

Use of Risk Management Assistance During the 2021 Wildfire Season



Overview

The USDA Forest Service developed Risk Management Assistance (RMA) in 2016 to enhance the use of risk-informed management principles and decision-support tools during wildfire response that improve decision quality and accountability and minimize unnecessary risk to firefighters. To evaluate and improve RMA, the USDA Forest Service Fire and Aviation Management (FAM) requested assistance from the Southwest Ecological Restoration Institutes (SWERIs) to assess RMA use among line officers and Incident Management Teams (IMTs) during the 2021 wildfire season. The SWERIs developed and deployed an online questionnaire (n=94 usable responses) to assess: 1) what tools were used; 2) how they were used to inform decision-making; 3) factors that facilitated and frustrated use; and 4) practitioner recommendations to improve use of RMA. Figure 1 depicts the incidents represented in the questionnaire along with other pertinent incident, IMT, and management strategy information. Here, we outline high-level findings and document recommendations to improve RMA use.

What RMA tools were used and how were they used to inform decision-making?

Tools used: The Suppression Difficulty Index (SDI) and Potential Control Location (PCL) analysis were the most frequently used RMA tools, followed by the Season-ending Analysis, Estimated Ground Evacuation Time, Snag Hazard, and Potential Operational Delineations (PODs).

Facilitated dialogue: RMA facilitated dialogue between local units, agency administrators, IMTs, and cooperators. RMA helped: 1) clearly frame objectives; 2) articulate biophysical, social, and fire management considerations, as well as operational opportunities and challenges; and 3) support and explain strategic and tactical decision-making rationale. RMA also holds potential to improve information sharing between teams during team transitions.

Informed incident decision-making: RMA was used to inform decision-making throughout the fire life cycle (Figure 2). RMA was most frequently used to inform incident operations and long-term assessment, evaluate alternative courses of action, and frame or reinforce Wildland Fire Decision Support System (WFDSS) decisions.

- RMA informed development of Management Action Points and identification of Primary, Alternate, Contingency, and Emergency lines.
- RMA was used to develop situational awareness on emerging incidents and support operational decision-making on complex incidents.
- RMA informed direct and indirect line placement by modeling suppression difficulty and potential for control for primary and alternative course of action.

