

# **Mapping and Monitoring Strategies: Collecting Weed Data in Natural Areas**

**Chuck Barger**

**Associate Director –  
Information Technology and Invasive Species**

**University of Georgia  
Center for Invasive Species and Ecosystem Health**

# Who am I?

- Asst. Director – Invasive Species and Information Technology
- Public Service Assistant in Entomology
- B.S. and M.S. in Computer Science
- President - National Exotic Pest Plant Council
- 15 years web application development
- Manage 35 websites
- Database/Web Integration and Interface Design
- Smartphone and Table App Development



# Strategies for Successful EDRR

- **Develop a common operating platform for invasive species distribution data**
- **Use Cooperative Invasive Species Management Areas as local early detection networks**
- **Connect with your audience**
- **Use early detection as means to educate the public on invasive species issues**
- **Follow-up with early detection reporters to show accomplishments, hopefully a rapid response toward restoration of the site**



# Early Detection and Rapid Response System for Invasive Plants

1. Interagency Coordination
2. Early Detection Networks
3. Survey and Detection
4. Reporting
5. Rapid Assessment
6. Rapid Response

Westbrooks, Mehrhoff, Madsen 2010

# So, what do we need?

**Common  
Operating  
Platform**

**Easy  
Electronic  
Reporting**



# EDD Maps

Early Detection & Distribution Mapping System

**The Common Operating  
Platform for Invasive Species  
Distribution Data**

**Forestry**



**Agriculture**

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

WARNELL SCHOOL OF  
FORESTRY AND NATURAL RESOURCES

COLLEGE OF AGRICULTURAL  
AND ENVIRONMENTAL SCIENCES



**Invasive  
Species**

The University of Georgia

**Information  
Technology**

# Bugwood? Center?

- **Started 1994 / Bugwood Network until Feb. 2008**
- **Work across agency, organization and discipline boundaries**
- **Long term sustainability and core funding**
- **Combine Science with Technology**
- **\$500,000 yearly budget – 25% state funds**
- **Everything we do is free for educational use**

# Our Services and Projects

**BUGWOOD**  
Image Database System  
images.bugwood.org

**BUGWOOD**  
 *video*

**Over 60,000**

**registered users**

PPS

APS

re

Species

**FOREST PESTS  
OF NORTH AMERICA**

 **EXTENSION**  
more mind reach



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### River to River CWMA

Photo: Napalese browntop  
Chris Evans, River to River CWMA

[Forestry Images](#)

[Invasive.org](#)

[EDDMapS](#)

[Bugwood Wiki](#)

[Insect Images](#)

[IPM Images](#)

make a  
**donation**

### What's New

[Asian Fruit Fly Eradicated](#)

[Climate Change to Drive Spread of Invasive Species](#)

[International Treaty Addresses Invasive Species](#)

[Invasive Species on the Rise](#)

[Invasive Deer in England](#)

[Effective and Reasonable Invasive Species Laws](#)

[NE Ohio Cooperative Wood Management Workshop](#)

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[Georgia Invasive Plant Management Handbook](#)

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- [Agriculture](#)
- [Bark Beetles](#)
- [Christmas Trees](#)
- [Cogongrass](#)
- [Forest A Syst](#)
- [Forest Pests](#)
- [Forest Productivity](#)
- [Forestry](#)
- [Insects](#)
- [Invasive Species](#)

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## Browse By

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[Image Series](#)

## General Info

[What is Forestry Images?](#)

[Membership Benefits](#)

[Frequently Asked Questions](#)

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[Using Images](#)

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## Related Sites

[International Society of  
Arboriculture](#)

[Forest Pests](#)

[IPM Images](#)

[Invasive and Exotic Species](#)

## 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](#) |

Welcome Back, Chuck Bargeron!

## Random Image



**European spruce bark beetle**  
Photo by Gyorgy Csoka, Hungary Forest  
Research Institute

## Statistics

132,434 images

14,678 subjects

1,688 photographers

## News & Site Updates

[New EDDMapS Florida Training Video!](#)

[2nd Annual National Invasive Species  
Awareness Week](#)

[Flash Floods Dragging Away Invasive  
Frogs](#)

[Thousand Cankers Disease of Black](#)



## 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 Graves Lovell](#)
- [More News](#)

### LINKS

- [Pest Tracker](#)
- [USDA APHIS PPQ - Pest Detection](#)
- [USDA Forest Service - Invasive Species Program](#)
- [National Invasive Species Information Center](#)
- [Global Invasive Species Database](#)
- [North American Plant Protection Organization](#)
- [European and Mediterranean Plant Protection Organization](#)

The Nature Conservancy. 

Protecting nature. Preserving life.



**Global Invasive Species Team**

### The Nature Conservancy Global Invasive Species Team Website

TNC's Global Invasive Species Team (GIST) was disbanded in March 2009. The GIST web site including the Element Stewardship Abstracts, images and INVASIPEDIA were in danger of becoming lost. Invasive.org in collaboration with the Global Invasive Species Team, is pleased to announce that the GIST web site has been archived.

[More info...](#)



#### Invasive Plant Atlas of the U.S.

This web site is a collaborative project between the National Park Service and the University of Georgia - Center for Invasive Species and Ecosystem Health. [More info...](#)



#### Cogongrass Road Crew Training Resources

Cogongrass (*Imperata cylindrica*) is one of the worst invasive plants we 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 Plants of the United States: Identification, Biology and Control

This web site includes 218 invasive



#### Invasive Plant Responses to Silvicultural Practices in the South

### SUPPORTERS



# **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. and Canada**



Report Sightings

Distribution Maps

Species Information

Tools & Training

My EDDMapS

About

## Invasive Species Mapping Made Easy!



EDDMapS, started in 2005, is now providing a picture of the distribution of invasive species across the U.S. and Canada

- ✓ 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
- ✓ Alaska Exotic Plant Information Clearinghouse
- ✓ Missouri River Watershed Coalition
- ✓ Biological Control Agents of Weeds
- ✓ Florida Invasive Species Partnership
- ✓ Invaders of Texas
- ✓ Mid-Atlantic Invasive Plant Council
- ✓ Appalachian Trail Conservancy
- ✓ EDDMapS Alberta - Alberta Invasive Plants Council
- ✓ National Wildlife Refuge Early Detection Network for New England
- ✓ Outsmart Invasive Species
- ✓ Invasive Plant Atlas of New England
- ✓ What's Invasive

## Statistics

1,977,505 County Reports  
 1,110,676 Point Reports  
 2,470 Species / 12,671 Users



## BRING THE POWER OF EDDMAPS TO YOUR SMARTPHONE

Introducing BugwoodApps - comprehensive mobile applications that engage users with invasive species, forest health, natural resource and agricultural management

iPhone | iPad | Android

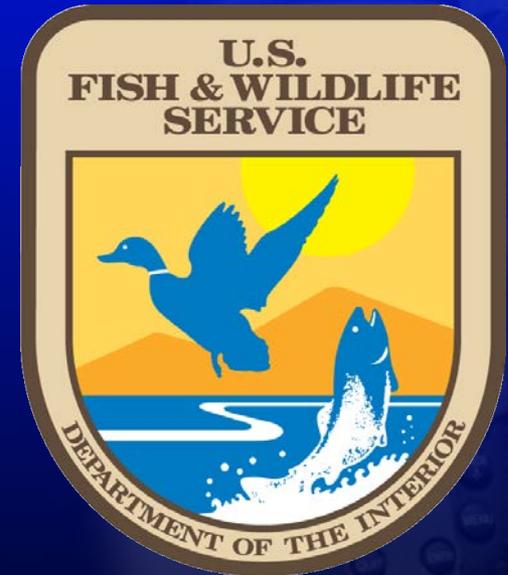
## Educational Resources

- ✓ EDDMapS: Invasive Plant Mapping Handbook
- ✓ ED RR Training Workshop Handouts
- ✓ EDDMapS Florida Training Video
- ✓ EDDMapS Florida Animals Training Video
- ✓ EDDMapS Missouri River Watershed Coalition

# Current Projects



# Funding Agencies



# 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



# 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**
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# 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**



# EDD Maps

Early Detection & Distribution Mapping System

**Easy Electronic Reporting  
for Early Detection and  
Rapid Response**

Report Sightings

Distribution Maps

Species Information

Tools & Training

My EDDMapS

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iPhone | iPad | Android

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- ✓ EDDMapS Missouri River Watershed Coalition



# IPANE

## Invasive Plant Atlas of New England

[Early Detection](#)[IPANE Species](#)[Volunteer](#)[Related Information](#)[Report a Sighting](#)[Data & Distribution 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.

[Predictive modeling research and results](#)[Invasive plant management](#)

## Calendar of Events

**Wednesday, April 3** ▾[Week](#)[Month](#)[Agenda](#)

Showing events after 4/3. [Look for earlier events](#)

Showing events until 5/15. [Look for more](#)

## News

[Welcome to IPANE's new blog!](#)  
[More News from the IPANE Blog](#)



University of  
Connecticut



# Invasive Plant Atlas of New England

[Early Detection](#)

[IPANE Species](#)

[Volunteer](#)

[Related Information](#)

[Report a Sighting](#)

[Data & Distribution Maps](#)

## Report Sightings

---

[Connecticut](#)

[Massachusetts](#)

[Maine](#)

[New Hampshire](#)

[Rhode Island](#)

[Vermont](#)

---



# IPANE

## Invasive Plant Atlas of New England

[Early Detection](#)[IPANE Species](#)[Volunteer](#)[Related Information](#)[Report a Sighting](#)[Data & Distribution Maps](#)

### Report an Invasive Species Occurrence

---

Please provide as much information about the sighting as possible.

#### Species:

Begin typing scientific or common name and then select species from dropdown. If the pest is not listed or is unknown, type and choose "unlisted plant" or "unknown plant" from the list and describe the plant in the Comments section below.

**Pest:**

---

#### Infestation:

**Observation Date:**   (?)

**Infested Area:**   (?)

**Habitat:**  (?)

**Percent Cover:**  (?)

**Gross Area:**   (?)

**Road side plot?**

**Canopy Cover:**

## Species:

Begin typing scientific or common name and then select species from dropdown. If the pest is not listed or is unknown, type and choose "unlisted plant" or "unknown plant" from the list and describe the plant in the Comments section below.

**Pest:**  ✕



## Infestation:

**Observation Date:**   (?)

**Infested Area:**   (?)

**Gross Area:**   (?)

**Habitat:**  (?)

**Road side plot?**

**Percent Cover:**  (?)

**Canopy Cover:**

**Distribution:**

**Abundance:**

**Aspect**

**Soil Moisture**

**Plant Description:**  Mature  Sapling/Immature  Seedling/Rosette  In Flower  In Fruit  Seeds  Dormant/Dead  Unknown

## Aquatic:

**Depth of water**  feet

**Water body type**

**Substrate**

**Water velocity**

**Water clarity**

## Location:

Specify the location where you observed the pest, by first selecting the county from the dropdown. Then move the marker on the map to the correct location. If you move across county lines the new county will be displayed. You can also enter the lat/long in the fields below and then click the "Jump to Point" button.

State:

County:

Town:

Latitude:

Longitude:

Private

Location  
Description:

Ownership:  (?)

\* If reporting infestation on private land, be sure to have landowner's permission.

**Marker status:** *Click and drag the marker.*

### Lat/Long Conversion Tools:

## Location:

Specify the location where you observed the pest, by first selecting the county from the dropdown. Then move the marker on the map to the correct location. If you move across county lines the new county will be displayed. You can also enter the lat/long in the fields below and then click the "Jump to Point" button.

State:

County:

Town:

Latitude:

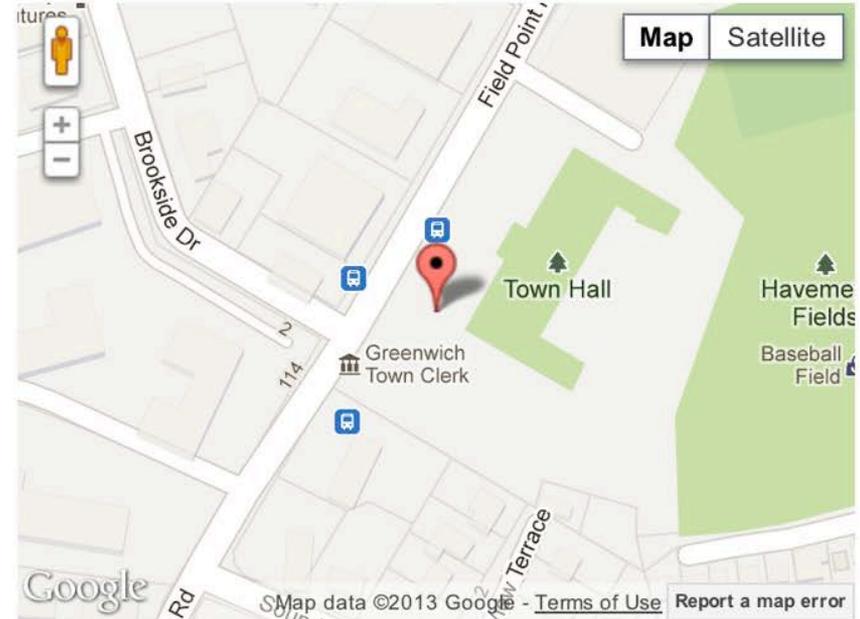
Longitude:

Private

Location  
Description:

Ownership:  (?)

\* If reporting infestation on private land, be sure to have landowner's permission.



Marker status: Click and drag the marker.

## Lat/Long Conversion Tools:

## Upload Images with Your Report:

For verification purposes, take at least two digital images, a close up of the species and one of the site.

Image:  no file selected (.jpg, < 4 mb)

Caption:   
(provide as much detail as possible, include credit if image is not yours)

Image:  no file selected (.jpg, < 4 mb)

Caption:   
(provide as much detail as possible, include credit if image is not yours)

Image:  no file selected (.jpg, < 4 mb)

Caption:   
(provide as much detail as possible, include credit if image is not yours)

Image:  no file selected (.jpg, < 4 mb)

Caption:   
(provide as much detail as possible, include credit if image is not yours)

Image:  no file selected (.jpg, < 4 mb)

Caption:   
(provide as much detail as possible, include credit if image is not yours)

---

## Additional Information:

Comments:

Identified by:  (if you didn't identify)

Voucher Specimen Made:  Yes  No

Herbarium holding specimen:

From: Bugwood Webmaster  
To: logan.senack@uconn.edu; ipane.uconn@gmail.com  
Cc:  
Subject: Invasive Plant Atlas of New England - New Record Added

## EDDMapS New Record Added

[Review Records Online](#)

---

**Pest:** yellow groove bamboo, *Phyllostachys aureosulcata* McClure  
**Submitted By:** CARYN RICKEL, Invasive Bamboo Research Specialist - [cri1611553@aol.com](mailto:cri1611553@aol.com)  
**Observation Date:** 03/11/2013  
**County:** Connecticut - New London County  
**Infested Area:** 1500 sq feet  
**Gross Area:** 1500 sq feet  
**Canopy Closure:** 0-25%  
**Habitat:** River/Stream Bank

**Latitude:** 41.3494267  
**Longitude:** -71.9635702

**Ownership:** Private Landowner  
**Location Description:** 18 Stafford St, Mystic, CT 06355 USA < on edge of Mystic Harbor < access road

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[Distribution Maps](#)

[Species Information](#)

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## Review Records

320 Records

ID ↑	Subject	User	Location	Date
2689309	Amur peppervine	Lindsay Michel	Fairfield County, Connecticut	19-Mar-13
2689308	Amur peppervine	Lindsay Michel	Fairfield County, Connecticut	19-Mar-13
2689307	mile-a-minute weed	Lindsay Michel	Fairfield County, Connecticut	19-Mar-13
2689306	mile-a-minute weed	Lindsay Michel	Fairfield County, Connecticut	19-Mar-13
2689194	yellow groove bamboo	CARYN RICKEL	New London County, Connecticut	11-Mar-13
2689192	yellow groove bamboo	CARYN RICKEL	New London County, Connecticut	11-Mar-13
2689190	bissetbambu	CARYN RICKEL	New London County, Connecticut	10-Mar-13
2689189	bissetbambu	CARYN RICKEL	New London County, Connecticut	10-Mar-13
2689187	yellow groove bamboo	CARYN RICKEL	New London County, Connecticut	09-Mar-13
2689186	yellow groove bamboo	CARYN RICKEL	New London County, Connecticut	09-Mar-13
2689185	yellow groove bamboo	CARYN RICKEL	New London County, Connecticut	09-Mar-13
2689182	yellow groove bamboo	CARYN RICKEL	New London County, Connecticut	09-Mar-13
2689180	bissetbambu	CARYN RICKEL	New London County, Connecticut	09-Mar-13
2689179	yellow groove bamboo	CARYN RICKEL	Fairfield County, Connecticut	09-Mar-13
2689086	yellow groove bamboo	CARYN RICKEL	New Haven County, Connecticut	05-Mar-13
2689069	yellow groove bamboo	CARYN RICKEL	Middlesex County, Connecticut	05-Mar-13
2684910	bamboo	CARYN RICKEL	New Haven County, Connecticut	03-Mar-13
2684888	yellow groove bamboo	CARYN RICKEL	Fairfield County, Connecticut	02-Mar-13

# yellow groove bamboo

*Phyllostachys aureosulcata* McClure

USDA PLANTS Symbol: PHAU80  
Invasive Plant Atlas

**Record ID:** 2689185  
**Location:** New London County, Connecticut  
**Source:** CARYN RICKEL, Invasive Bamboo Research Specialist  
**Project:** Invasive Plant Atlas of New England  
**Habitat:** Yard/Garden  
**Abundance:** Dense Monoculture  
**Locality:** near Jennings St, Norwich, CT 06360 USA > Field work by Terri Groff  
**Comments:** > Stage 2 invasion > Barrier has failed and bamboo is escaping outside > area around telephone pole fully invaded with bamboo growing into the lines  
**Area Infested:** 3000 sq feet  
**Gross Area:** 3000 sq feet  
**Coordinates:** 41.5388007, -72.0628696  
**NADatum:** WGS84  
**Ownership:** Private Landowner  
**Canopy Cover:** 0-25%  
**Status:** Not Verified  
**Abundance:** More than 1000  
**Observation Date** March 9, 2013  
**Date Entered** March 9, 2013  
**Date Updated:** March 9, 2013  
**Updated By:** CARYN RICKEL, Invasive Bamboo Research Specialist  
**Aspect:** NW  
**Soil Moisture:** Mesic (moist)  
**Percent Cover:** Moderate  
**Source Type:** Web Report



**Photo Caption:** invading around pole



**Photo Caption:** barrier has failed





**Photo Caption:** thick yellow groove stumps

## Record Review

Use this form to verify and release occurrences.

