

British Columbia Wildfires—Social-Ecological Costs as a Function of Fire Weather

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As it stands, the Canadian Forest Fire Weather Index System (FWI) already informs important decisions at the interface of weather, wildfire, the management thereof, and British Columbians. Saliently, as a contribution to the literature and applied landscape, *British Columbia Wildfires—Social-Ecological Costs as a Function of Fire Weather* leverages public datasets provided by the European Centre for Medium Range Weather Forecasting (ECMWF) in conjunction with the Global Fire Emissions Database (GFED) and ventures to overlay an economic dimension onto our pre-existing operational paradigm. Ultimately, in order to demystify in any capacity an incredibly complex and consequently uncertain fire management mandate. Put plainly, fire suppression costs cannot keep pace with our emerging fire regimes, therefore, managers must maximize the marginal benefit of each dollar spent, and, to do so, an understanding of how wildfire affects value changes across human, natural and built capital must be established. Further, at what Fire Weather thresholds do positive wildfire driven value changes transition into negative ones; the rate at which these value changes scale in response to fluctuating fire risk, and what interventions and their proportions mitigate negative value changes to the utmost extent according to when and where criteria.

Fire budgets may be finite, however, the value or benefit we derive from each dollar is not set in stone, and, in essence, this understanding underlies the motivation and broader applicability of this thesis. For, our decision-makers deserve support towards making informed decisions; our firefighters deserve to operate under that certainty in such uncertain conditions; and, British Columbians deserve the maximum benefit from each decision and action, certainly.