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Native grassland revegetation on a utility scale solar development in South Texas

M Pearson*, A Falk, D Wester, and S Rideout-Hanzak, *Caesar Kleberg Wildlife Research Institute, Texas A&M University - Kingsville*, *Kingsville, Texas, United States of America*.
micayla.pearson@students.tamuk.edu

Utility-scale solar energy development is known to cause disturbance during the installation phase of construction. This causes a challenge to native grasslands which have been steadily decreasing across the United States, affecting the habitat of countless wildlife and pollinator species. To combat this growing issue, we initiated a study evaluating 4 different native seed mixes, 2 planting techniques, and 2 planting sequences to find the most appropriate methods to restore native grassland within utility scale solar developments. Our study site is 7.02 MWh (20ac) (8.1ha) experimental area within a 260 MWh (1800ac) (728.4ha) mix solar-wind development in Bee County, Texas. Treatments are replicated 5 times creating 80-0.25ac research plots. To estimate cover, I modified a pin frame to have pins enter from the side of the frame at 5 cm, 30 cm, 60 cm, and 100 cm; each pin has 10 – 10 cm sections corresponding to the 10 traditional pins. When looking at only the species included in the seed mix, seed mix significantly ($F_{[3,64]}$=4.43, P=0.0068) affected the percent cover at height one. With the low and mid diversity seed mixes averaging 24% coverage and the high and non-seeded treatments averaging 11-13% coverage. Coverage in the high diversity mixes is predicted to be lower due to a decreased percent composition of species present in all 3 seed mixes; added diversity tends to dilute species that establish and create cover. Interactions of seeding date and technique with seed mix were not significant. This can lead us to conclude that if there is good site preparation and a well-established seed mix, planting efforts can be successful.
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