

# **An integrated education-extension approach for developing agents of change and innovations to affect cultural change - Promoting adoption and public support of pyric herbivory and multi-species grazing**

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## **Abstract**

The sustainability of livestock production and other ecosystem services in the Great Plains rangelands is under threat by climate change and associated frequent and intense droughts and wildfires and woody plant encroachment. Pyric herbivory and multi-species grazing are two management practices that are effective for reducing the risk and impacts of drought, wildfire, and woody plant encroachment, but their adoption and policy support have been limited. There is an urgent need to promote adoption and public understanding of these practices to increase resilience and sustain livestock production and other ecosystem services of the Great Plains rangelands. The main goals of the integrated education-extension component of the Prairie Project are (1) to support innovative ranch managers as agents of change to mentor other ranch managers in adopting pyric herbivory and mixed-species grazing in their practice, (2) to develop next-generation of progressive land managers and professionals through engagement of 4H/FFA groups in monitoring research on the effects of pyric herbivory and mixed-species grazing in demonstration ranches, and (3) to develop agents of change in secondary and undergraduate institutions through faculty and curricular development and action research to promote rangeland literacy. We will discuss the design and implementation of intensive activities through 2-year Ranch Manager Cohorts, 4H/FFA Cohorts, and Educator Cohorts, as well as the synergy among these cohorts and with the

research activities of the Prairie Project. This presentation will focus more on the educator cohorts. We have organized three 2-year Educator Cohorts with 32 participants from diverse secondary and higher education institutions. Each cohort started with an intensive summer workshop focused on current science of rangeland ecology and ecosystem services, pyric herbivory and multi-species grazing, as well as the current learning science and inclusive and high-impact pedagogy. It was followed by monthly cohort meetings focused on professional development, sharing and supporting participants' work, and community building, as well as individual consultations. Cohort participants have developed high-impact educational materials related to fire and grazing, implemented in their own classes, assessed the impact on student learning, and many of them have presented their work and findings in professional and education conferences to engage a broader audience of educators and professionals. Pre- and post-surveys of the students in the classrooms of the participants and project team members have shown significant changes in knowledge and attitudes related to rangeland literacy, especially the roles of fire and grazing in sustaining rangelands and their ecosystem services.

**Keywords:** agents of change, current and future practitioners, educators, rangeland literacy, pyric herbivory and multi-species grazing