

# Georgia Invasives

## Education and Outreach Throughout the State

Karan A. Rawlins, Invasive Species Coordinator



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

WARNELL SCHOOL OF  
FORESTRY AND NATURAL RESOURCES

COLLEGE OF AGRICULTURAL  
AND ENVIRONMENTAL SCIENCES

# Teamwork



# Teamwork

People in wide a variety of specialties  
pull together to make this team work

Co-Director and Professor of Silviculture, Co-Director and Professor of Entomology, Information Technology Director, Integrated Pest Management and Forest Health Coordinator, Invasive Species Coordinator, Outreach and Communications Coordinator, Administrative Assistant, Web and Database Programmer, Web and Publication Specialist, Laboratory Technician/Insect Taxonomy, Digital Image Specialist



# Teamwork

## State Partners

- Georgia Forestry Commission
- Georgia Department of Agriculture
- Georgia Department of Natural Resources


## Federal Partners

- USDA Forest Service
- USDA APHIS PPQ






# Website development for



## INVASIVE SPECIES OF CONCERN IN GEORGIA


DEVELOPED AS PART OF THE GEORGIA COOPERATIVE AGRICULTURAL PEST SURVEY PROGRAM

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cogon grass (*Imperata cylindrica*) - Photo by Mark Atwater, Weed Control Unlimited, Inc.

1 2 3 4 5 6 7 8 9 10 11 12  

### What is an Invasive species?

An invasive species is a non-native species (including seeds, eggs, spores, or other propagules) whose introduction causes or is likely to cause economic harm, environmental harm, or harm to human health. The term "invasive" is used for the most aggressive species. These species grow and reproduce rapidly, causing major disturbance to the areas in which they are present.

### Featured Publications

- Georgia Invasive Plant Management Handbook
- Invasive Insects of Concern to Georgia
- Invasive Plant Responses to Silvicultural Practices in the South
- Invasive Plants of Georgia's Forests
- Cogongrass Web Site
- Georgia Invasive Species Examples
- Invasive Weeds in Georgia
- Aquatic Pests: Introduced from Aquariums and Water Gardens
- Hemlock Woolly Adegid
- Sudden Oak Death Update
- Emerald Ash Borer Wanted Poster
- More Publications

### Invasive Species News


- Ecological Effects of a Major Oil Spill on Panamanian Coastal Marine Communities
- America's Aspen in Decline
- One Third of Honeybees Died
- Periwinkle Combats Citrus Crop Disease
- Exotic Beeble Spreads Deadly Disease to Native Plants
- Lady Bugs to Rescue in the Galapagos
- Keeping Invasives in Check
- Top Ten Invasive Species

# www.gainvasives.org


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# Georgia Invasive Plant Management Handbook

**INVASIVE SPECIES OF CONCERN IN GEORGIA**  
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Species of Concern: Plants | Insects | Pathogens | Mollusks | Fish | Mammals | Birds | Crustaceans | Other Species

## Georgia Invasive Plant Management Handbook

*Developed by the Center for Invasive Species and Ecosystem Health  
The University of Georgia*

**Draft - October 2009**

[Introduction](#)

[Step-By Step Instructions for Reporting an Invasive Plant Sighting in EDDMapS](#)

[Introduction to GPS](#)

[Choosing a GPS Receiver](#)







[Herbarium Specimens](#)

[Digital Imaging](#)

[Field Preparation](#)

[Invasive Plants to Watch for in Georgia](#)

Funding, in part, for this publication is from a grant from the Georgia Forestry Commission and USDA Forest Service as part of the American Recovery & Reinvestment Act



Website developed by the [University of Georgia - Center for Invasive Species and Ecosystem Health](#)  
in cooperation with the [Georgia Dept. of Agriculture](#), [Georgia Forestry Commission](#), [Georgia Dept. of Natural Resources](#),  
[USDA Forest Service](#) and [USDA APHIS PPQ](#).



# Handbook: Introduction

The intent of this training is to empower the public to become actively involved in order to more effectively slow the spread of harmful invasive species and reduce their environmental and economic damage.



# Step-By Step Instructions for Reporting Invasive Plants to EDDMapS

A key component in an invasive species Early Detection & Rapid Response program is the development of species distribution maps. Entering and tracking locations of invasives within and between states can identify the “leading edge” of invasive plants heading our way.



## Invasive Species Mapping Made Easy!



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

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

## Who's Using It?

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

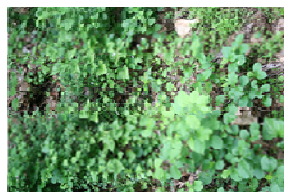
## Statistics

936,011 County Reports  
 236,675 Point Reports  
 1,740 Species / 1,319 Users

## Recent Reports

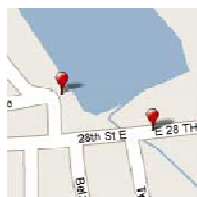
- ✓ ginseng by Robert Curtis in Summit County, Ohio
- ✓ kudzu by Robert Curtis in Summit County, Ohio
- ✓ Himalaya blackberry by Robin Chinburg in Lane County, Oregon
- ✓ Sayula broom by Robin Chinburg in Lane County, Oregon
- ✓ Texas horned lizard by Peter Johnson in Duval County, Florida

## Report Images



garlic mustard - *Alliaria petiolata*  
 Report by Cynthia C. Taylor, Elachee Nature Science Center

## Map It!



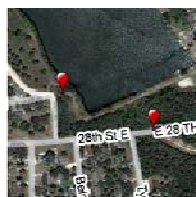
Quickly Enter or Select on a Map the Location of Invasive Species in Your Area.

