

Cogongrass

(*Imperata cylindrica* [L.] P. Beauv.)



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UNCW - EVS

COGONGRASS - ID

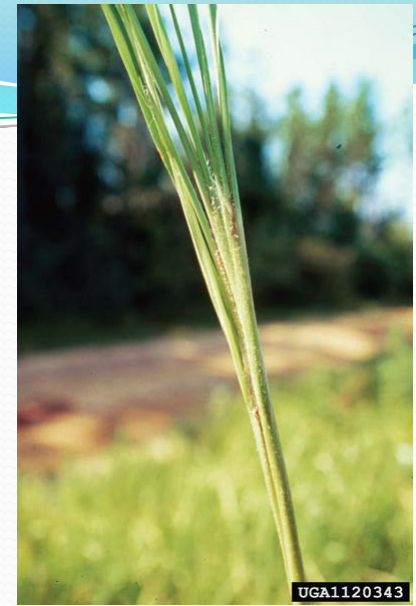
- **Flower/Seed head**
 - Cylindrical in shape
 - 2-8 inches in length (total flower or seed head)
 - Silvery white in color
 - Light fluffy dandelion-like seeds
 - Blooms from late March to mid-June
(flower timing depends somewhat on local climate)



- **Blades up to 6 feet long**
 - About 1 inch wide
 - Whitish, prominent midrib, that is often off center
 - Margins finely serrate
 - Often light yellowish-green in color
 - Could have a reddish cast in fall/
winter or brown after frost or freeze



- No apparent stem
- Leaves appear to arise directly from or close to the ground
- Overlapping sheaths give a rounded appearance to the plant base



Rhizome/Roots



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



● Cultivar: 'Red Baron'

The 'Red Baron' cultivar of *I. cylindrica* has bright, showy, blood-red leaf edges. It is frequently sold across the U.S. in plant nurseries and is widely available over the Internet for ornamental use. It is often described as being non-invasive, although published proof of this claim is lacking.



Similar Grasses



Vasey Grass

Flower/seed head not fluffy, but
loosely branched and spreading



Broomsedge

Flower/seed head is thin and sparsely flowered, blooms late summer



Johnson Grass

Flower/seed head not-fluffy loosely branched/spreading

History



- Native to southeast Asia
- 1912 - appeared in Grand Bay, AL as an escape from Asian crate packing
- 1921 - planted in MS as potential forage
- 1930/40s - introduced in FL for forage/soil stabilization, but later placed on the noxious weed list



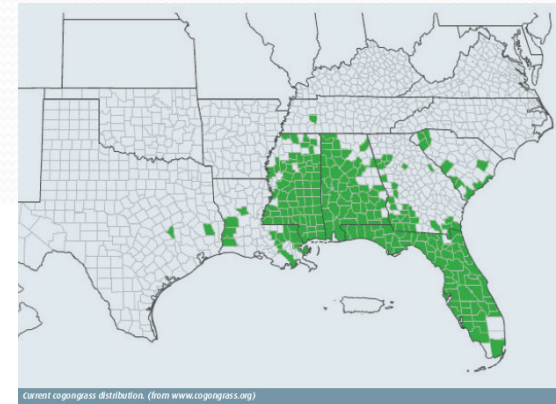
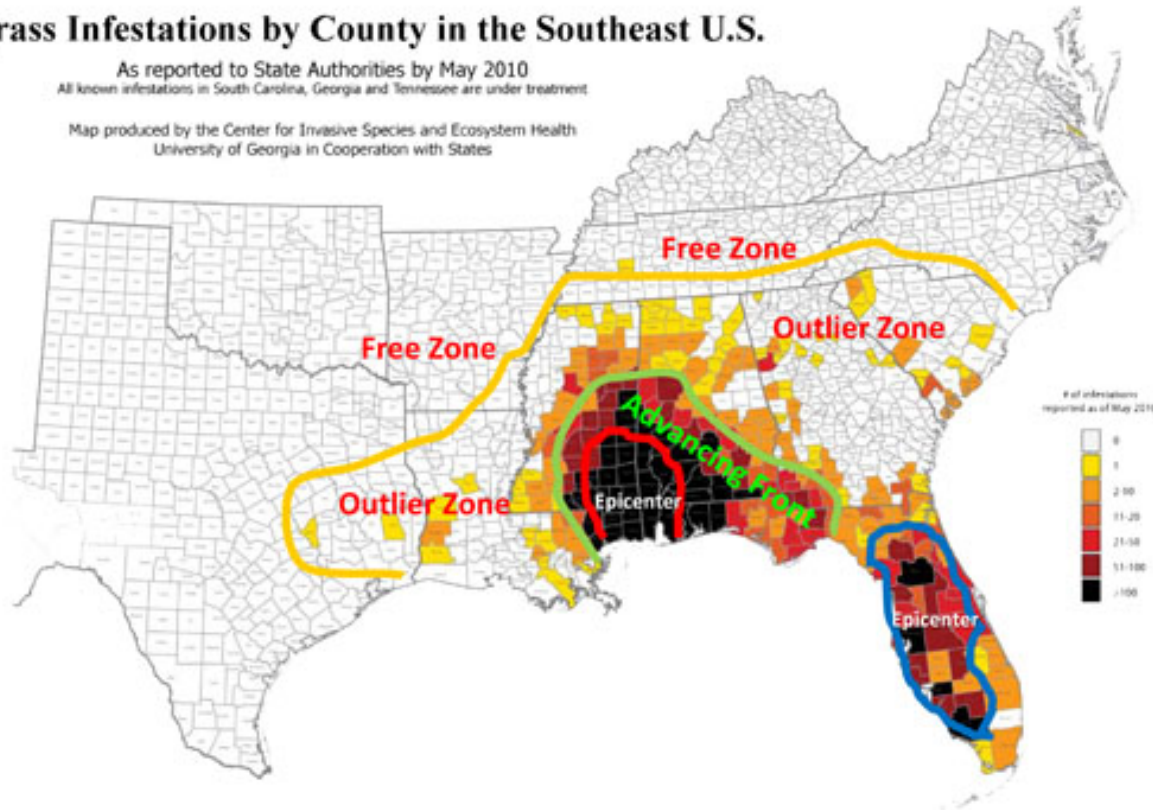
Recent Distribution

