

Wildfire Issues and Fire Management in Canada



Bill de Groot
Canadian Forest Service



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GOFC-GOLD Fire IT meeting,
Canadian Space Agency,
Montreal, Feb. 7-9, 2005

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Forest Regions of Canada



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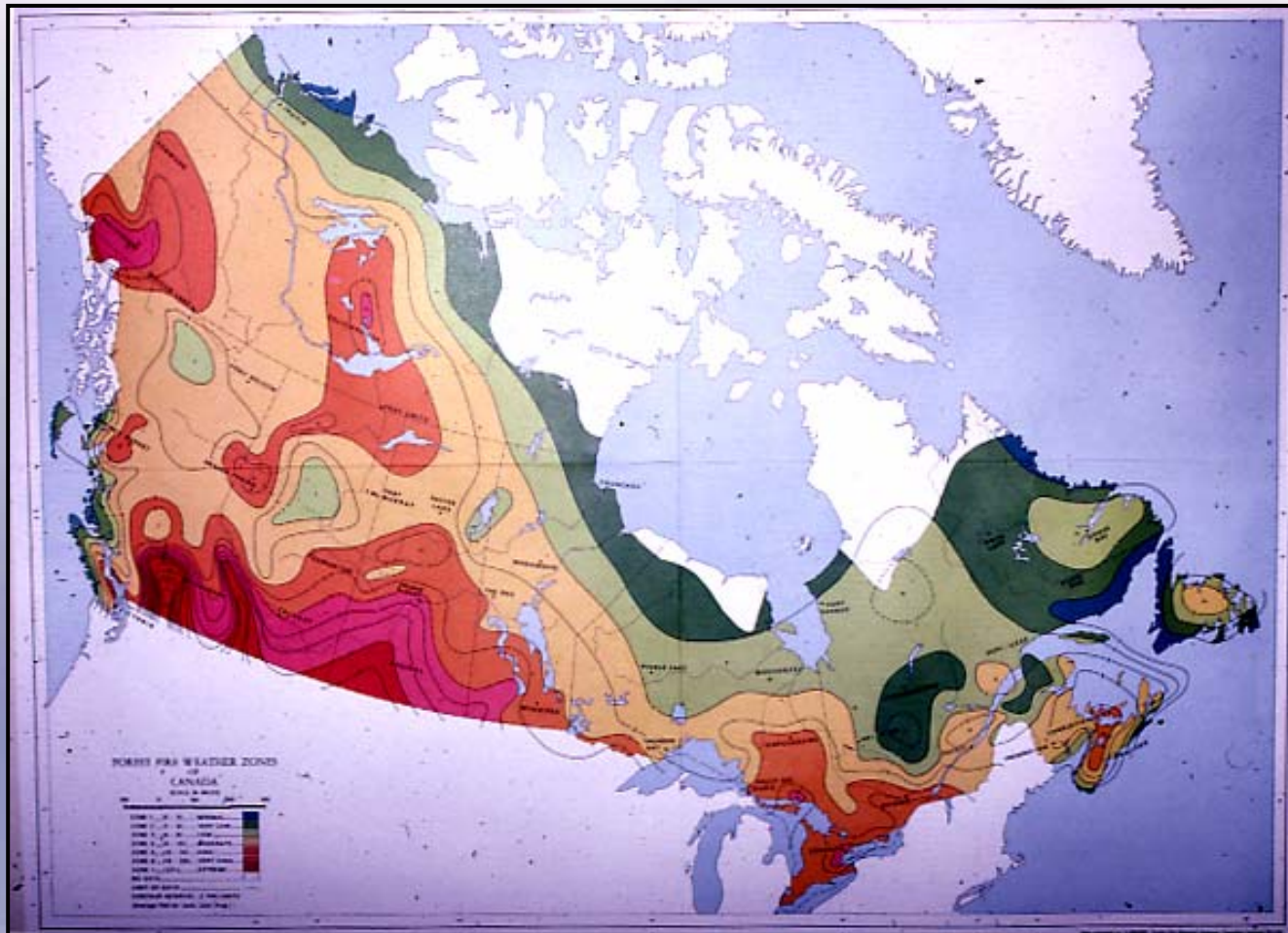
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Fire Weather Zones in Canada



