Geosystems Research Institute

THE INVASIVE PLANT ATLAS OF THE MIDSOUTH PROJECT

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What is an Invasive Plant?

- A plant that is outside of its native range that causes ecological, aesthetic, or economic harm
- Invasive plants may increase fire intensity and frequency, reduce wildlife habitat quality, or reduce the harvest yield or quality of crops, pasture, timber, and other resources


Waterhyacinth


Cogongrass


Kudzu

Invasive Plant Atlas of the MidSouth (IPAMS)

- Train volunteers to identify forty common invasive weeds
- Enter data into a regional database, which is connected to a national data effort
- Utilize this and other data to predict the locations of these invasive weeds in the landscape
- Focus is the MidSouth states of AL, AR, LA, MS, and TN

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IPAMS' Three Components

- Extension and Outreach
- Research
- IPAMS Web Portal

Extension and Outreach

- Develop training programs for volunteers to identify forty invasive species and report them using the IPAMS database,
- Using citizen scientists, professional resource managers, agency personnel, remote sensing, herbarium records and other databases,
- Develop best management practices information and publications,
- Conduct workshops for production agriculture, natural resource managers, and the public.

Species Selection

- Species selected from six habitats:
  - Row crop
  - Pasture
  - Rights of way
  - Managed forests
  - Wildlands
  - Aquatic
- Balanced species that are common, sparse, rare, and not yet in region

Scientific Name	Common Name(s)	Primary Habitat
Commelina benghalensis L.	Benghal dayflower (tropical spiderwort)	Row Crop
Crotalaria spectabilis Roth	showy rattlebox	Row Crop
Digitaria ciliaris (Retz.) Koel.	Southern Crabgrass	Row Crop
Digitaria sanquinalis (L.) Scop.	Large Crabgrass	Row Crop
Galinsoga quadriradiata Cav.	shaggy-soldier (hairy galinsoga)	Row Crop
Sorghum halepense (L.) Pers.	Johnsongrass	Row Crop
Xanthium spinosum L.	spiny cocklebur	Row Crop
Carduus nutans L.	nodding plumeless thistle (musk thistle)	Pasture
Imperata cylindrica (L.) Beauv.	cogongrass	Pasture
Rosa multiflora Thunb. Ex Murr.	multiflora rose	Pasture
Solanum viarum Dunal	tropical soda apple	Pasture
Sporobolus indicus (L.) R.	smut grass	Pasture

Alliaria petiolata (Bieb.) Cavara & Grande	garlic mustard	Managed Forests
Elaeagnus pungens Thunb.	thorny olive	Managed Forests
Hedera helix L.	English ivy	Managed Forests
Lonicera maackii (Rupr.) Herder	Amur honeysuckle	Managed Forests
Lygodium japonicum (Thunb. ex Murr.) Sw.	Japanese climbing fern	Managed Forests
Mimosa pigra L.	black mimosa	Managed Forests
Nandina domestica Thunb.	sacred bamboo	Managed Forests
Pueraria (Lour.) Merr.	kudzu	Managed Forests
Wisteria sinensis (Sims) DC.	Chinese wisteria	Managed Forests
Ailanthus altissima (P. Mill.) Swingle	tree of heaven	Rights of Way
Albizia julibrissin Durazz.	silktree (mimosa)	Rights of Way
Ligustrum japonicum Thunb.	Japanese privet	Rights of Way
Ligustrum sinense Lour.	Chinese privet	Rights of Way
Rottboellia cochinchinensis (Lour.) W.D. Clayton	itchgrass	Rights of Way
Triadica sebifera (L.) Small	Chinese tallowtree	Rights of Way

