

**UF IFAS Extension**  
UNIVERSITY of FLORIDA

## Grasses Gone Bad! Emerging Invasive Grasses

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Extension Botanist  
University of Florida Herbarium  
12 March 2024

**FM FLORIDA MUSEUM**

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## What is a Herbarium?

➤ A systematically arranged collection of dried plant specimens



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## The University of Florida Herbarium



- The oldest, largest, and most comprehensive botanical collection in the state
- Documents the diversity of Florida's native, cultivated, and introduced/established plants over time
- Used for education, research, and agricultural extension

A pitcher plant collected in 1892 by Peter H. Rolf, founder of the Herbarium and director of the Florida Agricultural Experiment Station from 1906 to 1921

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### The UF Herbarium Collection

- Approximately 500,000 specimens
  - Fungi
  - Mosses, liverworts, algae, and lichens
  - Ferns, conifers, and flowering plants
  - Wood and seeds
  - Library
- Includes specimens from every continent (but geographic focus is circum-Caribbean)
- Specimens dating back to early 1840s
- Constantly growing
  - 3500-6500 new specimens added annually




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### Grass Identification is Tough!

- The grass family (Poaceae) is one of the largest flowering plant families in Florida (~460 species)
- Many of the characters needed for confident ID are **microscopic** or measurements of the spikelets
- Fertile physical samples are essential (photos rarely sufficient)
- It's often impossible to provide a confident species ID on sterile grasses (even with physical samples)




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### What Do We Mean by Invasive?

- A nonnative species, introduced intentionally or unintentionally, that is
  - expanding in the wild
  - displacing native species
  - altering the ecology of natural communities
  - causing economic losses
  - harming human health




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### Characteristics of Invasive Plants

- Tolerate a variety of habitats/growing conditions
- Grow and reproduce rapidly
- Compete aggressively for resources (space, light, water, and nutrients)
- Lack natural enemies to keep them under control
- Often first observed on disturbed sites (roadsides, fields, groves, yards) and then disperse into less disturbed, natural areas

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### Common and Widespread Invasive Grasses in Florida

- cogongrass (*Imperata cylindrica*)
- torpedograss (*Panicum repens*)
- rose Natalgrass (*Melinis repens*)



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### Australian Beardgrass *Bothriochloa bladonii*



➤UF/IFAS Assessment of Non-Native Species in Florida's Natural Areas:  
**High invasion risk**



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### Australian Beardgrass recognition

- Perennial with short, hard rhizomes, thrives in dry, low fertility soils
- Leaves aromatic
- Stem nodes pubescent
- Panicles in autumn, reddish at maturity, with 7-18 branches, each branch shorter than axis
- Spikelets usually pitted, upper ones with awns that are twisted and bent



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### Brunswickgrass *Paspalum nicorae* (aka *Paspalum leptum*)

- Not yet evaluated by the UF/IFAS Assessment of Non-Native Species in Florida's Natural Areas
- Not currently listed by the Florida Invasive Species Council

See Blount et al. 2022 Brunswickgrass (*Paspalum nicorae*): A Weed Contaminant in Southern Pastures and Bahiagrass Seed Production Fields. UF/IFAS Extension publication SS-AGR-405  
<https://edis.ifas.ufl.edu/publication/AG408>



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### Brunswickgrass recognition

- Perennial with elongated, often branching, rhizomes that are deep and aggressive
- Leaf sheaths usually pubescent and long, stiff hairs along upper margin
- Panicles usually with 3-5 branches with winged rachises
- Spikelets finely pubescent, dark brown with tan edges



Photos by D. Sharp, Queensland Herbarium

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### West Indian Marshgrass *Hymenachne amplexicaulis*



- UF/IFAS Assessment of Non-Native Species in Florida's Natural Areas: **Invasive**
- Florida Invasive Species Council: **Category I Invasive**



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### West Indian marshgrass recognition

- Perennial typically found on wet sites but can move into dry areas
- Stems pencil-thick, with a white pith, flopping over, and rooting at nodes
- Leaf bases auriculate (eared) and clasping the stems
- Inflorescence long, dense, and spike-like, green in color







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### Paragrass *Urochloa mutica* (aka *Brachiaria mutica*)

- UF/IFAS Assessment of Non-native Species in Florida's Natural Areas: **Invasive**
- Florida Invasive Species Council: **Category I Invasive**





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### Paragrass recognition

- Sprawling perennial 1-3' tall, spreading by stolons, forming dense mats in waterlogged, disturbed soils
- Stem nodes and leaf sheaths pubescent
- Leaf bases truncate and leaf margins rough to the touch
- Panicles with 8-20 branches
- Spikelets green to purple, elliptic



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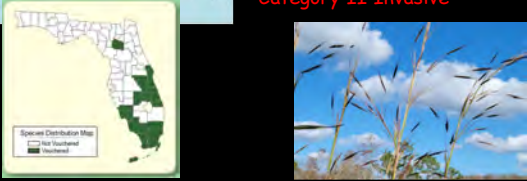
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### Jaragua, giant thatching grass *Hyparrhenia rufa*



