

Simulated Drought and Competition Exclusion in a California Grassland

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ABSTRACT

California's Sierra Foothills grasslands are among the many ecosystems that may be impacted by a warming climate, changing precipitation regimes, and shifting species distributions. We subject an experimental site, located in the Sierra Foothill Research and Extension Center in Browns Valley, to simulated drought and competitive exclusion in order to observe how different types of plants, specifically grasses and forbs, react to these potentially future conditions. We collect all the biomass that remains following a 4-month exposure to these experimental conditions. After drying and weighing the samples, we compare biomass of both all of the plants, as well as specially tagged plants that have withstood the entire experimental period. We find no significant difference in biomass between either the specific plant types or the aggregate biomass, after they have been exposed to the experimental treatment. Future studies may ensure that the experimental plots have a balanced mixture of forbs and grasses, and avoid destructive interference to the experimental site from livestock.

KEYWORDS

Grassland, California, grasses, forbs, drought, insurance hypothesis, functional groups, climate change.