Using Technology to Report Invasive Species in Indiana via EDDMapS and the GLEDN Smartphone/Tablet App

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Background

- University of Georgia
  - BS Agriscience and Environmental Systems
  - MS Crop and Soil Sciences (Weed Science)
- AmeriCorps – Florida State Parks
  - Invasive species mapping and control, Endangered species mapping
- EDDMapS Data Coordinator
  - Manage and format large dataset/database contributions
  - Point-of-contact for individuals, programs, and agencies with data and verification questions
  - Handle complex queries for individuals with specific questions/needs
Center for Invasive Species and Ecosystem Health

- Center for Invasive Species and Ecosystem Health
  - Bugwood Network 1994-2008
  - Renamed Feb 2008

- Began as an image database...

Now:

- Aggregate distribution data (Invasive species, Crop pests, and Biocontrol Agents)
- BugwoodWiki
- Provide web hosting and build tools to make data, images, videos, and information available
- Community of Practice for eXtension
EDDMapS

- Early Detection and Distribution Mapping System
- Web Based Electronic Reporting and Distribution Mapping
  - Invasive species mapping
  - Biological control agent release mapping
  - Plant disease resistance mapping
- Mapping Nationwide, including some Canadian provinces
- Host Websites for Regional Mapping Projects
  - Florida Invasive Species Partnership (IveGot1)
  - EDDMapS West
  - Mid-Atlantic Early Detection Network
EDDMapS Purpose

- Electronic Early Detection Tool
- Aggregate Data
  - Homeowners
  - Trained citizen scientists
  - Federal and State Agencies
  - Herbariums/Academic Institutions
  - Existing regional/topical databases
- Identify Existing Range, Gaps, and Leading Edge in Maps
Data Sharing, Aggregating, and Collaboration

- **Sharing/Aggregating Data**
  - Standardization from the beginning leads to shorter integration times
  - Duplication of effort decreased
  - Increased awareness of species ranges and issues
  - Broader audience to evaluate validity of data

- **Collaborating/Partnerships**
  - Combining resources to achieve shared goals
  - Addressing individual needs - Different programs focus on different goals
EDDMapS Data Recruiting

Contributors
- USDA NRCS Plants Database
- Biota of North America Program
- USFS Forest Inventory Analysis
- Indiana DNR
- SEWISC
- Alaska Natural Heritage Program
- Minnesota Department of Natural Resources
- Perdue University

Statistics
- Records
  - Total – 2,797,469
  - Point – 1,747,615
- Users – 29,397
- Reporters – 8,957

- Mirror of Global Invasive Species Information Network (GISIN)
EDDMapS Tools

- Local and National Distribution Maps
- Identification and Management
- Nationwide Invasive Species Mapping
- Biocontrol Release Maps
Top 15 species within 10 miles of Jim Woodruff L&D-Lake Seminole-Apalachicola Chattahoochee & Flint Rivers

- Japanese climbing fern, Lygodium japonicum
- sacred bamboo, Nandina domestica
- Japanese honeysuckle, Lonicera japonica
- island applesnail, Pomacea maculata
- house sparrow, Passer domesticus
- mimosa, Albizia julibrissin
- coral ardisia, Ardisia crenata
- Chinese privet, Ligustrum sinense
- Chinese tallowtree, Triadica sebifera
- kudzu, Pueraria montana var. lobata
- chinaberry, Melia azedarach
- coco yam, wild taro
- glossy privet, Ligustrum lucidum
- european starling, Sturnus vulgaris
- cogongrass, Imperata cylindrica
Report an Invasive Plant Occurrence

Species

Pest:
Search for a species

Infestation

Status: Positive  Treated

Observation Date (?):
12/08/2015

Infested Area (?):

Habitat (?):
Select one

Abundance:
Select One

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

State: Indiana

County:

Latitude (?): Must be expressed in Decimal Degrees (XX.XXXX), and DATUM NAD83/WGS84.

Longitude (?): Must be expressed in Decimal Degrees (XX.XXXX), and DATUM NAD83/WGS84.

Location Description/Nearest Address:

Ownership:
Select One

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

Private (?): Yes ☐ No ☐
mimosa
Albizia julibrissin Durazz.