## Zap It!



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

## Map it Again!



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

## Supporters



The University of Georgia  
**CENTER FOR INVASIVE SPECIES  
 ECOSYSTEM HEALTH**  
Research • Education • Outreach • Conservation

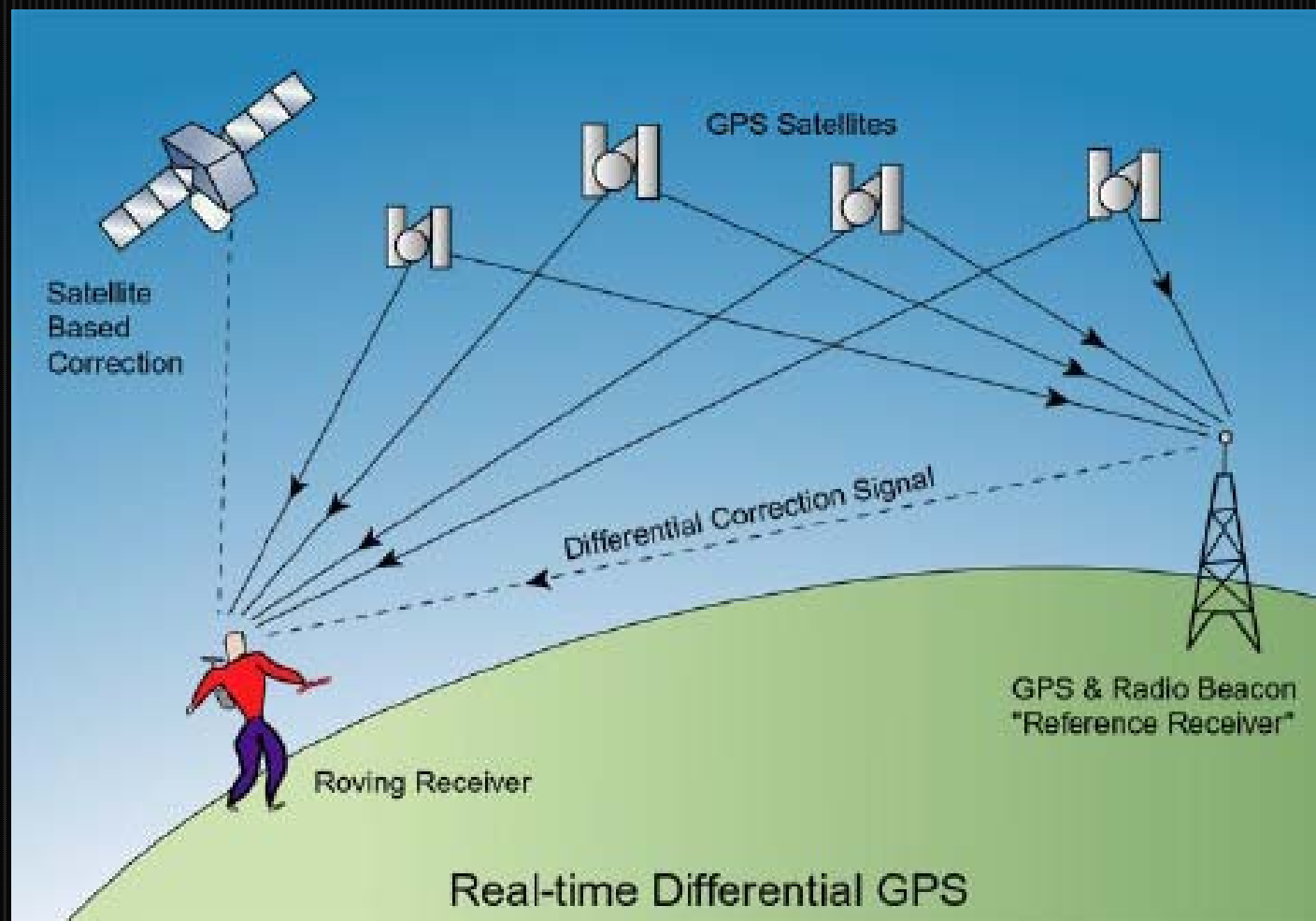
Developed by The University of Georgia - Center for Invasive Species and Ecosystem Health.  
 Last updated on Wednesday, April 07, 2010 at 03:13 PM

# Step-By-Step Instructions for EDDMapS





# Handbook - Introduction to GPS



# Handbook – Choosing a GPS Receiver



# Handbook – Herbarium Specimens

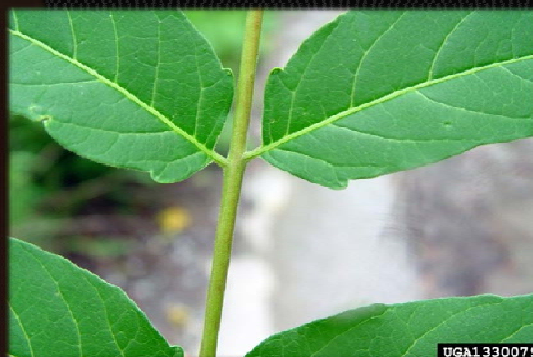
- Plant Collecting Guidelines
- You can make or purchase a plant press
- Mounting Guidelines for Herbarium Sample
- List of Herbaria in Georgia





# Handbook – Digital Imaging

Being able to  
use  
photographs to  
verify the  
species adds  
validity to the  
data collected  
and entered into  
EDDMapS.



