

Guineagrass (*Urochloa maxima*) Control

Lessons Learned in small and large disturbed areas over 15 years

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My history with Guineagrass

2003-10 The Nature Conservancy (8 years)

Two main areas were treated.

One was higher priority—embedded in a natural area

The other was low priority—on a fenceline between preserve residences and a subdivision off property that has continual source of seed, it was treated enough to prevent spread to natural areas and roadsides.

Embedded in a natural area:

Old windmill site, patch size was 40 feet by 8 feet.

Treated it intensively the first two years—10 times the first year, 7 times the second year

Treated it less intensively the third through fifth year—about 3-5 times per year

It was extirpated for two years before I left.

My history with Guineagrass

2010-2013 Florida Fish and Wildlife Conservation Commission (3 years)

Edges of habitat types, embedded in disturbed, semi-intact natural areas, and improved/semi-improved pasture tree driplines

Did not work on these long enough to succeed at eradication on any projects

Learned the value of imazapyr versus frequent glyphosate treatment at an early growth stage

Witnessed my first observation of a former grove that became completely dominated by guineagrass

My history with Guineagrass

2013-2014 Private contractors working on lands in Lake County, FL

Treated guineagrass on the Lake Louisa Mitigation Bank, lands managed by the Lake County Water Authority and Lake County Parks and Trails

Learned about large-scale treatments, phenology of treatments, completeness of treatments and how to detect suppressed plants in shade of hardwoods as well as juvenile and seedling plants; also witnessed geometric population expansion on the Ferndale Preserve following Rx fire over one growing season

My history with Guineagrass

2014-present Florida Park Service (4 years)

Lake Louisa, Faver-Dykes, Wekiva Basin, Colt Creek State Parks

Experience reinforced:

1. the positive interactions of guineagrass with fire;
2. the potential dominance of guineagrass in old field successions following abandonment of orange groves, removal of bahiagrass but not guineagrass, pulling cattle off pasture in upland (sandhill and scrub) soils that have scattered oaks;
3. Heightened risks when cutting firebreaks without pre-treatment for guineagrass as a vector;
4. and witnessing guineagrass treated with less intensity than required and abandoning the inadequate treatment prematurely

