
SOIL MODIFICATION AS A RESTORATION TOOL TO REDUCE OLD WORLD BLUESTEMS IN TEXAS COASTAL PRAIRIES

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Nonnative Old World bluestem (OWB) grasses (e.g., *Bothriochloas*, *Dichanthium* spp.) have become dominant throughout the southern and central Great Plains, altering native plant communities and habitat quality for wildlife. Although conventional management strategies have not resulted in elimination or reduction of these grasses, modifying soil conditions to favor native plants may be an alternative restoration tool. We examined efficacy of 10 soil modification treatments (soil disturbance alone, pH increase, pH reduction, carbon addition, addition of soil mycorrhizae, and each combined with seeding of native vegetation) on 60 research plots at the Welder Wildlife Foundation Refuge in southern Texas in summer 2011. We sampled soil chemistry, vegetation density, cover, and height, and abundance of soil, terrestrial, and flying arthropods four and eight weeks after initial treatments. Severe drought prevented plant growth on treated plots and may have decreased the efficacy of soil treatments, especially pH reduction. As such, we compared vegetation and arthropod communities only between undisturbed plots dominated by native vegetation and dominated by OWBs. Species richness of vegetation was higher on plots dominated by native vegetation (4.4 species/m², *SE* = 0.6) compared to plots dominated by OWBs (2 species/m², *SE* = 0.5). Arthropods were more abundant in native vegetation (175 individuals/m², *SE* = 4.1) relative to OWB-dominated plant communities (41, 1.3). Isopods and ants were the most abundant groups overall, although some of these taxa are nonnative. We will continue to collect data over the next two years to explore further soil modification as a restoration tool in grasslands impacted by OWBs.