# Handbook – Field Preparation

- Good maps



- Let someone know where you will be going

- Check the weather



- First aid kit

- Check your field equipment



- Be aware of your surroundings.





# EDRR–Early Detection & Rapid Response

programs help us  
to monitor plants  
with the potential  
to become  
invasive threats



Clockwise from top center: Chris Evans, River to River CWMA; ibid.; David Moorhead, UGA; ibid.; ibid.; (center) ibid., Bugwood.org





### Invasive and Exotic Species of 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



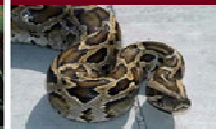
#### Insects



#### Pathogens



#### Other Species



#### NEWS

- [Ecological Effects of a Major Oil Spill on Panamanian Coastal Marine Communities](#)
- [America's Aspen in Decline](#)
- [One Third of Honeybees Died](#)
- [Periwinkle Combats Citrus Crop Disease](#)
- [Georgia Invasive Plant Management Handbook](#)
- [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](#)

#### SUPPORTERS



#### CONTACT US

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...](#)



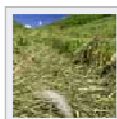
#### Invasive Plant Atlas of the U.S.

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...](#)



#### Invasive Plants of the United States: Identification, Biology and Control

This web site includes 218 invasive plant species in the United States. The focus is to provide identification, ecology, and control information for invasive plants in the United States occurring in aquatic



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

This guide is intended to aid foresters and managers in the southeastern United States in developing



# Image Archives



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Center for Invasive Species and Ecosystem Health

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[Control](#)

[EDRR](#)

[CWMAs/CISMAs](#)

[How to ...](#)

[Global](#)

## Images of Invasive and Exotic Species



**Other Bugwood Image Database System Websites**

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





## Cogongrass *Imperata cylindrica*

Identification Control Distribution Proceedings Publications Images Videos Report Links

### Georgia County Road Crew Training Resources

Cogongrass (*Imperata cylindrica*) is one of the worst invasive plants we have in the South. Infestations of this grass are widespread in Florida, Alabama and Mississippi, but at present, we have relatively few infestations in only 28 Georgia counties. Lessons learned from these other states can help prevent spread in Georgia. In 2008, a Cogongrass Cooperative Weed Management Area was established for Georgia to combat this invasive weed.

State, federal and private agencies are partners in this effort and Georgia is fortunate to have an innovative program through the Georgia Forestry Commission to treat cogongrass infestations at no cost to the landowner. This spring there will be a state-wide effort to educate the public and land managers on cogongrass. A key part of this will be training for county road crews on protocols to ID and reduce spread during their maintenance activities. This link has information and resources for Georgia Extension agents to conduct a short informational training program for their county road crews.

#### Resources

- [Setting Up a Cogongrass Training for Road Crews](#)
- [Narrated Cogongrass Video Presentation](#)
- [Download PowerPoint Presentation](#)
- [Cogongrass Threatening Georgia mini-brochure](#)

#### Contact

For program information and resources, contact:

Dave Moorhead, Ph.D.,  
Professor - Silviculture & Co. Director  
Center for Invasive Species & Ecosystem Health  
Warnell School of Forestry & Natural Resources  
University of Georgia  
P.O. Box 748  
Tifton, GA 31793 USA  
Phone (229)386-3298  
[moorhead@uga.edu](mailto:moorhead@uga.edu)

With Support from:



Developed by the [Center for Invasive Species and Ecosystem Health](#) at the University of Georgia  
Warnell School of Forestry and Natural Resources and College of Agricultural and Environmental Sciences - Dept. of Entomology

## Cogongrass *Imperata cylindrica*

Identification Control Distribution Proceedings Publications Images Videos Report Links

### Cogongrass: Georgia County Road Crew Training



#### Resources

- [Download PowerPoint Presentation](#)
- [Cogongrass Threatening Georgia mini-brochure](#)
- [Cogongrass: The Perfect Weed Video](#)
- [Cogongrass in Alabama Video](#)

#### Other Cogongrass Videos

- [Cogongrass ID in Florida](#)
- [South Carolina Cogongrass Satellite Training Program](#)

Developed by the [Center for Invasive Species and Ecosystem Health](#) at the University of Georgia  
Warnell School of Forestry and Natural Resources and College of Agricultural and Environmental Sciences - Dept. of Entomology



# Posters

## '6 Most UnWanted'

Posters were sent all across Georgia to:

- State Parks
- County Extension Offices
- Forestry Commission Offices





## Current Threats



hemlock woolly adelgid  
*Adelges tsugae*<sup>4, 20</sup>

250,000 acres of hemlock in CA.  
Provide shade and soil stabilization  
for trout streams (4000 miles in GA)  
100,000 – 100,000 fisherman  
Kills trees in 2 to 4 years  
\$9 million for research & s.p. procession  
in eastern U.S. to date



gypsy moth  
*Lymantria dispar*<sup>5, 26</sup>

Attacks most hardwood trees  
Causes widespread defoliation and reduces  
aesthetic, recreational, and wildlife values.  
Recreation (hiking, fishing, camping,  
bird watching, etc.) is \$1.7 Billion annually in GA.  
\$75,000 annually for defoliation surveys in GA.  
10,000 acres treated in GA over last 15 years



boll weevil

*Anthonomus grandis*<sup>6</sup>

First observed in 1915, eradicated 1991  
Decreased cotton yields from 2.8 mill on bales  
annually to 112,000 bales annually  
Eradication cost was \$26.3 million in GA.  
Continues to cost \$2.4 million annually in GA.



tropical spiderwort

*Commelina benghalensis*<sup>1, 8, 9</sup>

Invasive to Roundup  
80% of GA cotton is Roundup-ready  
competes for water and nutrients  
ends mother the crops (cotton and peanuts)  
70 – 40% yield reduction in cotton  
40% yield reduction in peanut  
195,000 acres in GA infested in 35 no infest  
\$1.2 million extra herbicide cost annually in cotton



cogon grass

*Imperata cylindrica*<sup>10, 11</sup>

Has infested nearly 1 million acres in the Southeast U.S.  
26 known localities in GA, mostly due to plantations  
Dense, hot and ready to burn, wildfire safety hazard  
Spread via cultivated equipment and road work  
Forestry is a \$20.2 billion/year industry in GA.

