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Abstract

Disturbance regimes in coastal British Columbia

Lori D. Daniels and Robert W. Gray

What is the dominant disturbance regime in coastal British Columbia? In this literature review, we discuss the relative importance of fire versus canopy gaps as agents of disturbance affecting the structure and dynamics of unmanaged coastal forests in British Columbia. Our analyses focus on the province抯 wet coastal temperate rain forests, specifically the Hypermaritime and Very Wet Maritime Coastal Western Hemlock (CWHvh and CWHvm) subzones, and the Wet Hypermaritime and Moist Maritime Mountain Hemlock (MHvh and MHmm) subzones. After reviewing the relationships between disturbance events, disturbance regimes, and stand dynamics, we critically assess the traditional classification of fire regimes in the wet coastal temperate rain forests, in part by differentiating between fire occurrence and mean return intervals. We provide four lines of evidence to reject the traditional view that stand-initiating fire at intervals of 250–350 years was the dominant disturbance regime in the wet coastal temperate rain forests of British Columbia. According to recent field research, historical fires were very infrequent in wet coastal temperate rain forests and were more likely low- and mixed-severity events, rather than stand-initiating fires. As an alternative to fire, we propose that fine-scale gap dynamics is the dominant process explaining the structure and dynamics of most unmanaged stands in the province抯 wet coastal temperate rain forests. Improved understanding of the spatial and temporal attributes of disturbance regimes in coastal forests has important implications for sustainable forest management and conservation of biodiversity.

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