, Korea, Japan, and Germany where it was not known to occur until the USDA traced it back (AQIS, 2007). Although detected in North America, all populations have been successfully eradicated.

The Asian Gypsy Moth feeds on over 500 species of trees and shrubs, including many conifers and hardwoods, although *Quercus* is a preferred host. Other commonly encountered hosts include *Alnus*, *Betula*, *Corylus*, *Larix*, *Malus*, *Populus*, and *Salix*. The defoliation and weakening of hosts caused by Asian Gypsy Moth feeding increases their susceptibility to other pests and diseases and/or directly kills the host plant in some cases (APHIS-USDA, 2003).

Newly hatched larvae can be carried on wind currents, a process called "ballooning", this is the primary means of natural dispersal (Virginia Tech).

## Asian gypsy moth



Photo by John H. Ghent, USDA Forest Service, Bugwood.org

## Taxonomy

Kingdom:	Animalia
Phylum:	Arthropoda
Class:	Hexapoda (including Insecta)
Order:	Lepidoptera
Family:	Lymantriidae
Genus:	<i>Lymantria</i>
Species:	<i>dispar</i>
Subspecies:	<i>dispar</i>

## Scientific Name

***Lymantria dispar dispar***  
(Linnaeus)

The Asian Gypsy Moth is a serious tree pest in its native Asian range. Due to similarities between Asian and North American ecosystems, it is a major

# EDD **MapS**

Early Detection & Distribution Mapping System



**Map It! Zap It! Map It Again!**

**EDDMapS Invasive Species**

**Mapping Tools**



# Simple EDRR Flow Chart

Species reported



Species verified



Rapid assessment

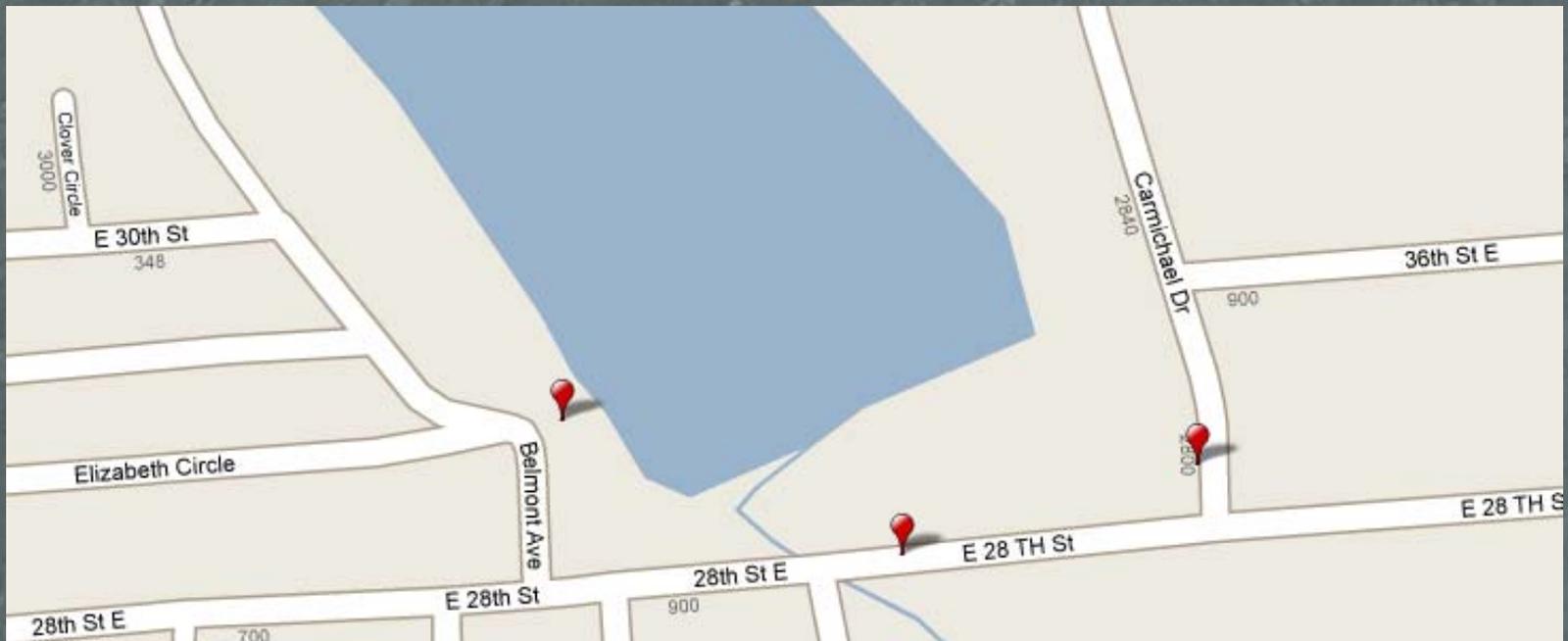


**RESPONSE**



# Map It!

Quickly Enter or Select on a Map the Location of Invasive Species in Your Area.





# Zap It!

Remove or Treat the Invasive Species  
You Find, Use EDDMapS to Document  
that Treatment





# Map It Again!

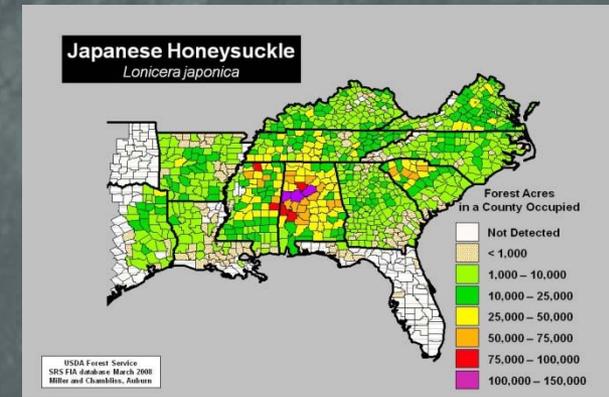
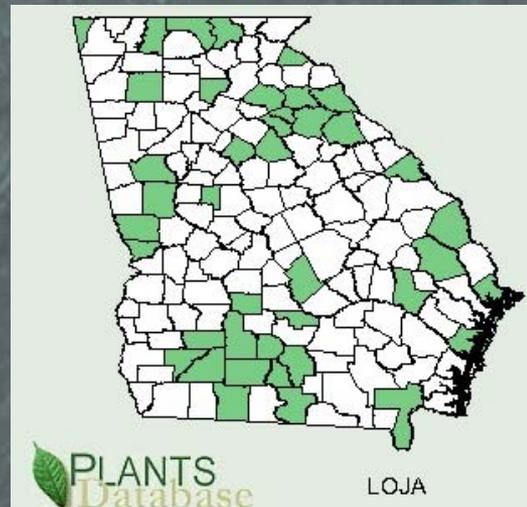
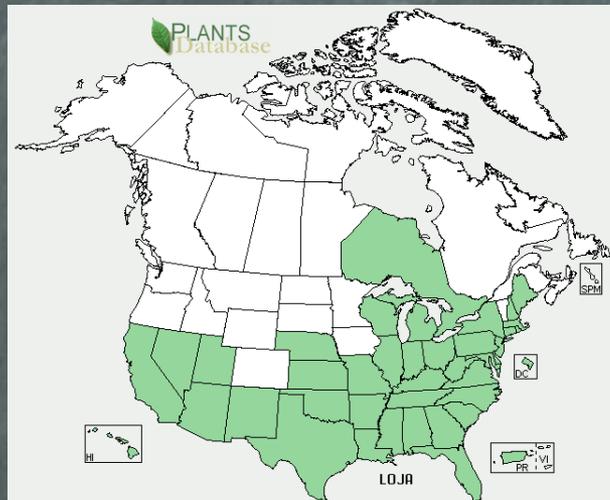
Monitor the Occurrence, Report the Monitoring Efforts and Follow-up Treatments.