Cogongrass Infestations by County in the Southeast U.S.

As reported to State Authorities by May 2010

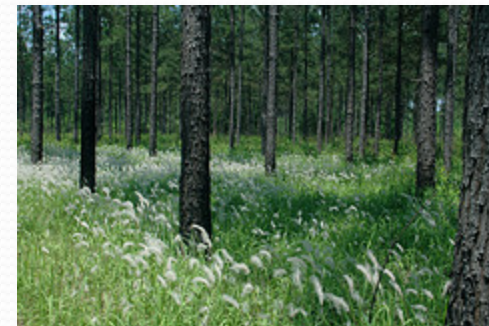
All known infestations in South Carolina, Georgia and Tennessee are under treatment

Map produced by the Center for Invasive Species and Ecosystem Health
University of Georgia in Cooperation with States



Problems

- aggressive, rhizomatous, perennial grass
- thrives on fine sand to heavy clay and does well on soils of low fertility (even strip-mined areas)
- invades fields, pine savannas, and other open canopy habitats to the exclusion of a native understory species
- No known biological control



Control Techniques

- To eliminate cogongrass, the rhizomes must be destroyed to avoid regrowth
- so-called soil sterilants such as prometon (**Pramitol**), tebuthiuron (**Spike**), and imazapyr (**Arsenal**) will give excellent control; however, areas treated with these materials will be free of any vegetation for 6 months to a year
- Glyphosate (**Roundup**, etc.) applied at 3-4 qt/A will substantially reduce cogongrass stands but multiple applications are needed (also non-specific herbicide)





- an integrated approach that combines burning, tillage (mechanical disturbance), and chemical applications provide the best solution for cogon grass management
- Once good control of cogon grass has been achieved, it is essential to introduce desirable vegetation as quickly as possible to prevent re-infestation.

Are there any species out there that could outcompete cogongrass?

Daneshgar, P. and Jose, S. 2009. Role of species identity in plant invasions. Experimental test using *Imperata cylindrica*. Biological Invasions 11:1431-1440



Gallberry (*Ilex glabra*)



Broomsedge (*Andropogon virginicus*)



Wiregrass (*Aristida stricta*)



Partridge Pea (*Chamaecrista fasciculata*)



Treatments

Treatment	Functional group(s)	Richness
1. Control		0
2. <i>A. stricta</i> monoculture	Grass	1
3. <i>A. viriginicus</i> monoculture	Grass	1
4. <i>I. glabra</i> monoculture	Shrub	1
5. <i>C. fasciculata</i> monoculture	Forb	1
6. <i>P. graminifolia</i> monoculture	Forb	1
7. Grass mix - <i>A. stricta</i> and <i>A. viriginicus</i>	Grasses	2
8. Forbs mix - <i>C. fasciculata</i> and <i>P. graminifolia</i>	Forbs	2
9. 3-Species <i>A. stricta</i> , <i>I. glabra</i> , and <i>C. fasciculata</i>	Grass, Shrub, Forb	3
10. 5-Species <i>A. stricta</i> , <i>A. viriginicus</i> , <i>I. glabra</i> , <i>C. fasciculata</i> , and <i>P. graminifolia</i>	Grass, Shrub, Forb	5

