

The Use of Human Behaviour in Fire to Inform Canadian Wildland Urban Interface Evacuations

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Abstract

Wildland urban interface (WUI) communities are generally the most at risk of being impacted by wildfires. In order to assess the vulnerability of these communities, it is important to understand the impact that human behaviour in fire (HBiF) can have on wildfire evacuations, specifically in Canada where such data is lacking. To lay the groundwork for a comprehensive vulnerability assessment of a Canadian case study community, a conceptual model of protective action decision-making during WUI fires was created. This was used to develop a survey to understand the WUI fire awareness and experience as well as the anticipated protective actions of the case study community residents. The microsimulation software PTV VISSIM was used to model 10 evacuation scenarios to identify key evacuation modelling considerations and potential evacuation challenges faced by the community. In doing so, a framework for using HBiF to inform WUI vulnerability assessments and evacuations was developed.