



Factors affecting invasion success of native and exotic wetland species

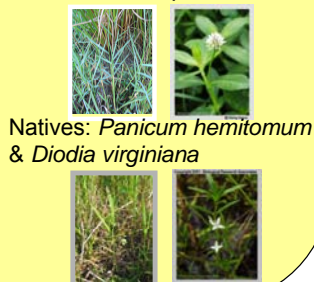
Overview

Wetlands perform valuable functions such as water and nutrient storage and filtration, flood control, and biological productivity. However, invasion by exotic species alters ecosystem functioning and decreases biodiversity. A fundamental ecological problem is determining which factors promote invasions and decrease persistence of native species. My research will examine two factors that may interact to influence exotic plant invasion and persistence of native species in Florida wetlands; cattle grazing and plant facilitation.

Project Goals

- To determine if *Juncus effusus*, an unpalatable plant, increases the success of exotic and native wetland plants via protection from grazing
- To investigate the affect of surrounding upland use and grazing on species interactions and native and exotic species
- To determine which factors favor native wetland species over exotic wetland species

Focal Plant Species



Exotics: *Panicum repens* & *Alternanthera philoxeroides*

Preliminary Data

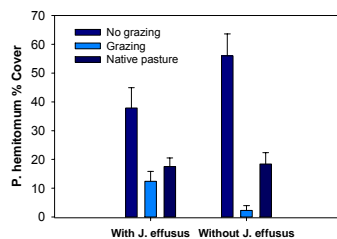
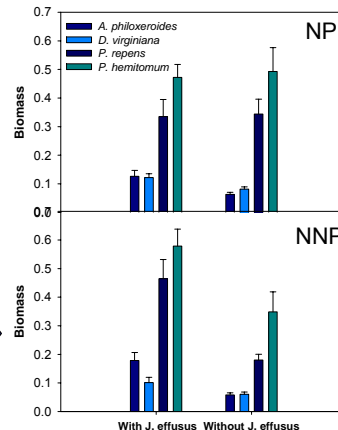


Fig. 1. *P. hemitomum* is more abundant with Soft Rush in grazed conditions.

Fig. 2. All species have greater biomass with *J. effusus* in non-native pastures (NNP), but biomass of grasses is no different between *J. effusus* treatments in native pastures (NP).



Experimental Approach

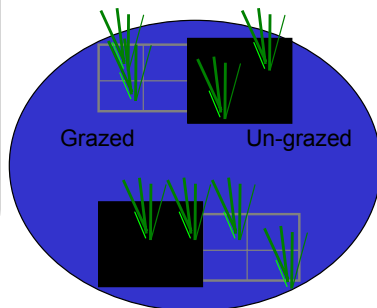


Fig. 3. Plot array in one wetland. Each subplot is 1 m², with eight transplants (two of each species). Factorial treatments will include with or without *J. effusus*, grazed or non-grazed, and clipped or not clipped. Eight wetlands in two different pasture-types will be used.

Implications

- In grazed conditions, protection from herbivory by an unpalatable plant may play a role in the invasion success of native and exotic species.
- Surrounding upland use (i.e. wetland surrounded by either native or non-native pastures) appears to have an affect on the interaction between unpalatable plants and invading plants.
- Future experimental work will clarify factors that determine if natives or exotic species will invade wetlands
- This work will provide recommendations for wetland managers to identify which wetlands are at risk for exotic invasion or could be restored.



Acknowledgements

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