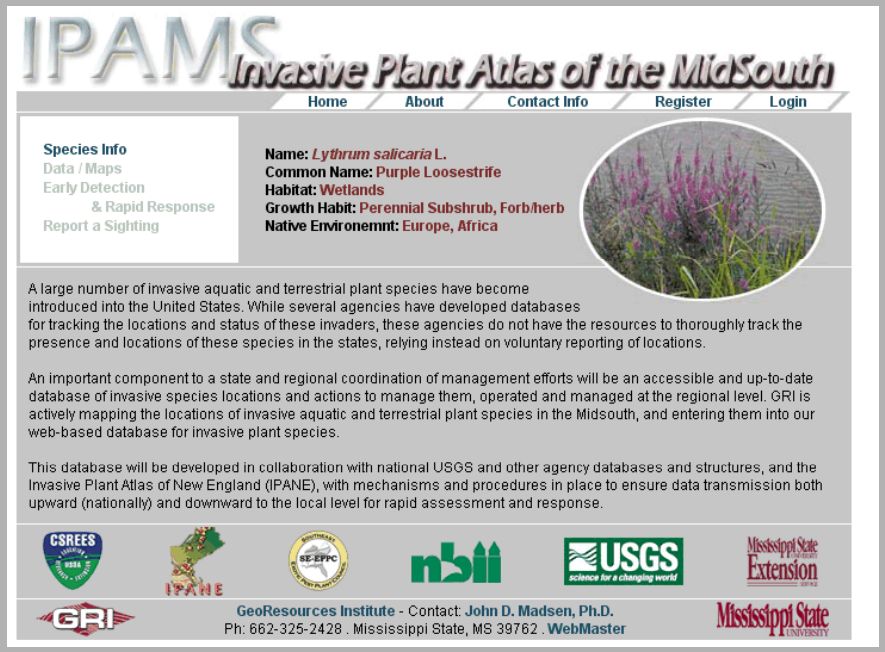
Arundo donax L.	giant reed	Wildland
Cayratia japonica (Thunb.) Gagnepain	bushkiller	Wildland
Lonicera japonica Thunb.	Japanese honeysuckle	Wildland
Microstegium vimineum (Trin.) A. Camus	Nepalese browntop (stiltgrass)	Wildland
Vitex rotundifolia L. f.	roundleaf chastetree (beach vitex)	Wildland
Alternanthera philoxeroides (Mart.) Griseb.	alligatorweed	Aquatic
Eichhornia crassipes (Mart.) Solms	common water hyacinth	Aquatic
Hydrilla verticillata L.f. Royle	waterthyme (hydrilla)	Aquatic
Myriophyllum aquaticum (Vell.) Verdc.	parrotfeather	Aquatic
Lythrum salicaria L.	purple loosestrife	Aquatic
Myriophyllum spicatum L.	spike watermilfoil (Eurasian watermilfoil)	Aquatic
Rotala rotundifolia (Buch.-Ham. ex Roxb.) Koehne	roundleaf toothcup	Aquatic
Salvinia molesta Mitchell	kariba-weed (giant salvinia)	Aquatic

Volunteer Training

- 250 Volunteers trained in 2008
  - Master Gardener Training
  - Mississippi Homemaker (Environmental Program)
  - Landscape Symposium
  - MSU Extension Service InService Training
- 70 trained in 2009 through IPAMS workshop
- Planning for ten workshops in 2010

IPAMS Web Portal

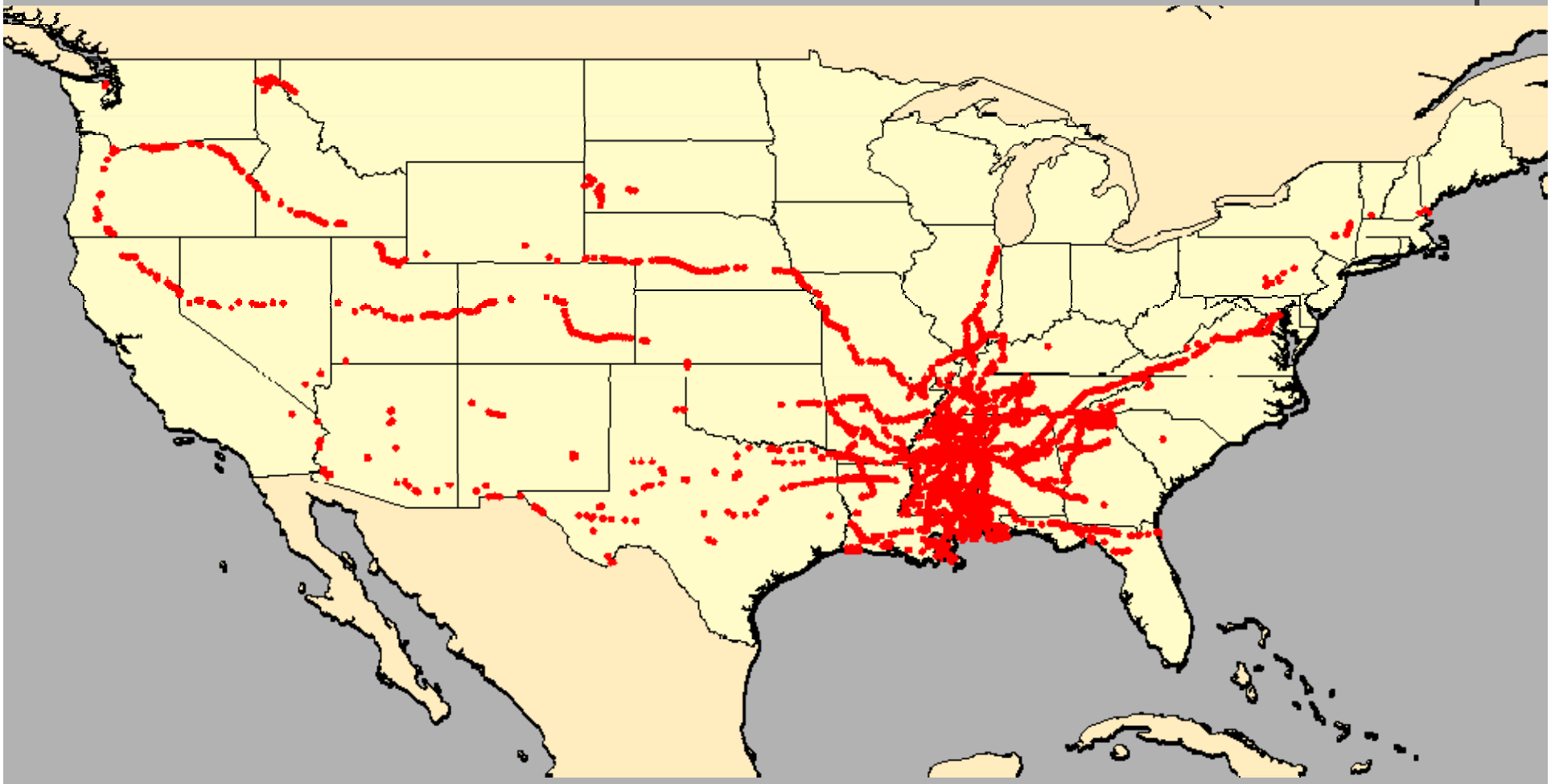
- Web portal at http://www.gri.msstate.edu/IPAMS
- ArcIMS server to provide map of points
- Data exchanges with NBII ISIN, NBII SAIN, NIISS-GISIN, USGS NAS and NAPIS as appropriate



