Replacing Torpedograss With Native Species in Shallow Herbaceous Wetlands

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Project overview—Baseline conditions

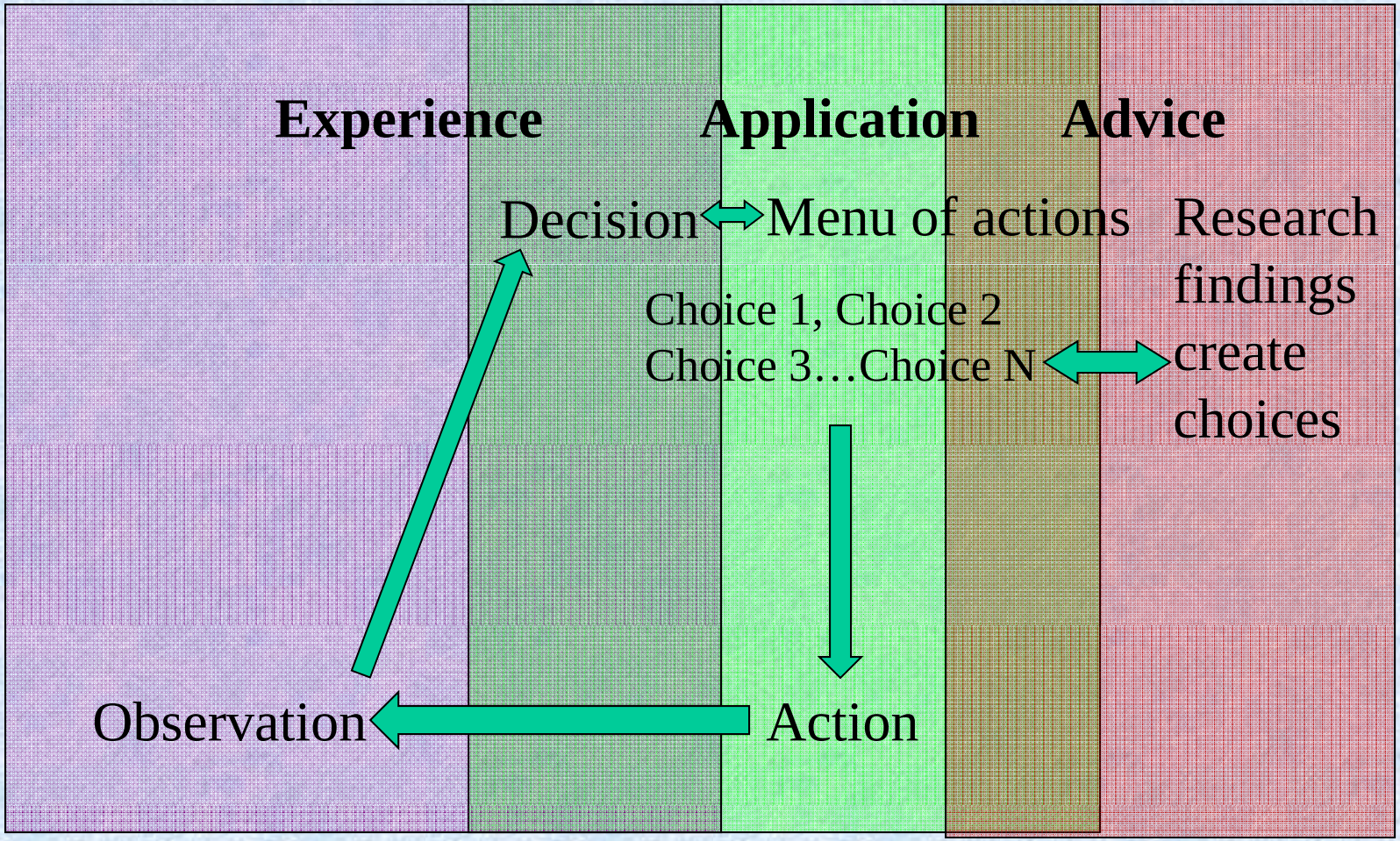
- **Large Wetland Mitigation in the headwaters of the Everglades**
- **Torpedograss infestations following timbering, soil disturbance, road building and borrowing fill were poised to increase following rehydration of drained wetlands**
- **Rehydration caused geometric population explosions of torpedograss as more mesic vegetation drowned at newly defined wetland ecotones**

