



Landowner perception of information about prescribed burning: Influence on the application of this land management tool in the Southern Great Plains

¹Lars Coleman, ²Carissa Wonkka, ³Morgan Treadwell, and ⁴Urs Kreuter

^{1,2,3,4}Texas A&M University

THE PROBLEM

Prescribed fire is an important management tool for maintaining the resilience and productivity of many rangelands. However, evidence that this tool is an effective and affordable means for mitigating multiple problems, including woody plant expansion, faced by many landowners has not led to its widespread adoption.

Landowners have often cited lack of knowledge about the safe application of fire as a primary reason for using alternative more costly methods for brush management. This has led to increased focus and emphasis on prescribed fire education and outreach efforts to fill this potential knowledge gap.

However, even when prescribed burning education is provided directly to landowners, the adoption rate of this tool often does not increase substantially. The question this raises is, “How can prescribed fire information and education be enhanced to increase the use of prescribed burning for the economically efficient management of brush encroachment and fuel load accumulation that can lead to increased risks of catastrophic wildfire?”

EDUCATION AND INFORMATION DISSEMINATION

In the literature, trust has often been cited as the primary factor that influences acceptance of prescribed burning by landowners¹. Furthermore, there is often an associated general trust with information emanating from land management agencies^{2,3}. But, “Are there other

elements to information acceptance?” To address this question, information characteristics, including credibility, reliability, clarity, relevance, accessibility, and shareability, need to be evaluated in order to determine how landowners accept information aimed at enhancing the use of prescribed fire.

METHODS

Two approaches were utilized to address this question including telephone interviews with prescribed fire practitioners and an online Qualtrics web survey of landowners who were members of two associations. A total of 66 people employed by state and federal agencies and landowner representative associations were interviewed via telephone.

Additionally, a link to the survey questionnaire was included in electronic newsletters sent to approximately 17,000 members of the Texas & Southwestern Cattle Raisers Association and the Texas Wildlife Association, which resulted in the receipt of 470 completed questionnaires.

RESULTS

Telephone interview takeaways: A general consensus among the interviewees regarding the effectiveness of current information dissemination methods about prescribed fire is that “the public is slowly coming along (in using this management tool.” And that, “The best tool for... (educating landowners) is to invite someone to attend a burn”.

When prompted about social media as an avenue for information dissemination, a common response was that although social media might be able to increase the reach of information dissemination in general, it may not have “given us a greater ability to disseminate (accurate) information about fire” because “it is equally effective for sending the wrong message (false or exaggerated information).”

These quotes highlight the importance of information trustworthiness when educating landowners about prescribed fire and a reason why social media represents a “mixed bag” for getting landowner buy in for the use of prescribed fire. Ambiguity about the trustworthiness of different information sources underpins the reasoning by 46% of the interviewed practitioners that shortage of knowledge and expertise is the biggest challenge to implementing prescribed (Figure 1).

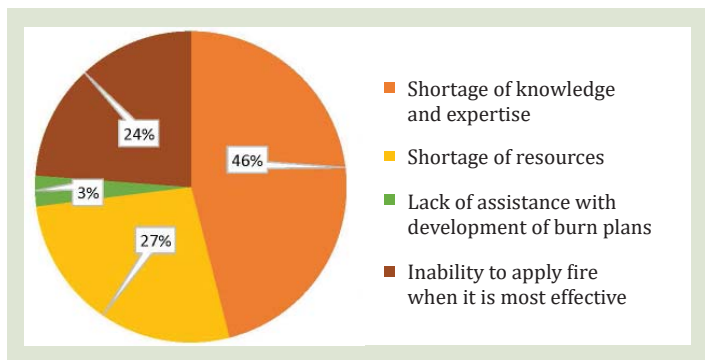


Figure 1. Fire practitioner responses to the question 'What is the biggest challenge to implementing prescribed burning?'

Qualtrics landowner survey takeaways: While 47% of the 470 survey respondents felt they were well or very well informed about prescribed fire, 23% felt they were somewhat informed and 28% felt they were uninformed to various degrees. This finding reinforces lack of knowledge about prescribed fire for more than a quarter of the responding landowners as an inhibitor to the use of this management tool.