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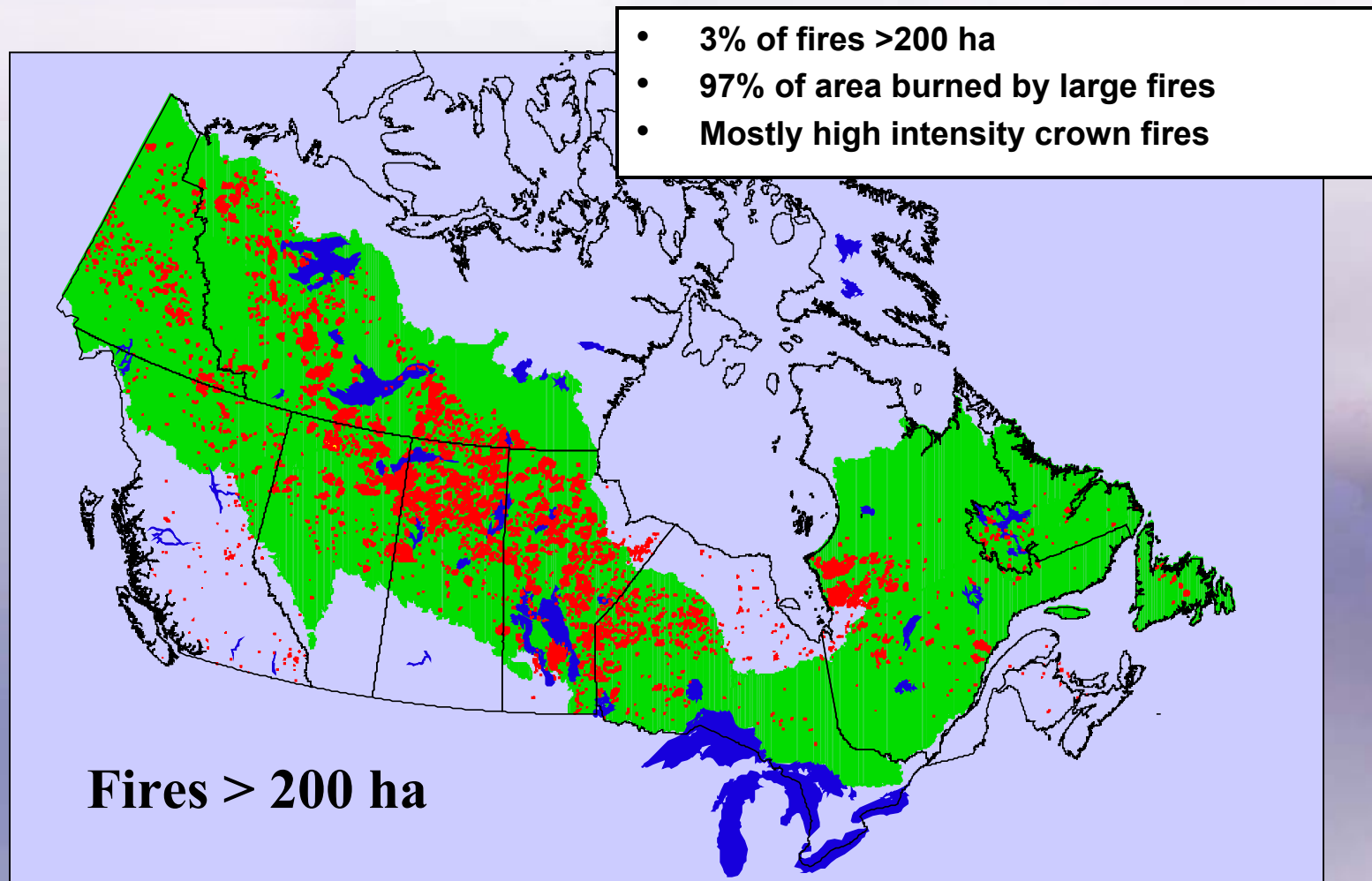
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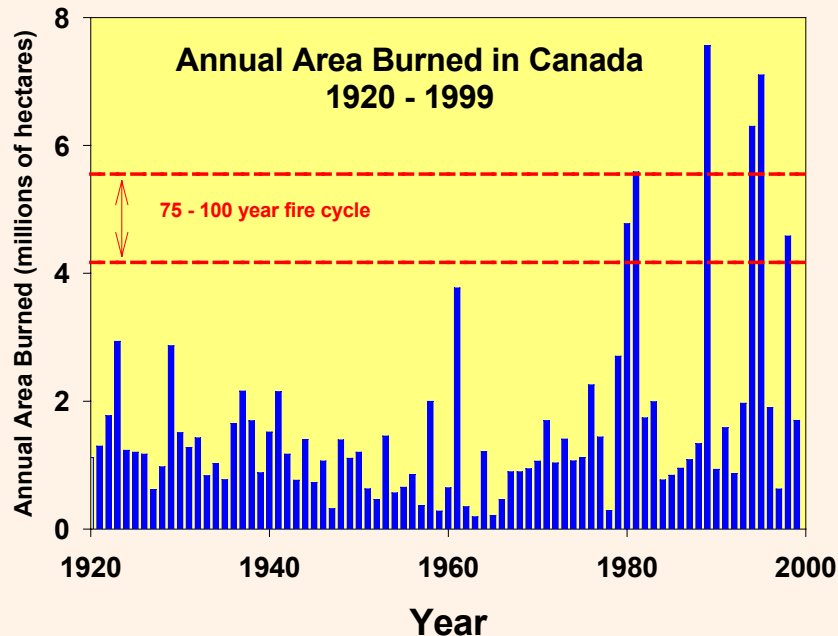
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Area Burned in Canada, 1980-1995