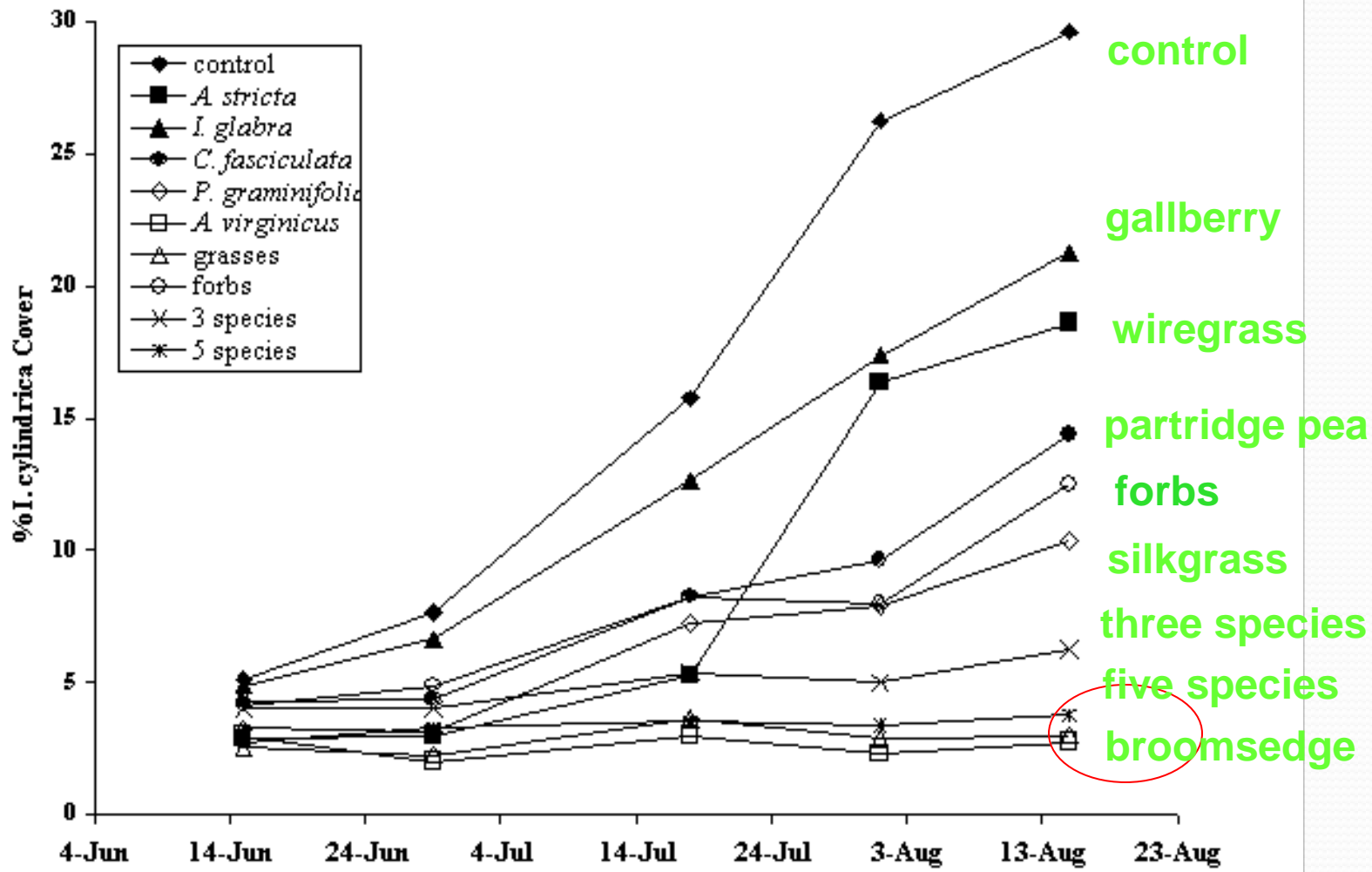
Cogongrass Introduction and Measurements

Mesocosm communities were established and allowed to grow for one year

Cogongrass was introduced as a single seedling in the center of the mesocosm in April

Allowed to grow until mid-August; % cover estimated biweekly; above and belowground biomass harvested and weighed





How does *A. virginicus* resist the invasion by cogongrass?

Percent root mass at different soil depths by species

Species	In monoculture			With competition		
	0-20 cm	20-40 cm	40-60 cm	0-20 cm	20-40 cm	40-60 cm
<i>A. stricta</i>	87.5	12.5	0	98	2	0
<i>I. glabra</i>	59.5	28.75	11.75	100	0	0
<i>C. fasciculata</i>	98.25	1.75	0	100	0	0
<i>P. graminifolia</i>	91	9	0	100	0	0
<i>A. virginicus</i>	77.5	17	5.5	75	19	6
<i>I. cylindrica</i>	75	24	1	95	4	1



How can we restore infested longleaf pine stands?



- **Depends on the degree of infestation –**
 - Young or sparse infestations - chemical control
 - Well-established dense infestations –
 - * First line of attack - mechanical, including fire depending on stand conditions
 - * Then chemical control
 - * Ultimately re-vegetation with species or species mixes that outcompete cogon grass