



Research Brief for Resource Managers

Release:

October 2021

Contact:

Stephen D. Fillmore
Sarah M. McCaffrey
Alistair M.S. Smith

Phone:

619-417-9495

Email:

stephen.Fillmore@usda.gov
sarah.m.mccaffrey@usda.gov
alistair@uidaho.edu

Historical Review and Framework for Managed Fire Decision Making

Fillmore, Stephen D., Sarah M. McCaffrey, and Alistair M.S. Smith. 2021. A Mixed Methods Literature Review and Framework for Decision Factors That May Influence the Utilization of Managed Wildfire on Federal Lands, USA. Fire 4, no. 3: 62.

<https://doi.org/10.3390/fire4030062>

Although the ability to manage a wildfire for an objective other than full suppression has existed as a management option on federal lands since the late 1960's, there remains much sensitivity to implementing this strategy. Recent examples such as the 2021 Tamarack fire, and the reaction to its 'escape,' have triggered renewed attention to the decision processes managers follow when deciding to implement such a strategy.

A new paper published in September in the journal *Fire* sheds light into the inherent socio-political complexities surrounding the managed fire decision making process. In the paper, the authors conduct an extensive review of the historical literature that pertains to managed fire decision making, described the range of factors managers consider in their decision, and present a conceptual framework of how decision factors fit together.

The paper utilized search criteria to find papers either written by individuals who had authorized fires to be managed (such as Forest Supervisors), data collected from interviews with fire managers, or research data collected from fire managers that asked about their decision processes. The papers they found spanned the time period from 1976 to 2013.

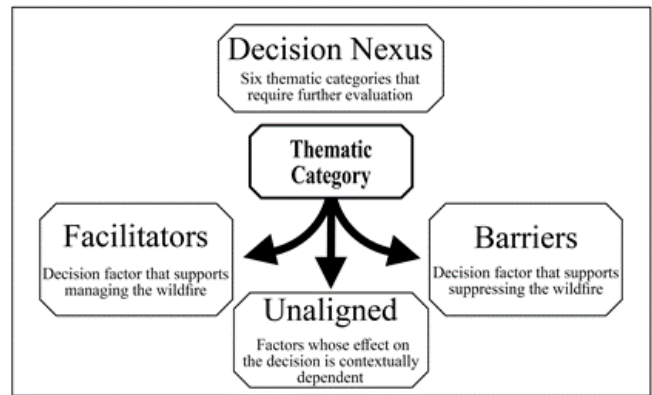
Management Implications

- There are many factors potentially considered when making the decision to manage a wildfire for an objective other than full suppression.
- Decision factors may operate as either a barrier or facilitator, while other factors require further contextual examination to determine their influence.
- The complexity of factors considered in the decision making process may itself be a barrier to greater use of managed fire.
- Risk aversion was the largest barrier, while the personal ethic of the decision maker was the greatest facilitator.

Using qualitative data analysis methods, they conducted a thematic analysis from the papers that met this inclusion criteria. The results demonstrate the complexity of factors that fire managers must evaluate, under the time pressure of an active fire.

In total, the authors found 110 discrete decision factors that could be evaluated when deciding to manage a wildfire. These were organized into 6 key thematic groups: the institutional influences, fire operation considerations, potential fire outcomes, current fire environment, how risk is perceived by the decision maker, and the sociopolitical context of the fire (Fig 1.). Within these 6 thematic areas, decision factors were further organized into one of three categories: whether the factor was a barrier to managing a wildfire, one that facilitated the decision to manage a fire, or was in a category described as unaligned, where contextual information determined their influence on the decision (Fig 2.).

The most commonly seen barrier was an aversion to taking risk by decision makers. This most noted facilitator to managing a wildfire was when the decision maker themselves believed strongly that it was the most appropriate strategy for the fire and was willing to take on the associated risk and uncertainty.



The paper also proposes a Managed Fire Decision Framework (MFDF). The authors suggest that the MFDF could have utility for scientists and managers to assess what specific decision factors may be at play. Identifying these factors may allow units that wish to emphasize managed fire to begin to modify barriers and reinforce those facilitators that exist. The MFDF also could help to inform risk based and spatial planning fire management planning efforts.

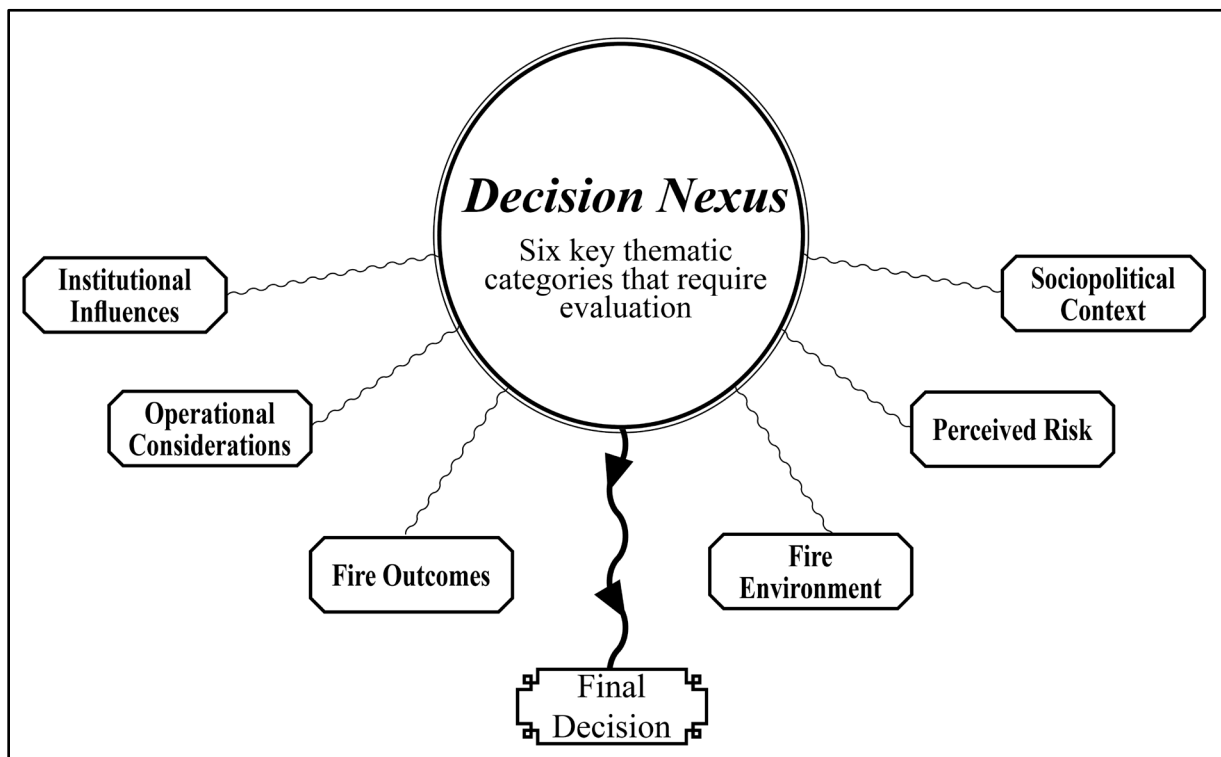


Figure 1. Simplified version of the Managed Fire Decision Framework presented in Fillmore, et al 2021