Project overview— what we knew in 2003

Brian Smith and Ken Langeland researched economics and efficacy of various glyphosate treatments determined that 0.5% product was effective.

Through treatment trials we determined that for our mitigation 1.0% was slightly more effective and fit our budget.

Adaptive Management



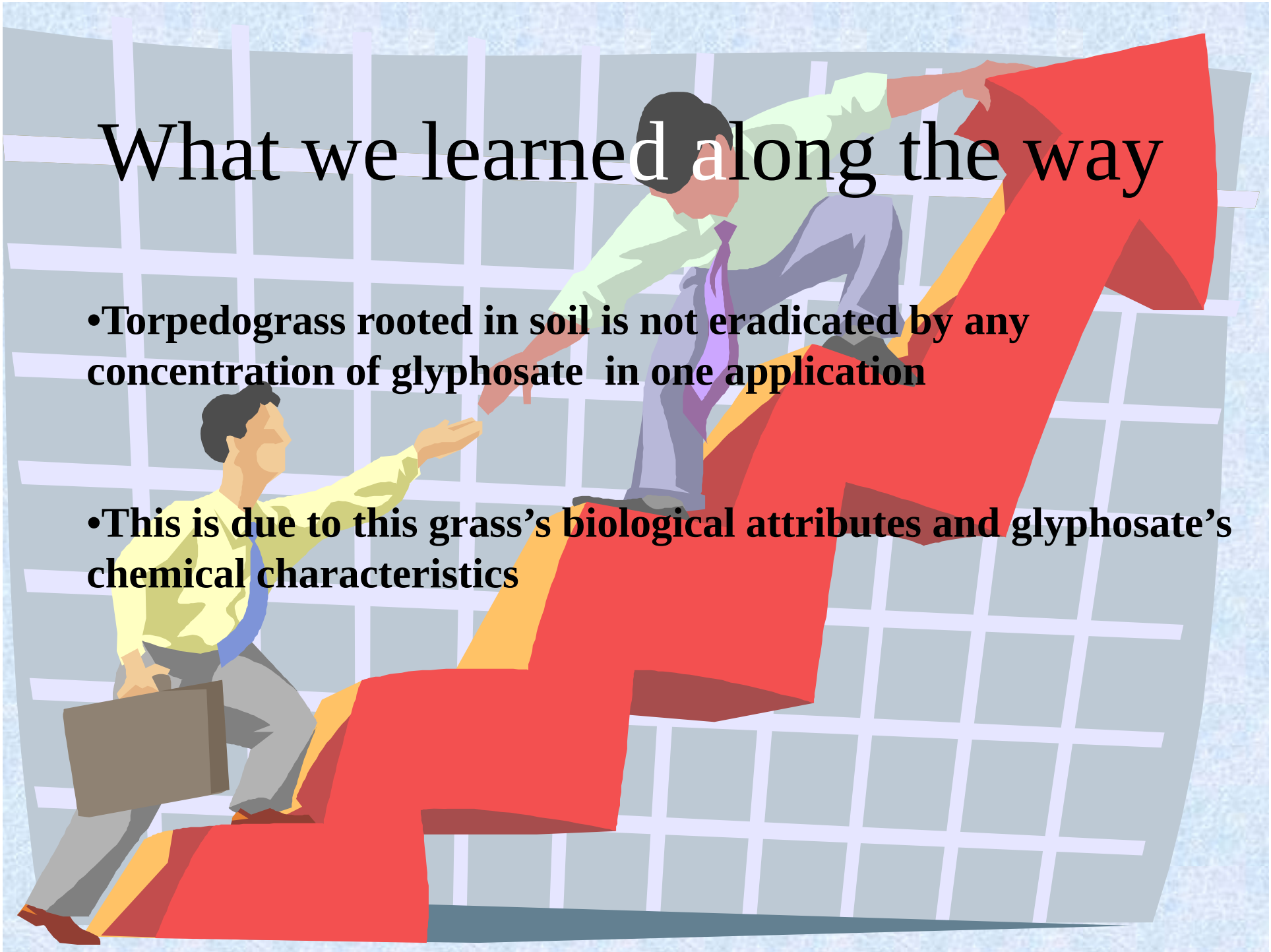
Project overview— initial actions

•We began treating the area, and taking GPS polyline data on locations of all populations in treatment areas.

What we learned along the way

- Hogs and torpedograss promote each other
- Torpedograss does not compete with established grasses of larger stature well
- Torpedograss will eventually recolonize if appropriate competition is not established post-treatment