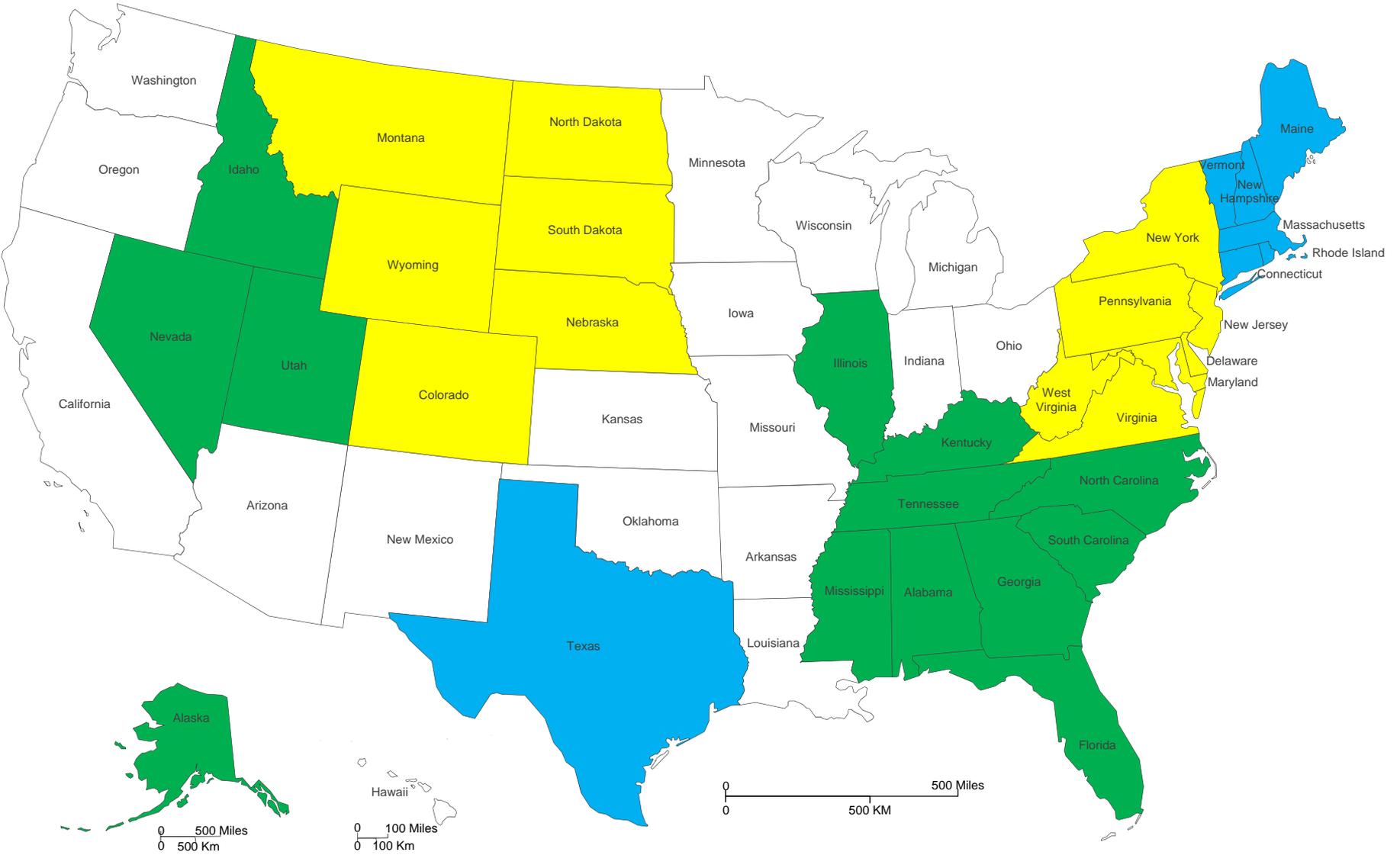
# Invasive Species Mapping Made Easy!

EDDMapS, started in 2005 with Southeastern U.S. focus, is now providing a picture of the distribution of invasive species across the U.S.



**EDD MapS**  
Early Detection & Distribution Mapping System

# EDDMapS Project Areas





# Why EDDMapS?

- Fast and easy to use - no knowledge of GIS required
- Web-based mapping of invasive species distribution to help fill gaps and identify “leading edge” ranges
- Facilitates Early Detection and Rapid Response implementation with online data entry forms, e-mail alerts and network of expert verifiers



# Why EDDMapS?

- One Database for both local and national data
- Data can be searched, queried and downloaded in a variety of formats
- Cooperates with and aggregates data from other invasive species mapping projects
- Custom/hosted applications can be quickly and inexpensively developed



# EDDMapS Goals

- National / International Focus
- Aggregate data (not replace) from other systems
  - National Distribution data for 1200 species from PLANTS and use PLANTS as taxonomic authority
  - Regional programs and existing systems are definitely still needed
  - Distribution data already exist at varying scales, resolutions, availability, and completeness
- Work through existing Organizations and Networks (NAEPPC, NNIPC, CAPS/NAPIS, NPDN)



## Search

Name Search

Scientific Name

- ◊ State Search
- ◊ Advanced Search
- ◊ Search Help

## PLANTS Topics

- ▶ Alternative Crops
- ▶ Characteristics
- ▶ Classification
- ▶ Culturally Significant
- ▶ Distribution Update
- ▶ Fact Sheets & Plant Guides
- ▶ Invasive and Noxious Weeds
- ▶ Links
- ▶ Plant Materials Publications
- ▶ Threatened & Endangered
- ▶ Wetland Indicator Status

## Image Gallery

- ▶ 40,000+ Plant Images
- ▶ Submit Your Digital Images

You are here: Home/

The PLANTS Database provides standardized information about the vascular plants, mosses, liverworts, hornworts, and lichens of the U.S. and its territories.

## Plant of the Week



Swamp white oak  
*Quercus bicolor* Willd.

Click on the photo for a full plant profile.

## Spotlights



### Characteristics Data Update

PLANTS Characteristics major data update completed. Over 3000 changes and corrections were made to this popular ecology data set that covers over 2500 species and cultivars.