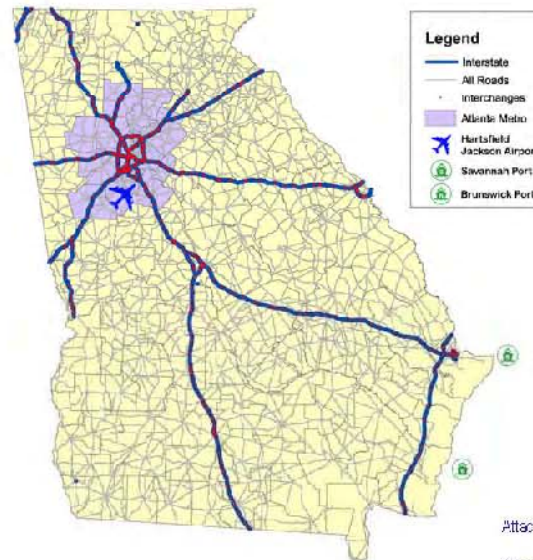


sudden oak death

*Phytophthora ramorum*<sup>12, 13</sup>

9.8 mill on areas of oak forests in CA, 15.6% of GA trees  
Valued at \$33 billion for timber, wildlife, tourism & urban forests  
Introduced by nursery trade – a \$1.31 bill only year industry  
Currently positive only in some nursery plants in GA  
Alternate hosts include – camellia, rhododendron, azalea & viburnum  
Could devastate GA oaks if spreads to forests

## Examples of Georgia's Invasive Species of Concern



## Pathways

1244 miles of interstate highways<sup>1</sup>

18.3 million tons of cargo handled  
annually through Georgia Ports<sup>2</sup>

767,897 metric tons of cargo handled  
annually through Hartsfield-Jackson Airport<sup>3</sup>

## Potential Threats

Asian longhorned beetle  
*Anoplophora glabripennis*<sup>14</sup>

Introduced in New York & Chicago  
Destroyed 10,000 trees,  
spent \$180 million to eradicate  
Could kill 1/3 of urban trees nationwide  
a non-renewable resource of \$300 billion



sirex woodwasp  
*Sirex noctilio*<sup>15, 16</sup>

80% mortality of pines in Australia  
Killed 1.75 million trees in one year  
Slash and Loblolly pine both susceptible



garlic mustard  
*Alliaria petiolata*<sup>17</sup>

Domestic hardwood understorey  
Destroys desired regeneration  
Displaces native vegetation and  
wildlife forages



giant salvinia  
*Salvinia molesta*<sup>18</sup>

Introduced as an ornamental garden plant  
Produces thick mats that obstruct aquatic food chain  
Interferes with recreation, hydroelectric production,  
drinking water supplies, irrigation and aquaculture



old world bollworm  
*Helicoverpa armigera*<sup>19</sup>

Attacks cotton, peanuts, tobacco, bermudagrass and pines  
Reduced cotton yields 50-90% annually in China  
Consumed half of foliage off 60% of pines in New Zealand  
Developed resistance to insecticides  
Introduction would restrict international trade



## References

- 1 - <http://www.gainvasives.org/ncyclopedia/article.jsp?id=2425>
- 2 - <http://www.gaports.com/>
- 3 - <http://www.hartsfield-jackson.com/airports/about-us/who-we-are/2007/2007-2008-2009>
- 4 - <http://www.gainvasives.org/ncyclopedia/article.jsp?id=2425>
- 5 - <http://www.gainvasives.org/ncyclopedia/article.jsp?id=2425>
- 6 - <http://www.gainvasives.org/ncyclopedia/article.jsp?id=2425>
- 7 - <http://www.gainvasives.org/ncyclopedia/article.jsp?id=2425>
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# Poster Cogongrass

One of the  
World's Worst  
Weeds Invades  
Georgia's Forests

## COGONGRASS

*Imperata cylindrica*

ONE OF THE WORLD'S WORST  
WEEDS INVADERS GEORGIA'S FORESTS

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

### Identification



### Spread

Cogongrass was accidentally introduced to the U.S. at Mobile, Alabama, in 1911 as packing material in shipping crates. It was also planted in Alabama, Florida, and Mississippi in the 1920s as a forage grass and for erosion control. However, it has no value as livestock feed and is too invasive for erosion control. Conservative estimates are 500,000 to 1,000,000 infested acres in Alabama, Mississippi and Florida. In Georgia, scattered infestations were first found in the southern part of the state.

