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The Prairie Project: Restoring Grasslands in the Great Plains with Fire and Grazing

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Abstract

Grasslands and savannas in the Great Plains of the United States are rapidly being converted to woodlands in a process often described as woody plant encroachment. The consequences of this conversion are myriad but include alterations to grassland biodiversity and disruption of water and biogeochemical cycles. In addition, the loss of forage for animal producers is potentially catastrophic. Traditional methods of controlling woody plants using mechanical or chemical treatments is generally cost prohibitive. In addition to woody plant encroachment, ranchers and farmers in the region are challenged by other environmental threats including occasional catastrophic wildfires and extended heat waves. We contend that the widespread adoption of pyric herbivory (the synergistic application of fire and grazing) and mixed-species grazing (cattle [Bos taurus] and goats [Capra spp]) would not only make grasslands and savannas more resilient to woody plant encroachment but would also enhance the profitability and resiliency of livestock production systems. These management strategies control woody plants, increase biodiversity, improve grassland ecosystem function, and favor livestock production. Although this management paradigm holds tremendous potential by mimicking original grassland disturbance regimes, it has not been widely adopted because of cultural constraints. Saving the remaining natural grasslands in the Great Plains and elsewhere will require a widespread shift in cultural norms – facilitated by targeted government incentives and a coordinated program of regional research, extension, and education that involves farmers and ranchers as key stakeholders.

Keywords: patch burning, pyric herbivore, woody plant encroachment

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