



Fire Sovereignty: Using Prescribed Burns to Conserve Tallgrass Prairies on Tribal Lands

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Research Question

How effective is the Kickapoo Tribe in Kansas mitigation of invasive woody species on tallgrass prairie utilizing indigenous burning practices?

Introduction

- Due to climate change, tallgrass prairies are experiencing encroachment of woody species changing the landscape on the Kickapoo Reservation.
- Before colonization, Indigenous people had created a sustainable home for themselves and for others based on knowledge systems passed down through generations (Senos et al. 2006).
- Maintaining a healthy ecosystem in a tallgrass prairie is important because it creates a sustainable living environment for animals whom in return become nutritious forage for hunters.
- Kimmerer explains that “traditional ecological knowledge (TEK) represents an intellectual tradition of generating, validating, and interpreting information about relationships in the natural world” (Kimmerer 2002, 432).
- The Kickapoo Tribe in Kansas uses TEK to create a relationship of reciprocity between the indigenous burning ways and twenty-first century ways.

Indigenous burning History

Before colonization, Indigenous people used fire as a method to burn grasslands to clear large areas of land to lure game for hunting. The use of fire created ecosystems where buffalo and deer preferred to graze (Fowler and Konopik 2007). Hunters and gatherers pointed fire toward a destination that trapped game for easier capture. This method made hunting more efficient. As Binnema states, the burning in spring or fall created herbivorous grounds for the buffalo to feed off just before winter when food was scarce.

Burning for ecological growth was done to create a sustainable ecosystem to feed our people and to feed the animals. Burning forests would clear the canopy in an overcrowded forest, ensuring light could hit the forest floor so grasses could grow creating an ecosystem for the game in that area. In addition, it cleared the land to make room for agriculture purposes (Binnema 1996). After a field is burned, nutrients are cycled through the soil creating an ideal ecosystem for future crops (Krech 2000).



Figure 1: Russell, Charles Marion. *Blackfeet Burning Crow Buffalo Range*. 1905. Painting. Buffalo Bill Historical Center.

Invasive Woody Vegetation

Fire management is crucial in maintaining a healthy ecosystem for tallgrass prairies that are becoming overgrown with invasive woody species such as Dogwood (*Cornus drummondii*) and Eastern Redcedar (*Juniperus virginiana*) (Nippert et al. 2013). With changes in climate in the Midwest, these woody species are more abundant in the favorable increasing warm weather and decreasing precipitation (Anderson 2006). Periodic fires help restore these native prairies. In northeast Kansas, this map provides a visual of woody presence on 5-20 acres.