**Reviewed By:**

**Verification Method:**

**Identified By:**

**Identification Date:**  

**Identification Credibility:**

**Reviewed/Verified**

**Released (show record in EDDMapS)**

**Private (show record - hide Lat/Long)**

**Reviewer Comments:**

Submit

# EDD **Maps**

Early Detection & Distribution Mapping System

## **National Distribution Project**

# Statistics for EDDMapS

- **1.9 million records**
  - **incl. 1,110,676 point records**
- **2,470 species**
- **2,676 users (12,671 registered)**
- **7.6 million hits in last year**
- **382,000 visitors**



# Statistics for EDDMapS

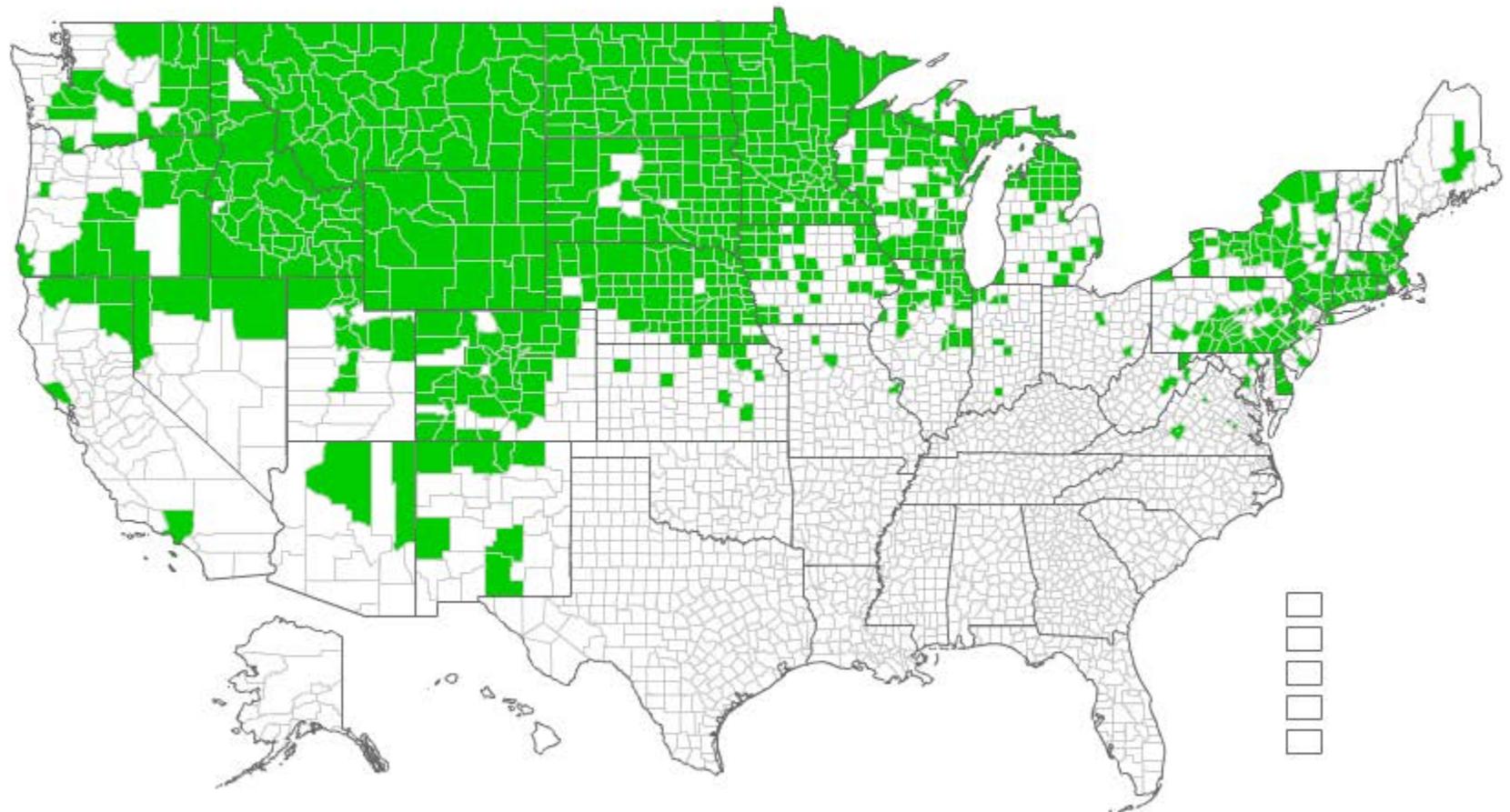
Reporter	Number of Records
Biota of North America Program	346,637
USDA PLANTS Database	303,513
Forest Inventory and Analysis – Southern Region	136,117
Florida Natural Areas Inventory Database	124,497
Minnesota Department of Natural Resources	119,388
AKEPIC Database (Alaska)	118,790
Idaho Department of Agriculture	95,309
Bureau of Land Management - Oregon	93,215
Southwest Exotic Plant Mapping Program	59,962
Oregon Department of Agriculture	48,146
Other 1955 Users	418,492

# leafy spurge

*Euphorbia esula* L.

USDA PLANTS Symbol: EUES  
Invasive Plant Atlas

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

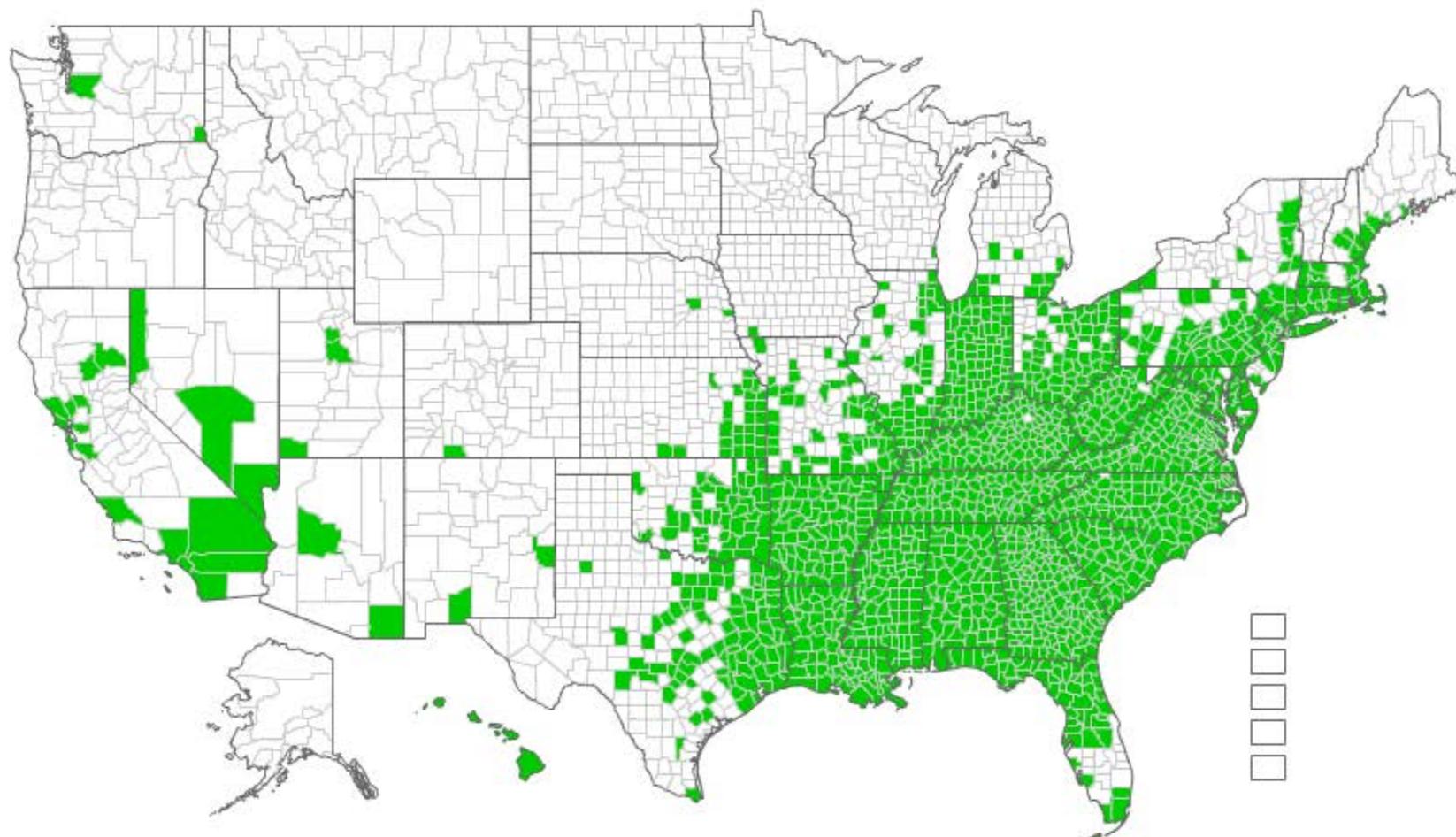


# Japanese honeysuckle

*Lonicera japonica* Thunb.

USDA PLANTS Symbol: LOJA  
Invasive Plant Atlas

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

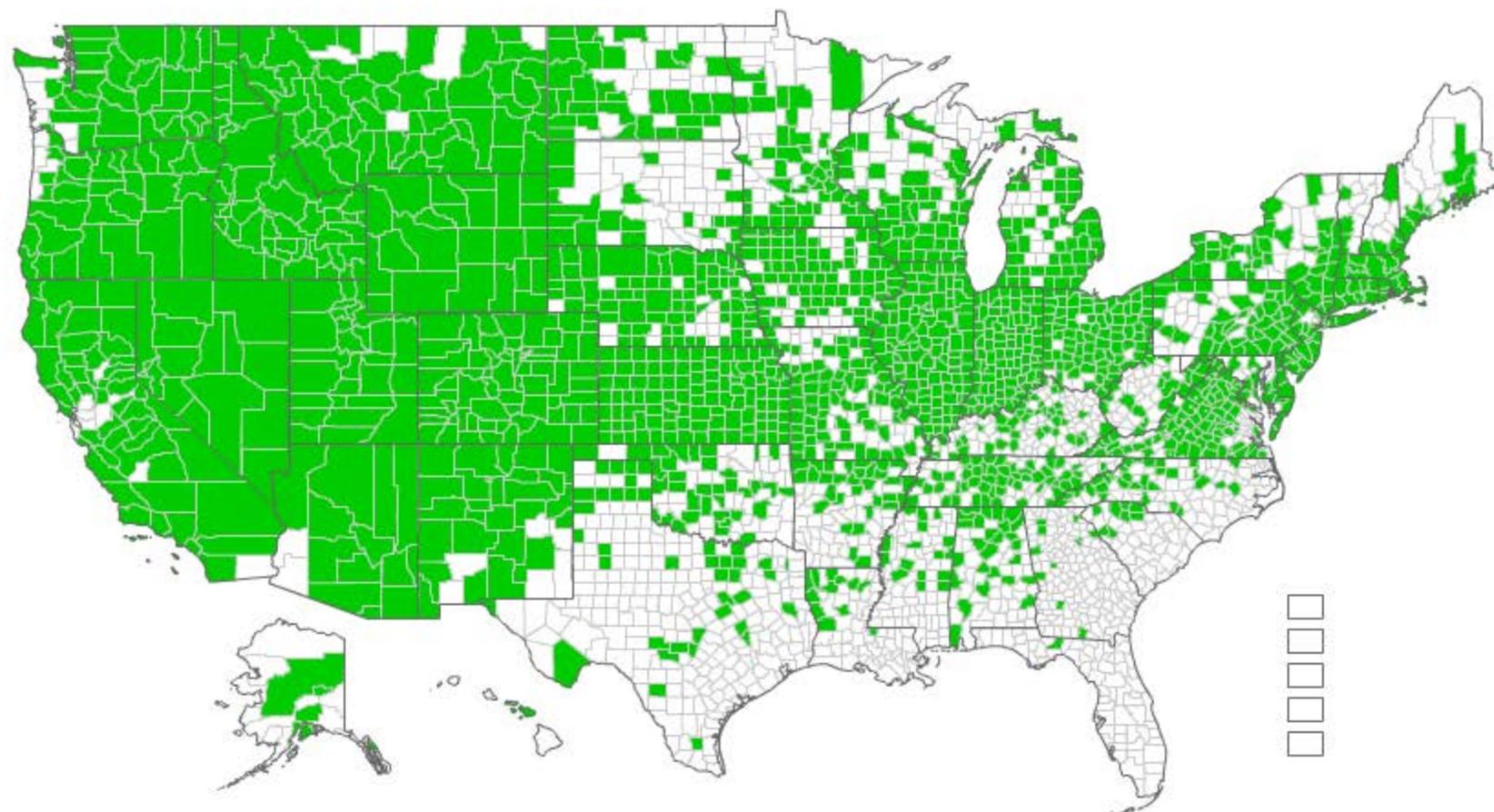


# cheatgrass

*Bromus tectorum* L.

USDA PLANTS Symbol: BRTE  
Invasive Plant Atlas

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

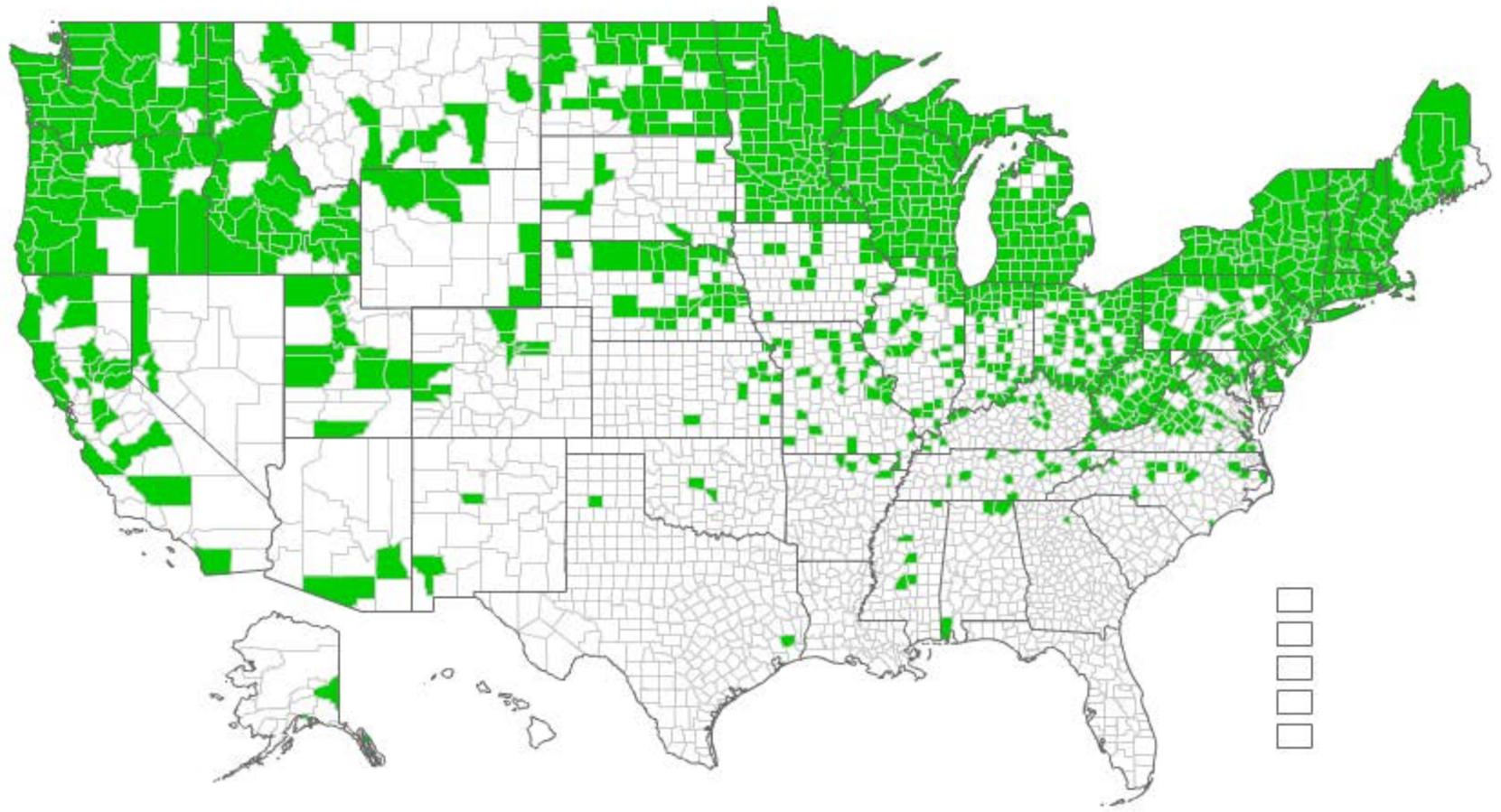


# purple loosestrife

*Lythrum salicaria* L.

USDA PLANTS Symbol: LYSA2  
Invasive Plant Atlas

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

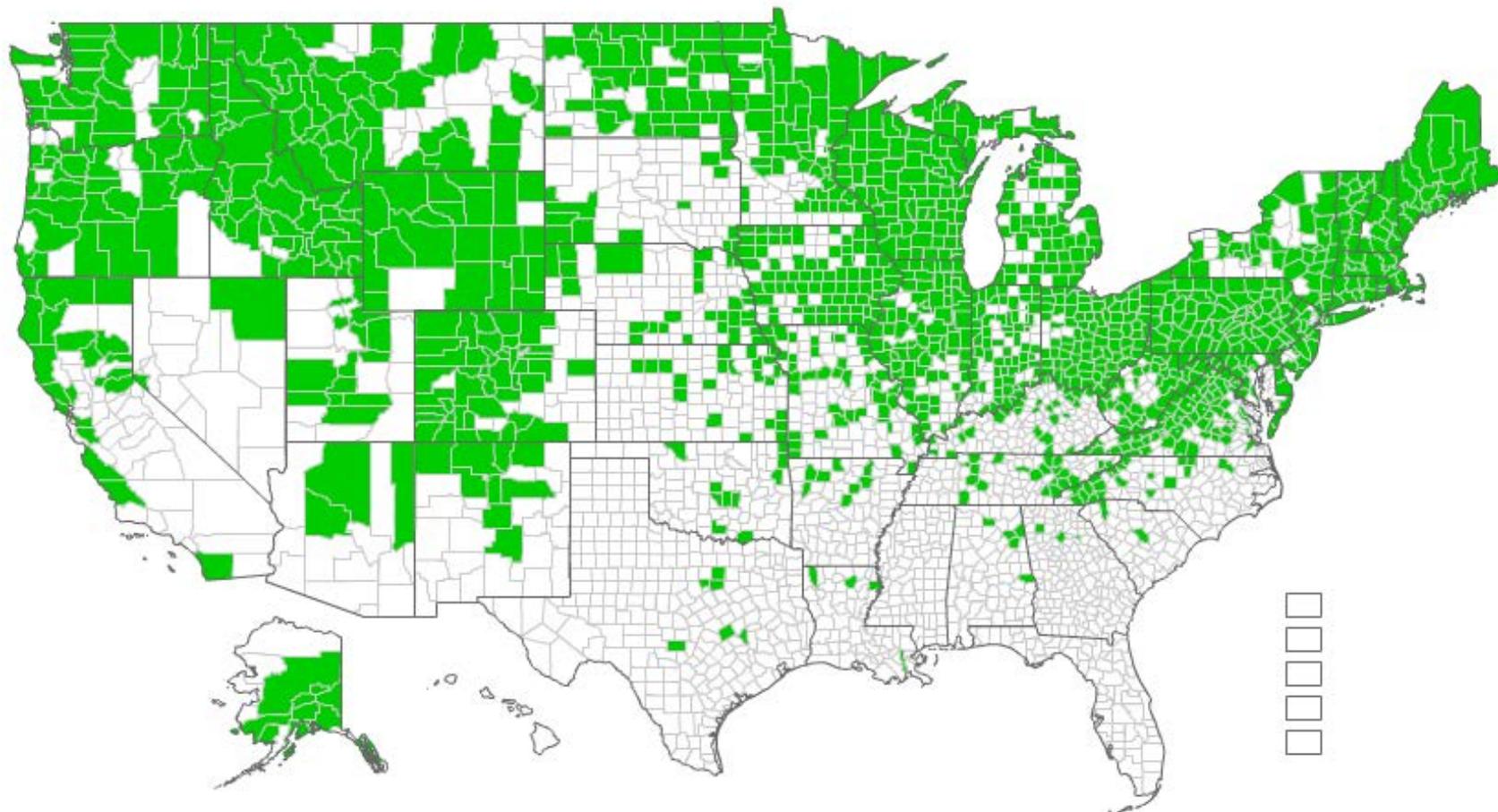


# yellow toadflax

*Linaria vulgaris* P. Mill.

