Perception/ Social Aspects of Fire

Barriers to Prescribed Fire in the US Great Plains, Part 1: Systematic Review of Socio-Ecological Research

*Clark et al.*

* “Wicked Problem” – those without clear-cut solutions
* Landowners are highly dependent on land use and the economic value associated with it
* History of fire in the Great Plains
  + Low intensity fire regime
  + Indigenous use of fire
  + High intensity fire after woody encroachment in the south
  + Upper great plains are fire suppressed and largely unburned
    - Prescribed burns limit wildland fuel that can lead to uncontrollable wildfires, controlling woody invasion, and non native species, enriching habitat and forage both wildlife and livestock, gently enhances native species diversity and heterogeneity in grasslands
  + Colonialism, capitalism and a disconnect between humans and the environment caused reduction and removal of fire
  + Dangerous ani-fire sentiment (makes everyone nervous around fire)
    - Allowed fire to disappear from fire dependent ecosystems
* Social Perceptions
  + Respondents do not agree that fire (prescribed) is a beneficial and legitimate land management practice
  + PBA members have a more positive stance on fire
  + Landowners preferred mechanical methods or grazing over the fire
  + Social norms limit the ability to burn, if communities think fire is bad landowners are unable to use it as a management technique
  + Liability and risks associated to burns have a large barrier on fire
    - Increase training and knowledge and this could be combatted
    - Increased smoke in the community is a barrier as it can potentially harm people, limiting landowners
  + Technical proficiency limits landowners
    - Knowledge, training and PBA’s can help combat this
* Practical barriers
  + Labor, equipment, land fragmentation , time, and money
  + Policy and regulation (burn bans)
    - Hatred towards fire can limit how much fire is used when there is county or statewide burn bans put into place by the government
* Legal liability - greatest barrier
  + Gross negligence – wantonly or recklessly applied fire without the slightest of care
  + Simple negligence – requires burners to practice reasonable care
  + Strict liability – holds the burned liable for all damages regardless of any precautions they took while burning

Barriers to Prescribed Fire in the US Great Plains, Part 2: Critical Review of Presently Used and Potentially Expandable Solutions

*Clark et al.*

* Barriers inside their local community (microsystem), other potential fire practitioners (exosystem), and other members of the state or country (macrosystem) --- if a negative attitude is present that can limit if they use fire
* Increasing engagement can increase knowledge and acceptance of fire
* Engagement Types
  + Traditional Engagement (workshops, demonstrations, and trail plots)
    - Hands on learning, gain further technical proficiency
    - Prescribed Fire training exchanges (TREX) provides conceptional understanding and technical proficiency development, as well a community building of event attendees
    - Trial plots allow landowners and attendees to see how fire affects their local landscape and at different time intervals
      * Also allows them to see what ecological and economic risks without using their own land
  + Community land management
    - Collaborative Adaptive Rangeland Management (CARM) project
      * Allowed stakeholders (private land managers, researchers, state and federal agents) to work together to manage traditional and experimental plots
      * Barriers were nonexistent as this was completed on federal land, there were enough members that labor was not a problem, the cost was covered, and equipment was available.
      * The only barrier was the individual’s perception on fire
  + Fire Festivals
    - Including other family friendly activities to a prescribed burn to make it more appealing
    - Includes educational events and programs to teach about fire
    - Demonstration burns to combat the unknowing-ness
    - Brings the concept of “good fire” onto the landscape
* Legal Regulations
  + Most commonly cited barrier of fire application
    - Specific policies have been put into place to train and protect burners
  + Certified program burn manager programs are state-run programs available for those who want to apply fire on private land
  + Require time and money investment from the participants
    - Except, reduced liability and increased opportunities to burn outweigh the costs for tests and classes
* Prescribed Fire Councils
  + Consists of land managers, natural resource professionals, local politicians, and other community members who are interested in fire
  + Mission is to facilitate the organization of state level PFCs as well as to promote the appropriate use of prescribed fire
    - As of 2019, 32 states have PFCs
    - Wyoming the PFC engages in training as well as complete fires with the help of their members
* Prescribed Burn Associations
  + Coalitions of land managers who come together to share knowledge, equipment, and labor to conduct prescribed fire
  + First PBA was in the Great Plains in Nebraska in 1995, as of 2015, 62 PBAs were active in the US
  + PBAs work to improve conceptual understanding and technical proficiency and work across multiple members properties
  + Connects like minded people to conduct fire in a safe way
  + These associations help address the barriers many landowners face
  + But they have not been proven to show that helps change social acceptance of fire (including the northern great plains)
* Marketing Campaigns
  + Successful against fire campaigns (smokey the bear) have been successful
  + Turning it around to help target land managers and community members to increase knowledge of fire could help shift the attitude
  + Repurpose Smokey the Bear
* Diffusion of Innovation Theory
  + Used on the Iowa- Missouri Grand River Grasslands to facilitate patch burn grazing on private lands
* Awards and Recognition
  + Positive reinforcement increases a desired behavior
* Cost Sharing
  + Help overset the cost aspect and barrier of fire
  + Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP)
  + Cost sharing programs will not completely solve the monetary barrier as landowners will still have to invest their own money

