AN ANALYSIS OF THE METEOROLOGICAL CONDITIONS ASSOCIATED WITH THE 1999 PANTHER RIVER FIRE IN BANFF NATIONAL PARK

Brian Mottus
Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre, 5320 - 122 Street, Edmonton, AB T6H 3S5, Canada

Ian Pengelly
Parks Canada, Banff National Park, P.O. 900, Banff, AB T1L 1K2, Canada

ABSTRACT

On 27 May 1999 the Panther River Fire occurred in Banff National Park, Alberta. This wildfire originated from a spot fire produced by a prescribed burn that was being conducted approximately 4 km upwind of the fire site. The wildfire spread more than 7 km in about 90 minutes primarily through stands of mature (340-year-old) Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*). The fire was unique because it burned on a north-facing slope of which the top one-third was still snow covered and the bottom two-thirds had a fully saturated duff layer. Thus the fire spread occurred almost exclusively through the tree crowns with little or no surface fuel consumption in most areas. Severe fire weather played a major role in the extreme behavior exhibited by this fire. We describe the various synoptic, meso-scale, and micro-scale meteorological conditions prior to and during the spread of this wildfire. The implications for conducting future prescribed burns in this area will also be discussed.

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