- UF/IFAS Assessment of Non-native Species in Florida's Natural Areas: **High invasion risk**
- Florida Invasive Species Council: **Category II Invasive**



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### Jaragua recognition

- Erect, densely tufted perennial to 9' tall with short rhizomes, particularly aggressive after burning
- Yellow to reddish inflorescences consisting of paired racemes subtended by a sheath
- Upper spikelets red pubescent with long, twisted and bent awns



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## Managing Invasive Grasses

Brent Sellers  
UF-IFAS Range Cattle Research & Education Center  
Ona, FL

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Control of Perennial Grasses

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- Two products of choice:
  - Glyphosate
    - Terrestrial (Roundup, etc.) vs. Aquatic (Rodeo, etc.)
    - 4 to 7-1/2 pints/acre
    - Retreatment necessary when plants partially submerged
  - Imazapyr
    - Terrestrial (Arsenal, etc.) vs. Aquatic (Habitat, etc.)
    - 2 to 4 pints/acre
    - Retreatment necessary depending on the species

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Jaragua

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- Glyphosate
  - 2-3% v/v
  - 2% recommended in Australia



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## Para grass



- 6 pint/acre glyphosate
  - Best if applied to lush growth; may require burning and treating new regrowth
  - Will have to retreat escapes
- 2 to 4 pint/acre imazapyr
  - Use higher rate for long-established stands
  - Expect quicker recovery of native species when water standing

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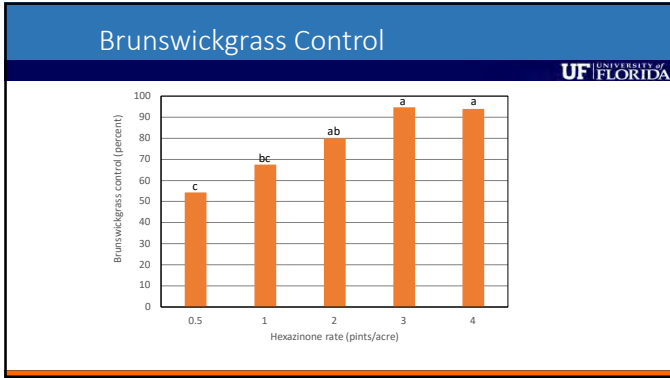
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- ### West Indian marsh grass
- 7 pint/acre glyphosate
    - Para grass tended to invade our research plots
  - 4 to 6 pint/acre imazapyr
    - No para grass within 1 yr of treatment
    - Native species quick to reestablish if water present at application
  - Water depth at application not an issue with either herbicide

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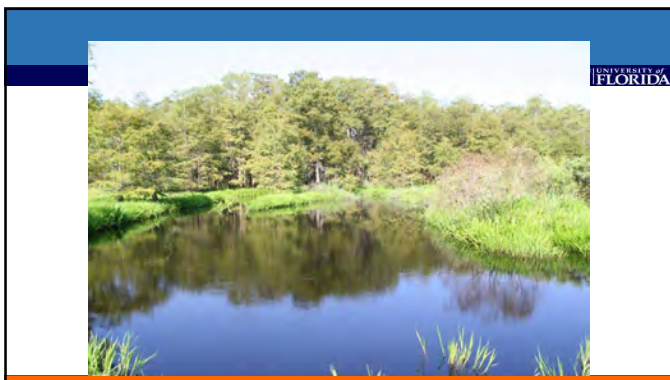
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Australian beardgrass

Chase County – 2014 Rate Study (0-1 lb/acre Imazapyr) (% cover 1 year after treatment)					
Category	0	0.25	0.5	0.75	1
Old World Bluestem	30	10	8	13	4
Warm-season grass	19	30	41	30	35
Cool-season grass	1	5	4	2	2
Forbs	21	16	18	22	20
Bare ground	14	21	18	30	28
Litter	3	3	2	2	2



Walter Fick, KSU, <https://www.northeast.k-state.edu/crops-soils/documents/Walt%20Fick%20AgentUpdate17.pdf>

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## Conclusions



- Prevention is key
- Scout for regrowth
- Retreatment VERY likely

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## Questions?



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## Upcoming Events



Join us for our next Ona Highlight!

'An Update on Biosolids Research'

Tuesday, April 9, 11:00 – 11:45 a.m.

with Dr. Maria Silveira a Soil and Water Specialist at the UF/IFAS Range Cattle REC, Ona.

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The image shows a large blue sign with white text that reads "UNIVERSITY OF FLORIDA UF/IFAS Range Cattle Research and Education Center". The sign is flanked by two brick pillars and is set against a background of palm trees and a clear blue sky.

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**QUESTIONS?**



The image shows a close-up of a plant stem with several yellow flowers. The stem is curved in a way that forms a question mark shape against a clear blue sky.

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