Canadian Fire Statistics

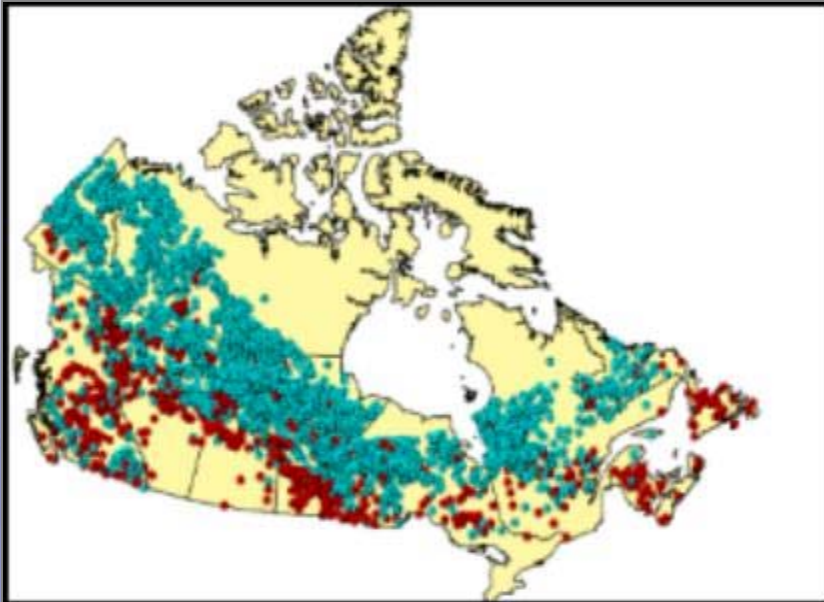


- Average annual area burned: 1-2M ha, 9000 fires/yr
- 1990's mean: 8,000 fires/yr burned 2.8 Mha/yr
- Annual area burned represents about 0.67% of Canada's total forested area (417 Mha)
- Annual area burned is highly variable
- General increasing trend



Fire Causes

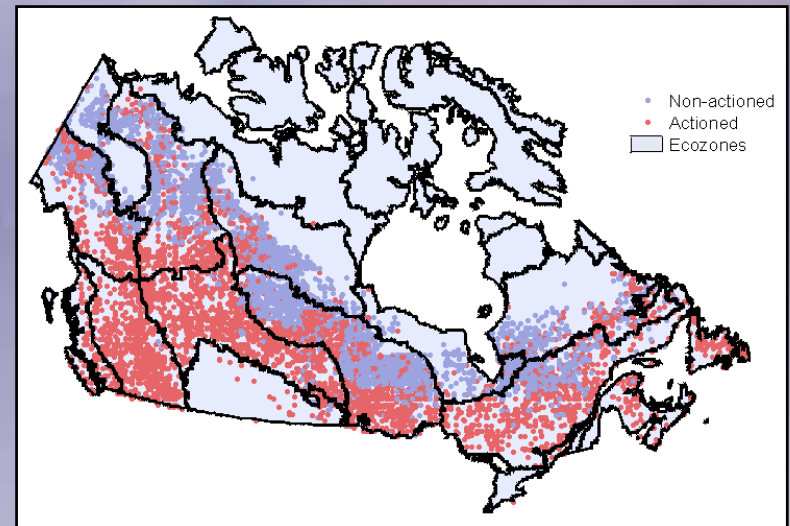
- 2 out of 3 fires are human-caused
- Most human-caused fires are in the southern forest zone
- Lightning fires account for 85% of area burned