When asked about the importance of various information characteristics that lead to the acceptability of prescribed fire information, most of the respondents (60.4%) picked information credibility as most important, followed by reliability (14.6%) and relevance (9.6%) (Figure 2).

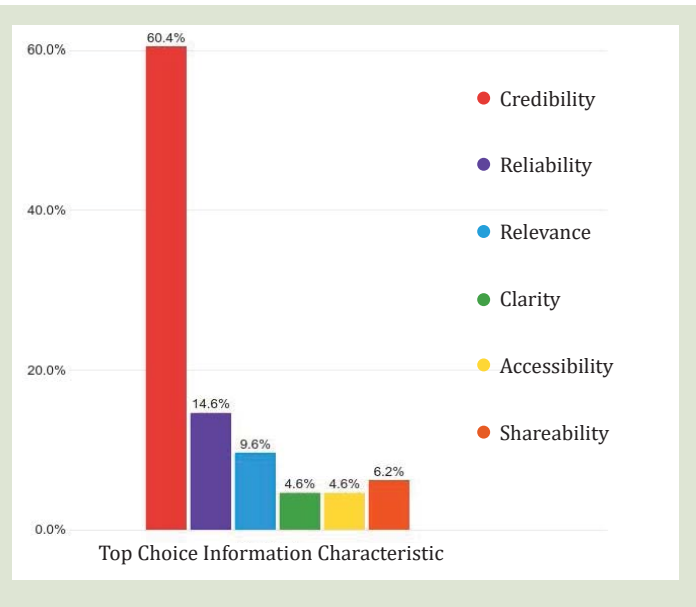


Figure 2. Landowner responses to the question 'When seeking or receiving information about prescribed fire, which of the following characteristics of the information is the MOST IMPORTANT for you to accept the information?'

When asked to score the trustworthiness of information media, respondents ranked face-to-face communications and printed materials highest, followed by information provided through telephone calls and via the internet, and they ranked social media lowest (Figure 3).

Each social medium (Facebook, Instagram, and Twitter) was rated never trustworthy more than 30% of the time. This finding aligns with discussions during the telephone interviews that the trustworthiness of social media depended on the information source.

These results indicate that traditional methods of information dissemination are still more readily accepted as reliable information media, and that social media can at best be used to reinforce otherwise disseminated information about prescribed fire, possible to relatively narrow groups, such as prescribed burning association (PBA) members.

Additionally, when asked to score the trustworthiness of various sources of information, respondents generally ranked federal, state and county agencies highest, including the NRCS, Texas Forest Service, Texas Parks and Wildlife Department and County Extension services^{2,3}, but they also ranked PBAs highly.

IMPLICATIONS

Recognizing the most trusted medium for disseminating information is invaluable when attempting to improve the efficacy education and outreach efforts aimed at increasing the use of prescribed fire. Without a clear understanding of the perceived level of trustworthiness of specific information media, information disseminators may fall short in their efforts to expand the use of prescribed fire.

This implies that, in order to maximize the chance of increasing the use of prescribed fire, landowner entities, such as PBAs, and government agencies tasked with supporting land management improvement, should focus on using the most trusted media for their outreach

efforts. Furthermore, for information dissemination to lead to high adoption rates, the trustworthiness of and preference for alternative information sources is also important. The research results indicate that both government agencies and PBAs rank highly in this regard.

In combination, these findings indicate that to maximize the impact of information dissemination about prescribed fire on adoption of this land management tool by landowners, government agencies and PBAs should focus on combining forces to disseminate printed communications and to providing face-to-face peer-learning opportunities (Toman et al 2006) during burn days hosted by PBA members.