Cogongrass is a Federal Noxious Weed, which prohibits its importation and interstate movement. Cogongrass spreads both by seeds and by rhizomes. A single plant can produce thousands of seeds each year. The small, fluffy seeds can be dispersed up to 15 miles by wind. Animals, equipment, vehicles, contaminated seed and hay, and people also spread cogongrass. The rhizomes can be spread in contaminated fill dirt and equipment that hasn't been thoroughly cleaned. Several of the infestations found in Georgia were the due to the transport of plant material by nurseries or the planting of contaminated equipment from Florida. People taking their land to business from Florida, Alabama or Mississippi or hiring workers from these areas should insure that equipment is clean before allowing them on their property.

#### Cogongrass invades:

- roadside
- rights-of-way
- forests
- pine plantations
- ditches
- pastures
- hedgerows
- orchards
- wetlands

It tolerates deep shade and full sunlight. Once established, cogongrass can spread rapidly, forming thick mats that exclude all other vegetation and reduce wildlife habitat. It is also extremely flammable, creating hazardous wildfire and prescribed burn conditions.

### Control

#### What to do to help prevent cogongrass from invading your land:

- Learn what cogongrass looks like and promptly report any suspected infestation to your Georgia Forestry Commission Forester or Cooperative Extension Service Agent. Make sure all equipment brought in from adjacent states has been thoroughly cleaned BEFORE it is transported to your land.
- Inspect all areas of your land that has had equipment on it.
- Steer clear of cogongrass from adjacent states or areas of Georgia with known infestations, if possible for a growing season and inspect it before spreading to your land.

#### What to do if you think you have cogongrass on your land:

- Contact your local Georgia Forestry Commission Forester or Cooperative Extension Service Agent as soon as possible.
- Control now through mowing or burning. If it is flowering, as this may aid in dispersing the seeds.
- Do not do any soil work, such as digging or grading, in or near the area that has cogongrass. You could carry fragments of roots to other areas, spreading the noxious weed.
- Do not attempt any prescribed burns to areas with cogongrass before consulting with GFC personnel.
- Be sure to thoroughly clean any soil equipment that has been used in or near the infestation site.
- Initiate an aggressive control program with herbicide treatments in the spring to prevent flowering and fall treatments to begin eradication.
- Continue to monitor your land after treatment for new infestations.



Prepared by Chris Evans, David Moorhead, Chuck Bargeron and Keith Douce, The University of Georgia - Bugwood Network, February 2006 for the Georgia Forestry Commission in cooperation with the USDA Forest Service, USDA APHIS PPQ, Georgia Dept. of Agriculture, Georgia Dept. of Natural Resources and the Georgia Exotic Pest Plant Council. All images from [www.invasive.org](http://www.invasive.org).

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





The University  
of Georgia

Bugwood Network

BW-2006-03

December 2006

## Invasive Plant Responses to Silvicultural Practices in the South

C.  
G.

46



Invas

Tree c

Paulov

Tallow

Autun

Privet

Orient

Japane

Japane

Cogon

Nepal

Garlic

Exotic

Japane

A 0.2%

B 1%

C 2%

D 3-5%



Invasive Species	Response to Disturbance			
	High Light	Soil Disturbance	Fire	Re-sprout/ re-grow
Tree of Heaven	Promoted	Promoted	Negligible	Yes
Paulownia	Promoted	Promoted	Promoted	Yes
Tallow tree	Promoted	Promoted	Discouraged	Yes
Autumn Olive	Promoted	Promoted	Promoted	Yes
Privet	Promoted	Promoted	Negligible	Yes
Oriental Bittersweet	Negligible	Promoted	Negligible	Yes
Japanese Honeysuckle	Promoted	Promoted	Negligible	Yes
Japanese Climbing Fern	Negligible	Promoted	Promoted	Yes
Cogongrass	Promoted	Promoted	Promoted	Yes
Nepalese Broomtop	Promoted	Promoted	Discouraged	No
Garlic Mustard	Discouraged	Promoted	Discouraged	No
Exotic Lespedeza	Promoted	Promoted	Promoted	Yes
Japanese Knotweed	Promoted	Promoted	Negligible	Yes

Invasive Species	Seed Dispersal			
	Wind	Water	Bird	Soil contaminate
Tree of Heaven	Yes	No	No	No
Paulownia	Yes	No	No	No
Tallow tree	No	Yes	Yes	No
Autumn Olive	No	No	Yes	No
Privet	No	Yes	Yes	No
Oriental Bittersweet	No	Yes	Yes	No
Japanese Honeysuckle	No	No	Yes	No
Japanese Climbing Fern	Yes	Yes	No	Yes
Cogongrass	Yes	No	No	Yes
Nepalese Broomtop	No	Yes	No	Yes
Garlic Mustard	No	Yes	No	Yes
Exotic Lespedeza	No	No	Yes	Yes
Japanese Knotweed	Yes	Yes	No	No

# Silvicultural Responses Handbook

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Figure 8 - Re-  
dissemination  
responses

Invasive Species	Growth Habits				
	Form	Shade tolerant	Flood tolerant	Drought tolerant	Habitat
Tree of Heaven	Tree	Yes	Yes	Yes	Disturbed areas
Paulownia	Tree	No	Yes	Yes	Disturbed areas
Tallow tree	Tree	Yes	Yes	No	Varied
Autumn Olive	Shrub/tree	Somewhat	No	Yes	Open
Privet	Shrub/tree	Yes	Yes	No	Forests
Oriental Bittersweet	Vine	Yes	No	No	Open woods / Disturbed Areas
Japanese Honeysuckle	Vine	Yes	Yes	Yes	Varied
Japanese Climbing Fern	Vine	Yes	Yes	No	Varied
Cogongrass	Grass	Yes	No	Yes	Varied
Nepalese Broomtop	Grass	Yes	Yes	No	Moist forests
Garlic Mustard	Herbaceous	Yes	Yes	No	Forests
Exotic Lespedeza	Semi-woody shrub	No	No	Yes	Open woods / Grasslands
Japanese Knotweed	Semi-woody shrub	No	Yes	Somewhat	Open