Fire Management in Canada



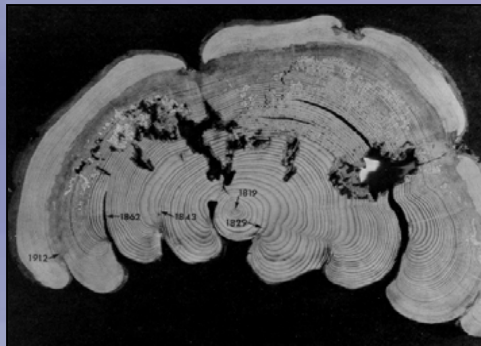
- Provincial/Territorial mandate
- \$500-900 M/yr fighting fires
- Loss of property \$8 million/yr
- Timber loss ~ \$2 billion /yr



Fire Management in Canada



- Fire has been natural component of forests for millenia
- Fires are suppressed to protect human life, property, and social and timber values
- 300 forest dependent communities



Fire Research in Canada



- Canadian Forest Service began fire research in 1920's
- Focused mainly on fire behaviour, fire danger rating
- More recently, fire management systems, fire and climate change



Canadian Forest Fire Danger Rating System (CFFDRS)

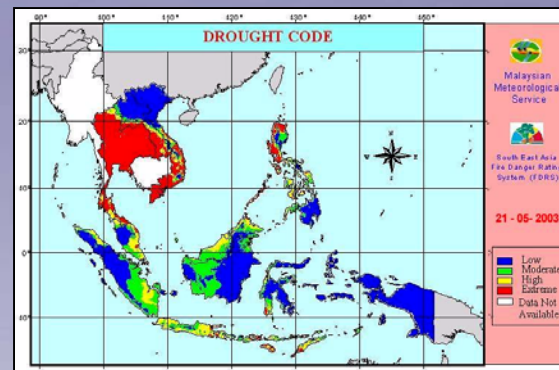
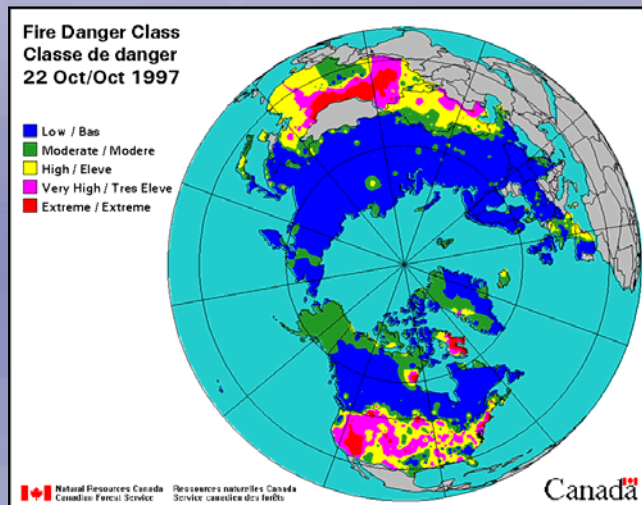
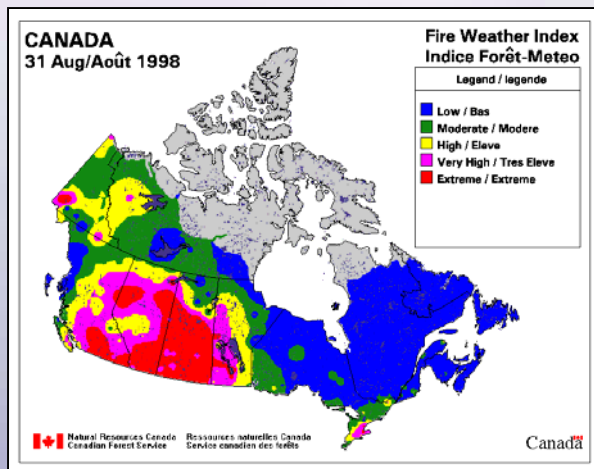