USDA PLANTS Symbol: LIVU2  
Invasive Plant Atlas

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



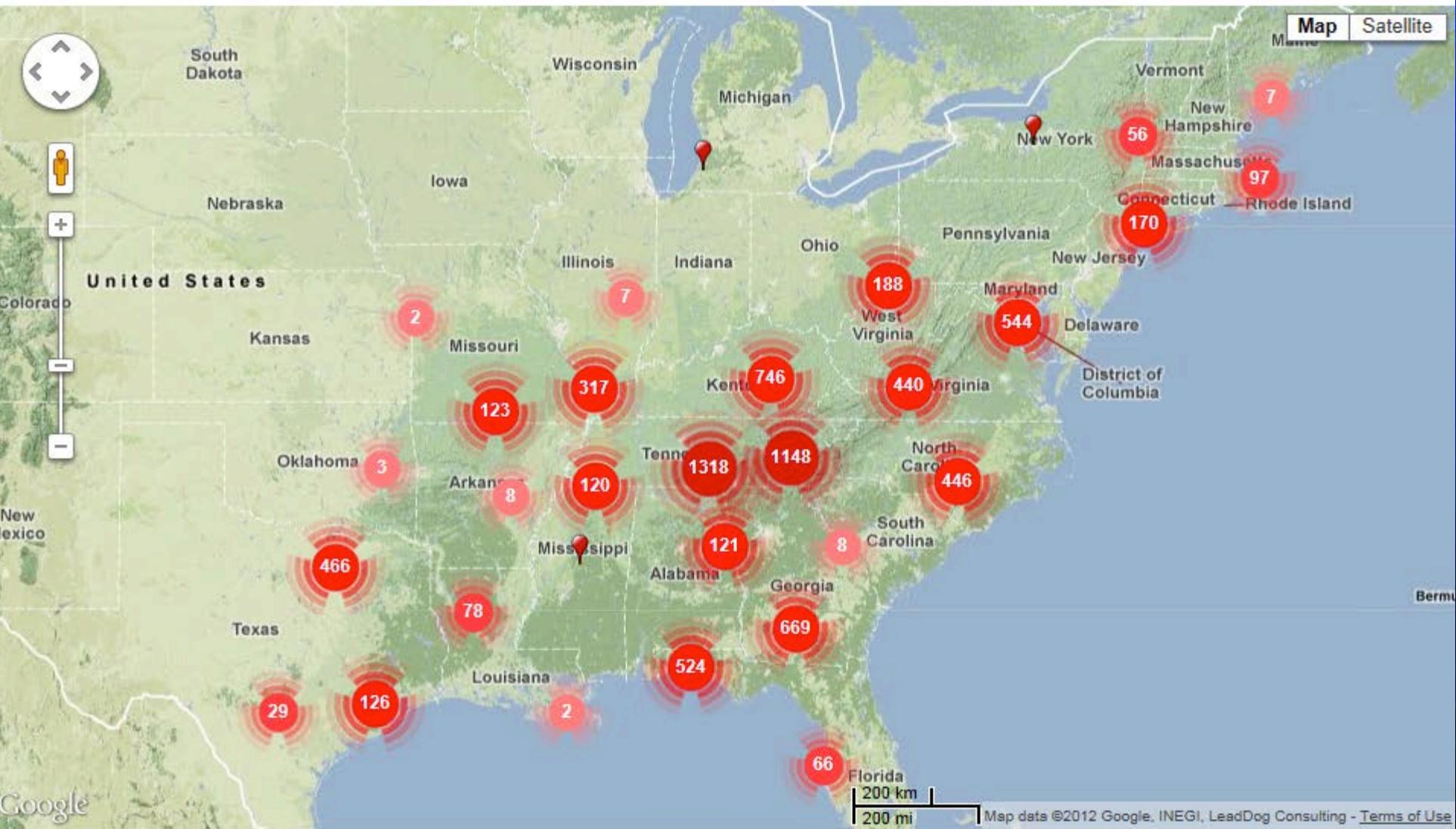
# Japanese honeysuckle

*Lonicera japonica* Thunb.

USDA PLANTS Symbol: LOJA  
Invasive Plant Atlas

Load Time: 191 ms

 [Print](#)  [Excel](#)  [Google Earth](#)



Google

FORESTRY AND NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES

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Early Detection & Distribution Mapping System

# EDD **Maps**

Early Detection & Distribution Mapping System

## **Partnerships**

[Distribution Maps](#)

[Report Sightings](#)

[Species Information](#)

[EDDMapS Home](#)

## What is the Mid-Atlantic Early Detection Network (MAEDN)?

MAEDN is a vast network of land managers, field experts, citizen scientists, naturalists, gardeners and others interested in documenting invasive plant occurrences in the mid-Atlantic region for the purposes of early detection, improved management and better coordination. The region includes Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia.

The current focus is on invasive plants but additional invasive taxa may be added in the future. Releases of approved biological control agents can also be reported using EDDMapS. Thanks to support from the National Park Service and USDA Forest Service, EDDMapS is available to users at no cost.



## Featured Species



wavyleaf basketgrass  
 Photo by Kerrie Kyde, MD DNR

## Recent Reports in Mid-Atlantic States

- ✓ Japanese barberry by Brian McDonnell in Blair County, Pennsylvania
- ✓ Japanese barberry by Brian McDonnell in Blair County, Pennsylvania
- ✓ crownvetch by Brian McDonnell in Blair County, Pennsylvania
- ✓ crownvetch by Brian McDonnell in Blair County, Pennsylvania
- ✓ crownvetch by Brian McDonnell in Blair County, Pennsylvania
- ✓ More Reports

## Statistics for Mid-Atlantic States

122,987 Reports  
 797 Species

## Partners / Who's Using It



Distribution Maps

Report Sightings

Species Information

Tools & Training

My EDDMaps

## EDDMapS West



EDDMapS West was originally developed and launched for the six Missouri River Watershed Coalition headwater states of Colorado, Montana, Nebraska, North Dakota, South Dakota, and Wyoming in September 2010.

Thanks to tremendous interest throughout the West, and support from the Montana Noxious Weed Trust Fund and the US Forest Service-State and Private Forestry Program, the system quickly expanded to include seven additional western states (Idaho, Kansas, Missouri, Nevada, Oregon, Utah, and Washington) in 2011.

EDDMapS West is:

- ✓ Fast and easy to use - no knowledge of GIS required
- ✓ Allows for reporting of select invasive plant species in the western states
- ✓ Automatically alerts state weed coordinators when reports are entered
- ✓ Automatically alerts EDDMapS West users of verified reports
- ✓ Generates distribution maps for reported species
- ✓ Links to Invasive.org information and images

Early detection of new invasive species infestations and rapid, coordinated responses are needed to eradicate or contain invasions before they become too widespread and control becomes technically and financially impossible. Prevention and early detection/rapid response efforts are most effective when information is shared at the regional level.

It is going to take all of us- land owners, land managers, universities, recreationists, agency personnel, and concerned citizens- working together and sharing information as quickly as possible, to keep ahead of new invaders. We encourage you to use EDDMapS West to report sightings of

### Recent Reports

- ✓ blueweed by Shane Arnott in Ravalli County, Montana
- ✓ blueweed by Shane Arnott in Ravalli County, Montana
- ✓ blueweed by Shane Arnott in Ravalli County, Montana
- ✓ blueweed by Shane Arnott in Ravalli County, Montana
- ✓ yellow toadflax by Stephanie Naftal in Stillwater County, Montana

### Educational Resources

- ✓ EDDMapS West Website Instructions
- ✓ EDDMapS West Flyer
- ✓ EDDMapS West App
- ✓ EDDMapS: Invasive Plant Mapping Handbook
- ✓ EDDMapS West Training Video
- ✓ MRWC EDRR Project Overview
- ✓ EDDMapS West Training Seminar - Fall 2012



**Create State or  
Species Alerts**



# National Wildlife Refuge Early Detection Network for New England

Username:   
Password:

Login

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

Distribution Maps

Report Sightings

Species Information

Tools

EDDMapS Home

## National Wildlife Refuge Early Detection Network for New England



- ✓ 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

### Wildlife Refuges in EDNR Network

- ✓ Great Swamp National Wildlife Refuge
- ✓ Edwin B. Forsythe National Wildlife Refuge
- ✓ Parker River National Wildlife Refuge
- ✓ Great Meadows National Wildlife Refuge
- ✓ Silvio O. Conte National Fish & Wildlife Refuge (Pondicherry Division)
- ✓ Rachel Carson National Wildlife Refuge

**Click here if your Refuge would like to Join the Network? or Start a New One?**

### Wildlife Refuge Apps

- ✓ iPhone and iPad
- ✓ Android

### Partners



*Alliaria petiolata*, garlic mustard



*Alliaria petiolata*, garlic mustard



**Appearance:** Garlic mustard is an herbaceous, biennial forb. First year plants are basal rosettes which bolt and flower in the second year. Plants can be easily recognized by a garlic odor that is present when any part of the plant is crushed.

**Foliage:** Foliage on first year rosettes is green, heart-shaped, 1-6 in. (2.5-15.2 cm) long leaves. Foliage becomes more triangular and strongly toothed as the plant matures.

**Flowers:** Mature plants produce a 1-4 ft. (0.3-1.2 m) tall flowering stalk with four small, white flowers.

**Fruit:** Mature seeds are shiny black and produced in small, slender green pods which turn pale brown when mature.

**Impact:** Garlic mustard is an aggressive invader and can quickly overtake native plant communities, where it can form dense stands. These stands not only shade out native understory flora but also produce allelopathic compounds that inhibit seed germination of other species. Garlic mustard is native to Europe and was first introduced during the 1800s for medicinal and culinary purposes.

Photographers: Karen R. Neelins, University of Georgia, Ripponing; Nancy L. Lomenzo, Auburn University, Ripponing; 800.355.3815.



# Species Flashcards



## Terrestrial Invasive Plant Early Detection Mapping

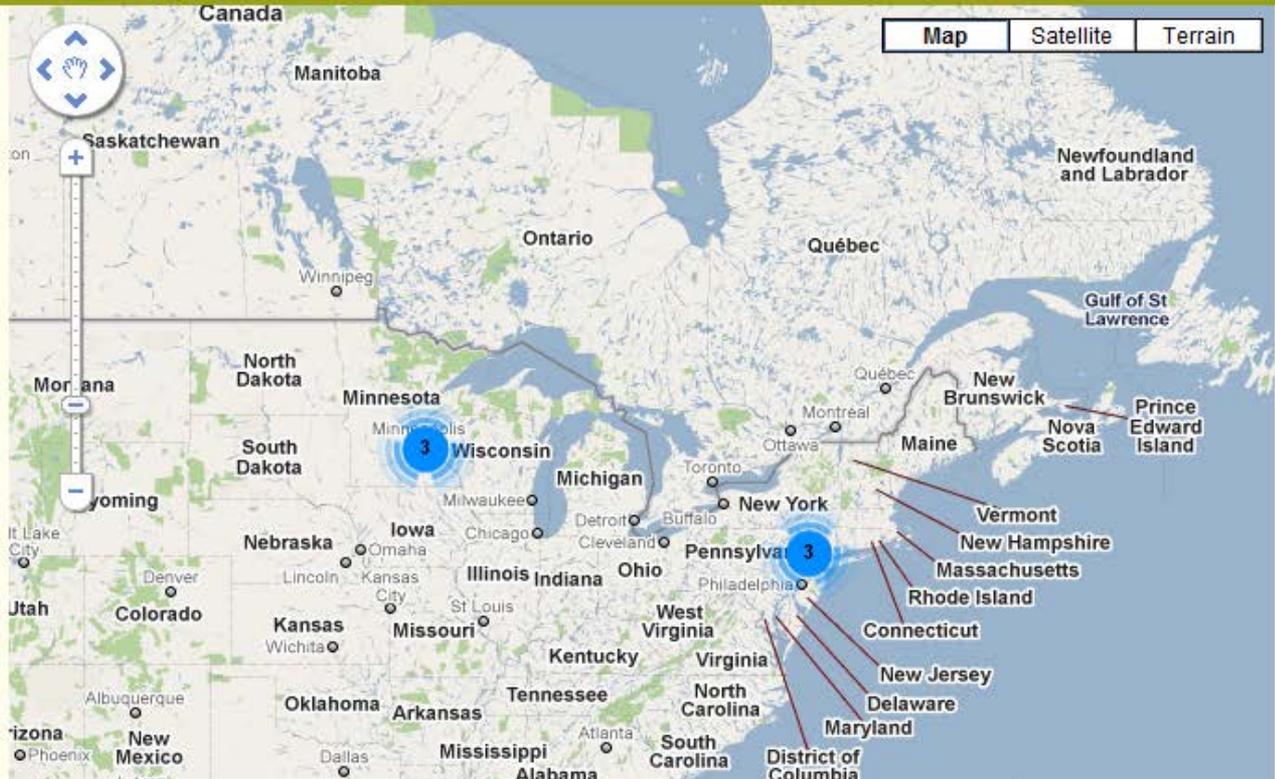
The map on the right shows the reported locations of invasive plants and weeds of concern in Minnesota. Choose your species of concern to see reported locations as overlays or "clusters":



Clusters are color-coded based on the total number, shown in the middle of the symbol. Click on the cluster to zoom in closer.

▾  
 Scientific Name:  
**Cardamine impatiens**  
 Minnesota-Area reports:  
 3

To enter your own observations or see more species, visit our partners:



**Working with Minnesota Dept. of Agriculture to implement EDDMapS for First Detectors/Master Gardeners as part of 2012 Farm Bill**

# New Invaders Watch Program

## Early Detection and Rapid Response Network

Welcome:  
Chuck Bargeron, University of Georgia  
[Logout](#)

[About](#)[Partners](#)[Report an Invader](#)[Target Species](#)[Maps](#)[Trainings & Activities](#)[Training Materials](#)[Additional Resources](#)

### New Invaders Watch Program (NIWP)

is an early detection and rapid response network of volunteer, government, non-profit, and business organizations dedicated to identifying, mapping and controlling new exotic invasive species. Our current focus area is within Northeast Illinois and Northwest Indiana.

Our target species are known to be invasive in the Midwest or regions of similar climate, and are not known from Northeast Illinois. Or have yet to spread into their preferred habitats in the region.

NIWP help meet the early detection and rapid response initiatives of the Northeast Illinois Invasive Plant Partnership and the Northwest Indiana Invasive Plant Network.



### Target Species



**leafy spurge**

Photo by: Norman E. Rees, USDA Agricultural Research Service - Retired

### Become a Volunteer

You can help by providing new sightings to the system. [Click here](#) to register.

### Alerts and New Reports

#### Recent Reports

- ✓ baby's breath by Person's Name in County, State
- ✓ More Reports

#### Alerts

- ✓ Alerts generated from a blog?

#### Other Recent Reports

### Go To Target Species Maps



NIWP Project Area

## Central Hardwoods Invasive Plant Network (CHIP-N) Joint Aquatic Invasive Species Survey

### hydrilla

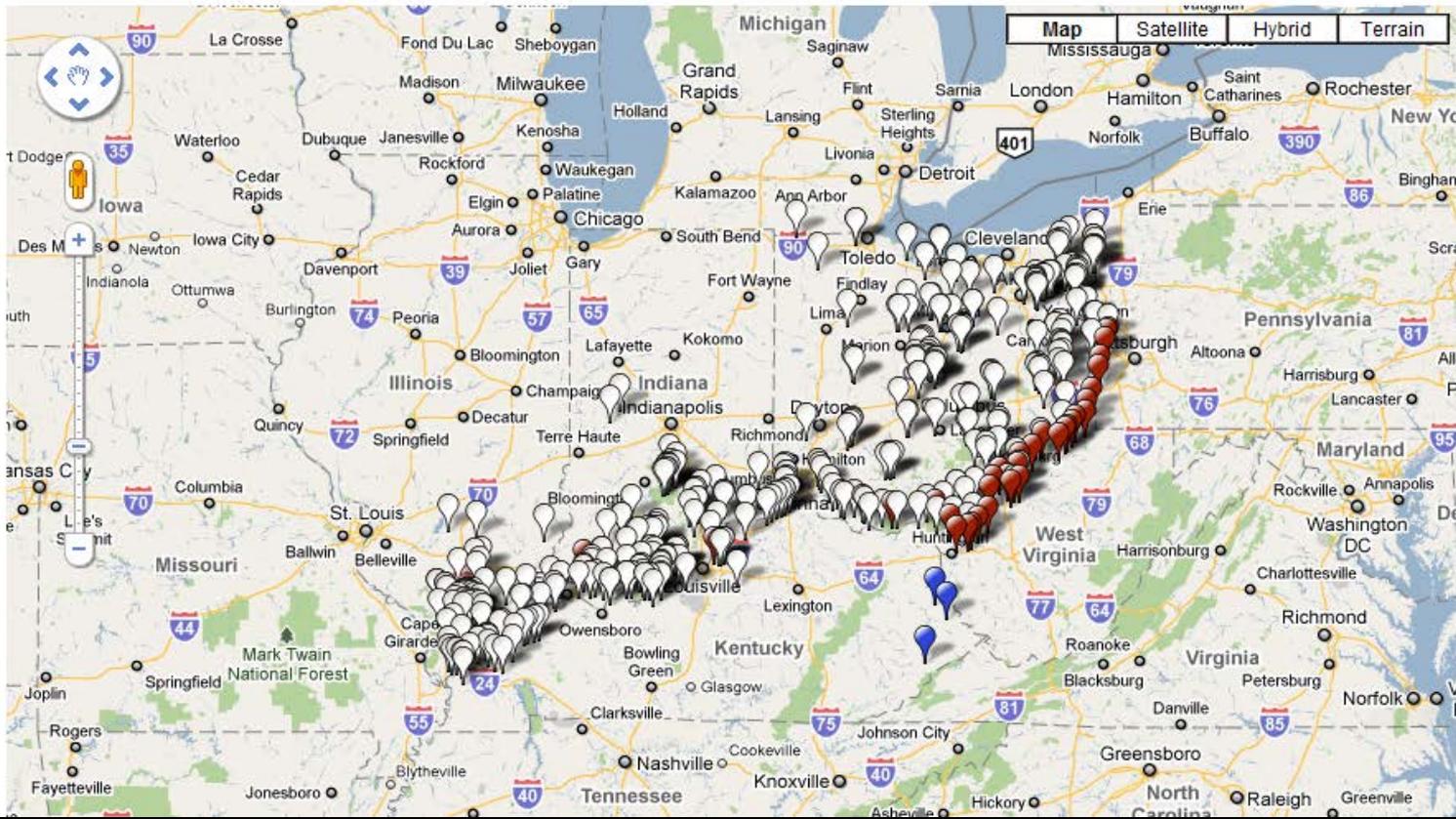
*Hydrilla verticillata* (L. f.) Royle

USDA PLANTS Symbol: HYVE3  
Invasive Plant Atlas

Positive - CHIP-N Survey

Positive - EDDMapS data

Negative - CHIP-N Survey





### Potomac Highlands CWPMA

The Potomac Highlands Cooperative Weed and Pest Management Area (CWPMA) is a partnership between federal, state, and local agencies, community associations, non-profit organizations, and private land owners aimed at coordinating efforts and programs for addressing the threat of invasive species. CWPMA members are dedicated to invasive species management.

