

Effects of Late Summer Prescribed Fire on Botanical Composition, Soil Cover, and Forage Production in Caucasian Bluestem-Infested Rangeland in the Kansas Smoky Hills: Year 4/5

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Introduction

- Old world bluestems were introduced for soil conservation properties but began spreading uncontrollably
- Old world bluestems mature quickly, becoming unpalatable to grazing animals early in the growing season
- Spring burning does not appear to have positive effects on containment
- Herbicide has been used for control but does not specifically target old world bluestems

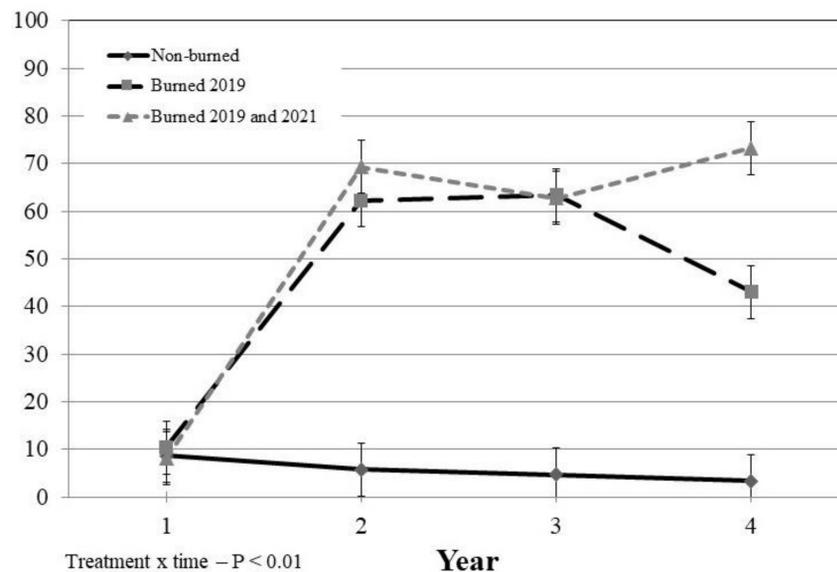
Objectives

- Document the effects of late-summer prescribed fire on proportions of bare soil, litter cover, and basal cover as well as grass species richness in Caucasian bluestem-dominated mixed grass prairie
- Determine whether late-summer prescribed fire may be a means of controlling the spread and frequency of Caucasian bluestem

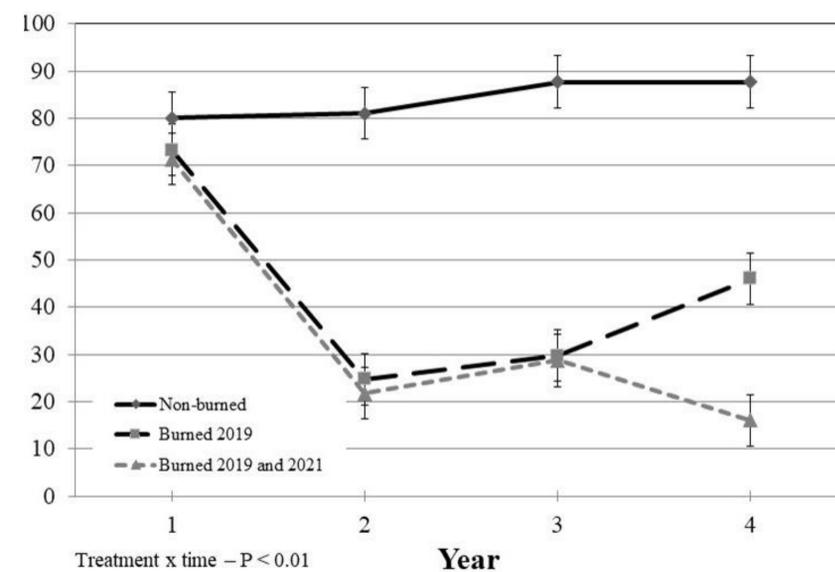
Materials and Methods

- 18 1-acre plots in Caucasian bluestem-infested mixed prairie near Kanopolis, KS were randomly assigned to one of three treatments: no burn (n = 6 plots), one burn (n = 6 plots; burned 2019), or two burns (n = 6 plots; burned 2019 and 2021)
- Soil cover, grass species richness, and old world bluestem frequency were evaluated pre-treatment in 2019 and again in July of the years 2020, 2021, and 2022

