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Quantifying plant community impacts of *Centaurea biebersteinii* and *Bromus tectorum*.

The objective of this study was to quantify the response of plant communities to the presence and removal of downy brome (*Bromus tectorum* L.) and spotted knapweed (*Centaurea biebersteinii* DC.). We conducted an *in-situ* manipulation experiment with downy brome and knapweed, measuring the changes in plant richness, diversity and composition in response to treatments over time. Four treatments: (1) manual removal of target species, (2) ground disturbance equivalent to (1), (3) herbicide application (summer application of picloram (0.28 kg ai ha⁻¹) for knapweed; fall application of imazapic (129 g ha⁻¹) for brome) and (4) control, were randomly applied to 0.25 m² plots with six replicates across four sites for knapweed (n= 24) and 10 replicates across three sites for downy brome (n= 30). We hypothesized a decrease in species richness and diversity and a significant shift in species composition in herbicide treatment plots; an increase in richness and diversity in the manual removal treatments; and, an increase in the exotic to native ratio in herbicide treatment plots. Our results one year post-treatment support the first hypothesis across all sites. An increase in richness (but not diversity) occurred in manual removal and disturbance plots at one of the four sites for knapweed and one of three sites for downy brome. The exotic to native ratio did not change in any treatments at any sites. This research highlights tradeoffs between different weed management approaches and the importance of site-specific assessments. We will continue to measure community response for two more years.