### Quick links

[Newsletters](#)

[U.S. Fish and Wildlife Japanese Knotweed handout](#)

# Garmin and Trimble Juno Import

## \*\*\* New Automatic Data Transfer Options + KML \*\*\*



Invasive species are a threat to native plants and animals, crowding natives, consuming food sources, or acting as fire hazards.

We have found that having groups such as schools run short-term "campaigns" is highly effective for locating invasive species.



Use your **Android** or **iPhone** to help us locate invasive species!

- Step 1.** [Sign up.](#)
- Step 2.** Get the [iPhone app](#) or the [Android app](#).
- Step 3.** Start collecting!

Find out how you can [set up your own park](#) so people can help in your area!



Select a Participating Park:

Alachua County, FL



Go there!

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

### Interesting Research Items

Effects of Invasives Persist Even After Removal - Bennett and colleagues investigated the effects of four primary mechanisms that potentially contribute to the success of invasive velvetgrass...

There are currently **2007** registered users who have contributed **8998** observations of invasive weeds in **53** active parks!



## 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
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### Biocontrol Statistics

9,479 Reports  
71 Agents  
33 Host Plants

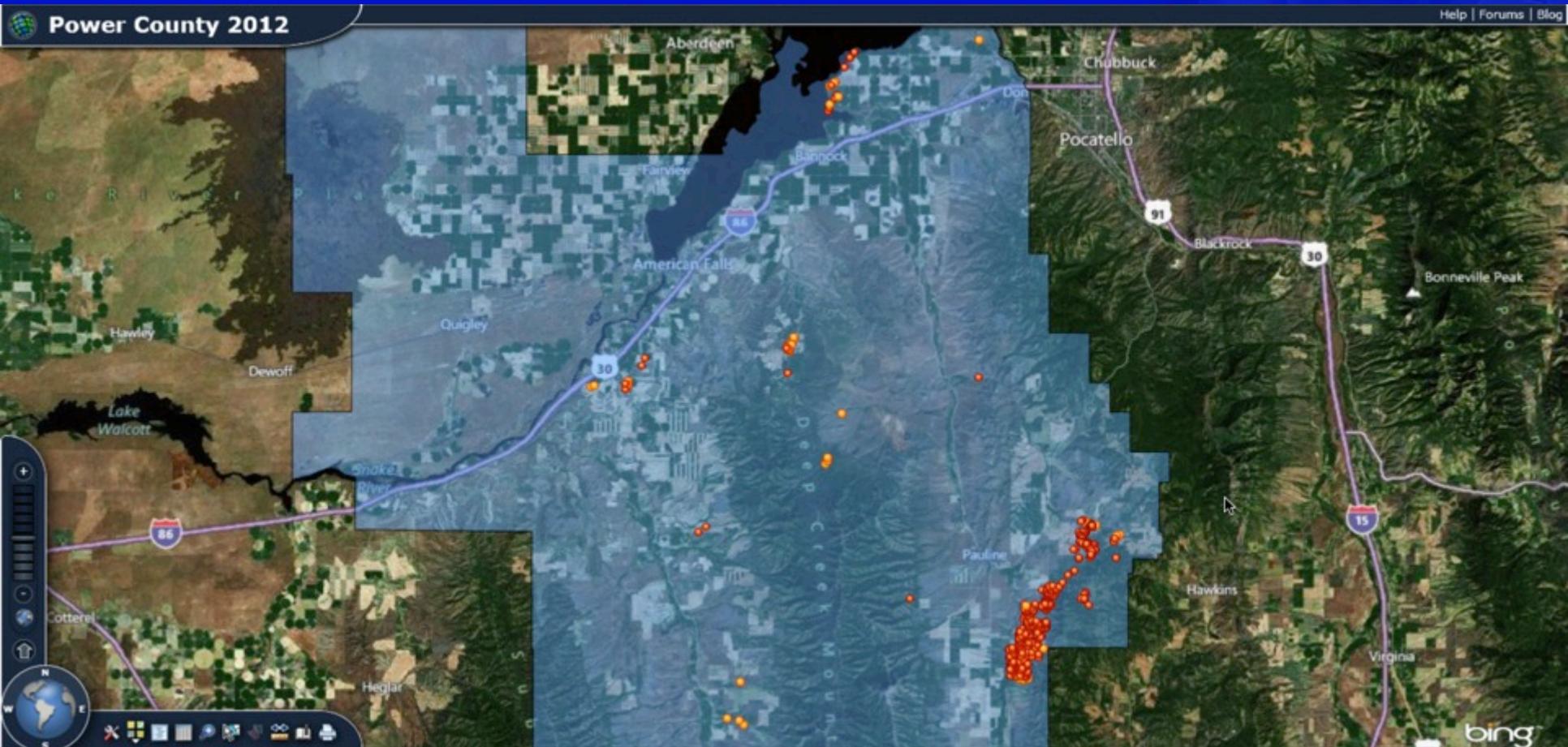
### Biocontrol Publications

- ✓ Biological Control of Invasive Plants in the Eastern United States
- ✓ Biology and Biological Control of Yellow Starthistle
- ✓ Biology and Biological Control of Knapweed
- ✓ Biology and Biological Control of Exotic True Thistles
- ✓ Biology and Biological Control of Leafy Spurge
- ✓ Biology and Biological Control of Dalmatian and Yellow Toadflax
- ✓ Biology and Biological Control of Purple Loosestrife
- ✓ Biology and Biological Control of Mile-a-Minute Weed

### Partners and Supporters



# EDDMapS GIS Cloud



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

**EDDMapS**  
Early Detection & Distribution Mapping System

## Welcome to Eastern Spotted Wing Drosophila Volunteer Monitoring Network (SWD\*VMN)

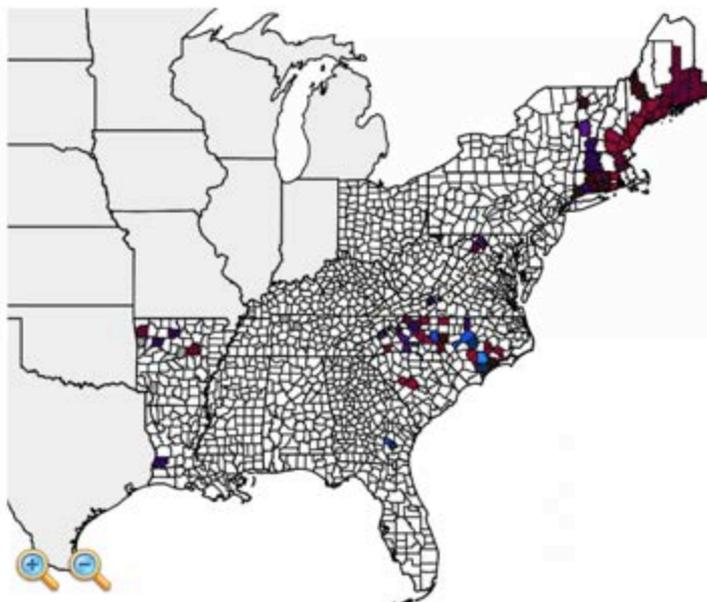
[Eastern US Counties 2012](#)

[New England Townships 2012](#)

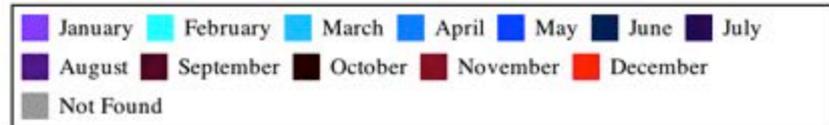
[Eastern US Counties Overall](#)

[New England Townships Overall](#)

spotted wing drosophila (*Drosophila suzukii*)  
 January 1, 2012 - December 31, 2012



**Legend**



### What is the SWD\*VMN?

The SWD\*VMN is a group of extension specialists, county extension agents, fruit growers, state department of agriculture personnel, and other stakeholders engaged to track the spread and seasonal biology of spotted wing drosophila (SWD, *Drosophila suzukii*), a recent detected pest of soft skinned fruit in North America. Our goal is to understand where SWD is found in the eastern United States and when SWD is active during the year. These two pieces of information will help us to determine how best to protect crops at risk of SWD damage.

### What crops does SWD damage?

SWD has been recorded feeding on apples, pears, grapes, nectarines, persimmons, figs, cherries, strawberries, blueberries, raspberries, blackberries, peaches, plums, and their wild relatives. SWD larvae have also been found feeding on pokeweed and dogwood berries. SWD has caused significant economic damage in cherries, strawberries, blueberries, raspberries, and blackberries.



Where can I learn more about SWD biology and management?

brown marmorated stink bug (*Halyomorpha halys*)  
July 10, 2012 - July 17, 2012

Legend

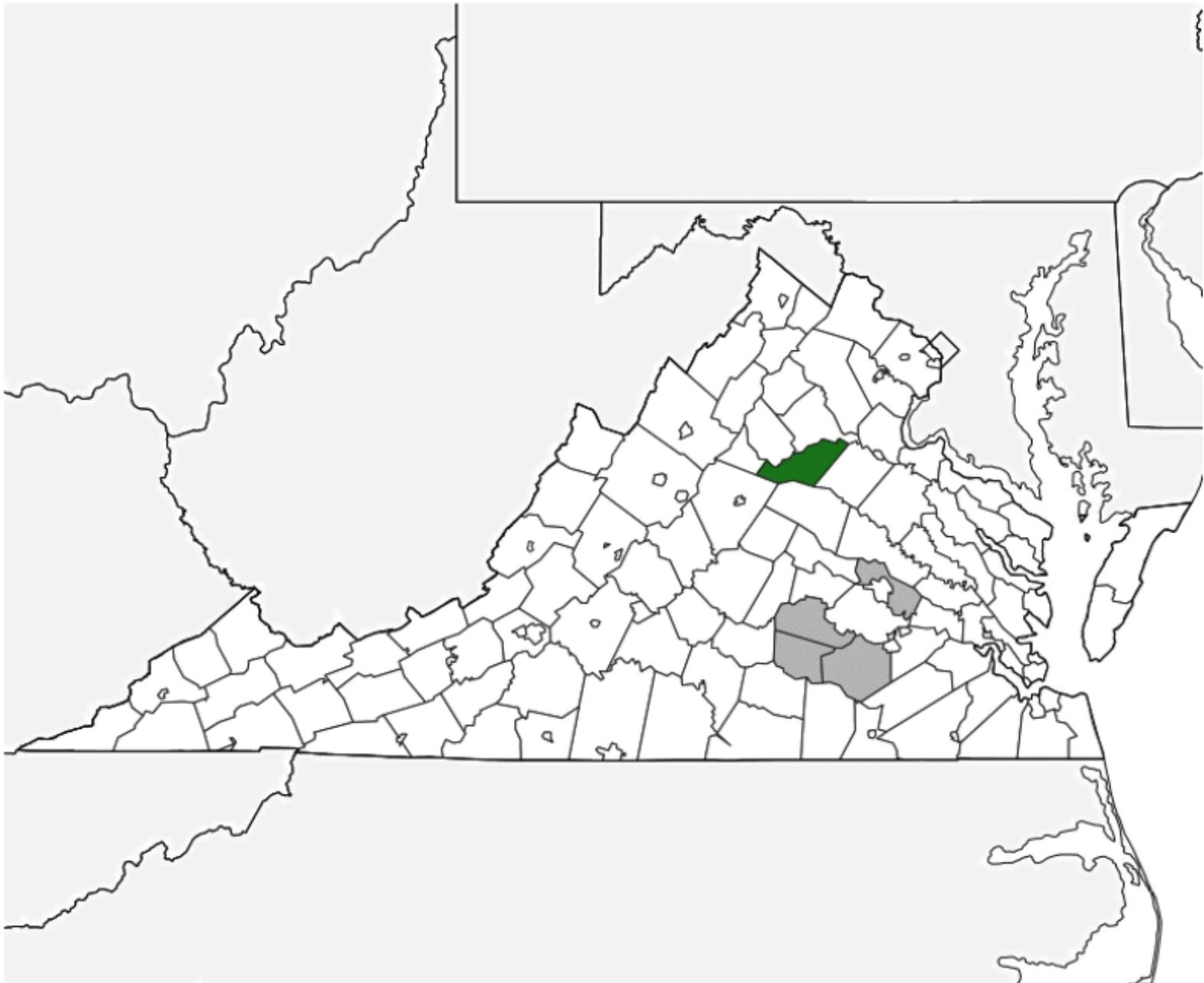
- Low (1 - 4)
- Medium (5 - 12)
- High (> 13)
- Not Found

Virginia Cooperative Extension

VirginiaTech WCU

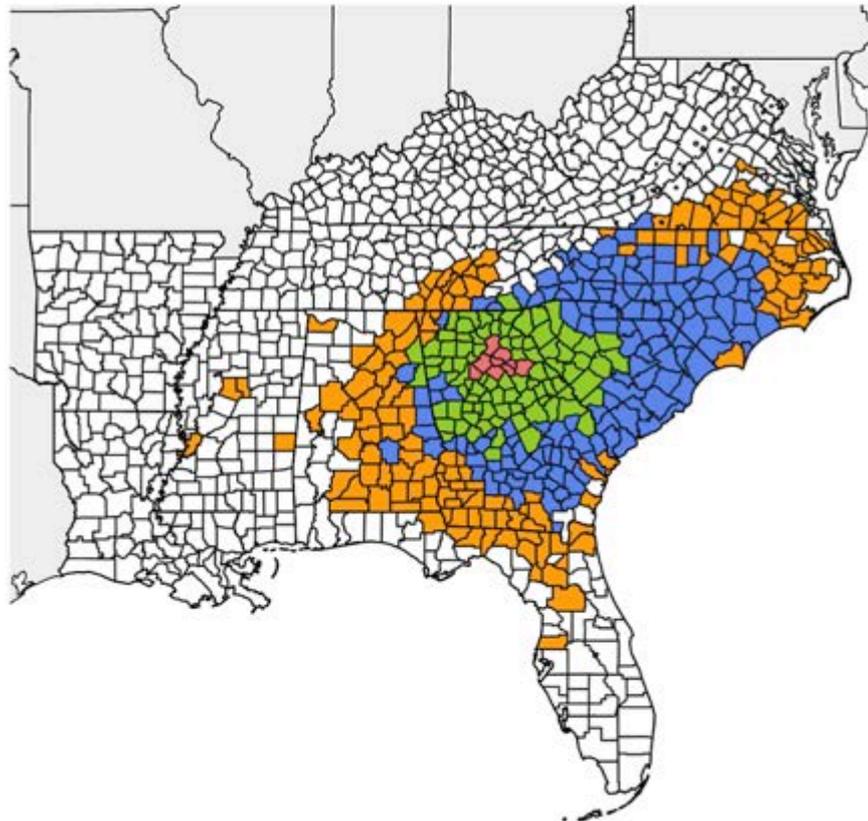
Center for Invasive Species & Ecosystem Health

Southern IPM Center





## DISTRIBUTION MAP



### Legend



## RECENT REPORTS

10/15/2012 - Reported in Hamilton, Florida by Megacopta Working Group

10/15/2012 - Reported in Columbia, Florida by Megacopta Working Group

10/15/2012 - Reported in Monroe, Alabama by Megacopta Working Group

10/15/2012 - Reported in Geneva, Alabama by Megacopta Working Group

10/1/2012 - Reported in Pasco, Florida by Megacopta Working Group

9/26/2012 - Reported in Glynn, Georgia by Megacopta Working Group

9/26/2012 - Reported in Liberty, Georgia by Megacopta Working Group

9/26/2012 - Reported in Charlotte, Virginia by Megacopta Working Group

## SHARE



## EMBED



# Stink Bug Scout





Report Sightings



Distribution Maps



Species Information



Tools & Training



My EDDMapS



About



Eurasian watermilfoil

Photo by: Alison Fox

## Invasive Plant Mapping In Alberta Made Easy!

Early Detection of emerging invasive plants in Alberta using easy web-based mapping

Fast and easy to use - no GIS knowledge required

Online data entry forms, e-mail alerts and a network of expert verifiers

Links local, provincial, & international data, bringing Alberta into a larger North American invasive weed database

Data can be searched, queried and downloaded in a variety of formats

Cooperates with and aggregates data from other invasive species mapping projects

## Target Species

- ✓ Eurasian Watermilfoil (*Myriophyllum spicatum*)
- ✓ Flowering Rush (*Butomus umbellatus*)
- ✓ Garlic Mustard (*Alliaria petiolata*)
- ✓ Himalayan Balsam (*Impatiens glandulifera*)
- ✓ Hoary Alyssum (*Berteroa incana*)
- ✓ Japanese Knotweed (*Fallopia japonica*)
- ✓ Meadow Hawkweed (*Hieracium caespitosum*)
- ✓ Mouse-Eared Hawkweed (*Hieracium pilosella*)
- ✓ Orange Hawkweed (*Hieracium aurantiacum*)
- ✓ Medusahead (*Taeniatherum caput-medusae*)
- ✓ Pale Yellow Iris (*Iris pseudacoris*)
- ✓ Purple Loosestrife (*Lythrum salicaria*)
- ✓ Salt Cedar (*Tamarix spp.*)
- ✓ Sulphur Cinquefoil (*Potentilla recta*)
- ✓ Yellow Starthistle (*Centaurea solstitialis*)

## Friends of EDDMapS Alberta

- ✓ Alberta Invasive Plants Council
- ✓ Alberta Native Plant Council
- ✓ Alberta Agriculture & Rural Development
- ✓ Alberta Sustainable Resource Development
- ✓ Association of Alberta Agricultural Fieldmen
- ✓ City of Calgary Invasive Plants
- ✓ Environment Canada - Invasive Alien Species
- ✓ North America Weed Management Association