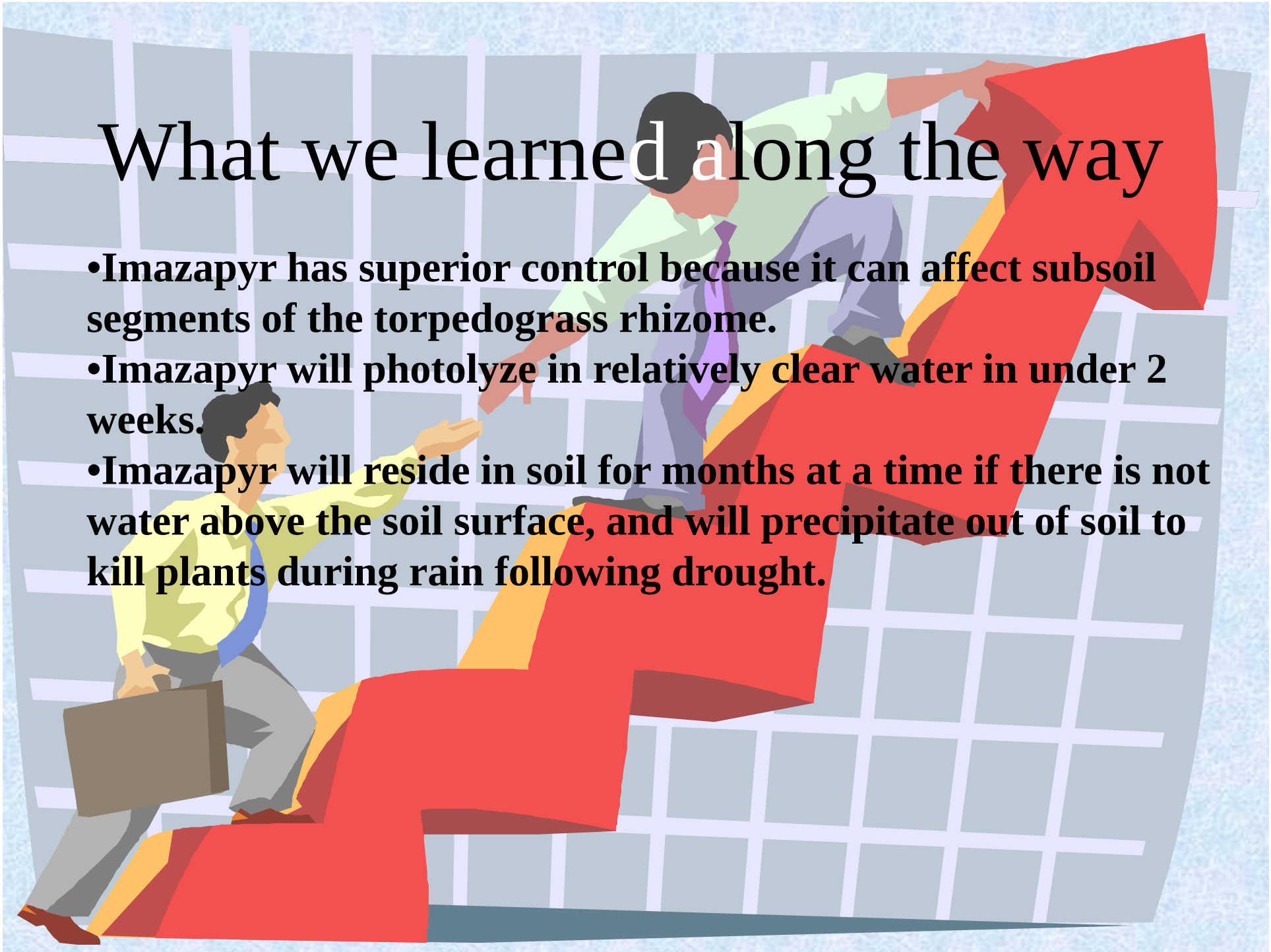
What we learned along the way



- **Torpedograss rooted in soil is not eradicated by any concentration of glyphosate in one application**

- **This is due to this grass's biological attributes and glyphosate's chemical characteristics**

What we learned along the way



- **Imazapyr has superior control because it can affect subsoil segments of the torpedograss rhizome.**
- **Imazapyr will photolyze in relatively clear water in under 2 weeks.**
- **Imazapyr will reside in soil for months at a time if there is not water above the soil surface, and will precipitate out of soil to kill plants during rain following drought.**

What we learned along the way

- **A combination of glyphosate treatments and imazapyr treatments is a good strategy to treat torpedograss at different scales, based on your needs and experience**

What Levels of Infestations Are Tolerable?

You will probably never eradicate torpedograss permanently…

…therefore, you must determine acceptable thresholds to organize what to treat and when…

Scott Penfield Photo

…then follow-through with effective treatments and planting native species.

What to do?

- **We performed trials of planting and seeding**

- **Species included cordgrass, maidencane, blue maidencane, American cupscale, warty sedge, false hop sedge, and pickerelweed**

Maidencane—highest success

- We cut segments of aerial maidencane stems
- Included at least 2 nodes per stem
- Assured 2 nodes had soil contact
- Planted stems laterally like an IV is inserted into a vein
- Outperformed maidencane plugs, estimated 10:1 to 20:1 in coverage rate