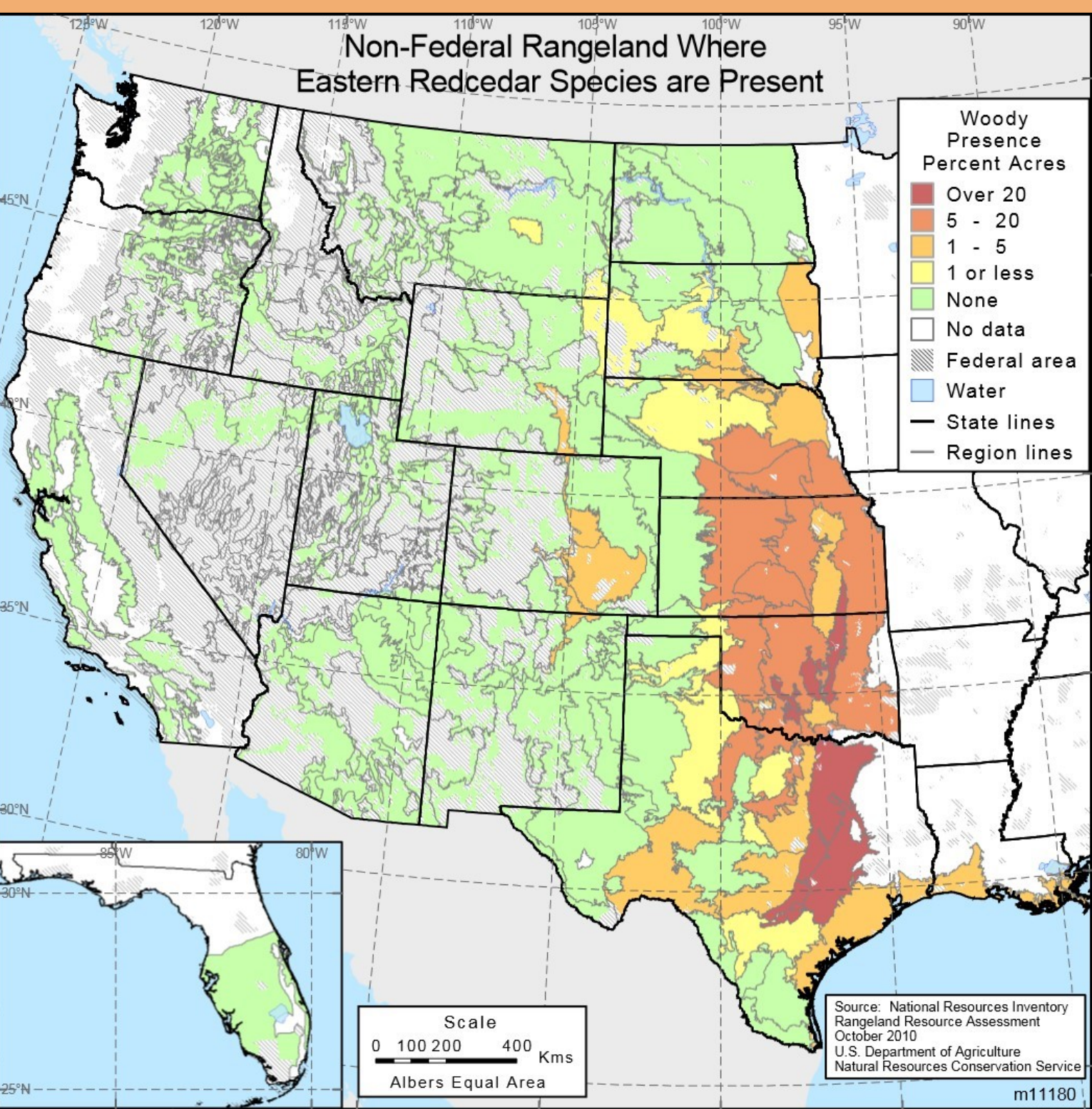


Figure 2: Natural Resources Conservation Service. *National Resources Inventory Rangeland Resource Assessment*. October 2010. USDA

An abandoned hayfield (Fig. 3) on the Kickapoo Reservation has become overgrown with shrubs due to lack of fire management in the past two years. Comparing this field to other sites where fire has been frequent supports that frequent prescribed burning in prairies is essential in mitigating invasive woody encroachment.



Figure 3: Abandoned hayfield on Kickapoo Reservation. Kynser Wahwahsuck, 2018.

Kickapoo Tribe in Kansas Restoration

The Kickapoo Tribe in Kansas manages five landscape restorations along the Delaware River. The Kickapoo Environmental Office (KEO) actively burns in the spring, preferably finished by April 1st, to suppress the growth of woody species. This past spring, KEO burned CRP land to get the field ready for agricultural purposes. The burning costs at this time are primarily funded by the Kickapoo Fire Department. Part of the restoration also includes streambank stabilization along the Delaware River, the tribe’s main water source.



Figure 4: Streambank stabilization on Kickapoo Reservation. Kynser Wahwahsuck, 2018.



Figure 5: Streambank stabilization on Kickapoo Reservation. Kynser Wahwahsuck, 2018.