- Indicator of potential for fire to start, spread, and do damage
- Forest fire 'measuring stick'
- Used for resource deployment, prescribed fire planning, implementing prevention and detection systems, measuring climate change impacts

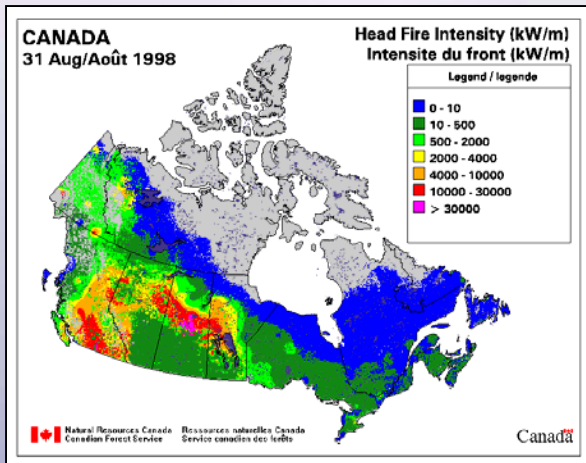


Canadian Forest Fire Danger Rating System (CFFDRS)

- ## Canadian Forest Fire Weather Index (FWI) System
- 6 weather-based codes and indices
 - relative indicators of forest dryness and general fire behaviour
 - landscape level
 - predictor of current/future burning conditions and fire regimes



Canadian Forest Fire Danger Rating System (CFFDRS)



Canadian Forest Fire Behavior Prediction (FBP) System

- quantitative predictor of fire behaviour by fuel type and topography
- rate of spread, fuel consumption and fire intensity
- forest stand level



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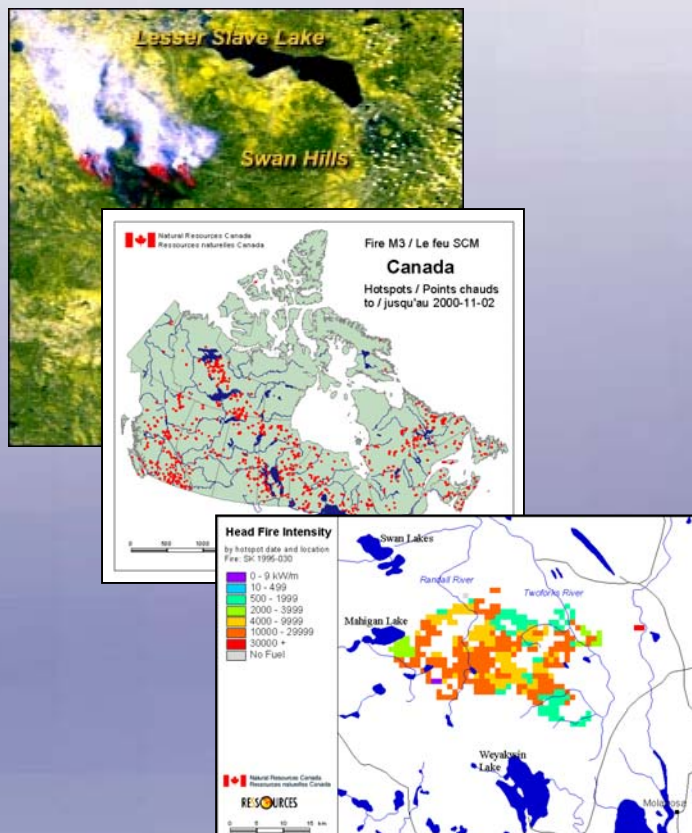
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Fire-M3 and Canadian Wildland Fire Information System (CWFIS)



- The wildland fire carbon emissions project is a Natural Resources Canada (NRCan) joint project by Canadian Forest Service and Canada Center for Remote Sensing
- Funding by Canadian Space Agency
- CWFIS will now combine Fire-M3 products with new carbon emission modeling tools
- Will support the National Forest Carbon Monitoring and Reporting System (NFC-MARS)
- Will be used to meet international carbon reporting commitments under Kyoto and UNFCCC



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