

8.2 Responding to Wildfire Events: Risk-Based Decisionmaking Among a Group of Experienced Fire Managers

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Abstract

Understanding the behavioral decision patterns that underlie fire management is essential to improving decisionmaking. While many factors can influence decisionmaking in the wildland fire environment (e.g., safety concerns), what is less certain is how various heuristics and biases influence how a fire manager responds to a wildfire event (Williamson 2007). Maguire and Albright (2005) have suggested that fire managers may use mental shortcuts for decisions involving risk, resulting in outcomes contrary to the managing agency's objectives. These shortcuts cause systematic biases, including excessive aversion to losses (Kahneman and Tversky 1979), a desire to maintain the status quo (Samuelson and Zeckhauser 1988), and inordinate attention to short-term risk (Camerer and Kunreuther 1989). To explore possible biases in fire-management decisionmaking, we conducted a Web-based experiment among line officers and incident personnel in a federal land management agency. Participants ($n = 206$) were randomly assigned to one of four instruments. Descriptive analyses indicate that the majority of managers (88 percent) avoid risk and behave cautiously when managing a wildfire event. Experimental analyses indicate that

individuals 1) exhibited loss aversion, taking greater risks when primed to think about the potential losses (houses lost) resulting from a decision as opposed to the gains (houses saved), 2) discounted future risk when thinking about tradeoffs between short- and long-term risk reduction for multiple management objectives, and 3) exhibited a status quo bias, choosing suppression more often than fire use for new decisions when their status quo was to choose suppression in the past. Our findings indicate that fire managers are subject to biases in judgment that might result from how information is framed or presented. Although greater years of experience seemed linked to more comfort in risky decisionmaking contexts, findings also suggested a reliance on past experiences. This reliance may result in a less than ideal consideration of new approaches to management of fire and fire risk. These findings point to a need for decision support tools that fire managers can use to avoid an over-reliance on past personal experience and unconscious decision heuristics. They also highlight the need to frame information in a way that helps counteract the decision biases identified.