



Exploring Seed Defense Strategies in Oklahoma Forests


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INTRODUCTION

- Seed predation (granivory) is poorly understood despite significantly affecting plant recruitment and plant communities (1).
- Granivory is affected by habitat composition.
 - Granivory may increase with**
 - seed density (2,3).
 - canopy cover (1,4).
 - closeness to forest edge (4).
- We hypothesize that granivory will be:**
 - 1) higher closer to the forest edge
 - 2) higher when seed density is high, and
 - 3) significantly affected by substrate color due to camouflage effects.

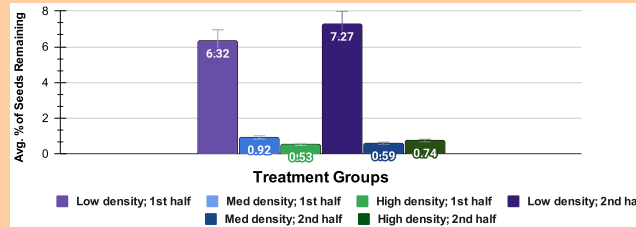
METHODS

- Randomized treatments per trial (3.33 trials):
10 sand colors • 3 densities • 3 replicates = 90 buckets
- Sand colors:**

- Seed densities:** 5, 50, 80
- Seeds:** *Helianthus annuus* (sunflower seeds)
- Buckets:** Lid-on tubs with holes in the sides
- Test site:** Forest in OSU McPherson Preserve in the Oklahoma Cross Timbers Ecoregion
 - Site is rich in mammalian diversity.
- Trial duration:** February - April 2023
- Trial proximity to forest edge:** ~33-192m

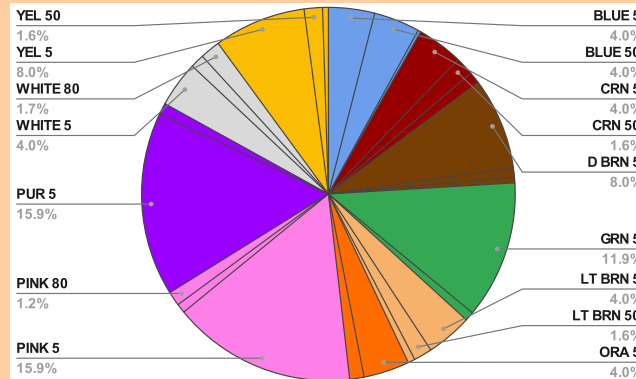
RESULTS

- Graphs are based on the average percent of seeds remaining four days after the initial deployment. Each trial was ~2 weeks apart.

Density vs. Proximity



Density vs. Color

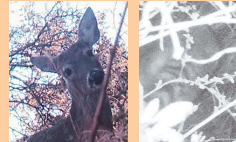


- Photos- Left:** prepared bucket. **Middle:** trial on-site. **Right:** map of trail used (top point represents the road that splits the forest)



DISCUSSION

- Granivory was lowest** for smaller density treatments as well as treatments with purple & pink backgrounds looking dark blue to most local granivores with dichromatic vision. This gives new insight into crypsis effects (5,6).
- Ecological implications**
 - Habitat affects granivory, so habitat changes will alter granivore communities.
- Suggestions for future studies**
 - Repeat in open area for cover changes (5).
 - Stay within one season due to litter and predator compositions (1,4,5).



ACKNOWLEDGEMENTS

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LITERATURE CITED

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