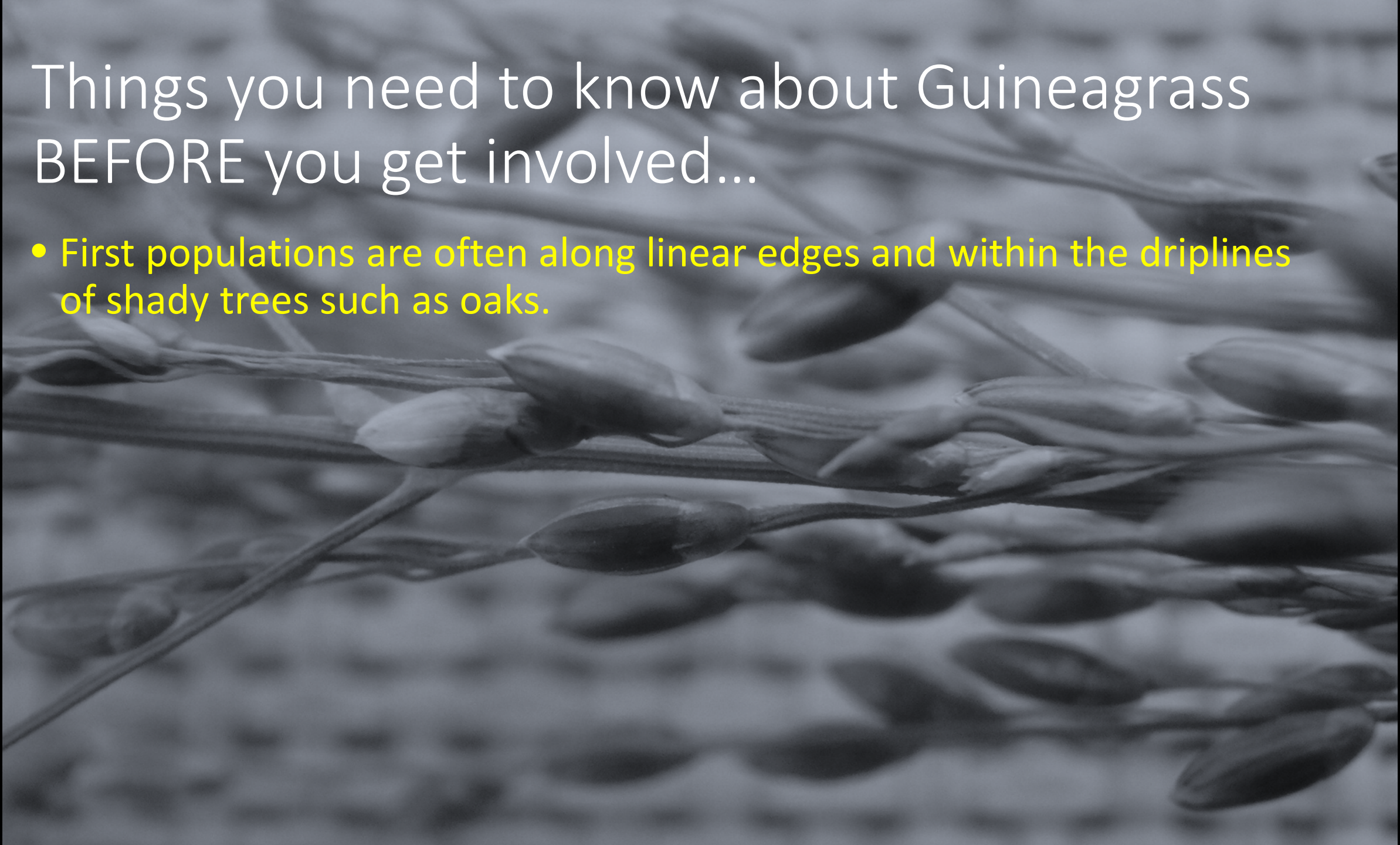
And of course, my garden, organic, supplemented with mushroom compost, which is currently a 20x20 patch of guineagrass that invaded across a church wall into my yard.

Things you need to know about Guineagrass BEFORE you get involved...

- Find parents and children. Get to know all life-stages so you don't miss any during treatments.
- There are at least 2 varieties—
 1. long, wide leaves mistakable for Johnsongrass
 2. short, narrow leaves and lots of leaves and node-branching. Both grow 4-7 feet tall, or more, and can intermingle.
- This grass node-roots readily when it flops to the ground. This is one of the characteristics of the genus *Urochloa*.
- Maximum growth is from June 15 through September 1, when rainfall and temperatures are both highest. Growth of 6 inches in a day is not preposterous in some stands at certain stages in development.
- Each panicle can produce hundreds of seeds, seeds are highly viable and are spread by songbirds and mammals.

Things you need to know about Guineagrass BEFORE you get involved...

- First populations are often along linear edges and within the driplines of shady trees such as oaks.



Infestation stage 1
--scattered, isolated
strips and spots of
guineagrass at edges
of habitat type
changes and along
trails



Things you need to know about Guineagrass BEFORE you get involved...

- Second population movement is into spaces between first populations via trails, hog rooting and shrub, palmetto and pokeweed thickets.

Infestation stage 2

-- spaces between first populations via trails, hog rooting and shrub, palmetto and pokeweed thickets



Things you need to know about Guineagrass BEFORE you get involved...

- Once you reach the third stage of spread, populations begin to dominate old-fields/groves, and floodplains with annual flood scour.