Invasive Species	Prescribed Fire		
	Control option	Hazard	Post-fire
Tree of Heaven	No	No	Rapid re-growth
Paulownia	No	No	Colonizes quickly
Tallow tree	Yes	No	Re-growth possible
Autumn Olive	No	No	Colonizes quickly
Privet	Yes	No	Rapid re-growth
Oriental Bittersweet	No	No	Re-growth possible
Japanese Honeysuckle	No	No	Rapid re-growth
Japanese Climbing Fern	No	Yes	Rapid re-growth
Cogongrass	No	Yes	Stimulates flowering
Nepalese Broomtop	No	No	Establishes on bare soil
Garlic Mustard	Yes	No	Seed bank survival
Exotic Lespedeza	No	No	Scalifies seeds, high rates of germination
Japanese Knotweed	Not Available	No	Not Available







## GEORGIA INVASIVE SPECIES TASK FORCE

A cooperative approach, to help minimize the impacts of invasive species to Georgia's agricultural and natural resources, between:

Georgia Forestry Commission

The University of Georgia

- Bugwood Network, College of Agricultural and Environmental Sciences, Warnell School of Forestry and Natural Resources

USDA Forest Service

Georgia Department of Agriculture

USDA APHIS Plant Protection and Quarantine



Developed for the Georgia Forestry Commission by C.W. Evans, C. T. Barger, D.J. Moorhead and G. K. Douce, The Bugwood Network, The University of Georgia, March 2006. BW-2006-02.

Images in this publication are available online at [www.invasive.org](http://www.invasive.org)



To get involved and learn more about invasive exotic plants in Georgia, please join the Georgia Exotic Pest Plant Council at [www.gaeppc.org](http://www.gaeppc.org)

### References

Nonnative Invasive Plants of Southern Forests: A Field Guide for Identification and Control James H. Miller. 2003. USDA Forest Service, Southern Research Station

Georgia's Best Management Practices for Forestry

<http://www.gfc.state.ga.us/ForestManagement/documents/GeorgiaForestryBMPManual.pdf>

Southeast Exotic Pest Plant Council Invasive Plant Manual

<http://www.invasive.org/eastern/eppc/index.html>

Invasive Plants of the Eastern United States: Identification and Control

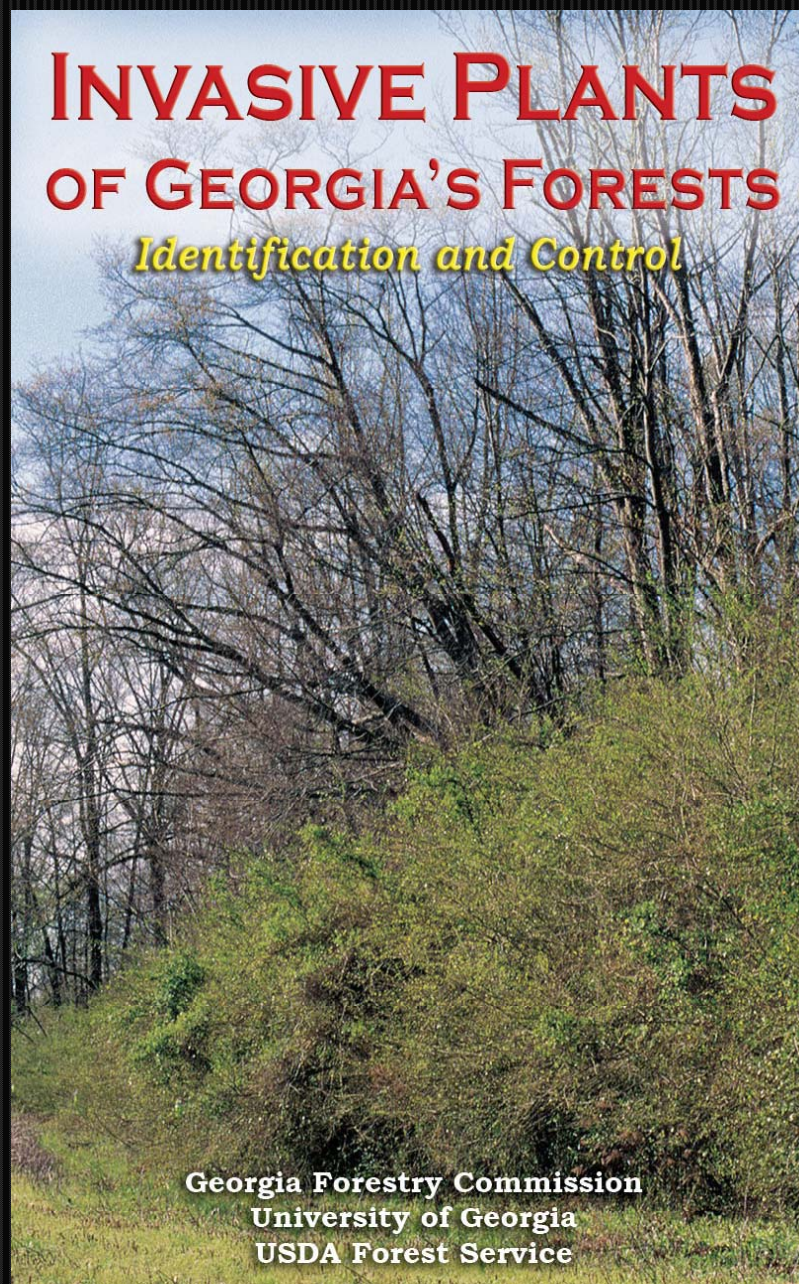
<http://www.invasive.org/eastern/>

**Follow all label instructions with any herbicide application.  
Mention of any specific herbicide does not represent endorsement  
by the Georgia Invasive Species Task Force.**

