

Building a Better Prairie: Assessing Planting Strategies for Restoration

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Abstract

Urbanization and agriculture have changed the landscape of West Michigan from one of sprawling Oak Savannahs and open prairies to manicured lawns and monoculture fields. While these may look like beautiful natural areas, lush with greenery to the eye of an ecologist or a butterfly, these are barren biological deserts.

Our research this summer has focused on restoring these highly disturbed areas to the original diverse ecosystems of native prairie grasses and wildflowers.

Our primary question is how can one go about such restoration efforts effectively and efficiently?

Traditionally this has been accomplished by spreading seed mixes in disturbed areas, however this method takes immense patience for seedlings to develop and these tiny plants are often choked out by weedy invasive species.

The alternative that we are trying to assess involves raising plants from seed in greenhouses and then transplanting these directly into the restoration sites.

Specifically we are asking, are plants more likely to thrive if transplanted individually or in groups of four species clumped together, affectionately known as "Prairie Pots."

Method

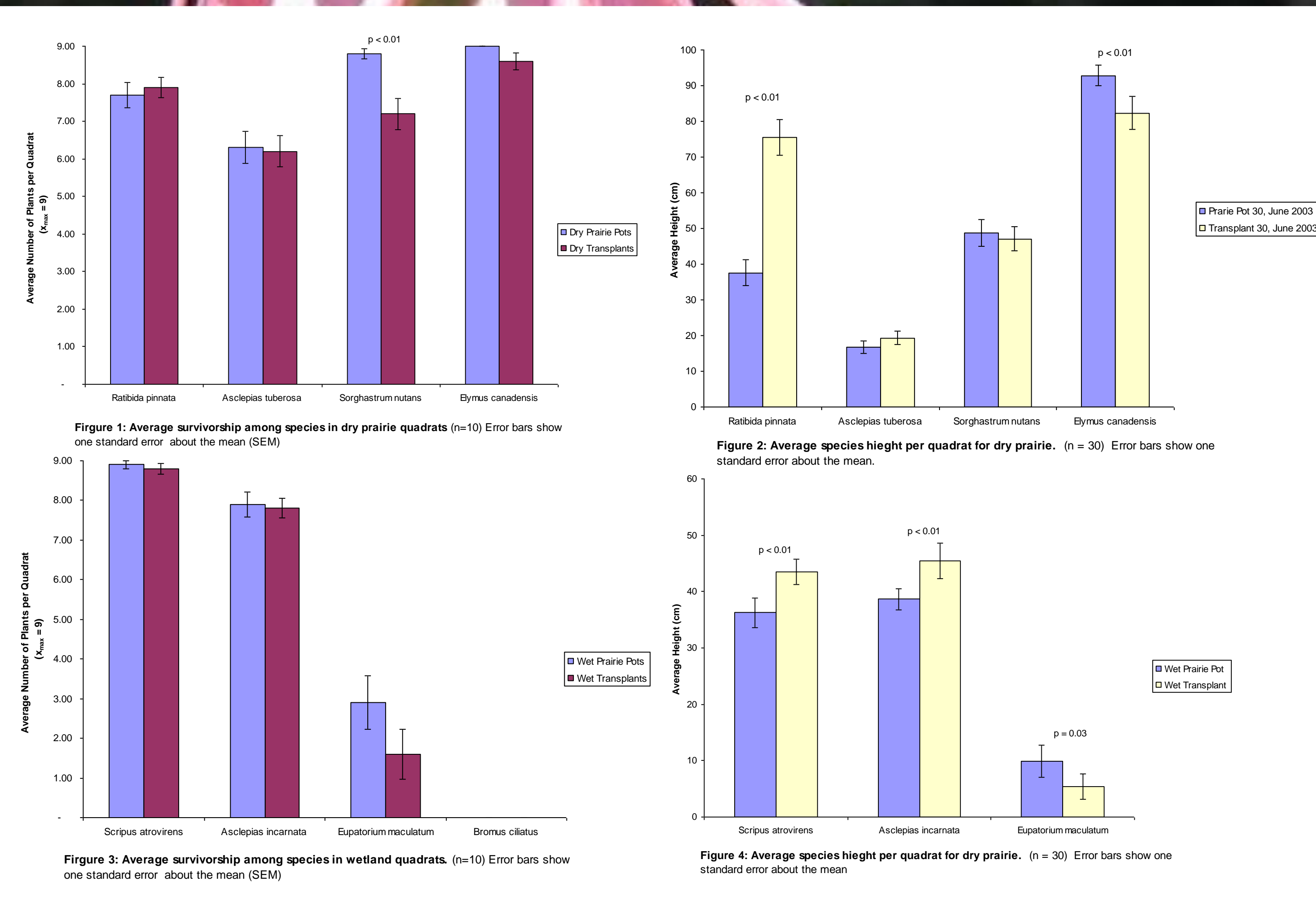
Restoration Experiment 2002

Our research involved the collection of data from an experiment started last summer by Amy Jonker and Dave Aupperlee. The setup for the investigation involved creating:

- 30 identical 1m² quadrats
 - 10 planted with prairie pots
 - 10 planted with individual transplants
 - 10 just the seed mix (spread across all as a control)

Amy and Dave constructed two such experiments along the banks of retention ponds near the Prince Conference Center one with wetland species the other with dry prairie species. Data was collected on survivorship and height from Amy and Dave's year-old experiment.