Infestation stage 3

-- populations begin to dominate old-fields/groves, and floodplains with annual flood scour



Treatment methods for guineagrass

- As low as 1.5% glyphosate can be used to kill individual plants with perfect coverage. Use 2% of a 41% + surfactant formulation if you don't think you will have perfect coverage. If you have good funding or resources, 3% gives a quicker kill, but not a more thorough kill.
- 0.5% imazapyr works great if you have no concerns about pine mortality or hardwood disfigurement—oak, red maple, magnolia can all be damaged by different amounts per acre. Pines will not recover. I have witnessed hardwood recovery after 1-3 years following disfigurement, with a percentage of hardwood death included at higher rates.
- I just discussed 0.25-0.50% imazapic added to glyphosate with FWC-IPM and learned this is used by some to suppress seedling recruitment. I have no direct experience with this, except to say that it doesn't take much imazapic to kill pines, especially after other stresses have weakened them.

Timing treatments for cost-effective control

- The first treatment should be in the first half of June, just before maximum growth sets in, OR about the time half the new grass panicles are no longer sheathing, ***whichever is first***.
- The second treatment should be in early July or 3-5 weeks following the first treatment, if there is a lot of maturing or missed patches.
- Third treatment will be August and will depend on what is left following July treatment.
- Yes, ***this species is a bear***—perennial, lots of seed, creates a fire-friendly fuels environment that is conducive to its own successful population increase, and a dominating force as a groundcover once established.

Things you need to know about Guineagrass BEFORE you get involved...

- Treatment after August 20 are usually too late to prevent re-seeding a next-generation into treatment patches, so you will start over next year.
- Seed rain from last year will germinate from the first warm day in February throughout the summer months—personal experience in my garden proves that seedling recruitment is ongoing and persistent all year until cold weather. Seedling density can be as many as 1,000 plants per square meter, probably more in some cases.

When to treat guineagrass

Best timing is when terminal spike is leaving the sheath, before flowers open fully and before panicle expands



Best timing
Early emergence, flowers not developed



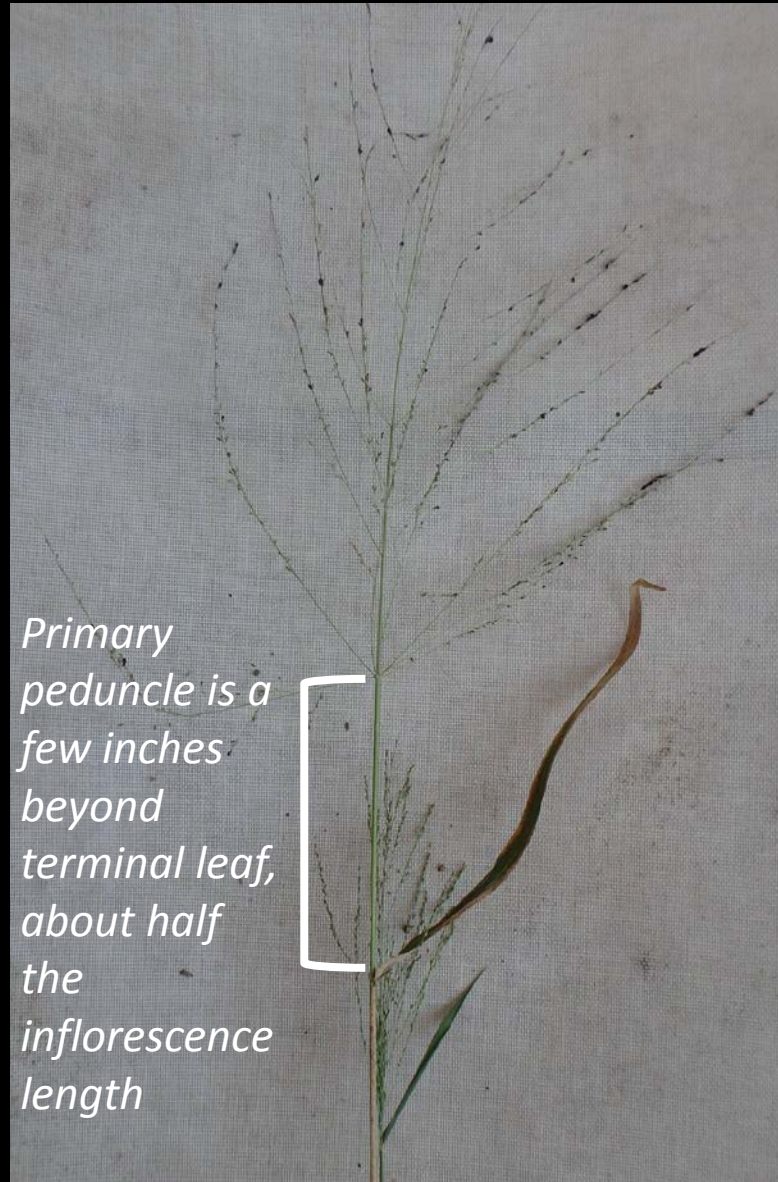
Middle emergence, flowers developing,
Second best timing for treatments