**[www.georgiainvasives.org](http://www.georgiainvasives.org)**

# INVASIVE PLANTS OF GEORGIA'S FORESTS

## *Identification and Control*



Georgia Forestry Commission  
University of Georgia  
USDA Forest Service





#### Key Identification Features of Cogongrass

##### Flower/Seed head

- Cylindrical in shape
- 2-8 inches in length (total flower or seed head)
- Silvery white in color
- Light fluffy dandelion-like seeds
- Blooms from late March to mid June (flower timing depends somewhat on local climate)



##### Leaves

- Blades up to 6 feet long
- About 1 inch wide
- Whitish, prominent midrib, that is often off center
- Margins finely serrate
- Some leaves are very erect, but some may droop or lie flat
- Often light yellowish-green in color
- Could have a reddish cast in fall/winter or brown after frost or freeze



#### Key Identification Features of Cogongrass

##### Plant Base

- No apparent stem
- Leaves appear to arise directly from or close to the ground
- Overlapping sheaths give a rounded appearance to the plant base
- All vegetation doesn't arise from one dense clump, instead the plants are more spread out
- Light green to yellowish in color, or could be reddish
- Often a lot of thatch around base



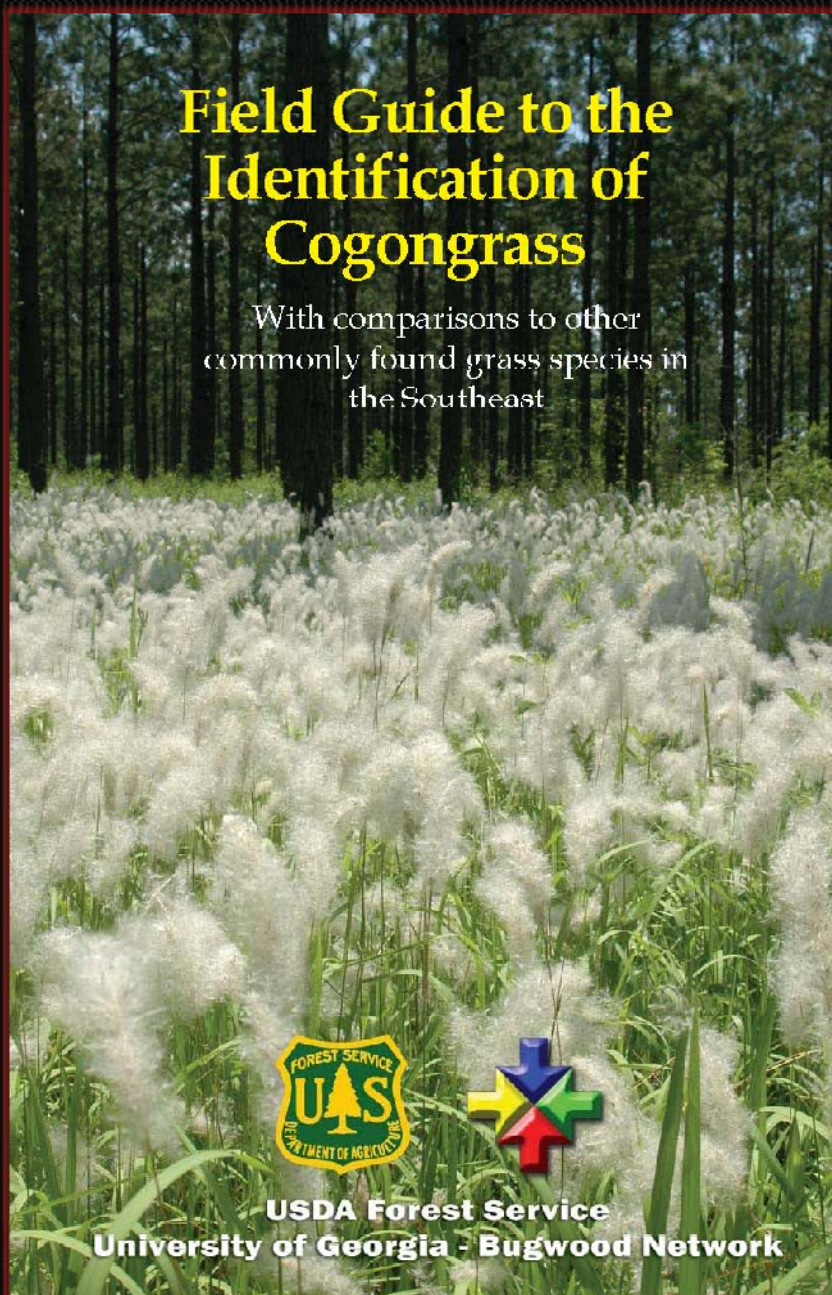
##### Leaf collar/Ligule

- Ligule is a thin fringed membrane
- Leaf sheaths overlapping, giving the plant a round appearance
- Hairy (the ligule is the most hairy part of the plant, the plant base may also be somewhat hairy)