Results

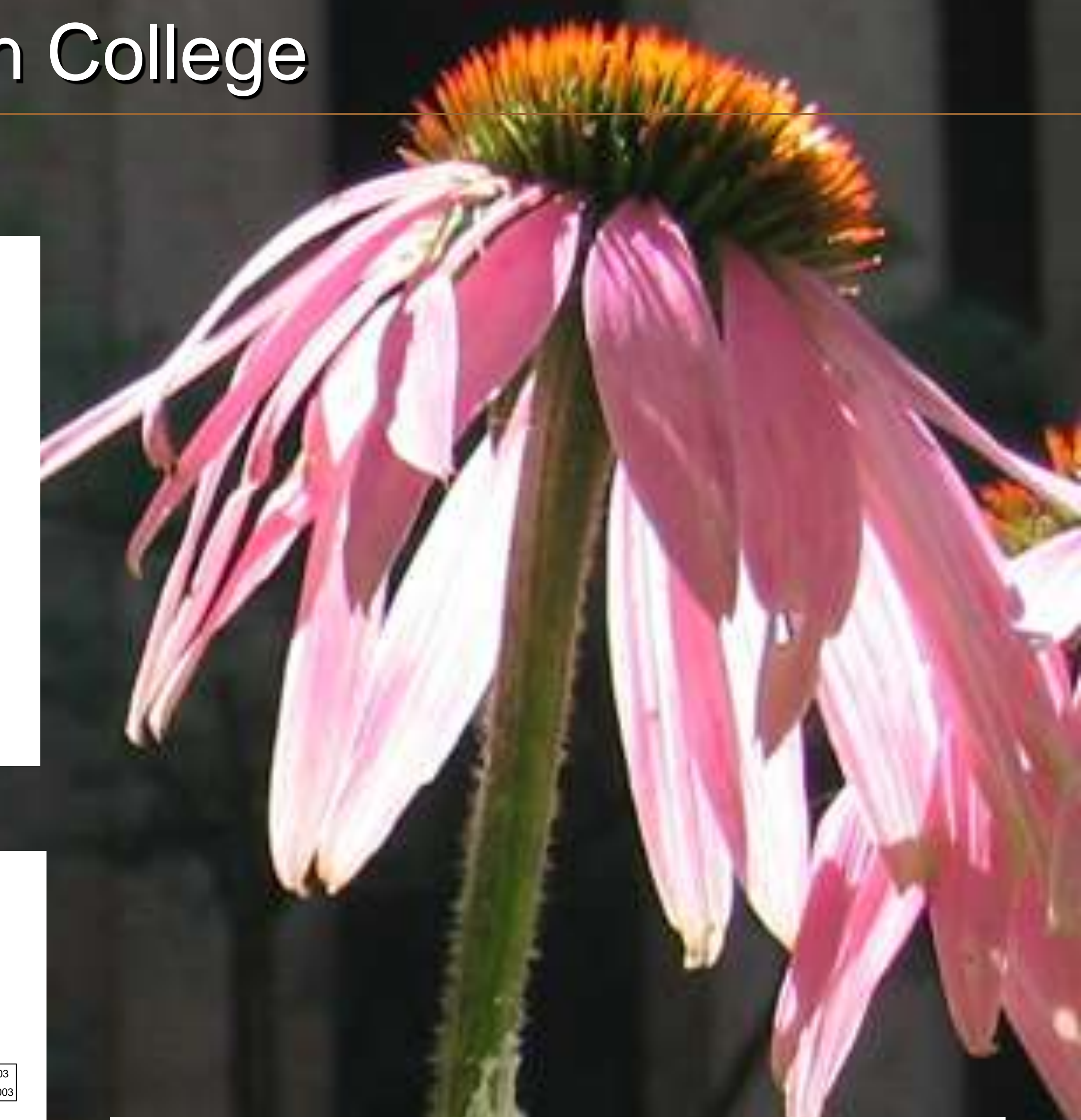


Conclusions

From the data collected we were able to conclude that some species do better when grown and planted as individuals (Ratibida pinnata, Scirpus atrovirens), whereas other species grow better in community (Elymus canadensis, Eupatorium maculatum).

We also noted that environmental factors such as hydrology affected survivorship more than proximity to other plants; this was evident because the wetland quadrats experienced flooding that killed many plants of some species in particular.

Research needs to continue to expand our knowledge of how best to conduct effective and efficient restoration. The continuation of the experiment through variation hopefully will yield further data as to the most effective strategies of restoration.



Restoration Experiment 2003

Our experiment was a continuation with variation on this experiment. Our experiment was set up along the road to the Gainey Athletic Fields and involves different dry prairie species:

- *Andropogon gerardii* (Big bluestem)
- *Bromus kalmii* (Prairie Brome)
- *Rudbeckia hirta* (Black Eyed Susan)
- *Penstemon hirsutus* (Bearded Tongue)



The total number of plants used was reduced to 20, as opposed to 36 in the previous experiment, in hope of accentuating any affects that crowding might have on the species being tested.

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