Bluestem and Tussock: Fire and Pastoralism in the Flint Hills of Kansas and the Tussock Grasslands of New Zealand

*James F. Hoy and Thomas D. Isern*

* People like trees --- no fire = more trees
* British settlers of the southeastern states, possibly influenced by indigenous Indians practiced burning
* Texas steers would graze more readily and gain more weight on burned pastures

Liability and Prescribed Fure: Perception and Reality

*John R. Weir et al.*

*https://www.sciencedirect.com/science/article/abs/pii/S1550742418301283*

* People avoid fire due to liability and repercussions if a fire escapes
* Large ecological change (such as accumulation of fuels and woody encroachment) due to fire suppression
* With elevated fuels there is a higher chance of larger and more uncontrolled wildfires
* Private lands tend to be the source of conduit for larger wildfires
* Risk comes with anything, car accidents, laboratory accidents etc. but many find that the level of risk associated with those things is smaller than with prescribed fire, even though there have been less accidents reported with prescribed burning compared to car accidents or laboratory accidents
* Common risk biases:
  + Loss aversion: preference to avoid practices that avoid losses over those that result in equivalent or even greater socioeconomic gains
  + Discounting: favoring actions or decisions perceived to reduce short-term risks but which ignore long-term risks
  + Status quo bias: favoring the status quo, like fire suppression, because those actions are perceived to align more with societal or political ideals
* To address concerns education needs to go out that prescribed fire is not the same as wildfire and does not encompass the same legal liabilities
* Increase in PBAs could help change social norms and beliefs on fire

Cognitive Maps Reveal Diverse Perceptions of how Prescribed Fire Affects Forests and Communities

*Hamilton and Salerno*

<https://www.frontiersin.org/articles/10.3389/ffgc.2020.00075/full>

* Those in wildlife prone areas tend to dislike prescribed fire – maybe due to all negative associations to fire?
* Stakeholders have different views, almost all private landowners have a negative view of fire

Using Behavioral Change Models to Understand Private Landowner Perceptions of Prescribed fire in North Dakota

*Bendel et al.*

<https://www.sciencedirect.com/science/article/pii/S1550742418302963>

* Range has seen an increase in Kentucky Bluegrass, which at the start of the year is good forage but drops significantly as time goes on
* Landowners and stakeholders prioritize forage production over environmental objectives
* Southern Great Plains formed PBAs to administer fire on private properties to combat loss of forage productivity and grassland biodiversity
* Theory of Planned Behavior
  + Behaviors can be predicted from attitudes toward a behavior or the social norm, leading to pressure to or not to engage in such behavior
* Transtheoretical model of behavior change
  + Conceptualizes intentional behavior change
  + Stages: Pre-contemplation, contemplation, preparation, action, maintenance
* Survey Results
  + Ranches disagreed that fire was beneficial, whereas nonranchers agreed that it was beneficial
  + Seems that ranches in this area are currently in the pre-contemplation or contemplation stage
* Increase in workshops that help get the knowledge of prescribed burns and capability of increase forage production could help, as well as the introduction of PBAs in the area