### Using Farm Bill Programs for Pollinator Conservation (PDF; 278KB)

Technical Note TN.190.B.78 - Using Farm Bill Programs for Pollinator Conservation is now available. Learn about Farm Bill programs and associated conservation practices that can

## I Want To...

- ◊ See a list of the plants in my state
- ◊ Learn about the wetland plants in my region
- ◊ Learn about all the endangered plants of the U.S.
- ◊ Learn about noxious and invasive plants
- ◊ Search for and view images of plants
- ◊ Read and print abstracts about important conservation plants
- ◊ Download data or posters
- ◊ Contribute plant distribution information to PLANTS
- ◊ Get ecological descriptions of sites from around the country
- ◊ Choose plants for particular land conservation purposes

## I Want Help

- ◊ Introduction to PLANTS

# The Biota of NORTH AMERICA Program



## U.S. County-Level Atlas of the Vascular Flora of North America

The Biota of North America Program (BONAP) maintains relatively complete phylogeographic and related botanical databases for all free-living vascular plants in North America (north of Mexico). For over four decades, BONAP has worked collaboratively with many federal and state government agencies, private groups and individual specialists across the continent to produce and edit our databases. Therefore, we feel that our county-level database has matured sufficiently to allow us to post, for the first time, all of our integrated county-level maps of the North American ferns and allies, conifers and flowering plants in one place. Although these maps must still be considered **DRAFT** releases, inasmuch as in 2009 alone, nearly 952,000 new county-level records were added, we wanted to provide members of the North American plant community an opportunity to view and critique all 21,500 species-level maps. BONAP plans to provide updates of these maps at regular intervals subsequent to this January 2010 initial release.

In some cases, individual species maps will have multiple colors regarding nativity [e.g., [Chenopodium album](#), dark olive green (native), orange (native historic), teal (adventive), and also dark navy blue (exotic)]. This map suggests that in various U.S. states, at least one infraspecific taxon of the species complex is native, another is exotic, a third is adventive and a fourth show as rare. Once published, the Floristic Synthesis will show state-level nativity and rarity for each infraspecific taxon, however, for this website, we have provided only full species-level maps.

### STATE COLOR KEY

-  Species present in state and native
-  Species present in state and exotic
-  Species not present in state

### COUNTY COLOR KEY

-  Species present and not rare
-  Species present and rare
-  Species extirpated (historic)



Species extinct



Species noxious



Species exotic and present



Species native, but adventive in state



Species eradicated



Questionable Presence (cross-hatched)

[List by Genus](#)

[List by Traditional  
Family](#)

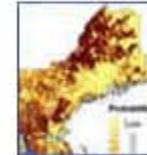
[List by Modern  
Family](#)

[List  
Phylogenetically](#)

*under development*



# Invasive Plant Atlas of New England

 Site Search

**:: NEW! Predictive modeling research and results**



**:: Invasive plant management**



**:: Calendar of Events**



**:: Invasive in the News**



**:: Quad Status Maps**

The Invasive Plant Atlas of New England's (IPANE) mission is to create a comprehensive web-accessible database of invasive and potentially invasive plants in New England that will be continually updated by a network of professionals and trained volunteers. The database will facilitate education and research that will lead to a greater understanding of invasive plant ecology and support informed conservation management. An important focus of the project is the early detection of, and rapid response to, new invasions.

### **We'd like to hear from you!**

How have you used IPANE lately? Email us at [ipane@uconn.edu](mailto:ipane@uconn.edu) and let us know how you have used the IPANE web site, volunteer-collected data, general species information, or other aspect of IPANE. Whether it be for educational purposes, scientific research, local government, conservation, or species management, we want to know how IPANE has contributed. Thanks!



# IPAMS *Invasive Plant Atlas of the MidSouth*

[Home](#)[About](#)[Contact Info](#)[Register](#)[Login](#)[Species Info](#)[Data / Maps](#)[Early Detection](#)[& Rapid Response](#)[Report a Sighting](#)[Field Survey Form](#)

**Name:** *Rotala rotundifolia*

**Common Name:** Roundleaf Toothcup

**Habitat:** Wetland Areas

**Growth Habit:** Aquatic Herb

**Native Environment:** Southeast Asia



A large number of invasive aquatic and terrestrial plant species have become introduced into the United States. While several agencies have developed databases for tracking the locations and status of these invaders, these agencies do not have the resources to thoroughly track the presence and locations of these species in the states, relying instead on voluntary reporting of locations.

An important component to a state and regional coordination of management efforts will be an accessible and up-to-date database of invasive species locations and actions to manage them, operated and managed at the regional level. GRI is actively mapping the locations of invasive aquatic and terrestrial plant species in the Midsouth, and entering them into our web-based database for invasive plant species.

This database will be developed in collaboration with national USGS and other agency databases and structures, and the Invasive Plant Atlas of New England (IPANE), with mechanisms and procedures in place to ensure data transmission both upward (nationally) and downward to the local level for rapid assessment and response.



GeoResources Institute - Contact: John D. Madsen, Ph.D.  
Ph: 662-325-2428 . Mississippi State, MS 39762 . WebMaster



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## News & Events

**Soapberry Borer Found in 33 counties in Texas** - 15 new counties added to soapberry borer distribution map, [read more...](#)

**Texas ecologist pores over local flora** - AUSTIN - Database is helping create larger efforts to manage wildlife in Texas, [read more...](#)

**Invasive Plants book review** - [Click here](#) to read a review by Dr. Brooke Byerley, of the Botanical Research Institute of Texas, on the new book **Invasive Plants: Guide to Identification and the Impacts and Control of Common North American Species**.



### Report Soapberry Borer

[Bark falling from your soapberry tree?](#) The Texas Forest Service needs your reports to determine the [distribution of soapberry borer](#) in Texas.

**Identify:** [Western Soapberry and the Soapberry Borer](#).

**Report:** [Locations of Soapberry Borer in Texas](#)



## Invaders<sup>of</sup> Texas

a Citizen Science Program to Detect and Report Invasive Species

### Invaders of Texas Online Training

[Click Here](#) to become a citizen scientist and start reporting invasive species in your area.

### EDDMaps

[Invaders of Texas Species Distribution Maps](#) now available on SEEPPC's Early Detection and Distribution Mapping System.





# Lower Ohio River Survey



RIVER TO RIVER  
Cooperative Weed Management Area



**EDD MapS**  
Early Detection & Distribution Mapping System



# MISSOURI RIVER WATERSHED COALITION

Maintaining productive, biodiverse riparian ecosystems that provide quality water, habitat, recreation, and power to meet the economic and ecological needs of the Missouri River Watershed region.



From its headwaters in the northern Rockies, the Missouri River flows through the Upper Midwest, then southeast to join the Mississippi River, fed by a watershed that covers 500,000 square miles over 10 states.

The rivers, streams, reservoirs, and ponds of the watershed support agriculture, recreation, tourism, wildlife habitat, irrigation, drinking water, power generation and livestock production.



The Montana, North Dakota, South Dakota, Wyoming, Nebraska and Colorado departments of agriculture signed a Memorandum of Agreement in 2006 and an MOA Addendum in 2008 to coordinate the management of invasive plant species in the six-state area. Saltcedar was the first species targeted. MWRC membership—agency personnel, businesses, universities, conservation groups, and private landowners—have drafted a Saltcedar Management Plan for the Missouri River watershed.