IPAMS System

- "Fact Sheets" on the forty common weeds
- Data and map interface allowing configurable downloads
- Open registration
- User can submit and edit their surveys
- Survey information is based on the NAWMA standard
- Surveys validated by expert
- Checks in place to identify duplicate surveys
- Checks in place to identify bad coordinates
- User will be able to sign up for action alerts

Location Maps



Recent distribution of locations mapped in IPAMS database

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Species description page has a variable aspect map for that species

Plans are to include a more direct map access

Will also have publications, including species fact sheets with management options

Cogongrass Flowering on a Right-of-Way in the Mississippi Delta

Dispersal
Cogongrass is typically wind dispersed, but may also be carried by vehicles or other moving objects. Since seed are wind dispersed, wind from vehicles traveling on highways may aid dispersal. Viable vegetative parts of the plant, such as rhizomes, may be carried in soil on equipment as well.

Spread By
Cogongrass is typically spread by wind, including storm events, and vehicles and equipment.

Habitat

In the MidSouth and other southern states, cogongrass usually occurs in non-cultivated sites, including pastures, orchards, fallow fields, forests, parks, and natural areas, and highway, electrical utility, pipeline, and railroad rights-of-way. Soil type preference is primarily sandy soils with low nutrient levels, although cogongrass will inhabit more fertile sites.

Distribution

United States
Currently, cogongrass occurs as a weed in Alabama, Florida, Georgia, Louisiana, Mississippi, Oregon, South Carolina, Texas, and Virginia, and it continues to spread. Several thousand acres are infested with cogongrass in the southeastern United States, and more than 1.2 billion acres worldwide.

MidSouth
In the MidSouth it occurs in Alabama, Louisiana, and Mississippi with the highest concentrations along the Coastal Plain.

IPAMS Surveys:

Control Methods

Biological
No biological controls are currently in widespread use in the United States.

Chemical
Currently, there is no single treatment that effectively eliminates cogongrass infestations. Roundup Ultra or Roundup Pro at 5 quarts per acre or as a 1.5 % solution will suppress cogongrass. Repeated applications each year for several years are needed for control. Applications of Arsenal at 16 ounces per acre can be used in certain areas, and has provided excellent control up to one year after application. Because Arsenal and Roundup are nonselective herbicides, applications may damage nearby desirable vegetation. Since Arsenal remains in the soil for long periods, its effectiveness on cogongrass and other plants may continue up to a year after application.

Current locations in database

- 9120 records
- 136 plant species
- 35 US States
- Registered users in MS, GA, TN, and NJ
- And, because of one man, we have a huge backlog of data

Victor Maddox, The Botanizer

Our Team

- John Madsen, MSU, Extension Leader and Aquatic Weeds
- Gary Ervin, MSU, Research Leader
- Clifton Abbott, MSU, Webmaster
- John Byrd, MSU, Extension and Terrestrial Weeds
- Victor Maddox, MSU, Field Botanist, Identification, Verification, and Training
- Leslie Mehrhoff, Univ. Conn. and IPANE, Program Consultant
- Randy Westbrooks, USGS, EDRR

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