

Fauna & Forage

Impacts of a naturalized population of yellow-flowered alfalfa (Medicago sativa ssp. Falcata) on native northern mixed-grass prairie

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ABSTRACT The occurrence of naturalized yellow-flowered alfalfa on private and adjacent public rangeland in northwestern South Dakota presents a dilemma. Its ability to reproduce naturally in native rangeland demonstrates its value for increasing forage production and quality. On the other hand, the spread of alfalfa into native rangeland potentially threatens native biological diversity and may result in changes in ecological processes. The objectives of this study were to understand its ecological characteristics and determine its impacts on species richness and biomass production of native plant communities. The spatial patterns, species composition, and biomass production of naturalized alfalfa along environmental gradients were investigated on the Grand River National Grassland, SD in 2003. In each of two sites, two permanent transects were established. Cover for each species was recorded in 2 x 1 m quadrats. Distinctive plant communities were identified along each permanent transect. In each, three quadrats were clipped for aboveground biomass of alfalfa and other species. Soil samples were correspondingly taken. Our results suggested: (1) the presence of naturalized yellow-flowered alfalfa depends upon topography, soil texture, soil moisture, and seed source, and (2) alfalfa strongly competed with native species in suitable areas of a semiarid rangeland.