In May 2008, the Center agreed to provide coordination for the Missouri River Watershed Coalition, a six-state coalition to develop management strategies and priorities for invasive plants and water resources in the region. ([more...](#))

## Vision

To maintain productive, biodiverse riparian ecosystems that provide quality water, habitat, recreation, and power to meet the economic and ecological needs of the Missouri River Watershed region.



## Executive Committee

- President – Andrew Canham, Mid Dakota Vegetation
- Colorado – Kelly Uhing, Colorado Dept. of Agriculture
- Montana – Dave Burch, Montana Dept. of Agriculture
- Nebraska – Mitch Coffin, Nebraska Dept. of Agriculture
- North Dakota – Rachel Seifert-Spilde, North Dakota Dept. of Agriculture
- South Dakota – Ron Moehring, South Dakota Dept. of Agriculture
- Wyoming – Slade Franklin, Wyoming Dept. of Agriculture
- Coordinator – Liz Galli-Noble, Center for Invasive Plant Management

## Meetings

- The Fall 2009 MRWC meeting was held on **September 21 in Kearney, Nebraska.**

[Meeting Minutes](#)

## Documents

- [Memorandum of Agreement](#)
- [MOA Addendum](#)
- [Constitution and Bylaws](#)
- [Saltcedar Management Plan](#)
- [Missouri River Watershed Coalition poster](#)
- [Missouri River Watershed Coalition brochure](#)
- [Official in-kind match form find form from this link on current website](#)



CENTER FOR RESEARCH  
ON INVASIVE SPECIES AND SMALL POPULATIONS

University of Idaho

CRISSP

Contact

Research

Services

Jobs

Gallery



Center for Research on Invasive Plants and Small Populations

## WELCOME!

We invite you to explore the CRISSP website which is updated with the most current scientific research from the Center related to invasive species and small populations in the Northern Rockies. With over 20 faculty and numerous graduate projects there are many topics to choose from. Don't forget to check out the services CRISSP offers from workshops to diagnostic lab results and many more!

## NEWS

**NEW!** CRISSP winter 2010 newsletter is available. To download your copy, [click here](#).

Graduate Student Opportunity to conduct spatial genetics research of the great sage-grouse in the Mono Lake area of California. MS level research position is available.

Application deadline is **January 4, 2010**.

For more information, [click here](#).

[Home](#)[Pest News](#)[State Information](#)[Pest List](#)[Directories](#)[Resources](#)[Share your Thoughts](#)[Contact Us](#)

Search the **Pest List:**

### Recent Featured News [\(click for all news\)](#)

12/30/2009: [CUSTOMS AND BORDER PROTECTION SEEKS NO VALENTINE'S DAY SURPRISES ...](#)



### NAPIS PEST TRACKER

This website publishes survey maps for pests of agricultural and forest commodities and provides links to pest news and information.

The National Agricultural Pest Information System (NAPIS) stores and manages pest survey data that is collected by CAPS and other PPQ survey programs. Detection surveys are one tool used to manage the introduction of exotic pests.

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### PPQ

[Plant Protection and Quarantine](#) is a division of the United States Department of Agriculture's Animal and Plant Health Inspection Service charged to protect American agricultural resources



Fighting invasive species...

... through citizen science

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### About invasive species


[How you can help](#)

CitSci.org is an invasive species mapping program that allows citizens, school groups, and professionals to enter invasive species observations into a global database. The observations are then used for natural resource management, scientific studies, and environmental education. CitSci.org provides an opportunity for students and volunteers to perform field studies that contribute to our collective biological databases. You may submit your observations to our online database using our field tools.

#### Featured Project

[Tamarisk at Stream Gaging Stations](#)  
[All Projects](#)

#### Featured Species

[Yellow toadflax \(\*Linaria vulgaris\*\)](#)  
[All Species](#)

#### New Discoveries

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HIGHLIGHTS



**Natural Community Guide Update**

FNAI is completing a revision to our natural community classification. View draft community descriptions here.



**Cooperative Land Cover Map**

FNAI is the lead partner in the Cooperative Land Cover Map, a project to develop an improved statewide land cover map from existing sources.



**LandScope**

FNAI is pleased to be a pilot member of Landscape America, the conservation guide to America's natural places.



**Invasives Updates**

New data and guidelines are available on the Invasive Species page.



**Biodiversity Matrix**

The Biodiversity Matrix Map Server is a new screening tool from FNAI that provides immediate, free access to rare species occurrence information statewide.

**Stock Island tree snail**

*Orthalicus reses reses*



**Learn more about this species**

Global Rank: G2T1    State Rank: S1  
Federal listing: THREATENED  
State listing: ENDANGERED



**iMapInvasives**  
*geotracking invasive exotic species*



# Welcome

[Home](#)

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[Resources](#)

[About](#)

## Welcome to iMapInvasives

Invasive species are widely considered to be one of the greatest threats to biodiversity (Wilson, 2001). This is a nationwide problem encompassing many different non-native plants, animals, and even microbial pathogens. There are many individuals, public agencies and private organizations working to manage invasive species. Having access to strategic invasive species location information can support and enhance this important invasive species management work.

A consortium has formed to develop an on-line, GIS-based, all-taxa invasive species mapping tool to be called iMapInvasives which will focus on serving the needs of invasive species managers. A particular emphasis will be placed on applications designed to aid in Early Detection/Rapid Response efforts. The initial consortium is comprised of five partners: the natural heritage program of the state of Florida (Florida Natural Areas Inventory (FNAI)), the New York Natural Heritage Program (NYNHP), The Nature Conservancy in Oregon, and the Global Invasive Species Team of The Nature Conservancy (TNC-GIST), and NatureServe.

## Use your Mobile Phone to Help Us Locate Invasive Plants!

Invasive weeds are a significant threat to native plants and animals. Although most non-natives are not considered "invasive", those that crowd out food sources for wild animals, create erosion, or act as a significant fire hazard can be considered a threat and need to be identified and located for removal. **You can help!**



Using your **iPhone** or **Android** mobile phones, help us locate invasive plants!

You can also participate using a digital camera, email, or our web forms. [Find out more!](#)

[Sign up and start participating](#)

***We have an open API!***

Are you a mobile device programmer and want to help build ecologically and socially important applications? [Send us a note!](#)

### Current List of Participating Parks:

Channel Islands

[Or set up your own park!](#)

### Current *What's Invasive!* Phone Apps:

- [iPhone Version 1.0](#) is now available. Use this link if you already have iTunes installed. Or, go to the [Apple iPhone app store](#) and search for SM Invasives.

**Note:** the iPhone currently only works with the Santa Monica National Recreation Area but will soon be multi-location.