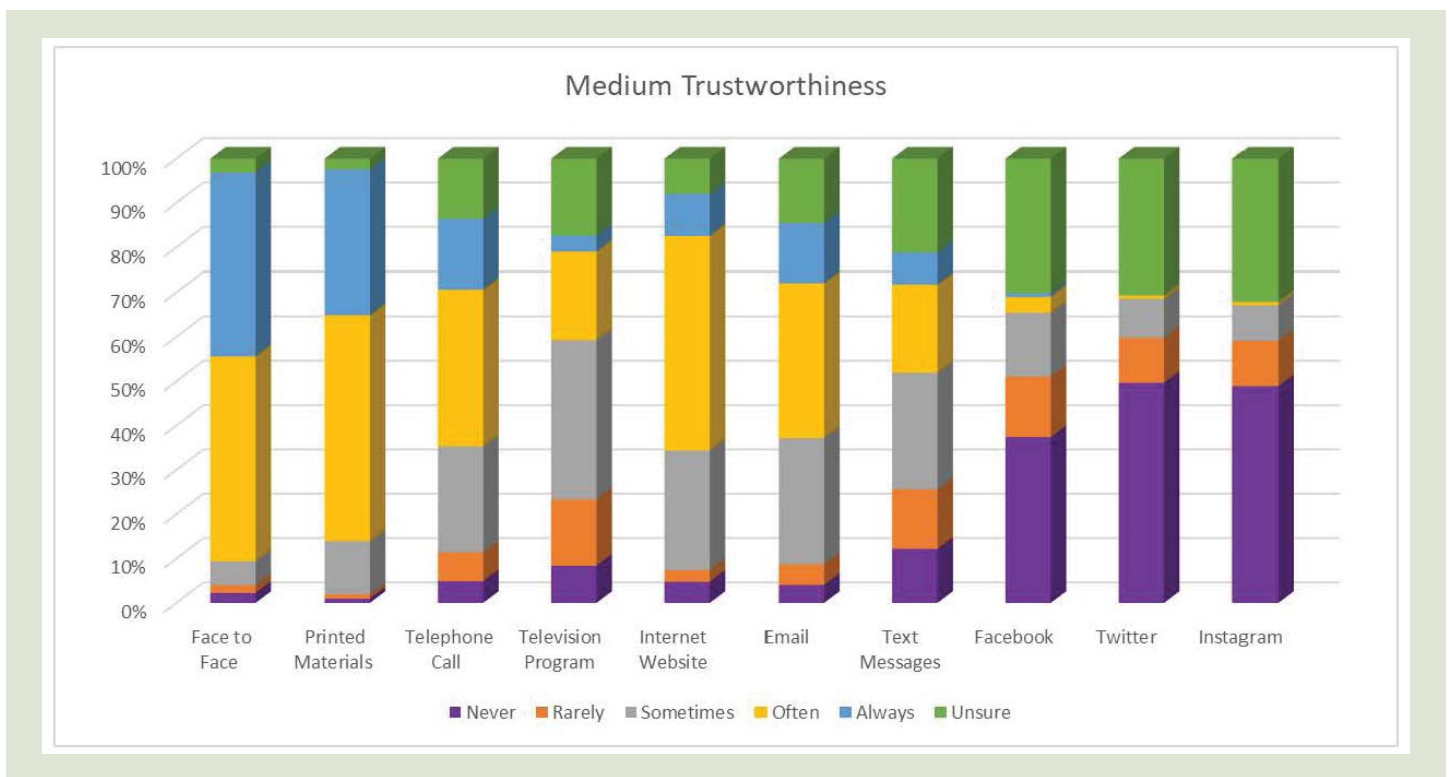


Figure 3. Landowner responses to the question
In general, how trustworthy are the following information media?

References

¹Toledo, D., U.P. Kreuter, M.G. Sorice, C.A. Taylor, Jr. 2014. The role of Prescribed Burn Associations in the Application of Prescribed Fires in Rangeland Ecosystems. *J. Environmental Management* 132:323-328

²Winter, P. L., G. T. Cvetkovich. 2010. Trust mediates conservation-related behaviors. *Ecopsychology* 2(4): 211-219.

³Benett, N. J. 2016. Using perceptions as evidence to improve conservation and environmental management." *Conservation Biology* 30(3): 582-592.

⁴Toman, E, B. Shindler, M. Brunson. 2006. Fire and fuel management communication strategies: citizen evaluations of agency outreach activities. *Soc. & Natural Resources* 19(4):321-336.

This research was funded by the Bureau of Land Management Joint Fire Science Program (Contract #L16AC00206) led by project PI Dr. Urs Kreuter.

For more information, visit www.gpfirescience.org.