Fire has been used as a management tool in grassland ecosystems since the beginning. Using both natural and man-made fires to manage the land. Fire in the Northern Great Plains, historically ran on a frequent, low-intensity regime 1, which in current times has changed to high-intensity, infrequent fires, that often have woody encroachment by highly flammable *Juniperus* species2,3. Prior to early Euro- American settlement and vast land use changes, indigenous peoples used fire to promote new growth of grasses, remove old grasses including standing dead litter, manage game, and for other cultural uses4,5, 6. As settlement began, and the indigenous were removed off their cultural land, and forced west, the use of fire on the landscape was also diminished. As settlement began the land was broken up from grasslands and turned into farmland, outlining fire as a destructive and dangerous element to livelihoods. The grasslands became filled with anti-fire settlers, introducing a social-ecological perspective to grassland management.

With fire historically occurring in the Northern Great Plains, native plants once abundant due to the disturbance fire brought have significantly declined. Allowing woody and invasive encroachment. Kentucky bluegrass had increased its range into >85% of the rangelands located in the Northern Great Plains7. This significant increase is due to the lack of disturbance including fire and grazing that promotes homogeneity7. Unfortunately, Kentucky bluegrass can only produce good forage quality at the beginning of the season but is overall unable to provide nutritional value as the season continues, proving to not provide any beneficial qualities to landowners7. Reintroducing fire in the regime may be the only way to combat the significant increase of Kentucky bluegrass8. With most landowners choosing forage quality and production over environmental concerns9. Introducing fire back onto the landscape would increase forage quality and production as well as environmental concerns, but many see the constraint of fire as other landowners and community members that have barriers, oftentimes casting a negative light onto fire.

These barriers are split into two categories of social and practical barriers. Social barriers include societal norms and attitudes, liability, and education, knowledge and training. Whereas physical barriers include labor, equipment, money, or government restrictions. The physical barriers are often easier to combat, where social barriers are harder as landowners and community members must change their attitudes on fire and prescribed fire. Allowing the opening of discussion and application of prescribed fire as a management tool in the Northern Great Plains.

Societal or social norms tend to highlight the attitude many community members have, as frequently a group will indirectly designate an action or thought as right or wrong 10, and unfortunately many communities in the Northern Great Plains have designated fire and prescribed fire as wrong. These social norms can restrict a landowner from burning, as they do not want to upset others, even if they feel as if it is the right thing to do with their land. Within ranching and small town communities, these social norms weigh heavily on decision making for community members11. These feelings do not just play a role in private landowner decisions but weigh on government and private agencies as well, often limiting how often they choose fire as a management tool 12–15.

Although social perception of fire is largely included in the thought process and use of fire, studies have listed liability as being the largest barrier stated for landowners, including risk of an escaped fire, legal trouble, causing harm to neighbors, community and their own personal property and safety 16, 17,18, 12, 13, 19. Although, there is little evidence of prescribed fires going wrong when proper training and knowledge is cited, as well as many states having statues put in place to protect burners. Weir et al. infers that people often fear the perception of liability “Inaccurate perception of the danger and severity of liability is a greater barrier to prescribed fire than that of the actual danger and liability” 20, insinuating that the actual risks of fire are not the same as the perceived risks.

Knowledge and education are limited in anti-fire communities as they do not see it fit, limiting access for landowners who believe it is right for their land. At the time of publication of this piece North Dakota does not contain any prescribed fire associations, but does hold a prescribed fire cooperative that helps conduct training, education, and training burns, the North Dakota Prescribed Fire Cooperative. The difference of an association to a cooperative is associations are made up of landowners and community members in the area, whereas a cooperative is private, state, and federal agencies that form a group to work together to safely conduct burns (find citation). The lack of prescribed fire limits possibilities for future education, training and burns on private lands. This study aims to outline why landowners are hesitant to burn on their land and their overall feelings of fire, to hopefully work with landowners and community members to use prescribed fire as a management tool, restoring the grasslands.

Practical barriers are often the easier barriers to overcome as they have more clear-cut solutions. Labor tends to be a barrier as having people that are knowledgeable and trained to conduct fire is not always common. As burners are often legally required to have a certain number of people to be able to conduct a fire, to reduce any risks. States vary on what qualifications and personnel needs are. North Dakota does not require any trainings or qualifications but states “At least four [people] must be present when the prairie is burned” (North Dakota Century Code § 18-07-06). Without support from neighbors or the community this oftentimes can be challenging. Which leads into another barrier having the correct equipment, most landowners will not have all of the equipment needed to conduct a safe burn, including mowers, tractors, and plows to create fire breaks, or torches, hand tools, water units, and multiple vehicles to conduct the burn, as well as fire resistant personal protective equipment and hand-held radios to keep the personnel safe. When having to purchase this equipment it often becomes a barrier because it can turn into a costly management practice. Although fire is the cheapest long-term woody plant control method 21, 22, 23. This knowledge is unknown to most landowners as the start-up costs often prove to be a barrier when they already have other control methods. Participants in Harr et al. study outlined that fire did not directly benefit ranching operations as it benefitted wildlife, and oftentimes destroyed food for their cattle. When a management method does not directly benefit them now it is hard for landowners to justify a new management method.

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