## Educational Resources

- ✓ EDDMapS Alberta - Invasive Plant Mapping Handbook - High Quality
- ✓ EDDMapS Alberta - Invasive Plant Mapping Handbook - Slow Connections
- ✓ Step-By Step Instructions: Reporting an Invasive Plant to EDDMapS Alberta
- ✓ Reporting Form - Field Worksheet
- ✓ Contact Us
- ✓ Target Species Information Page
- ✓ Key to the Identification of Invasive and

[Distribution Maps](#)

[Report Sightings](#)

[Species Information](#)

[EDDMapS Home](#)

## Invasive Species Mapping Made Easy for Manitoba and Saskatchewan!



- ✓ 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
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- ✓ Cooperates with and aggregates data from other invasive species mapping projects
- ✓ Custom/hosted applications can be quickly and inexpensively developed

### Statistics for Manitoba and Saskatchewan

14,982 Reports  
45 Species

### Recent Reports in Manitoba and Saskatchewan

- ✓ Dalmatian toadflax by Invasive Species Council of Manitoba in Manitoba
- ✓ Dalmatian toadflax by Invasive Species Council of Manitoba in Manitoba
- ✓ Dalmatian toadflax by Invasive Species Council of Manitoba in Manitoba
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- ✓ Dalmatian toadflax by Invasive Species Council of Manitoba in Manitoba

### Partners



**Invasive Species Council**  
of Manitoba



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

Report Sightings

Distribution Maps

Species Information

Tools

My EDDMapS

sign out

**Map it. Zap it. Map it Again.**

- Fast and easy to use - no knowledge of GIS required
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- 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

map data ©2013 Google, INEGI, MapLink, Tele Atlas

## Highlighted Species



dog-strangling vine  
*Cynanchum rossicum*

## Ontario Partners



## Recent Reports

zebra mussel by Ontario Federation of Anglers and Hunters on 18-Oct-12

goldfish by Ontario Federation of Anglers and Hunters on 14-Sep-12

round goby by Ontario Federation of Anglers and Hunters on 12-Sep-12

rusty crayfish by Ontario Federation of Anglers and Hunters on 10-Sep-12

## Smartphone App

The Great Lakes Early Detection Network app brings the power of EDDMapS to your smartphone. Plans are underway to adapt this app for use in Ontario. [Check out the current version.](#)

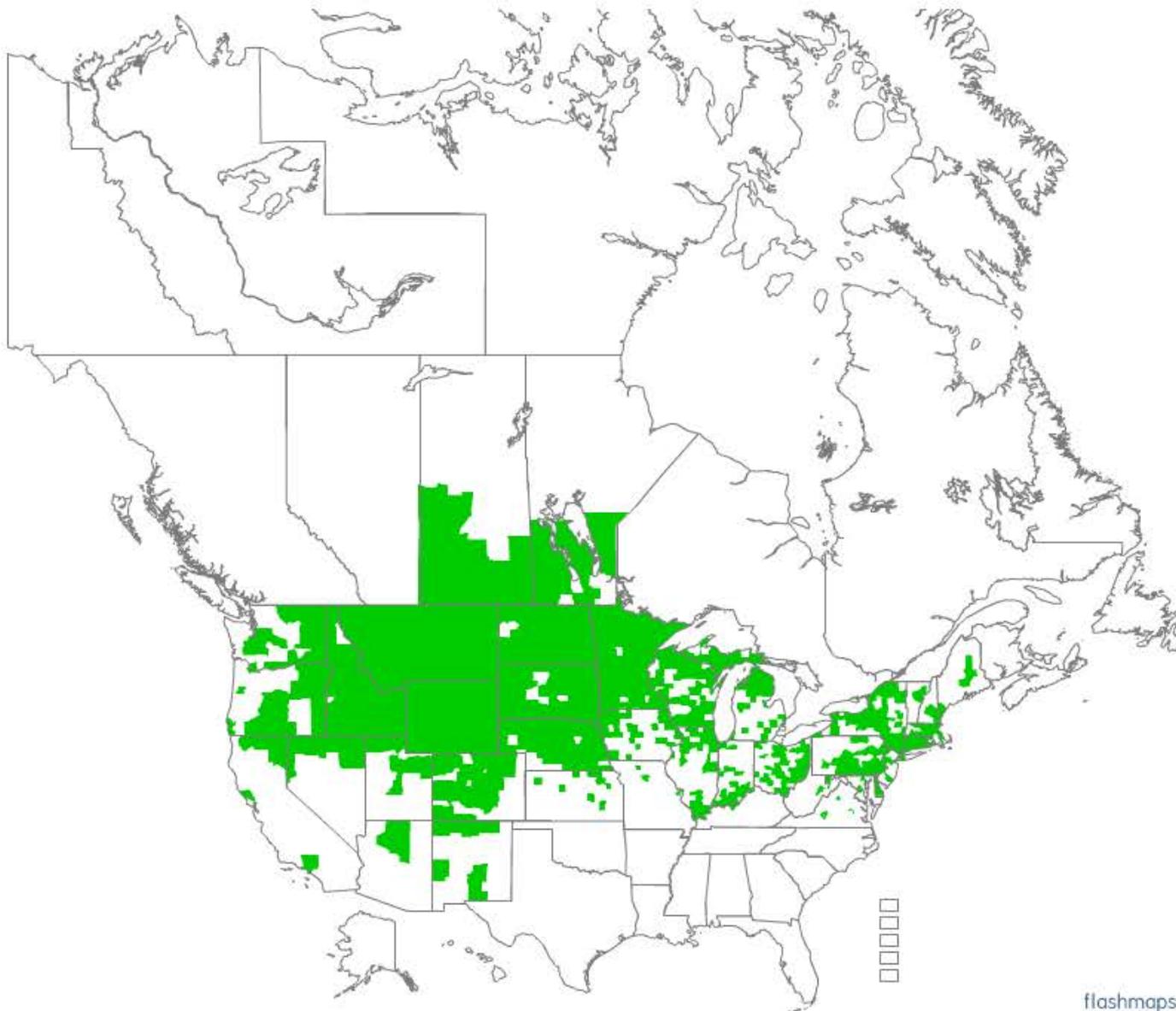




# leafy spurge

*Euphorbia esula* L.

USDA PLANTS Symbol: EUES  
Invasive Plant Atlas



flashmaps



Selection Tools:

# GISIN

Global Invasive Species Information Network



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[Data Portal](#)  
[GISIN Protocol](#)



The Global Invasive Species Information Network (GISIN) was formed to provide a platform for sharing invasive species information at a global level, via the Internet and other digital means.

**GISIN3 Data Standards Workshop Summary is now available for download. Held at Elmira College in New York, on 25-30 July 2009, the workshop provided the basis for a prototype system, to be made available online at <http://www.gisin.org>:**

**GISIN3 Data Standards Workshop Summary Report** - Simpson, Jarnevich, de Munck **PDF**



# GISIN

Global Invasive Species Information Network

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By Species

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## GISIN Data Providers

Browse the list below of GISIN data providers. Click on the name of the provider for more information about the provider or to take an inventory of its available data.

1 through 15

Provider Name	Provider short name	Species Status	Occurrences	Resource URL
<a href="#"><u>Cameroon invasive plant list</u></a>	Cameroon			
<a href="#"><u>CONABIO</u></a>	CONABIO		<a href="#"><u>14020</u></a>	
<a href="#"><u>Delivering Alien Invasive Species Inventories for Europe</u></a>	DAISIE	<a href="#"><u>7699</u></a>		<a href="#"><u>37</u></a>
<a href="#"><u>Early Detection and Distribution Mapping System Data</u></a>	EDDMapS		<a href="#"><u>124412</u></a>	
<a href="#"><u>FishBase</u></a>	FishBase		<a href="#"><u>212301</u></a>	
<a href="#"><u>Geosystems Research Institute</u></a>	GRI			
<a href="#"><u>Global Invasive Species Database</u></a>	GISD	<a href="#"><u>17422</u></a>		<a href="#"><u>311</u></a>
<a href="#"><u>Global Organism Detection and Monitoring System</u></a>	GODM		<a href="#"><u>394607</u></a>	<a href="#"><u>2012</u></a>
<a href="#"><u>Global Register of Invasive Species</u></a>	GRIS	<a href="#"><u>158</u></a>		
<a href="#"><u>Great Lakes Indian Fish and Wildlife Commission</u></a>	GLIFWC		<a href="#"><u>30123</u></a>	
<a href="#"><u>Hawaiian Ecosystems at Risk project</u></a>	HEAR			<a href="#"><u>20</u></a>
<a href="#"><u>I3N-Argentina</u></a>	I3N-Argentina		<a href="#"><u>654</u></a>	
<a href="#"><u>Nonindigenous Aquatic Species Program</u></a>	NAS	<a href="#"><u>4272</u></a>	<a href="#"><u>99586</u></a>	<a href="#"><u>6728</u></a>
<a href="#"><u>Smithsonian Environmental Research Center</u></a>	SERC			
<a href="#"><u>The Calflora Database</u></a>	Calflora	<a href="#"><u>301</u></a>		<a href="#"><u>301</u></a>
Totals:		29852	875703	9409



# EDD **Maps**

Early Detection & Distribution Mapping System

## Other Features

<a href="#">Report Sightings</a>	<a href="#">Distribution Maps</a>	<a href="#">Species Information</a>	<a href="#">Tools &amp; Training</a>	<a href="#">My EDDMapS</a>	<a href="#">About</a>
----------------------------------	-----------------------------------	-------------------------------------	--------------------------------------	----------------------------	-----------------------

## Manage Reports

ID ↑	Subject	Location	Date	Manage			
616316	Amur corktree	Charles County, Maryland	07/28/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616315	marsh dayflower	Charles County, Maryland	07/28/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616282	common mullein	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616281	white clover	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616280	red clover	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616279	dandelion	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616278	common chickweed	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616277	black nightshade	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616276	wine raspberry	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616275	ladysthumb	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616274	Japanese knotweed	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616273	oriental ladysthumb	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616272	broadleaf plantain	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616271	buckhorn plantain	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616270	Nepalese browntop	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616269	yellow sweetclover	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616268	sericea lespedeza	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616267	tall morningglory	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>
616266	ivyleaf morningglory	Prince George's County, Maryland	07/22/2009	<a href="#">View</a>	<a href="#">Edit</a>	<a href="#">Revisit</a>	<a href="#">Delete</a>

# Japanese honeysuckle

USDA PLANTS Symbol: LOJA  
WeedUS Database

## *Lonicera japonica* Thunb.

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

**Record ID:** 615773  
**Location:** Talbot County, Maryland  
**Source:** Jil Swearingen, National Park Service  
**Habitat:** Edge: Field/forest  
**Abundance:** Scattered Dense Patches  
**Locality:** Reporter owns property  
**Area Infested:** 5 acres  
**Coordinates:** 38.7951021422, -76.2769603729  
**NADatum:** WGS84  
**Ownership:** Private Landowner  
**Data Type:** Line  
**Site Name:** Bird in Hand Farm  
**phenology:** Flower  
**Canopy Cover:** Low  
**Herbarium:** - Record ID:  
**Status:** Not Verified  
**Observation Date** June 4, 2008  
**Date Entered** May 6, 2009



## Site Revisit Information

Use this form for site revisits including treatments, monitoring and evaluations.

Revisit Type:

Revisit Date:

Infested Area:

Canopy Closure:

Abundance/Density:

Plant Description:  In Flower  In Fruit  Seedlings/Rosettes  Seeds  Dormant/Dead  Unknown

### Comments:

Describe in detail what was done during the revisit.

### Upload Images with Your Revisit Report:

For verification purposes, take at least two digital images, a close up of the species and one of the site.

Image:   (.jpg, < 4 mb)

Caption:

(provide as much detail as possible, include credit if image is not yours)

Image:   (.jpg, < 4 mb)

Caption:

(provide as much detail as possible, include credit if image is not yours)

Image:   (.jpg, < 4 mb)

Caption:

(provide as much detail as possible, include credit if image is not yours)

Image:   (.jpg, < 4 mb)

Caption:

(provide as much detail as possible, include credit if image is not yours)

Image:   (.jpg, < 4 mb)

Caption:

(provide as much detail as possible, include credit if image is not yours)

Report Sightings

Distribution Maps

Species Information

Tools & Training

My EDDMapS

About

## Create Alerts

### State Alert

Select State

- Plants
- Animals
- New Only - You only get an alert the first time a plant or animal is found in a county.

Create Alert

### County Alert

Select State

Continue

### Species Alert

Select Species

- New County Record Only - First time the species is reported in a County

Create Alert



# EDD **Maps**

Early Detection & Distribution Mapping System

**Smartphone  
Apps**



5369591





162 pound – 15 foot snake captured this fall

# A hypothetical diet necessary for a hatchling Burmese python to reach 13 feet in the Florida Everglades (approx. 5 to 7 years)

(Source: Dr. Stephen Secor, Univ. of Alabama and Skip Snow, Everglades National Park)

1 Raccoon

1 Opossum

4 5ft alligators

5 American coots

6 Little blue herons

8 Ibises

10 Squirrels

15 Rabbits

15 Wrens

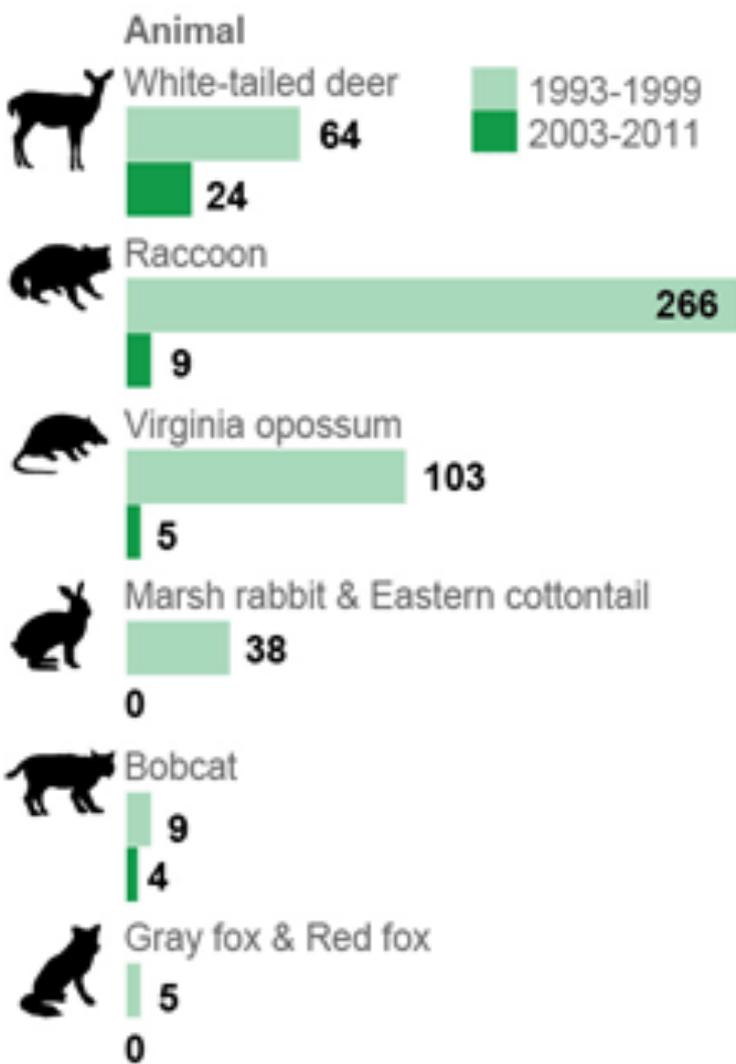
30 Cotton rats

72 Mice



## On the decline

Mammals observed in Everglades  
National Park:



Note: Animals not to scale

Source: Proceedings of the  
National Academy of Sciences

By Frank Pompa and Janet Loehrke, USA TODAY

Your life in

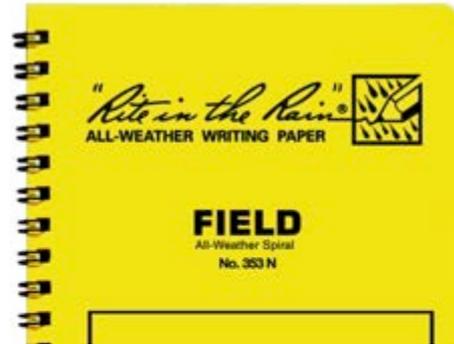
The ultimate



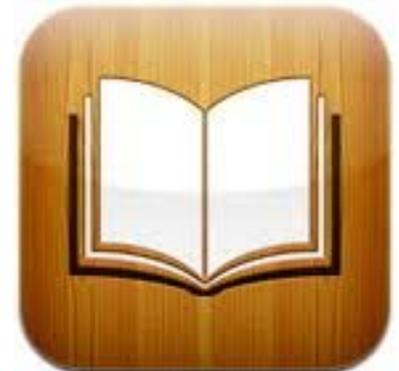
your pocket

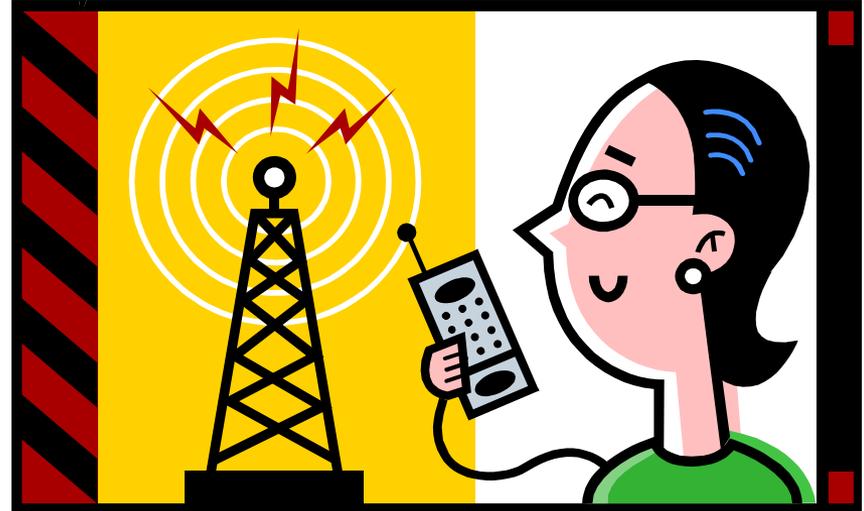
digital device





# The Ultimate Always-With-You Pest & Invasive Species Reporting Tool





Identificati  
Manager

**B** **BUGWOOD**  
Image Database System  
w:images.bugwood.org

Alert and  
Notifications

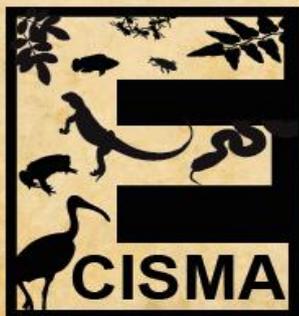
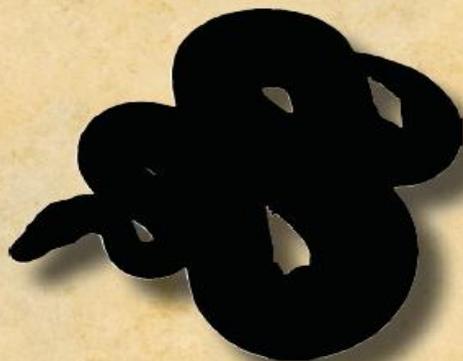
**CONTENT**

**RES**

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

**NEWS SOURCE**

# Field Identification of Select Native and Nonnative Reptiles in Florida



U.S. Army Corps  
of Engineers



Everglades Cooperative Invasive  
Species Management Area

## Introduction

The continued proliferation of large, invasive reptiles poses a considerable threat to the natural areas of Florida. Past experience shows successful control requires early detection and a rapid response. Thus, receiving timely observations from individuals in the field is perhaps the most important step in the process. This set of field cards has been developed to assist field personnel in the identification of priority reptile species, and provide direction regarding how and where to report such observations. Help prevent the spread of nonnative species by following these three steps.