USDA PLANTS Symbol: ALJU
Invasive Plant Atlas

States  Counties  Points  GIS

Record ID  3943548
Location  Tift County, Georgia
Source  Rebekah Wallace, University of Georgia
Project  Southeast Early Detection Network
Coordinates  31.4721903, -83.5001856
NADatum  WGS84
Canopy Cover  Select One
Identification Credibility  Verified
Observation Date  August 6, 2014
Date Entered  August 6, 2014
Validator  Karan A. Rawlins
Validation Date  August 11, 2014
Verification Method  Photographs
Coordinate Uncertainty  26 Meters
Date Updated  October 9, 2014
Source Type  Android
My EDDMapS - Rebekah Wallace

User Statistics

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<th></th>
<th>Overall</th>
<th>This Year</th>
<th>This Month</th>
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<td>0</td>
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<tr>
<td>Species</td>
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<tr>
<td>Counties</td>
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Recent Reports

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<th>Subject</th>
<th>Location</th>
<th>Date</th>
<th>Manage</th>
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<td>Tift County, Georgia</td>
<td>Aug-08-2014</td>
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<tr>
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<td>Tift County, Georgia</td>
<td>Jun-13-2012</td>
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<td>giant reed</td>
<td>Tift County, Georgia</td>
<td>Jan-31-2012</td>
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<tr>
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<td>Japanese climbing fern</td>
<td>Tift County, Georgia</td>
<td>Jan-31-2012</td>
<td></td>
</tr>
<tr>
<td>2005206</td>
<td>English ivy</td>
<td>Tift County, Georgia</td>
<td>Jan-17-2012</td>
<td></td>
</tr>
</tbody>
</table>
Thus The Ultimate Invasive Species Reporting Tool Is Always With You
Reporting Tools

- No Smartphone
- Existing Data
- Multiple Data Uses

OR

- Report in the field
- Saves reports when no wireless access
- Regional Apps
- Terrestrial Plants
- Aquatic Plants
- Insects
- Plant Pathogens
- Aquatic Invertebrates
- Fish
- Animals
First Name: 

Last Name: 

Organization: 

Email: 

Password: 

Are you a part of the First Detector Program?  

Register

Username

Password

Sign in

Register with EDDMapS
Agrilus planipennis
Emerald Ash Borer
2015-12-07 4:15 PM

SITE NAME
Choose a site

ATTACH IMAGES
No images

LOCATION
User-drawn polygon

TIME SPENT IN MINUTES
5 10 15 30 45 60

QUANTITY
One Multiple

NOTES
Any additional information

SAVE
DATE & TIME
2015-12-07 4:17 PM

LIST OF SPECIES
Quagga Mussel (Dreissena bugensis)
Zebra Mussels (Dreissena polymorpha)

TIME SPENT IN MINUTES
5 10 15 30 45 60

AREA SURVEYED

OBSERVATION REPORTS
Emerald Ash Borer
2015-12-07 4:15 PM

NEGATIVE REPORTS
Quagga Mussel (Dreissena b...
IveGot1
Breeding population of Burmese Pythons found at Disney’s Animal Kingdom.

OK
Bulk Data Uploader

Batch Name (something you will recognize)

Reporter Name (who should these reports go under)
Rebekah Wallace

Select files
Add files to the upload queue and click the start button.

<table>
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<tr>
<th>Filename</th>
<th>Status</th>
<th>Size</th>
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<tbody>
<tr>
<td>NPN Canada Thistle 2011.xls</td>
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<td>199 kb</td>
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Drag files here.

1 files queued

Upload  clear
“Where are my reports?”

“Why aren’t my records showing up?”
Record Verification - Process

- Record Entered
- Alert Sent to Verifier
- Record Evaluated
  - Sample vs. Images vs. Expertise vs. No Supporting Documentation
  - Contact Reporter for additional information/images
  - Site visit
- Record Status Changed (Identification Credibility)
  - Possible, Credible, Verified, Incorrect, Delete
  - If identification is correct, report is released for public availability
Data Verification – State Verifiers

- Training and Education in Identification of Invasive Species
- Specific to a Location (state or region) and/or Type of Invasive (aquatic plants, aquatic invertebrates, diseases, insects, wildlife, etc.)
- Active in the Invasive Species/Environmental Community
- Time Availability (Volunteer)
EDDMapS – Downloading Data

Options for Data Download
XLS, KML, GPX, and Shapefile

Where to Download Data
Species Maps
Advanced Query Tools
Access/Download Point Data
    XLS and KML only
ReportIN Successes

- Black swallowwort – known from only two sites in Indiana – now reported in two new counties (LaGrange and Elkhart)
- First known infestation of Japanese stiltgrass at McCormick’s Creek SP
- First population of Japanese chaff flower north of the Ohio River counties (Lawrence)
- First population of plumeless thistle in Indiana (Steuben)
EDDMapS for Minnesota DNR - Key Deliverables

- Recording observation data made by DNR field and office
- Recording observation data made by public
- Reviewing, editing, confirming, and rejecting observation data
- Batch processing observations originally recorded in other systems
- Designating basins & water courses
- Reporting certain observation data on public website
- Reporting observation data on internal website
- Deriving standard geographic information for consumption by other systems
- Exposing observation data for consumption by other systems
- Reporting observation and listing data in traditional list and summary reports