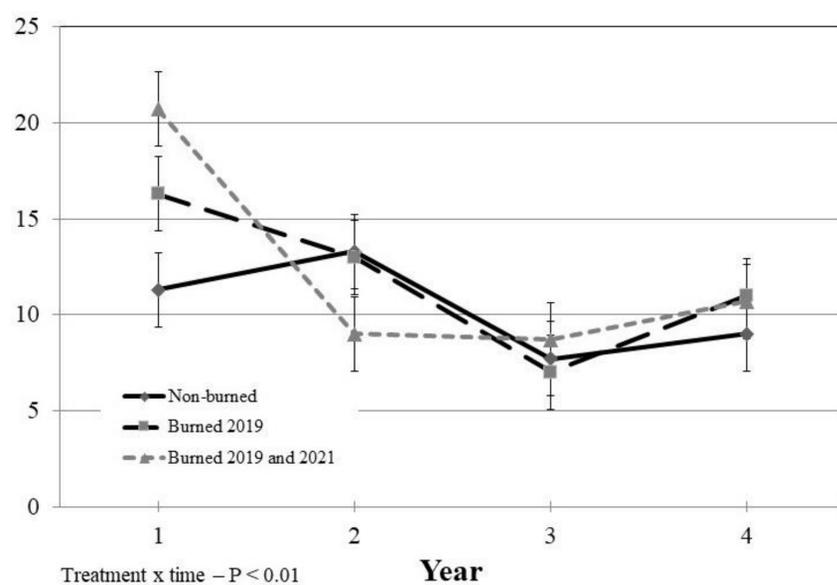
Bare Soil, % Total Area



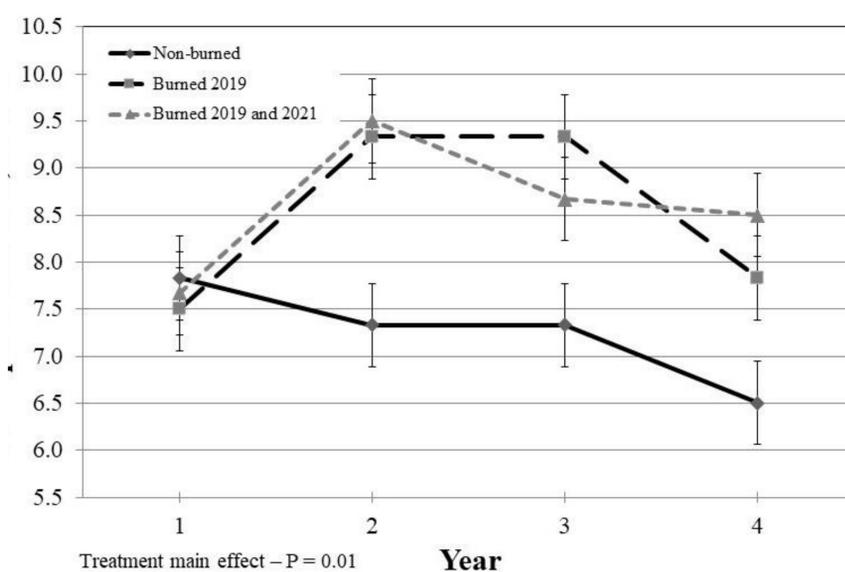
Litter Cover, % Total Area



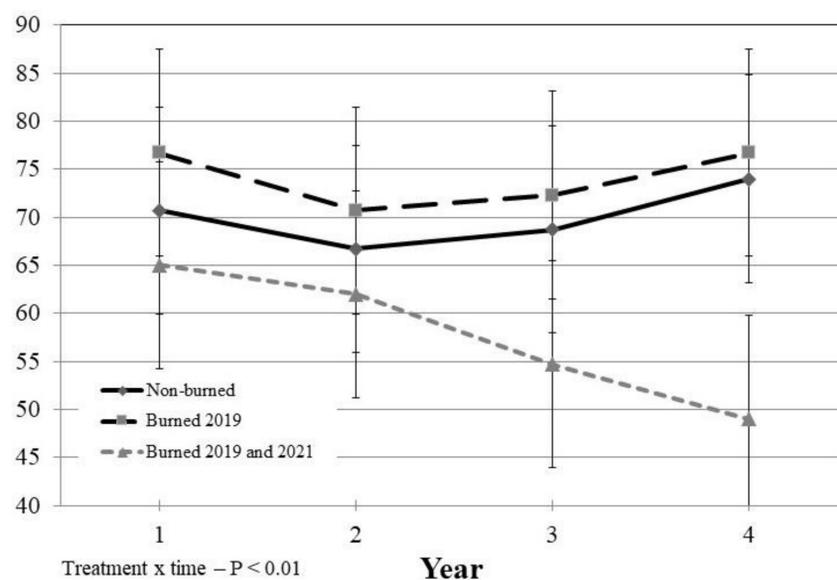
Basal Cover, % Total Area



Grass Species Richness, Number



Caucasian Bluestem Frequency, %



Conclusions

- Increased bare soil in burned plots following the first treatment and further increase in plots burned twice following the second treatment corresponded with decreased litter cover
- Grass species richness was greater in burned plots compared with non-burned plots every year post-treatment
- Three years post-treatment, Caucasian bluestem frequency was lower in plots burned twice compared with unburned plots and plots burned once