### Step 1: Be Prepared

Improve your chances of spotting nonnatives by driving at slow speeds and minimizing the distractions in your vehicle. Scan likely habitats through open windows to improve visibility. Engage as many available observers as possible. Carry equipment that assists in making accurate observations: binoculars, a digital camera, a measuring tape, and GPS unit. Being prepared can result in high-quality observations and help ensure your safety.



Report Sightings by Phone or Online at:  
1-888-IVE-GOT1 (1-888-483-4681)  
[www.IveGot1.org](http://www.IveGot1.org)  
First printing, 2010.



- LIBRARY
  - Music
  - Movies
  - TV Shows
  - Podcasts
  - Books
  - Apps
  - Ringtones
  - Radio
- STORE
  - iTunes Store
  - Ping
  - Purchased
  - Purchased on chuck's iPhone
- SHARED
  - Home Sharing
- GENIUS
  - Genius
- PLAYLISTS
  - iTunes DJ
  - 90's Music
  - Classical Music
  - Music Videos
  - My Top Rated
  - Recently Added
  - Recently Played
  - Top 25 Most Played
  - Audible

App Store > Reference > UGA Center for Invasive Species and Ecosystem Health



# Ivegot1

## Description

This App is a Field Identification of Select Native and Nonnative Reptiles in Florida. It was developed to provide easy access to identification characteristics of common native and nonnative reptiles in Florida. Successful control of nonnative species requires early detection and a rapid response. Receiving timely observations from individuals in the field is perhaps the most important step in the process. This App has... [...More](#)

Free App

Category: Reference  
 Released: Jul 15, 2010  
 Version: 0.9  
 0.9  
 10.4 MB  
 Language: English  
 Seller: Charles T. Bargerone  
 © 2010 University of Georgia Center for Invasive Species and Ecosystem Health

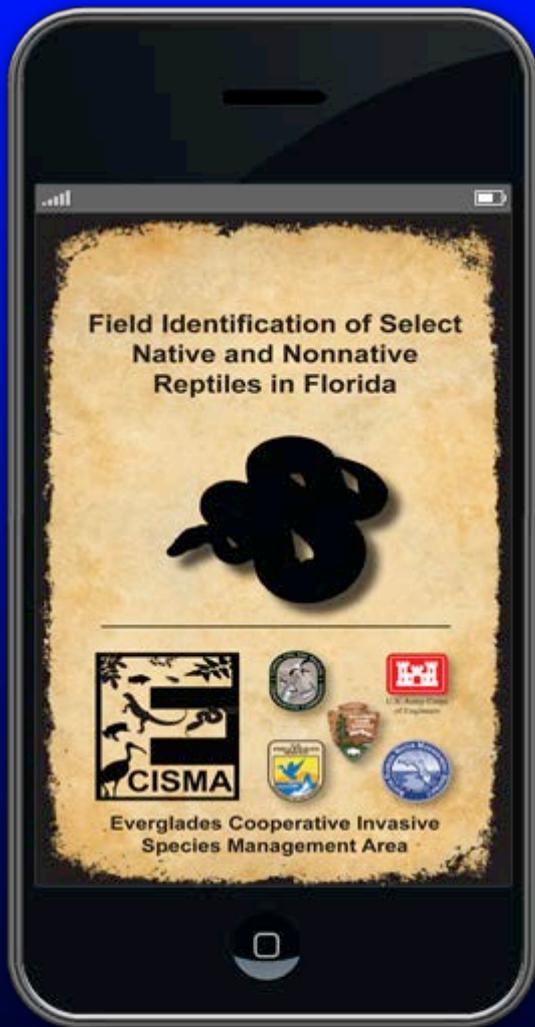
Rated 4+

Requirements: Compatible with iPhone and iPod touch. Requires iOS 4.0 or later.

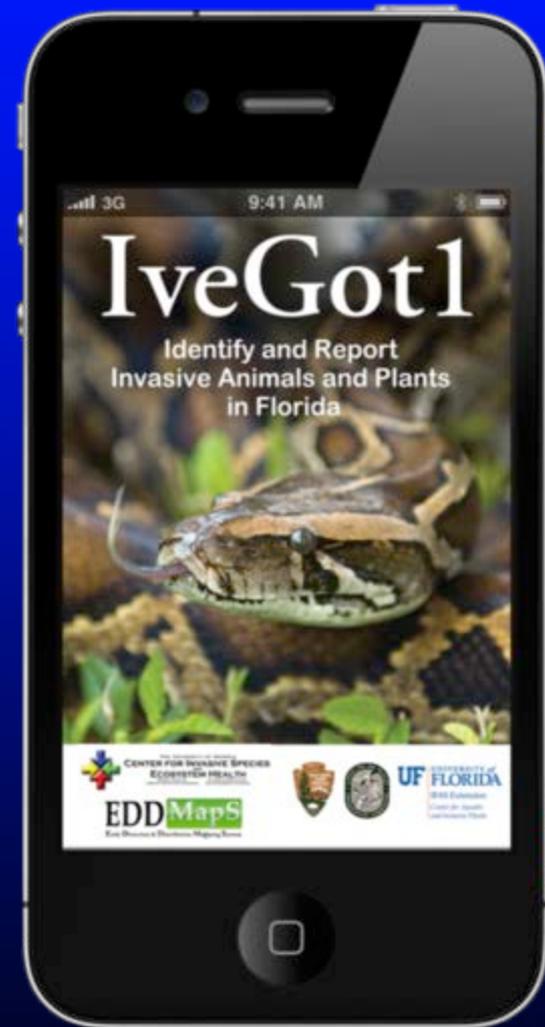
[UGA Center for Invasive Species and Ecosystem Health Web Site >](#) [Ivegot1 Support >](#)

## iPhone Screenshots





- Released July 15, 2010
- Over 3400 downloads
- ID Guide Only



- Released October 4, 2011
- ID and Report Animals and Plants in Florida

# Invasive Species in Florida?



**Yep, we've built an App for that!**

IveGot1 now brings the power of EDDMapS to both your iPhone® and Android™ devices.

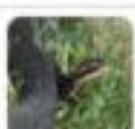
IveGot1 was developed by the University of Georgia Center for Invasive Species and Ecosystem Health through a cooperative agreement with the National Park Service, in cooperation with the Florida Fish and Wildlife Conservation Commission and the University of Florida Center for Aquatic and Invasive Plants.

iPhone is trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc.

Android is a trademark of Google Inc.



# Report an Animal

-  *Achatina fulica*  
Giant African land snail
-  *Agama agama africana*  
African redhead agama
-  *Agkistrodon piscivorus*  
Cottonmouth
-  *Alopochen aegyptiacus*  
Egyptian geese
-  *Ameiva ameiva*  
South American ground lizard
-  *Amia calva*  
Bowfin
-  *Anolis equestris equestris*  
Knight anole

## Common boa

*Boa constrictor*

09-27-2011 10:04 EDT

Latitude 31.477211695941  
 Longitude -83.525077965597  
 Accuracy 50



One Multiple

### Notes

# Information



## Burmese python

*Python molurus ssp. bivittatus*

Status: Nonnative, Invasive

Length: Maximum length 25 feet

Body: Not as stout as other python species

Pattern: Network of dark blotches along back and sides (like the pattern of a giraffe); blotches are irregular, not net-like, diamond-

# Animals



## Animals Plants

# MAEDN

Mid Atlantic Early Detection Network



UNIVERSITY OF MARYLAND  
EXTENSION

*Solutions in your community*



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

# MAEDN

Mid Atlantic Early Detection Network



**invasive  
PLANT CONTROL**



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

# MAEDN

Mid Atlantic Early Detection Network

Version: 1.0

## About MAEDN Invasive Species

The Mid-Atlantic Early Detection Network (MAEDN) is a collaboration between the Center for Invasive Species and Ecosystem Health at the University of Georgia, the National Park Service and the Mid-Atlantic Invasive Plant Council.

The goal of the project is to strengthen ongoing invasive-species monitoring efforts in Mid-Atlantic region of the U.S by enlisting help from citizens. The web- and smartphone-based approach enables volunteers to identify and collect data on invasive species in their own time, with little or no hands-on training.

Done

More

## About MAEDN

# MAEDN

Mid Atlantic Early Detection Network

MAEDN is a vast network of land managers, field experts, citizen scientists, naturalists, gardeners and others interested in documenting invasive plant occurrences in the mid-Atlantic region for the purposes of early detection, improved management and better coordination. The region includes Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia.



Plants



Pests



Upload



Maps



More

# EDDMapS

Early Detection & Distribution Mapping System

Username

Password

Login

Reset

Register with EDDMapS

Continue as Guest

# EDDMapS

Early Detection & Distribution Mapping System

Username

Password

Login

Register with EDDMapS

Forget Your Username/Password?

Continue as Guest



MAEDN for Android is designed to automatically upload user data to EDDMapS. Would you like to set automatic upload on now? (Note: You can change this value later in Settings)

Sure

No Thanks

Distribution Maps

Username: bugwood



Mid Atlantic Early Detection Network

Report a Plant

Report a Pest

Distribution Maps

Username: bugwood

-  *Acer platanoides*  
Norway maple 
-  *Achyranthes japonica*  
Japanese chaff flower 
-  *Aegopodium podagraria*  
Goutweed 
-  *Ailanthus altissima*  
tree-of-heaven 
-  *Ajuga reptans*  
carpet bugle 
-  *Akebia quinata*  
chocolate vine 
-  *Albizia julibrissin*  
mimosa 

# Report a Plant

-  *Acer platanoides*  
Norway maple 
-  *Achyranthes japonica*  
Japanese chaff flower 
-  *Aegopodium podagraria*  
Goutweed 
-  *Ailanthus altissima*  
tree-of-heaven 
-  *Ajuga reptans*  
carpet bugle 
-  *Akebia quinata*  
chocolate vine 
-  *Albizia julibrissin*  
mimosa 

MAEDN

Plants

Pests

*Acer platanoides*  
Norway maple



*Achyranthes japonica*  
Japanese chaff flower



*Aegopodium podagraria*  
Goutweed



*Ailanthus altissima*  
tree-of-heaven



*Ajuga reptans*  
carpet bugle



*Akebia quinata*  
chocolate vine



*Albizia julibrissin*  
mimosa



*Alliaria petiolata*  
Garlic Mustard



Back

# Plants

*Acer platanoides*  
Norway maple



*Achyranthes japonica*  
Japanese chaff flower



*Aegopodium podagraria*  
Goutweed



*Ailanthus altissima*  
tree-of-heaven



*Ajuga reptans*  
carpet bugle



Plants

Pests



Plants



Pests



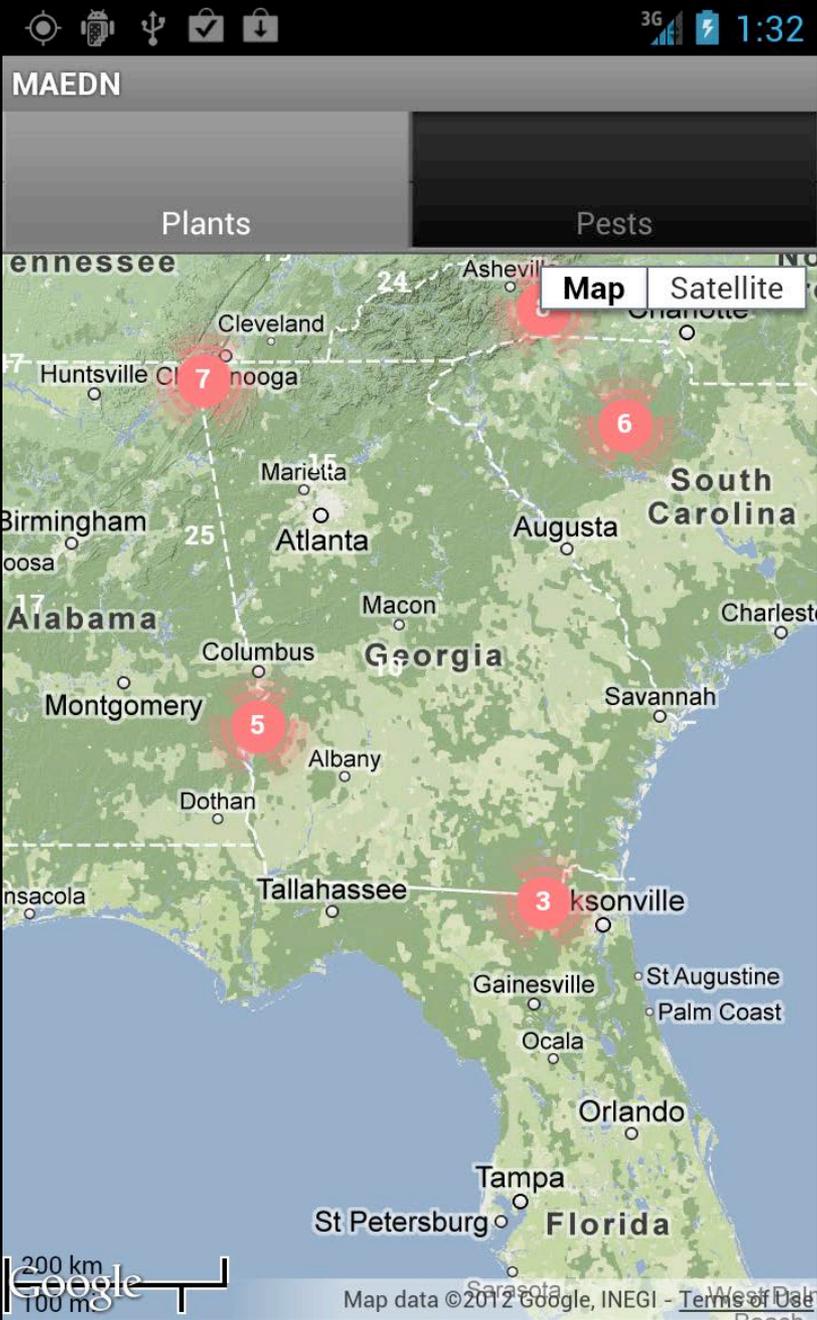
Upload



Maps



More



# Garlic Mustard

*Alliaria petiolata*

2012-09-11 17:32:50

Latitude: 31.477467

Longitude: -83.525125

Accuracy: 5.0 m

Infested Area:

acres    sq feet

Notes

Save



# tree-of-heaven

*Ailanthus altissima*

09/12/2012 7:41

Latitude 38.903308770492

Longitude -77.031969115367

Accuracy 65 meters

Infested Area  Acres Sq Feet

Notes





3G 1:33

# Garlic Mustard

Alliaria petiolata

2012-09-11 17:32:50

Latitude: 31.477467

Longitude: -83.525125

Accuracy: 5.0 m



Infested Area:

**Photo Options**

Take a picture

Choose from Gallery

Save



3G 1:36

# Garlic Mustard

Alliaria petiolata

2012-09-11 17:32:50

Latitude: 31.477467

Longitude: -83.525125

Accuracy: 5.0 m



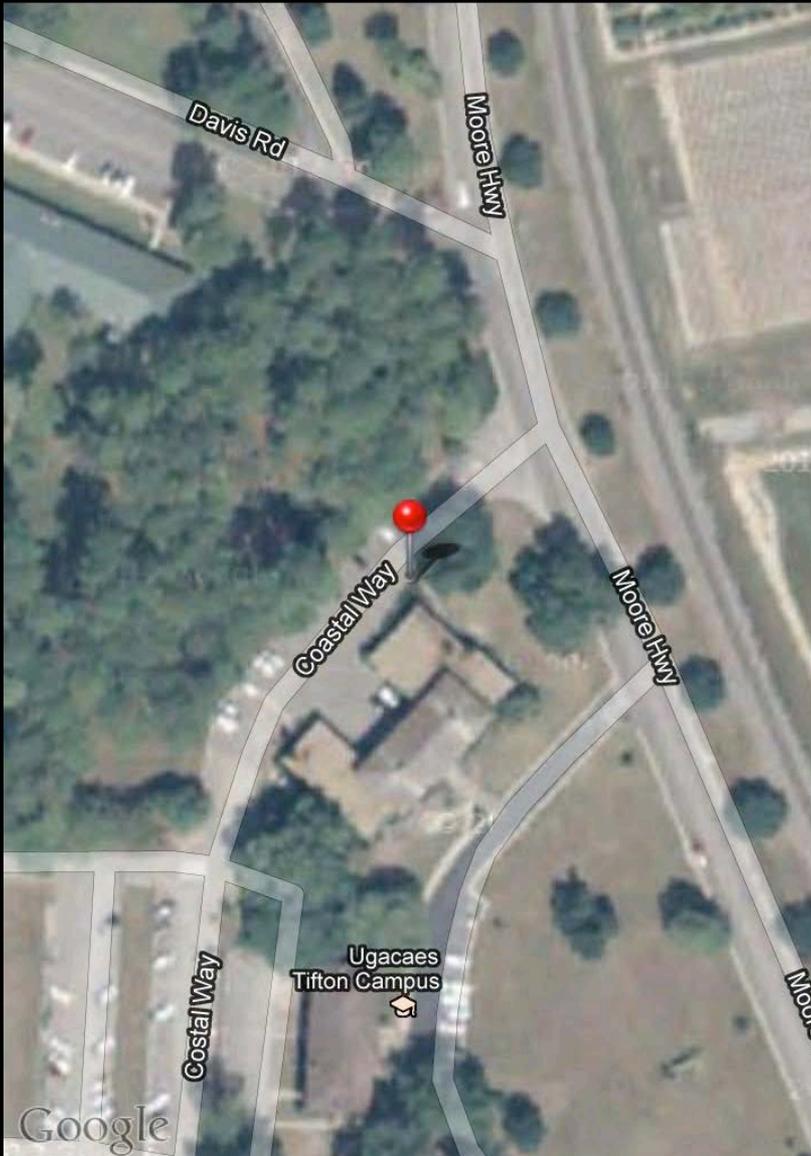
Infested Area:

You have not yet included a photo with your report. Would you like to include a photo now?

