RESEARCH FINDINGS: PODS, DECISION SUPPORT, AND FIRE MANAGEMENT

Courtney Schultz, Michelle Greiner, Chad Kooistra

Br We have been conducting research on pre-fire planning approaches and decision support for incident management using improved data analytics. Through more than 60 interviews to date, we have studied the utility of Potential Operational Delineations and Risk Management Assistance for fire response, and the use of fuels treatments during incident management. We report on our ongoing research herein; future work will focus on the use of these approaches to support planning and application of forest restoration and fuels reductions treatments.

Forest Service Decision Support Approaches: PODs and RMA

The US Forest Service is developing collaborative, risk-informed approaches to improve fuels reduction planning and wildfire decision making. Though interviewees with decision makers, land managers, and key partners, our team assessed the perceived value and development of these relatively new efforts to understand the contextual factors that affect wildfire decision making and the application of new decision support approaches.

Potential Operational Delineations, or "PODs", are a collaborative, proactive, and cross-boundary planning approach for fire response. Using principles of risk management and data-rich analytical tools, managers on US national forests work with scientists, NGO partners, tribes, state, and local agencies to determine fire management options and PODs in advance of ignitions. Our interviewees agreed PODs hold promise for getting more good fire on the ground and building agreement about fire management approaches in partnership with state and local fire responders outside of the emergency management context. Developing, maintaining, and using PODs, they said, will require leadership support for the approach, dedicated local capacity to maintain PODs, deliberate partner engagement, and interdisciplinary staff involvement. Our next research task is to understand how PODs support planning and treatment implementation.

Starting in 2017, Forest Service leadership implemented Risk Management Assistance (RMA), which involves risk-informed processes and data analytics, to support decision makers on wildfires. RMA is meant to improve decision making and accountability on wildfire incidents. Interviewees said RMA increased line officers' ability to communicate the rationale for their decisions more transparently to colleagues and partners. Longer-term investment to facilitate pre-season planning and organizational change are needed to institutionalize efforts like RMA, by integrating new approaches into existing processes, providing leadership guidance, and ensuring field-level personnel are familiar with new analytical tools. Our work on both RMA and PODs revealed contextual factors such as the local political receptivity, biophysical conditions,

and existing decision biases impact the uptake of these efforts. Clear leadership direction, training opportunities, and interagency communication will be important going forward.

Ongoing Research on Fuels Treatments and Fire Management

We are conducting ongoing research on the use and effectiveness of fuels treatments during wildfire incident response. Fire management personnel and fuels planners to date have agreed that fuels treatments can be useful during incidents for tactical advantage, including initial fire assessment, burning off from, and as access points, regardless of whether the fire intersected those treated areas. Interviewees said fuel treatments allowed for some improved time efficiencies and responder safety, and reduced fire intensities. For example, fire management personnel who worked on the 200,000-acre Cameron Peak Fire in Colorado told us one prescribed burn and nearby mechanical treatments reduced fire intensity, giving them more time to protect structures. Most interviewees recommended implementation of more strategic and connected treatments. They say a primary constraint is a lack of financial and human capacity to implement fuel treatments and to conduct ongoing maintenance. To date we have completed two case studies of 2020 wildfires where fuels treatments were considered during incident response and will continue with a sample of 2021 fires early next year.

Outstanding Questions and Ongoing Research

Based on our work, academic and practitioner papers, we have identified key questions warranting attention going forward, including:

- How might PODs and RMA integrate with other initiatives such as Shared Stewardship and the Fireshed Registry? Our future work will investigate the role of PODs in planning fuels treatments at the local level, supporting RMA, and informing performance measurement.

- How are these tools used during large, cross-jurisdictional fires and in places with less agreement about fire management objectives? Ongoing research will investigate the use of RMA and PODs in various contexts.

- How can the agency and its partners find the necessary resources to maximize the utility of RMA and PODs? We recommend attention be paid to the capacities needed to implement and maintain PODs and fuels treatments to increase their utility in fire management.

More Information

For the complete reports on results of our PODs and RMA work, visit:
https://sites.warnercnr.colostate.edu/courtneyschultz/fire-management/

For more information about these projects, contact:
Dr. Courtney Schultz
Courtney.Schultz@colostate.edu
Colorado State University; Fort Collins, CO 80521-1472