- [Android G1 version 1.2](#) is also now available in the Android store! Navigating to <http://WhatsInvasive.com> on your phone browser will also get you to a download



# Statistics for EDDMapS

- 609,949 records
  - incl. 236,298 point records
- 1,721 species
  - 1,383 plants
  - 338 animals
- 1,078 users
- 2 million hits (SE, FL & National)
- 200,000 visitors



# Uses of Data

- More complete distribution data
- Early detection of new invaders
- Identification of “leading edges”
- Refinement of lists and priorities
- Clearer picture of invasive species problem
- Justification of need for management and resources



# Electronic Early Detection System

- Each state, county or other area has a designated reviewer responsible for
  - Verifying all data entered for that area
- Each user can designate which species they want to be notified on as new occurrences are reported
  - EDDMapS sends automatic email alert

## Invasive Species Mapping Made Easy!



EDDMapS, started in 2005 with Southeastern U.S. focus, is now providing a picture of the distribution of invasive species across the U.S.

- ✓ Fast and easy to use - no knowledge of GIS required
- ✓ Web-based mapping of invasive species distribution to help fill gaps and identify "leading edge" ranges
- ✓ Facilitates Early Detection and Rapid Response implementation with online data entry forms, e-mail alerts and network of expert verifiers
- ✓ One Database for both local and national data
- ✓ Data can be searched, queried and downloaded in a variety of formats
- ✓ Cooperates with and aggregates data from other invasive species mapping projects
- ✓ Custom/hosted applications can be quickly and inexpensively developed

## Who's Using It?

- ✓ Southeast Exotic Pest Plant Council
- ✓ Florida Exotic Pest Plant Council
- ✓ Everglades Cooperative Invasive Species Management Area
- ✓ Florida Invasive Species Partnership
- ✓ Alaska Exotic Plant Information Clearinghouse
- ✓ Invaders of Texas

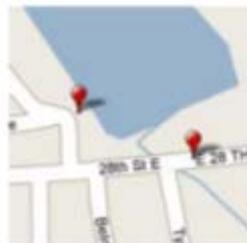
## Statistics

585,013 County Reports  
212,553 Point Reports  
1,598 Species / 516 Users

## Recent Reports

- ✓ Amur honeysuckle by Forrest Evans in Davidson County, Tennessee
- ✓ winged burning bush by Forrest Evans in Davidson County, Tennessee
- ✓ chinaberry by Paul Still in Bradford County, Florida
- ✓ Chinese tallowtree by Paul Still in Bradford County, Florida
- ✓ tropical soda apple by Paul Still in Bradford County, Florida

## Map It!



Quickly Enter or Select on a Map the Location of Invasive Species in Your Area.

## Zap It!



Remove or Treat the Invasive Species You Find, Use EDDMapS to Document that Treatment

## Map it Again!



Monitor the Occurrence, Report the Monitoring Efforts and Follow-up Treatments.

## Report Images



Japanese climbing fern - *Lygodium japonicum*  
Report by CalLee Davenport, US Fish & Wildlife Service

## Supporters



# EDDMapS

Early Detection & Distribution Mapping System

Username:  Password:

[Join Now \(Free\)](#) [Lost your password?](#)

Report Sightings

Distribution Maps

Species Information

Tools & Training

My EDDMapS

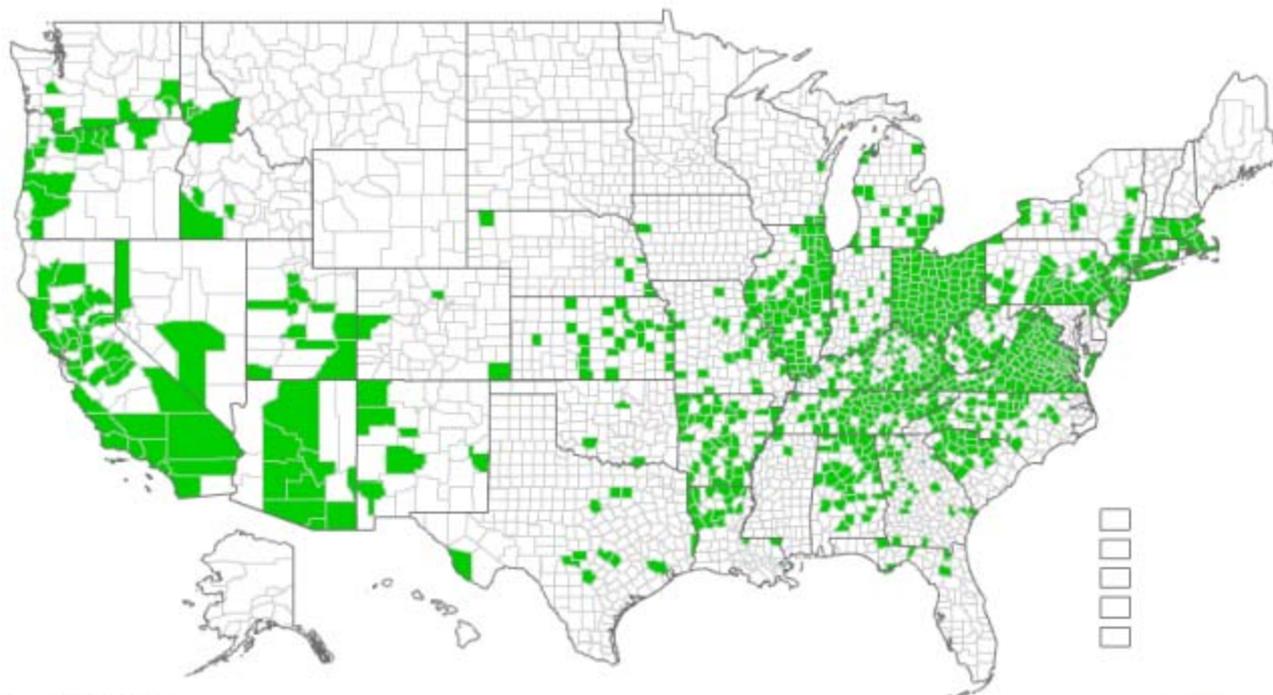
About

## tree-of-heaven

*Ailanthus altissima* (P. Mill.) Swingle

USDA PLANTS Symbol: AIAL  
WeedUS Database

Distribution Maps: [State](#) / [Southeast](#) / [Points on Google Maps](#)