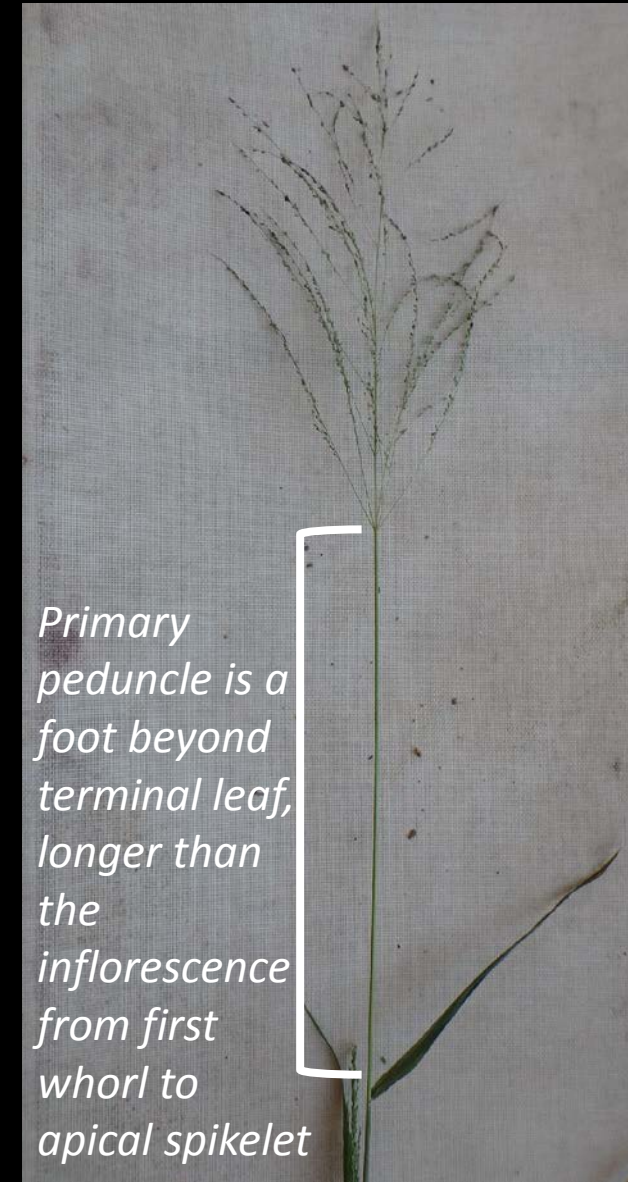
Too late for optimal treatment?

...but it has to be done...

Expect lots of seedling recruitment for at least a year



Too late, late flowering stage, seeds are developing



WAY too late, the seeds are dropping, expect hardship

Smut on spikelets can reduce potential seed formation
*Could someone develop this as a biocontrol:
sprayable smut inoculant to slow down invasion?*



Guineagrass—Good news...

- It does die from herbicide treatments.
- Catch it early in establishment and early in its annual growth for best results
- Small populations can be dug up or hand pulled when young
- I know of project areas that were successful to permanent eradication up to 15 years post-final-treatment
- There are several methods of treatment that work so your tools are flexible
- It doesn't like intact natural areas