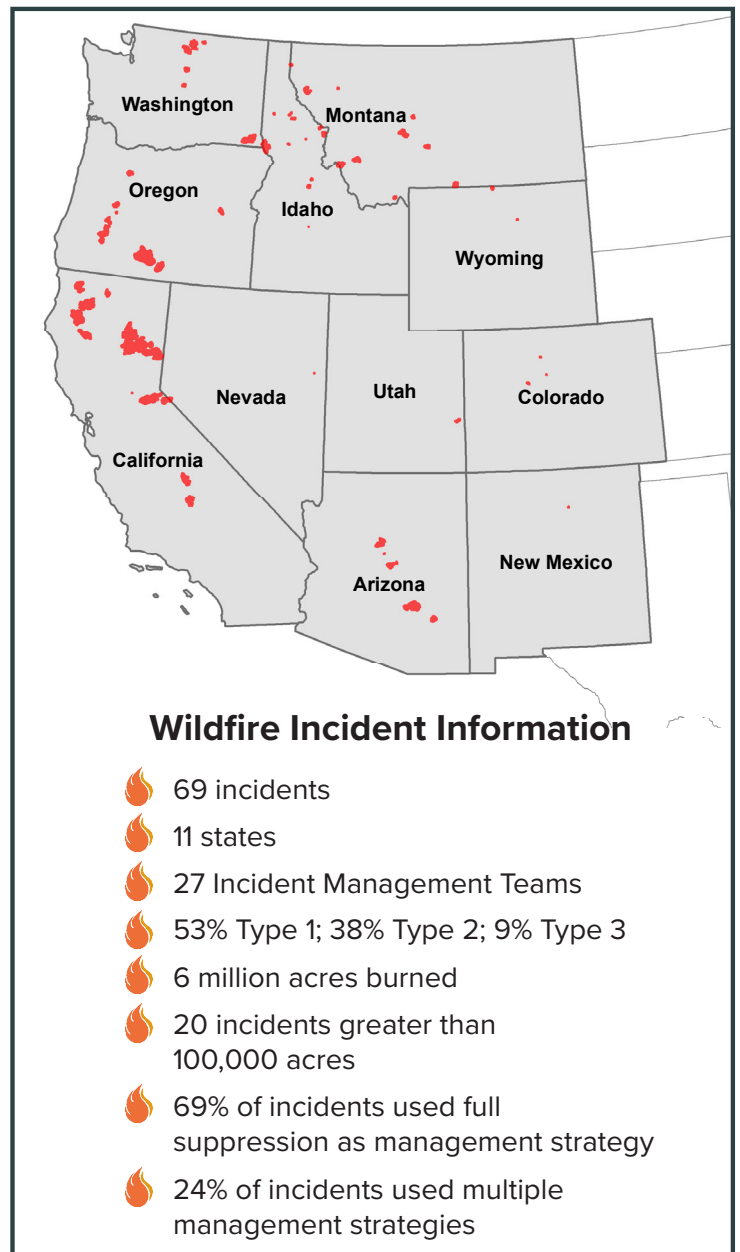


Figure 1. Locations of wildfires represented in RMA questionnaire. Bulleted list includes pertinent incident, team, and management strategy information.

Supported regional prioritization: RMA was used by regions and geographic area coordination centers (GACCs) to prioritize incidents and inform resource allocation.

Factors facilitating or frustrating use: Familiarity with RMA, trust in the accuracy of analytics, receptiveness to new tools and processes, internal capacity and expertise, and the presence of leaders who advocated for using RMA to support fire and land management decision-making affected RMA use.

decision-support tools, including WFDSS. This could be achieved through setting leadership intent in the IMT, during the preseason at annual coordination meetings, and/or documented through the delegation of authority.

Analytical capacity: Additional investments in analytical capacity to develop and use risk-informed spatial analytics are needed. Funding for analysts and support staff could help develop and interpret RMA analytics and provide additional services under the RMA program of

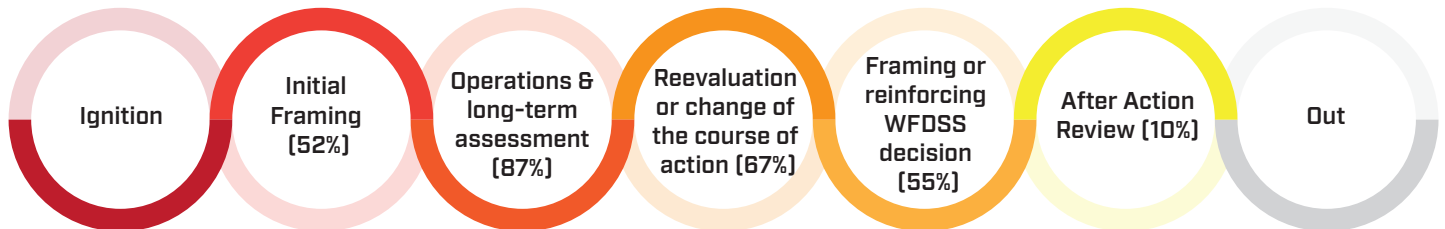


Figure 2. Fire management life cycle. Numbers in parentheses refer to the percentage of respondents who used RMA to inform each phase of the life cycle.

Recommendations to improve RMA adoption on wildfire incidents

Recommendations to improve RMA use on wildfires included the need for increasing education and outreach, setting leadership intent, making additional investments in analytical capacity, updating the models and analytics, and continuing long-term evaluation and assessment of RMA use.

Education and outreach: There is a need for additional education, training, and outreach on RMA in the classroom, among units and teams, and on incidents. Suggestions included webinars, integrating RMA into the National Wildfire Coordinating Group course work for both firefighters and agency administrators, introducing RMA processes and analytics during PODs workshops, and peer learning during or after incidents. National peer learning groups, like the PODs user group, are key to education and outreach. More frequent, regionally-focused user groups would be beneficial to further socialize RMA and document innovations in the field. Learning modules and help links for tools on the RMA dashboard was also recommended.

Leadership intent: There is a need for improved leadership direction on expectations regarding how RMA should be used during incidents and integrated within existing

work. Regional analysts are becoming more common and could be funded in all GACCs to support multiple incidents and regional prioritization. IMTs could incorporate strategic operations positions in planning and operations sections who are trained in risk management principles and analytics.

Tool updates: Increasing the frequency at which tools are updated to reflect dynamic conditions on the ground was recommended.

Long-term evaluation: The use of RMA analytics continues to evolve as practitioners innovate to situate these analytics and processes within their decision-making context. There is a need to document uses and innovations through long-term evaluation. Importantly, innovative applications should be documented and communicated to practitioners effectively and in a timely manner to support safe and effective wildfire response.

Conclusion

SWERI assessed RMA use during the 2021 wildfire season. In this summary, we outlined high-level findings and recommendations to improve RMA use. The full report is available [here](#). SWERI is working to develop a longitudinal evaluation of RMA use and innovation that is grounded in the needs and priorities of RMA users and leadership.