flashmaps

# EDDMapS

Early Detection & Distribution Mapping System

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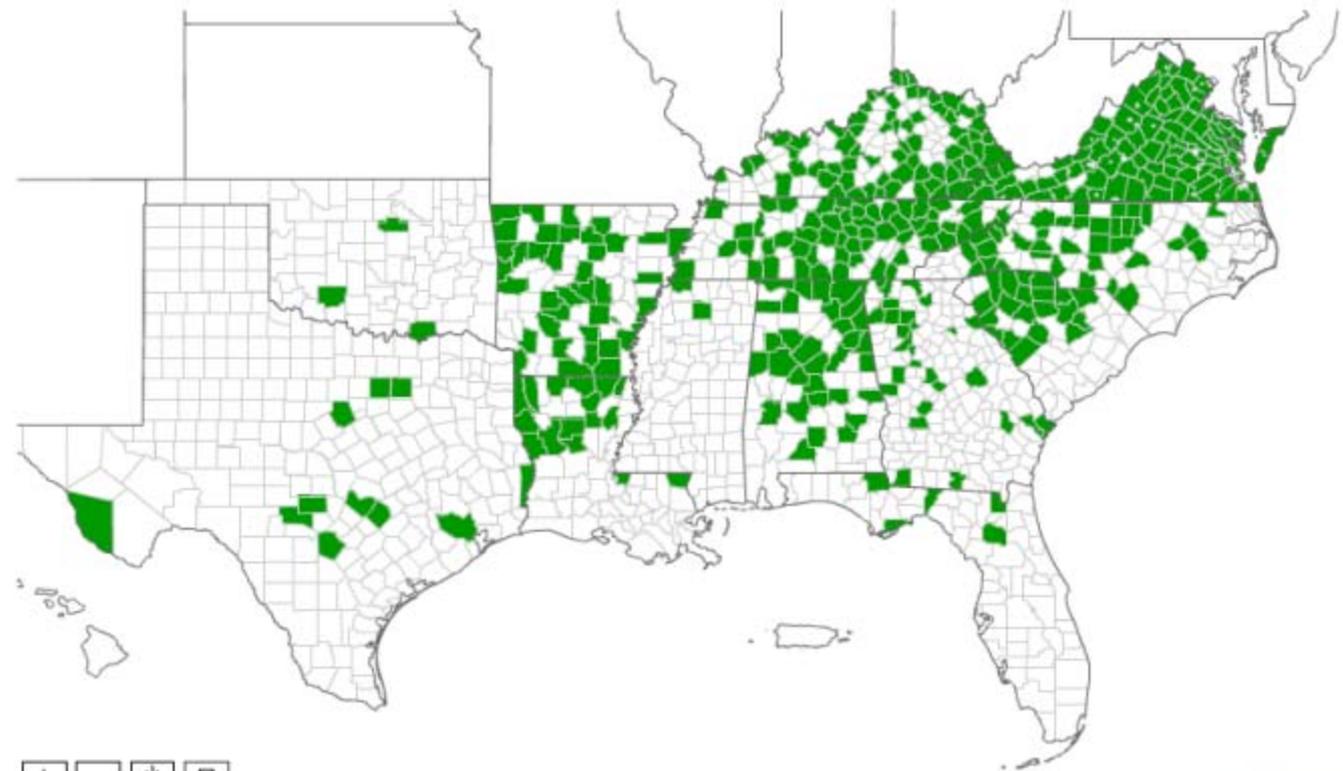
- Report Sightings
- Distribution Maps
- Species Information
- Tools & Training
- My EDDMapS
- About

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*Ailanthus altissima* (P. Mill.) Swingle

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flashmaps

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USDA PLANTS Symbol: AIAL  
WeedUS Database

## *Ailanthus altissima* (P. Mill.) Swingle

Distribution Maps: [State](#) / [County](#) / [Southeast](#)



Multiple Points



Single Point



[Print](#)



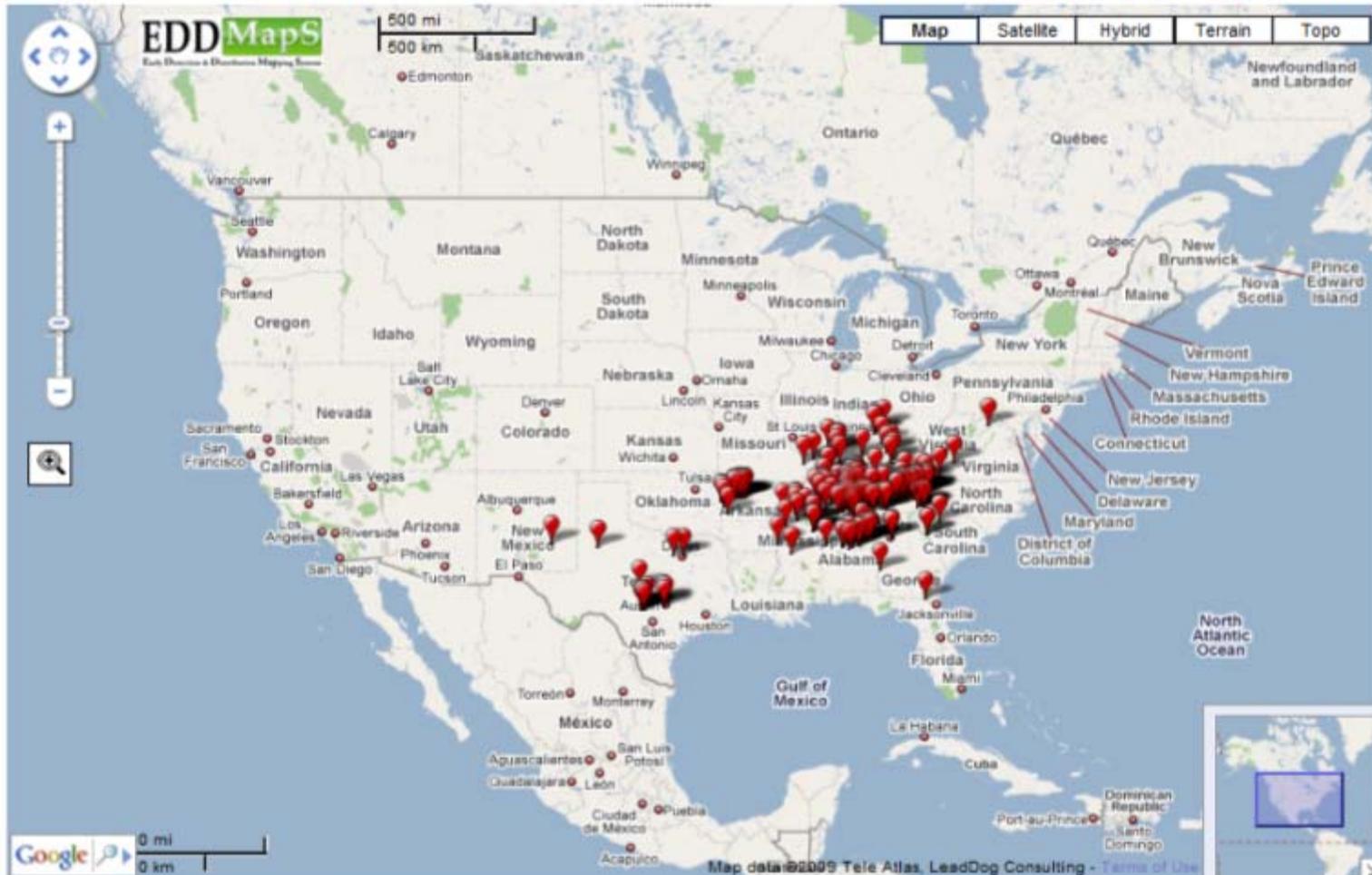
[Link to this View](#)



[Excel](#)



[Google Earth](#)



Center Latitude: 38.341656

Center Longitude: -96.064453

Mouse Latitude: 55.699879

Mouse Longitude: -118.015137

Click Latitude: 52.001115

Click Longitude: -61.325684

# Invasive Plant Atlas

of the United States


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[Grasses](#)
[Herbs/Forbs](#)
[Shrubs/Subshrubs](#)
[Trees](#)
[Vines](#)
[All Species](#)
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[Parks](#)
[Sources](#)