Results of post-herbicide planting and seeding

•Maidencane planted from cuttings was optimally effective in shallow wetlands and hydric uplands—SCORE!
•Cordgrass divisions worked reasonably well in areas where a higher level of post-planting infestation was acceptable…many native stowaways including maidencane came in the planted cordgrass stock—BONUS!
•Blue Maidencane was not easy to plant but seemed effective in certain very shallow wetland areas…stems were brittle for planting divisions
•Seeded species did best as supplemental diversity and in wetter uplands than in shallow wetlands.
•NOT planting was NOT succeeding.

Scott Penfield Photo

Total Treatment and Replacement

- Costs are available at the Conservation Notes website (University of Florida Natural Areas Training Academy)
- Currently very labor intensive, but maidencane cuttings are very forgiving, establishing by merely smearing them into mud…can be planted by tree planter, off the side of an airboat in rows (and smeared into place by running over the planted cuttings), by hand. We have planted by hand, with high levels of establishment.

Lessons Learned

- **Bahiagrass and other established vegetation prevents torpedograss population explosions, so do not treat these mixed populations without preparing for torpedograss treatments AND replanting/seeding**

- **Winter imazapyr treatments can be applied to mixed stands of torpedograss and maidencane with selective results when maidencane is dormant/frost killed**

- **YOU CAN REPLACE TORPEDOGRASS WITH MAIDENCANE INSTEAD OF TREATING IT ANNUALLY AND ETERNALLY!**