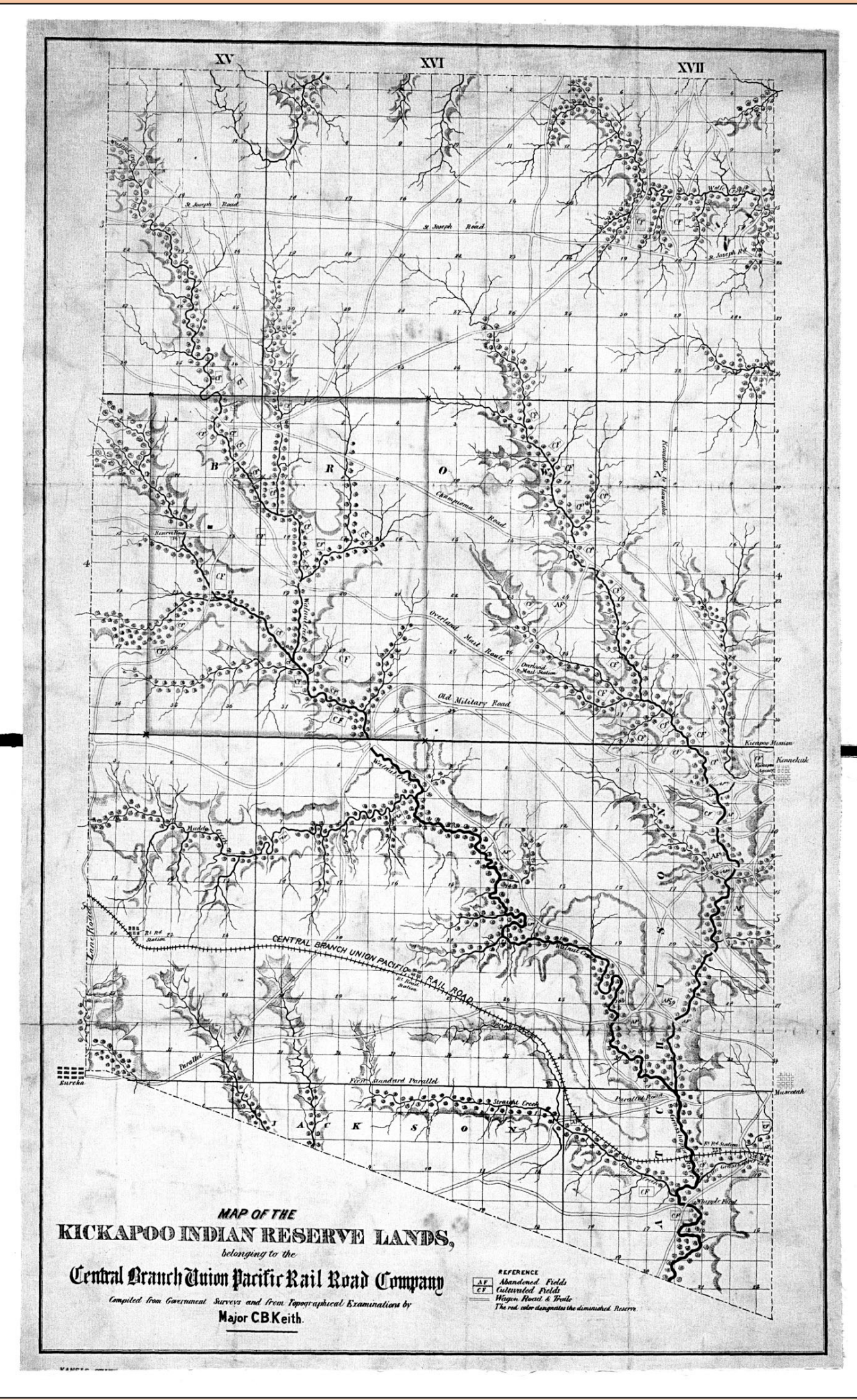


Figure 6: Union Pacific Railroad, Central Branch. “Kickapoo Indian Reserve Lands” 1857. Kansas Memory.

Analysis

Comparing tribal lands frequently burned to lands that experience little fire management, such as the abandoned hayfield (Fig. 3) on the Kickapoo Reservation, is a good representation of the encroachment of woody species due to lack of fire whereas the streambank stabilization (Fig. 4 & 5) which were burned this past spring show little sign of woody encroachment. Based on my findings, I conclude the use of prescribed burns should be conducted once a year on the Kickapoo Reservation to suppress the woody material encroaching on the abandoned hayfield and to restore the native prairie.



Figure 7: Spring burn on mock wetland on Kickapoo Reservation. Mickey Sigmon, 2018.

Future Interests

- What additional mitigation tools can be practiced to restore the abandoned hayfield to a native prairie
- How to find funding for my tribe to continue prescribed burns on the reservation

References

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Acknowledgments

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