YES NO

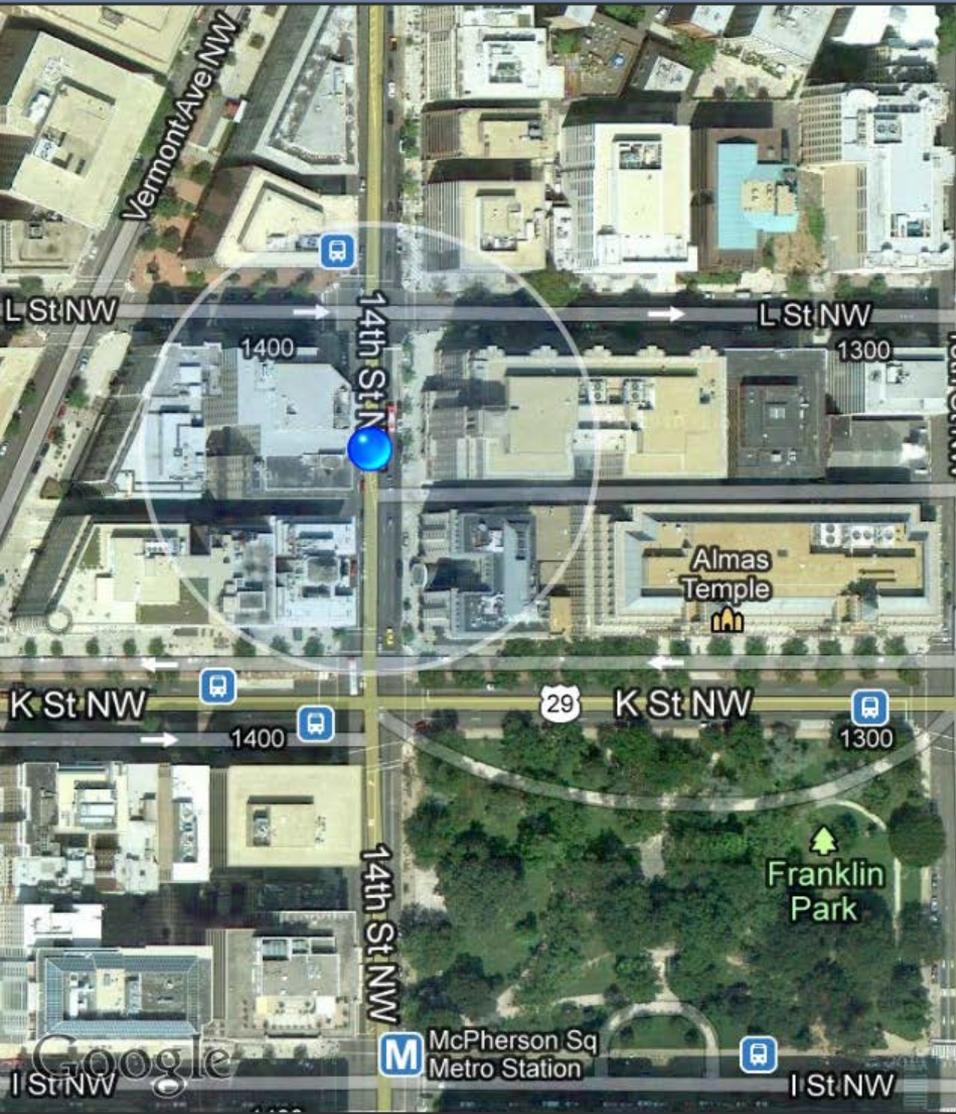
Save

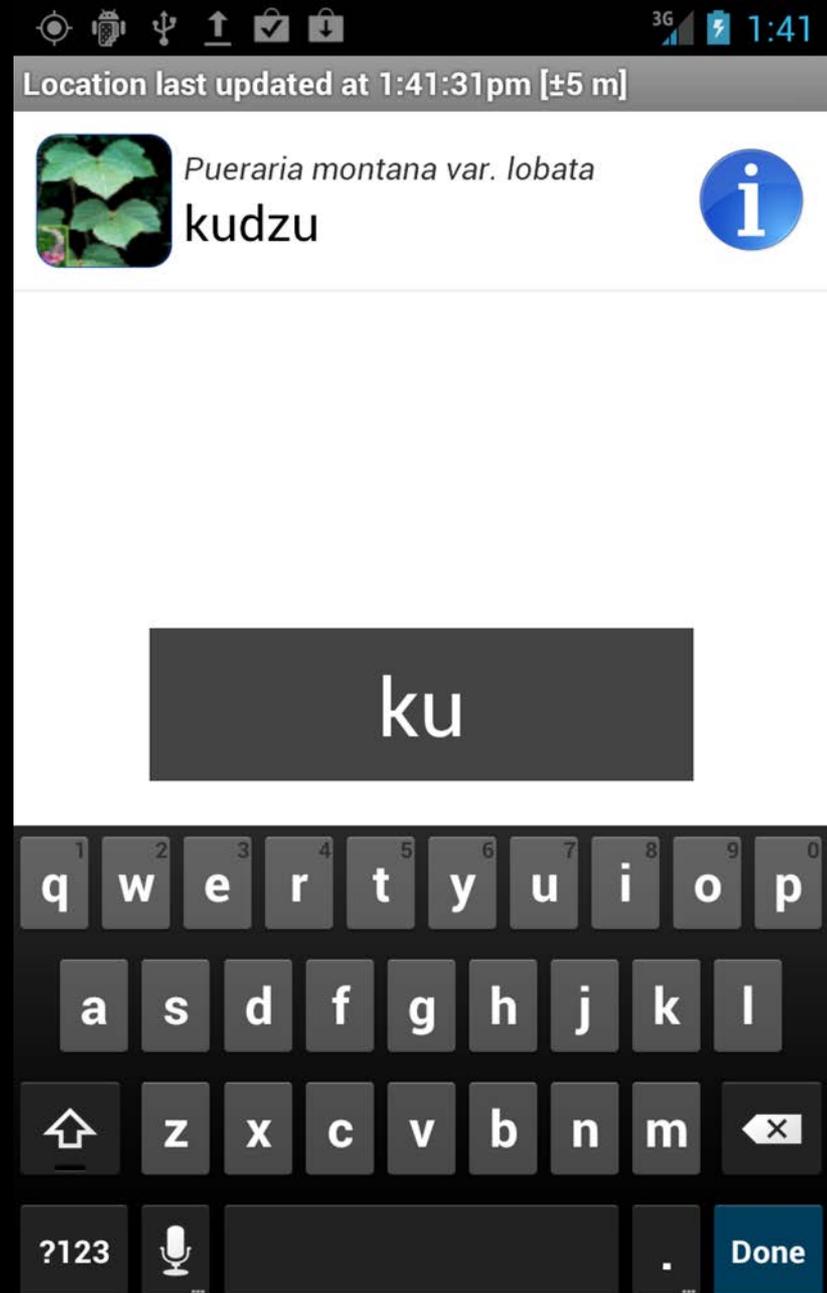
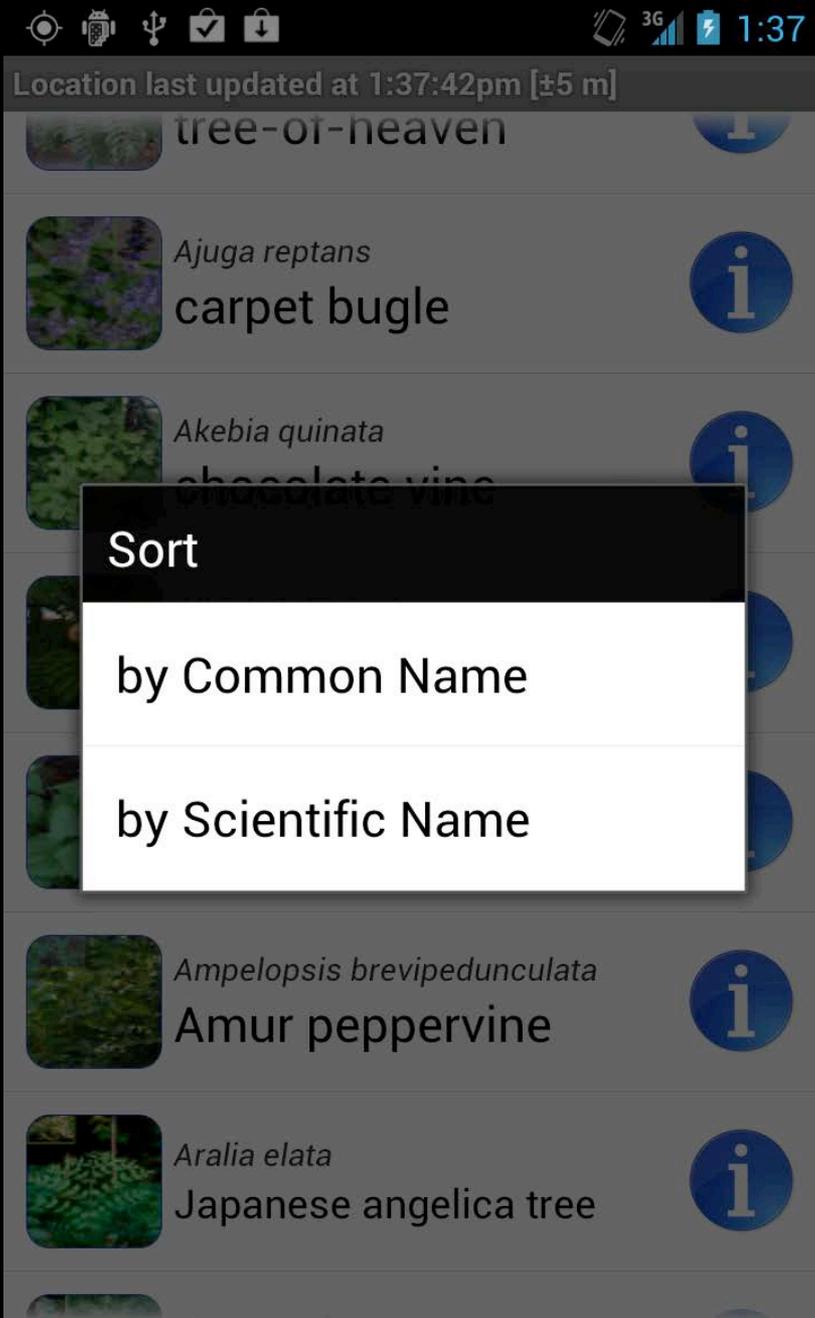




Latitude: 31.477466  
Longitude: -83.525125

Observation Use Pin Location







3G 1:37

MAEDN - Queue

1) Garlic Mustard

Tagged at: 2012-09-11 17:37:16

Your observations above are waiting to be sent to the server.

You may select any observation above to view or delete at this time.

Visit <http://www.eddmaps.org> to edit or delete your previously uploaded observations.



AT&T 3G

7:41 PM



Edit

Upload Queue

Upload

tree-of-heaven

*Ailanthus altissima*

09/12/2012 7:41



Plants



Pests



Upload



Maps



More

1) Garlic Mustard  
Tagged at: 2012-09-11 17:37:16

Your observations above are waiting to be sent to the server.

**Queue Actions**

- Show on map
- View tag
- Edit note
- Do not upload

1) Garlic Mustard  
2012-09-11 17:37:16

Your observations above are waiting to be sent to the server.

**MAEDN**

Note

Enter note here

Confirm Cancel



## Garlic Mustard

*Alliaria petiolata*

Appearance: Garlic mustard is an herbaceous, biennial forb. First year plants are basal rosettes which bolt and flower in the second year. Plants can be easily recognized by a garlic odor that is present when any part of the plant is crushed.

Foliage: Foliage on first year rosettes is green, heart shaped, 1-6 in. (2.5-15.2 cm)

long leaves. Foliage becomes more

Back

## Garlic Mustard



## Garlic Mustard

*Alliaria petiolata*

Appearance: Garlic mustard is an herbaceous, biennial forb. First year plants are basal rosettes which bolt and flower in the second year. Plants can be easily recognized by a garlic odor that is present when any part of the plant is crushed.

Foliage: Foliage on first year rosettes is green, heart shaped, 1-6 in. (2.5-15.2 cm) long leaves. Foliage becomes more triangular and strongly toothed as the



Plants



Pests



Upload



Maps



More

Garlic Mustard



Upload

**Enable Upload**

Enable or disable the upload service



**Keep Image**

Save photo taken to phone



Lists

**Refresh Lists**

Update to the latest invasives lists

Login

**Reset Login**

Change your login credentials



# Settings

Current User: bugwood



MAEDN allows you to update the species lists between App updates. To update the list click the button below:



Version 0.9  
February 6, 2012



Plants



Pests



Upload



Maps



More



Mid Atlantic Early Detection Network

Report a Plant

Report a Pest

Distribution Maps

Username: bugwood?

About

Main Help



Queue

Settings



More

Edit

Settings

Help

About MAEDN

About EDDMapS

Partners and Credits



Plants

Pests

Upload

Maps

More



3G 1:44

AT&T 3G

7:41 PM

33%



Upload finished

1:38 PM

MAEDN finished uploading all tags.



# MAEDN

Mid Atlantic Early Detection Network

Report a Plant

Report a Pest

Distribution Maps

Username: bugwood

## Report a Plant



*Ailanthus altissima*  
tree-of-heaven



*Ajuga reptans*  
carpet bugle



*Akebia quinata*  
chocolate vine



*Albizia julibrissin*  
mimosa



*Alliaria petiolata*  
Garlic Mustard



*Ampelopsis brevipedunculata*  
Amur peppervine



*Aralia elata*  
Japanese angelica tree



**Thanks!**  
Your observation is in upload queue.

**OK**



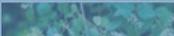
# Invasive Plants



Forbs



Grasses and Canes



Vines



Shrubs

# Japanese Knotweed



5421947

October



Images



Information



Control



Distribution



Report



Invasive Plants

A to Z

Common Name

A to Z

Scientific Name



Search



More



Images



Information



Control



Distribution



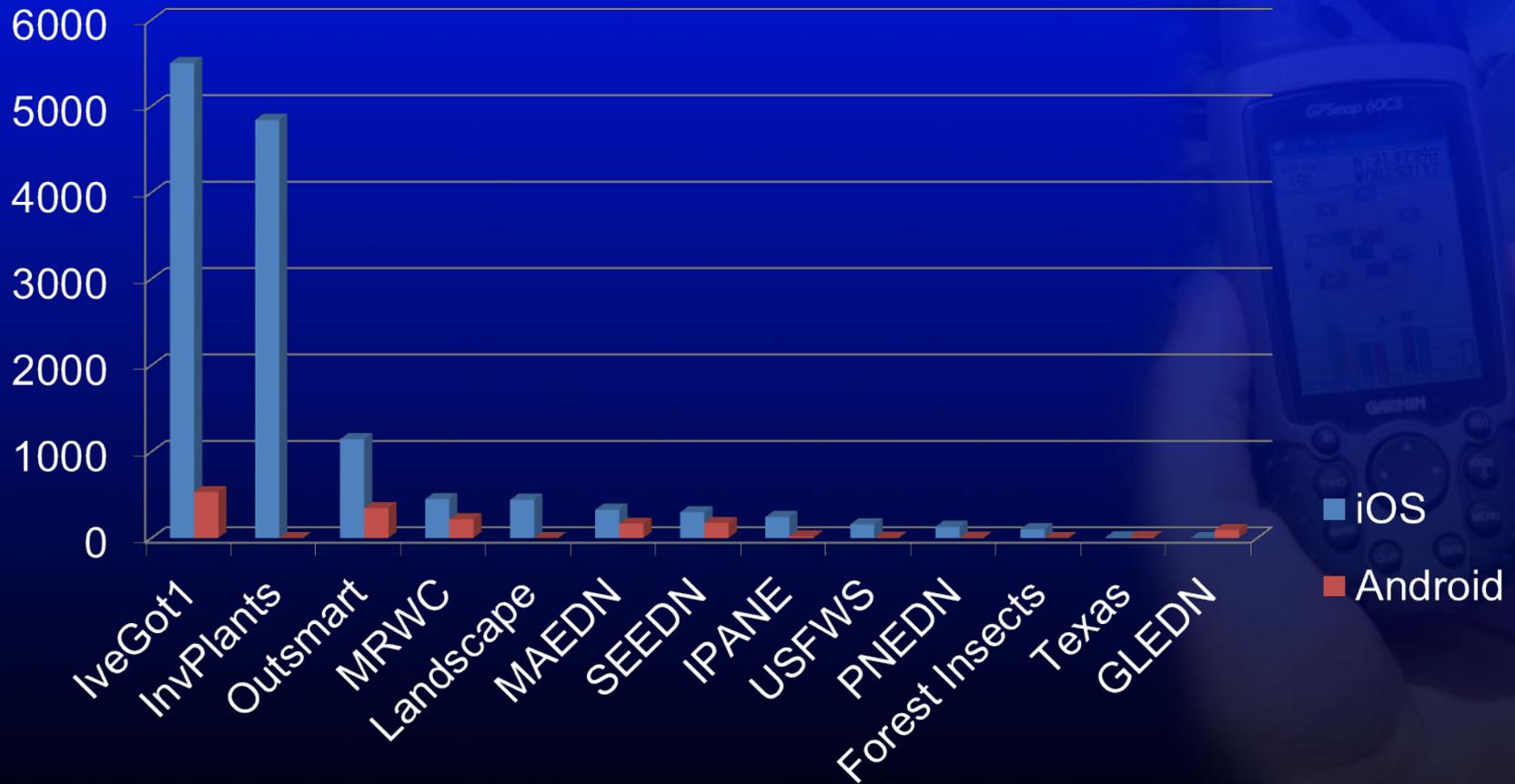
Report



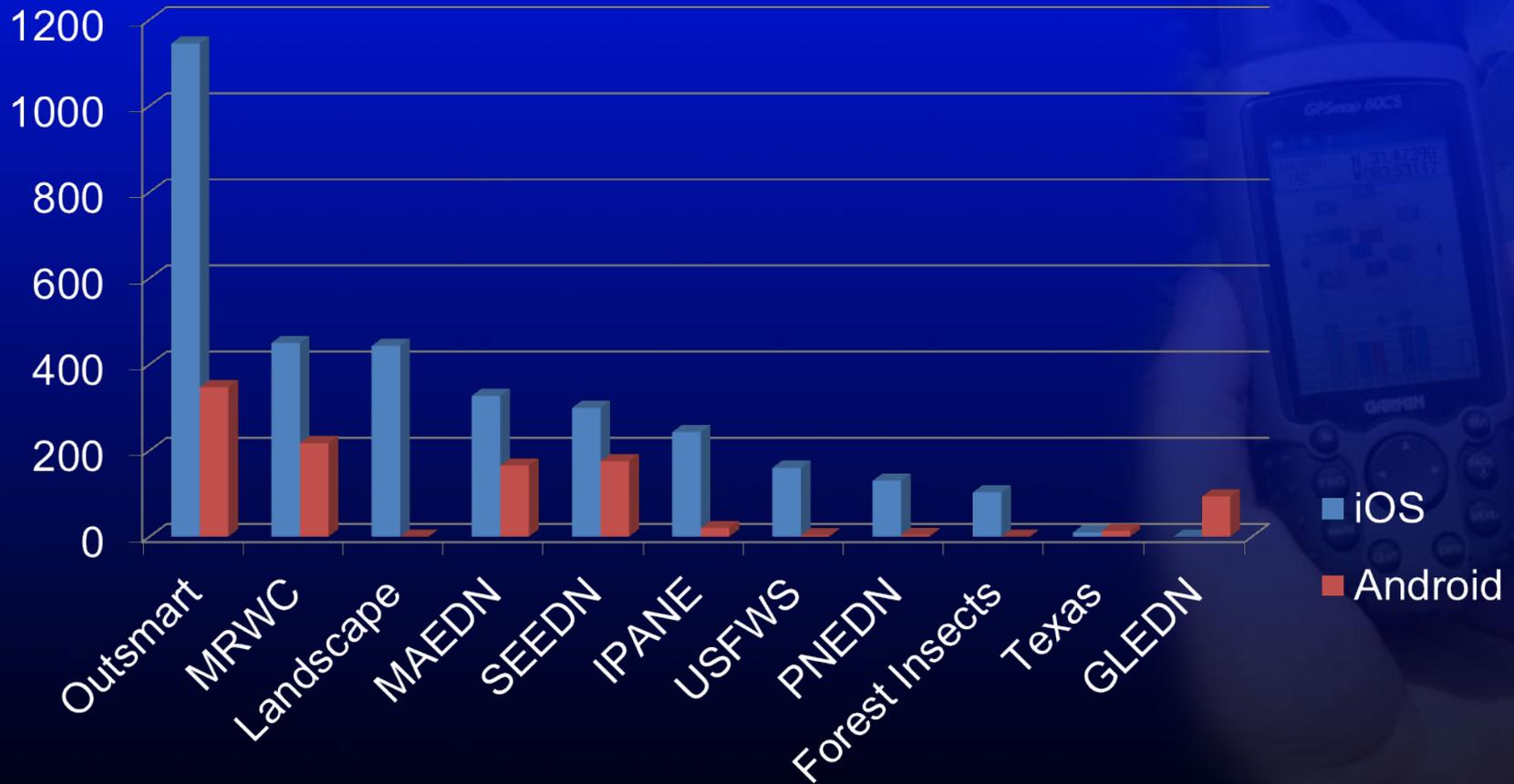
# Under Development

- **iBiocontrol – Field Guide and Reporting of Biological Control Agents of Invasive Plants**
- **National Park Service – National Park Invasive Plant App**
- **3 years smartphone development – first USFS, NPS and USFWS apps**
- **16 apps**