Contribute Plant  
Distribution Data to



## EDD MapS

Early Detection & Distribution Mapping System

Contribute Pictures  
of Invasive Plants to

## BUGWOOD

Image Database System

## Invasive Species News

**How prepared is the U.S. to meet future botanical challenges?**

Friday, August 21, 2009 - 05:42 PM

**Aquatic Invasives by Graves Lovell**

Friday, August 21, 2009 - 02:28 PM

**Launching of the Widely Prevalent Virus site**

Friday, August 21, 2009 - 01:46 PM

**Python caught on first day of Everglades hunt**

Sunday, August 16, 2009 - 08:10 PM

**World's first DNA barcode for plants**

Thursday, July 30, 2009 - 07:36 PM

The Invasive Plant Atlas of the United States is a collaborative project between the National Park Service and the University of Georgia Center for Invasive Species and Ecosystem Health. The Atlas provides information about non-native plant species that invade natural areas in the U.S. Non-native invasive plants compete with native plant species for light, nutrients, water, and soil. They degrade natural areas by displacing native plant communities, reducing light penetration, increasing ground level humidity, changing soil pH and chemistry, and altering hydrologic and fire regimes. The changes invasives bring can affect things like the amount and quality of food and nesting sites available for wildlife, the extent and survival of native plant populations, the quality and functions of wetlands and waterways, and the appearance and enjoyment of natural landscapes.

The Invasive Plant Atlas is just one step in the effort to combat invasive species and preserve our native landscapes and the plants, animals, and other creatures that inhabit them. Information in the Atlas is compiled from many sources including federal, state and local government agencies, Exotic Pest/Invasive Plant Councils, Invasive Species Councils and other experts and organizations. The purposes of the Atlas are informational and educational. It is neither intended nor approved for use as a regulatory tool. Many of the species included are economically important horticultural plants that are problematic when they escape, establish and spread in natural areas.



Enabling Partnerships

How To ...

Report & Map Invasives

Landowner Assistance

Success Stories

Florida CISMAs

Partners

About

Do you need help finding landowner assistance or help treating invasives?

[Click Here](#)

Quick Links:

[FISP Videoconference Presentations](#)

[Got Invasives? Get Help!](#)

[CISMA Monthly Calls](#)

[EDDMapS](#)

[The IFAS Assessment of Non-Native Plants in Florida's Natural Areas](#)

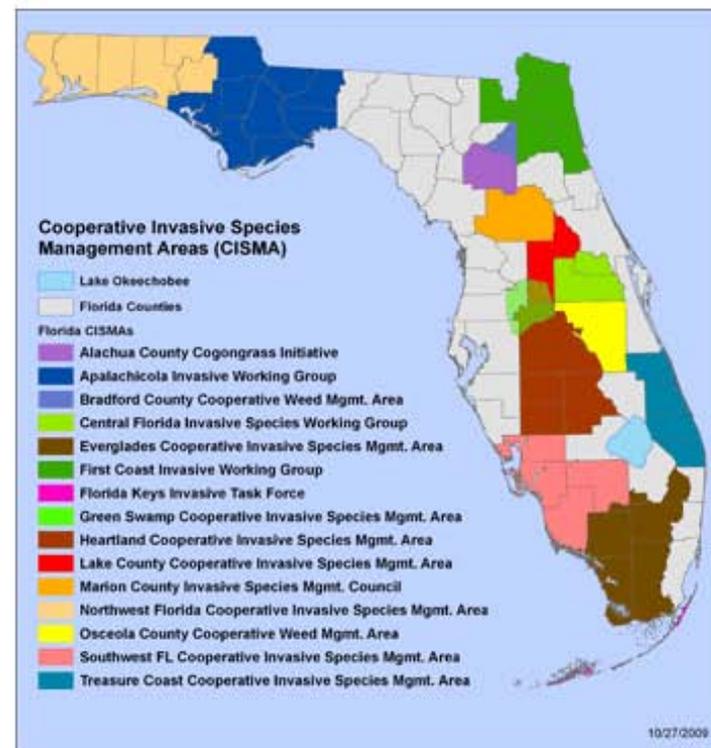


## Florida Invasive Species Partnership

FloridaInvasives.org is an online resource of management assistance programs to help in your fight against problematic plant species. This resource takes the guesswork out of finding the agencies or organizations offering assistance and will direct you to available programs. It will also provide the requirements for each program, to help you decide if they are a good match for your needs.

### Why was FloridaInvasives.org developed?

Public and private land managers have identified the high ecological and economic cost of invasive species as a statewide problem in Florida. The Florida Invasive Species Partnership (FISP) is a collaboration of federal, state and



## Upcoming Events

Full Calendar

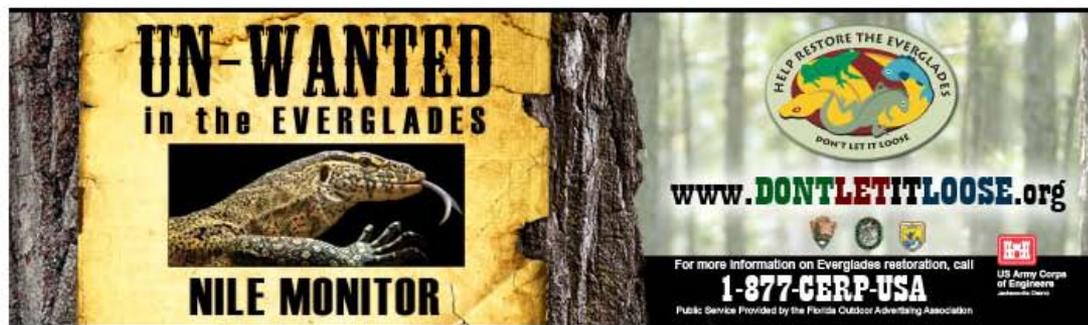
Today

**Sunday, January 31**

Invasive species outreach at South Florida Fair



# Everglades Cooperative Invasive Species Management Area

[About Us](#)
[Meetings](#)
[Distribution Maps](#)
[Report Sightings](#)
[Species Information](#)
[Educational Resources](#)
[News](#)
[Partners](#)


A Cooperative Invasive Species Management Area is a formal partnership of federal, state, and local government agencies, tribes, individuals and various interested groups that manage invasive species and is defined by a geographic boundary. Florida has a long history of invasive species organization cooperation such as the Florida Exotic Pest Plant Council, Noxious Exotic Weed Task Team, Florida Invasive Animal Task Team and Invasive Species Working Group. Everglades restoration poses new challenges for invasive species management and has created a need for a more defined commitment to cooperation among agencies and organizations at higher levels of policy and management.