# Field Guide to the Identification of Cogongrass

With comparisons to other commonly found grass species in the Southeast



#### Key Identification Features of Cogongrass

##### Rhizome/Roots

- Dense mat
- Many sharp points
- Covered in flaky scales
- Bright white under scales
- Strongly segmented



Rhizomes with scales removed (top) and intact (bottom)



##### Whole Plant

- Densely growing patches
- Tall grass (up to six feet, averaging 3-4 feet)
- Circular infestations
- Plants often turn brown in winter (at least partially, but may depend on local climate)



#### Cogongrass Infestation Identification



Forest - Flowering



Forest - Non-flowering



Forest - Dormant Season



Utility Rights-of-way





# Cogongrass Mini-Flyer

## To Report a Suspected Infestation

Call 1-800-GA-TREES,  
E-mail [bugwood@uga.edu](mailto:bugwood@uga.edu) or  
Online at [www.cogongrass.org](http://www.cogongrass.org)

## Information Needed:

Site Location (City & County, Nearest Road,  
Mile Marker, GPS coordinates):

Approximate Size of Infestation:

Is it in flower?

Your Contact Information:



Prepared by David Moorhead, Chuck Bergeron,  
James Johnson and Mark McClure - May 2007  
Photos by M. Atwater, C. Bergeron & C. Evans, [Invasive.org](http://Invasive.org)

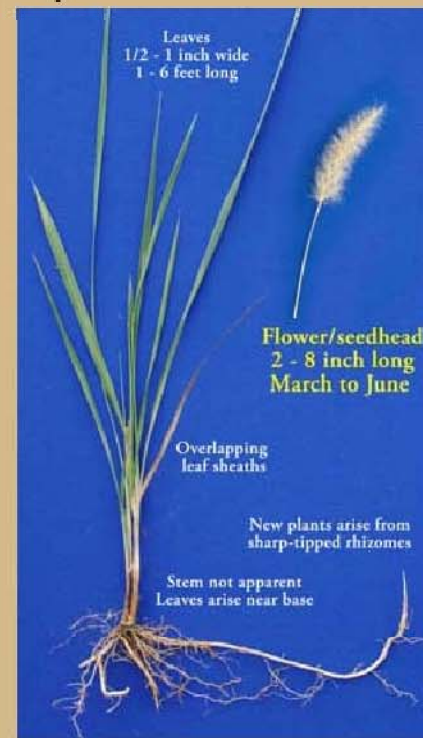
## Cogongrass Threatening Georgia

Use this guide to identify  
and report suspected  
infestations.

Report Cogongrass to  
1-800-GA-TREES

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

## Key Identification Features:



Circular Infestation



Dense Root Mats



Roots with scales intact (top) removed (bottom)

On 3 X 5 inch card stock and folds to business card size





# Chinese Tallowtree Mini-Flyer

Report Chinese  
Tallowtree to  
[www.gainvasives.org](http://www.gainvasives.org)

Information Needed:  
Site Location  
(City/County, GPS Coordinates)  
Size of Infestation  
Photos of the Plants

Powered by  
**EDD MapS**

Early Detection & Distribution Mapping System  
[www.eddmaps.org](http://www.eddmaps.org)  
at the Center for Invasive Species & Ecosystem Health

Prepared by Erin Griffin, Karan Rawlins, Chuck Bargerion & David Moorthead  
Photos by Karan Rawlins, UGA & Jim Miller, USFS April 2010

**Chinese  
Tallowtree**  
*Triadica sebifera*

Use this guide to identify  
and report suspected  
infestations



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



C. Evans, Bugwood.org

Leaf



J. H. Miller, Bugwood.org

Fruit/Seeds



C. Evans, Bugwood.org

Popcorn like appearance



C. Evans, Bugwood.org

Infestation



T. Bodner, Bugwood.org



J. H. Miller, Bugwood.org

Seasonal Changes





# Japanese Climbing Fern Mini-Flyer

Report Japanese  
Climbing Fern to  
[www.gainvasives.org](http://www.gainvasives.org)

## Information Needed:

Site Location  
(City/County, GPS Coordinates)

Size of Infestation

Photos of the Plant

Powered by

**EDD MapS**

Early Detection & Distribution Mapping System  
[www.eddmaps.org](http://www.eddmaps.org)  
at the Center for Invasive Species & Ecosystem Health

Prepared by Erin Griffin, Karan Rawlins, Chuck Bangeron & David Moorhead  
Photos by Chris Evans, River to River CWMA & Ronald F. Billings, Texas Forest Service  
April 2010 BW2010-11

## Japanese Climbing Fern *Lygodium japonicum*

Use this guide to identify  
and report suspected  
infestations



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



C. Evans, Bugwood.org

Spore Producing Leaflets  
(spores are airborne)



J. H. Miller, Bugwood.org

Infestation



R. Old, Bugwood.org

Leaflet



C. Bangeron, Bugwood.org



C. Bangeron, Bugwood.org

Creates Fire Ladders



# Coming Soon!

- Best Management Practices for Invasive Species in Georgia - a folding brochure which opens to poster size
- Grades K through 12 - Educational materials development





# Coming Soon!

- Organization of Cooperative Invasive Species Management Areas in Georgia
- Cogongrass Video and other Online Invasive Species educational videos
- Educational Power Points



# Invasive Species in Georgia

The Problem, the Solution, and  
What You Can Do to Help



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

WARNELL SCHOOL OF  
FORESTRY AND NATURAL RESOURCES

COLLEGE OF AGRICULTURAL  
AND ENVIRONMENTAL SCIENCES

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