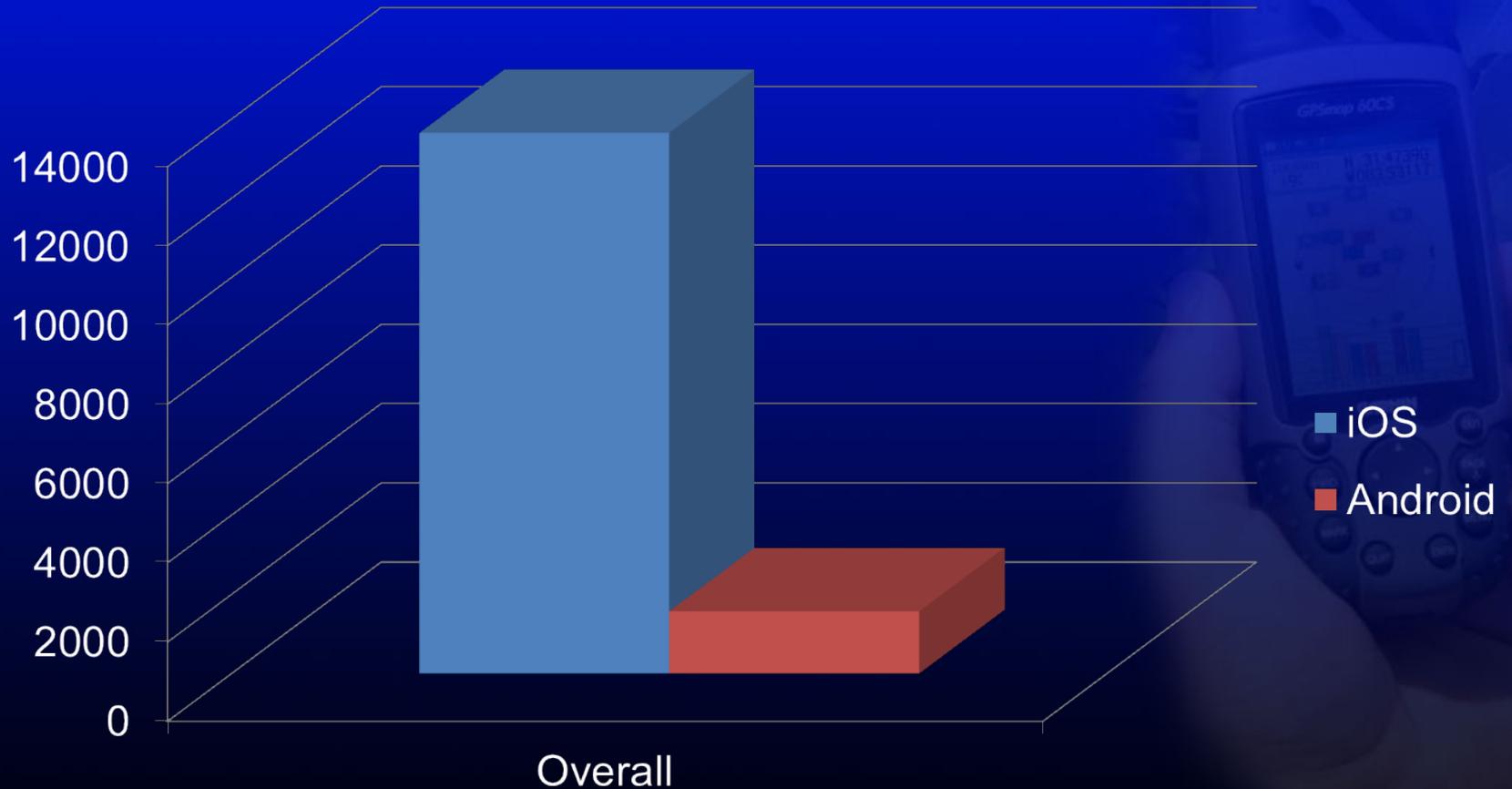
# App Downloads

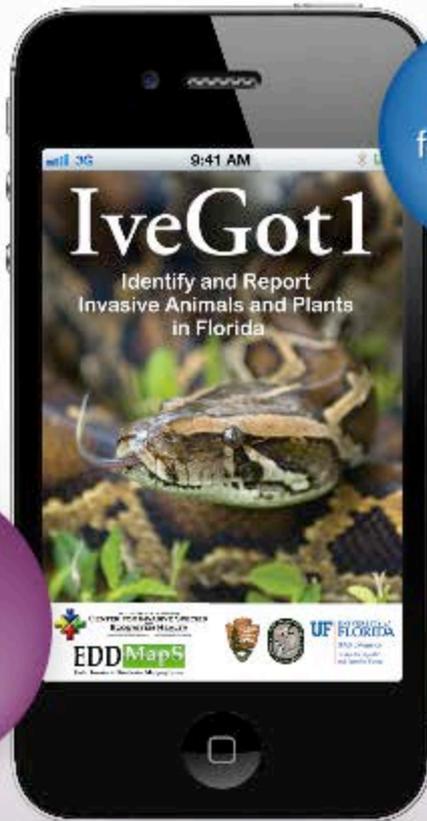


# App Downloads



# App Downloads





**FREE**  
for Android  
ver. 1.0

**FREE**  
for iPhone  
ver. 1.0

## IveGot1 - Identify and Report Invasive Animals and Plants in Florida

IveGot1 brings the power of EDDMapS to your iPhone. Now you can submit invasive species observations directly with your iPhone from the field. These reports are uploaded to EDDMapS and e-mailed directly to local and state verifiers for review.

Easy species reporting that captures your current location and allows you to submit an image of your sightings. IveGot1 allows for both online and offline reporting with reports saved on your phone for uploading when you have network connectivity.

Download iPhone

Learn More

Download Android

## The Center for Invasive Species & Ecosystem Health

The Center is involved in numerous grant funded projects and cooperative agreements relating to

## Available Apps

View all apps currently available

# invasive PLANT CONTROL







- Tools for Invasive Plant Control Crews and Clients to better document work flow in real time
- iPhone app – for photos and photo points
- iPad app – for documenting daily work
- Web Interface – for supervisors, crews and clients









ipccconnect





# Project Sites

Lake Lansing North Park



Fulwood Park



Sites



Plants



Upload



Settings



Help

Back Lake Lansing North Park



Lake Lansing North Park  
Ingham County, Michigan

Address  
6260 East Lake Drive  
Haslett, MI 48840

Contact Name - Dr. Leslie Kuhn

Contact Phone - 517-353-8745

Description - Of the 560 acres classified in Lake Lansing North Park, 61.7% are forested, the majority of which is natural upland woodland. The remaining

## Target Plants

*Ailanthus altissima*

Tree-of-Heaven



*Akebia quinata*

Five-Leaf Akebia, Chocolate Vine



*Albizia julibrissin*

Silktree, Mimosa



*Alliaria petiolata*

Garlic Mustard



*Alternanthera philoxeroides*

Alligatorweed



*Ampelopsis brevipedunculata*

Amur Peppervine, Porcelain Berry



*Ardisia crenata*

Hen's Eyes, Coral Ardisia



Sites



Plants



Upload



Settings



Help

Back

# Tree-of-Heaven



## Tree-of-Heaven

*Ailanthus altissima*

Tree-of-heaven or ailanthus [*Ailanthus altissima* (Mill.) Swingle] is a shallow-rooted deciduous tree to 80 feet (25 m) tall with long pinnately compound leaves having two circular glands under small lobes on leaflet bases. Large terminal clusters of greenish flowers in early summer yield persistent clusters of wing-shaped fruit with twisted tips on female trees. Light-green seeds in midsummer are capable of germination. Viable seed are produced by 2- to 3-

Back

# Tree-of-Heaven



## Tree-of-Heaven

*Ailanthus altissima*

### Management strategies

Do not plant. Remove prior plantings, and control sprouts and seedlings. Bag and dispose of fruit in a dumpster or burn.

Target female seed-producing plants.

Minimize disturbance within miles of where this plant occurs, and anticipate

### Garlic Mustard

*Alliaria petiolata*

01/13/2012 4:56

Latitude 37.33561536  
Longitude -122.02346115  
Accuracy 10 meters



Infested Area  Acres Sq Feet

#### Notes

### Japanese Knotweed

*Polygonum cuspidatum*

01/13/2012 4:56

Latitude 37.33743371  
Longitude -122.02322184  
Accuracy 10 meters



Infested Area  Acres Sq Feet

#### Notes

# Target Plants

- Chinese Silvergrass
- Nandina domestica*
- Sacred Bamboo, Nandina
- Paulownia tomentosa*
- Princesstree, Paulownia
- Phyllostachys spp.*
- Bamboos
- Polygonum cuspidatum*
- Japanese Knotweed
- Poncirus trifoliata*
- Trifoliolate, Hardy Orange
- Pueraria montana*
- Kudzu
- Pyrus calleryana*

**Thanks!**  
Your observation is in upload queue.

OK

Edit Upload Queue Upload

- Japanese Knotweed  
*Polygonum cuspidatum*  
01/13/2012 4:57
- Garlic Mustard  
*Alliaria petiolata*  
01/13/2012 4:57

## Admin Panel



Chemicals



Methods



Equipment



Monthly Hours



Sitesheets



Legacy Sitesheets



Polygons



KML



Chemical Reports



Management Plans



Plans New



Pesticide Users

## Project management

Site Management

User Management

Assign Users to Sites

Master Site/Users List

E-Mail Project Users

Project Species List Management

## Project forms

Create a Workorder

Edit Workorder

Your Work Orders

Create a Followup Workorder



Subjects								
Subject	Latitude	Longitud	Time	Area	units	Density	Comments	Polygon
autumn-olive	35.71649	-79.17844	5:06 PM		Acres	Low	One shrub.	1649
autumn-olive	35.71660	-79.17812	5:07 PM		Acres	Low	One shrub.	1649
autumn-olive	35.71707	-79.17735	5:18 PM		Acres	Low	90 linear feet along b	1649
autumn-olive	35.71743	-79.17674	5:22 PM		Acres	Low		1649
autumn-olive	35.71743	-79.17674	5:22 PM		Acres	Low		1649

Polygons				
<input type="checkbox"/>	Polygc	Acres	Sq Feet	Sitesh
<input type="checkbox"/>	1649	2.30251	100,297	207



Enter your username:

Enter your password:

**Submit**



## Lake Lansing North Park

### Tell us about the infestation you are trying to control

What species are you trying to control?

How large is the infestation of this species?

How dense is the infestation of this species?

What growth stage are you trying to control?

Is the infested area wet or near water?

Do you want to treat while dormant?

Are there species in the infested area that should not be damaged?

What season do you want to perform treatments in?

[Get my control options](#)

You have requested a list of control options for an infestation of common reed (*Phragmites australis*).

[Control a different species](#)

[Modify current Recommendation](#)

Method	Equipment	Herbicide	Rate	Man Hours	Notes
	Foliar Backpack Sprayer	Imazapyr	96 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (1% v/v). If possible burn or cut to remove dead standing vegetation, and treat when new growth is greater than 5 feet tall. <b>Notes on Herbicide:</b> Does have some soil residual and may kill/damage non-target plants through root uptake.
	Foliar ATV/UTV	Imazapyr	96 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (1% v/v). If possible burn or cut to remove dead standing vegetation, and treat when new growth is greater than 5 feet tall. <b>Notes on Equipment:</b> Spot treatments in open range landscapes. <b>Notes on Herbicide:</b> Does have some soil residual and may kill/damage non-target plants through root uptake.
	Foliar ATV/UTV with Spray Boom	Imazapyr	96 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (1% v/v). If possible burn or cut to remove dead standing vegetation, and treat when new growth is greater than 5 feet tall. <b>Notes on Equipment:</b> Broad cast treatments in open range landscapes. <b>Notes on Herbicide:</b> Does have some soil residual and may kill/damage non-target plants through root uptake.
	Foliar Backpack Sprayer	Glyphosate	96 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (0.75% v/v). Partial control, therefore multiple treatment may be necessary. Visual symptoms will be slow to develop. <b>Notes on Herbicide:</b> Non-selective herbicide formulate for aquatic applications
	Foliar ATV/UTV	Glyphosate	96 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (0.75% v/v). Partial control, therefore multiple treatment may be necessary. Visual symptoms will be slow to develop. <b>Notes on Equipment:</b> Spot treatments in open range landscapes. <b>Notes on Herbicide:</b> Non-selective herbicide formulate for aquatic applications
	Foliar ATV/UTV with Spray Boom	Glyphosate	96 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (0.75% v/v). Partial control, therefore multiple treatment may be necessary. Visual symptoms will be slow to develop. <b>Notes on Equipment:</b> Broad cast treatments in open range landscapes. <b>Notes on Herbicide:</b> Non-selective herbicide formulate for aquatic applications
	Foliar Backpack Sprayer	Imazamox	64 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (5% v/v). Most effective with 1% v/v methylated seed oil (MSO). May be used in areas where desired woody vegetation exists. <b>Notes on Herbicide:</b> Aquatic safe herbicide that is active on emerged, submerged, and floating broadleaf/monocot plants.
	Foliar ATV/UTV	Imazamox	64 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (5% v/v). Most effective with 1% v/v methylated seed oil (MSO). May be used in areas where desired woody vegetation exists. <b>Notes on Equipment:</b> Spot treatments in open range landscapes. <b>Notes on Herbicide:</b> Aquatic safe herbicide that is active on emerged, submerged, and floating broadleaf/monocot plants.
	Foliar ATV/UTV with Spray Boom	Imazamox	64 oz/acre	Infestation Density Required	<b>Notes on Treatment:</b> (5% v/v). Most effective with 1% v/v methylated seed oil (MSO). May be used in areas where desired woody vegetation exists. <b>Notes on Equipment:</b> Broad cast treatments in open range landscapes. <b>Notes on Herbicide:</b> Aquatic safe herbicide that is active on emerged, submerged, and floating broadleaf/monocot plants.



**Web Based Tools for Invasive Species Management**

# Web Tool Applications

- Invasive Species
- Endangered Species
- Native Plants
- Deer Management
- All resource management

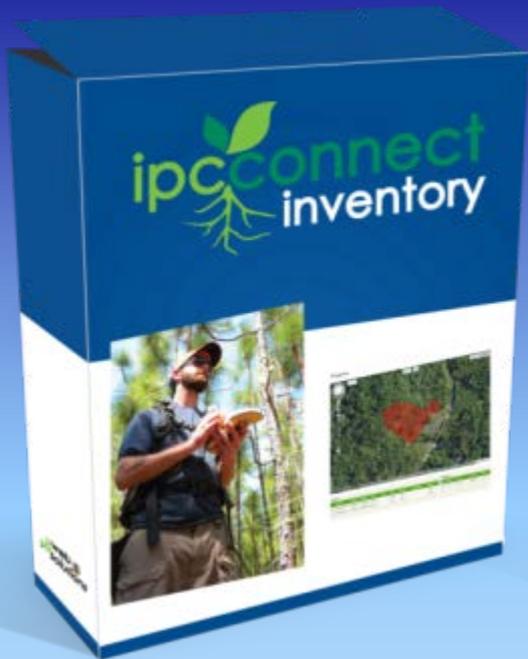


# Smart Phone and Tablet Apps



# IPC's Flagship Online Product





# ipccconnect inventory



web  
solutions

# IPCInventory is customized to suit the needs of the user

- Species lists
- Time stamps
- Photos
- Maps (.kml that can be imported to .shp)
- Individual species points
- Area polygons
- Species population area or of the entire survey area
- Infestation density
- 100% compatible with EDDMapS



# Key Points

- **EDDMapS is a tool that can be used to enhance existing programs**
- **IPCConnect takes it to the next level**
- **It is up and working now, and was built to be easily customizable**



# Key Points

- One important point to remember is that the public needs something as easy as possible, thus integrating regulated pests with non regulatory plants make sense (IveGot1 model)
- However, we must all work together to make this happen and provide feedback to user when they report something



# Key Points

- **Build Partnerships**
- **Make it Easy**
- **Use EDRR as an Educational Tool**
- **Build Rapid Response Infrastructure**
- **Show your Successes**
- **Use the Tools that are Available to You**







**WARNING!**  
THIS AREA  
IS PROTECTED BY  
BUGWOOD NETWORK

**STOP**

**CAUTION**  
NATIVE SPECIES  
ONLY

**STOP**

**NON  
INVASIVE  
AREA**





5421994



# EDD **Maps**

Early Detection & Distribution Mapping System

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