## What's New

- **Pest Alert: Northern African Pythons**
- **Invasive Animal Search Team Identification Presentation**
- **Large Constrictor Snake Sightings/Removals**
- **Multi-Agency Python Detection Meeting - September 2009**
- **2009 Everglades Invasive Species Summit Presentations**
- **Florida Invaders: Under Siege by Plant and Animal Invaders**
- **Florida FWC Invasive Plant Research Newsletter**
- **2008 Everglades Invasive Species Summit Presentations**
- **Digital Aerial Sketchmapping**
- **Recent Invasive Species Reports**

## Location



## Signatories



Happy Follow Friday! @MDEcoAdventures  
@OhRanger @WendyFulks 1 day ago

Burmese python by Matthew Kemmer on 16-Nov-09

Snow in Florida: Big chill culling unwanted iguanas and pythons - Christian Science Monitor



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## STATE CHAPTERS

[Alabama](#)

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[Georgia](#)

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[Mississippi](#)

[North Carolina](#)

[South Carolina](#)

[Tennessee](#)

## RELATED ORGANIZATIONS

[National Association of EPPCs](#)

[Mid-Atlantic EPPC](#)

## Southeast Exotic Pest Plant Council

The mission of the Southeast Exotic Pest Plant Council is to support the management of invasive exotic plants in natural areas of the Southeast U.S. by providing a forum for the exchange of scientific, educational and technical information. The Southeast Exotic Pest Plant Council is a non-profit organization and is not a regulatory agency.

### Wildland Weeds

- » [Fall 2009](#)
- » [Summer 2009](#)
- » [Spring 2009](#)
- » [Winter 2008](#)
- » [Fall 2008](#)
- » [Summer 2008](#)

### E-Newsletter

- » [December 2008](#)
- » [Sept. 2008](#)
- » [June 2008](#)
- » [February 2008](#)
- » [November 2007](#)
- » [August 2007](#)
- » [April 2007](#)

### Resources

- » [SE-EPPC ListServ](#)
- » [Wildland Weeds](#)
- » [2005-2010 Platform](#)
- » [Advertise in Wildland Weeds](#)
- » [NAA/NAEPPC Conference](#)

## EDD Maps

Early Detection & Distribution Mapping System

- [View Distribution](#)
- [Report Infestations](#)
- [Presentations](#)
- [Documentation](#)

### UPCOMING MEETINGS

- [National Invasive Species Awareness Week](#)  
Washington, DC  
January 10-14, 2010
- [Controlling Invasive and Promoting Native Plants](#)





## Invasive plant centers in cooperation

Growing awareness of the economic and ecological threats of invasive plants has led to the establishment of a number of regional centers of expertise and coordination in the United States. These centers have established successful programs to address the needs of public and private natural resource managers working with invasive plants.

### Current network members:

[California Invasive Plant Council](#) (Cal-IPC)

[Center for Invasive Plant Management](#) (CIPM)

[Midwest Invasive Plant Network](#) (MIPN)

[Center for Invasive Species and Ecosystem Health](#) (CISEH)

[Center for Aquatic and Invasive Plants](#) (CAIP)

[Invasive Plant Atlas of New England](#) (IPANE)



## NATIONAL CWMA MAP



News

[Invasive plants targeted in Big](#)







January 10-14, 2010 in Washington, DC

## Invasive Species: Change and Dollars

An all-taxa event organized around three critical issues of our time:

CLIMATE CHANGE

ENERGY AND BIOFUELS

THE "GREEN" ECONOMY

### Post Meeting Summary - NEW

Briefing Paper: [Climate Change](#)

Briefing Paper: [Green Economy](#)

NISC/ISAC White Paper: [Biofuels](#)

[Who's Involved?](#)

[NISAW Summary \(pdf\)](#)



### FOR ADDITIONAL INFORMATION

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JANET CLARK

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406-209-4286

DR. JAMIE REASER

[pjjacscience@nelsoncable.com](mailto:pjjacscience@nelsoncable.com)

434-990-9494



# National Invasive Species Awareness Week

Wall

Info

Photos

Discussions



What's on your mind?

Attach:



Share

National Invasive Species Awareness Week

Just Fans

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Suggest to Friends

January 10-14, 2010 in Washington, DC

## Information

Founded: 2009

## Insights

See All

26.1 **★★★★★** Post Quality

0 Interactions This Week



**National Invasive Species Awareness Week** Photos of NISAW attendees and guests at our Tuesday night reception on Capitol Hill



### Reception Photos

16 new photos

January 20 at 5:10am · Comment · Like · Share

Janet Friese Clark, Kris S-King and 2 others like this.

Write a comment...



**National Invasive Species Awareness Week** Final agenda is posted! Be in Washington, DC, next week for all the latest in invasive species science and policy. Thanks to all the planners, speakers, contributors, and those offering moral support for the last few months.

January 8 at 1:07pm · Comment · Like

Get More Fa

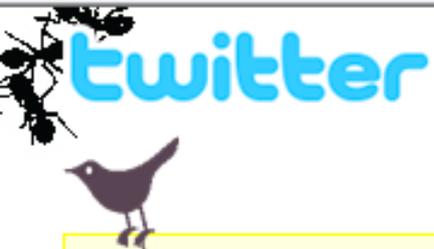
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National Invas Species...



Invasive species v non-native specie of the most signifi of global change. Consequently, the have...

Chuck Bargeron is Become a Fan



# Hey there! **ECISMA** is using Twitter.

Twitter is a free service that lets you keep in touch with people through the exchange of quick, frequent answers to one simple question: What's happening? **Join today** to start receiving **ECISMA's** tweets.

**Join today!**

Already using Twitter from your phone? [Click here.](#)



# ECISMA

New Pest Alert: Several small populations of Chinese creeper have now been detected in southwest Miami-Dade County:  
<http://ow.ly/10DsZ>

9:22 AM Jan 26th from HootSuite

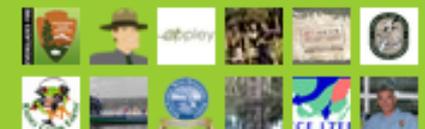
Name Everglades CISMA  
Location South Florida  
Web <http://www.evergl...>  
Bio Working to protect the Everglades from Invasive Species

18 following 42 followers 4 listed

Tweets 135

Favorites

Following



# **BugwoodVideo / BugwoodPresents**

## **USDA CSREES**

**Agriculture and Food Research Initiative**

**Plant Biosecurity**

**Starts March 2010 (3 year project)**

- **University of Georgia**
- **Colorado State University**
- **Texas AgriLife Extension Service**
- **University of Florida**

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- [Entrepreneurs & Their Communities](#)
- [Gardens, Lawns & Landscapes](#)
- [Geospatial Technology](#)
- [Imported Fire Ants](#)

### Disaster Issues

- [Agrosecurity and Floods](#)
- [Wildfire](#)

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- [Families, Food and Fitness](#)
- [Family Caregiving](#)



THE UNIVERSITY OF GEORGIA  
**CENTER FOR INVASIVE SPECIES  
AND  
ECOSYSTEM HEALTH**

WARNELL SCHOOL OF  
FORESTRY AND NATURAL RESOURCES

COLLEGE OF AGRICULTURAL  
AND ENVIRONMENTAL SCIENCES

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Bugwood Wiki

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**Thank You Are There Any Questions ?**