

Wildfire Issues and Fire Management in Canada



Bill de Groot
Canadian Forest Service



Natural Resources
Canada

Ressources naturelles
Canada



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

Canada

Forest Regions of Canada



Natural Resources
Canada

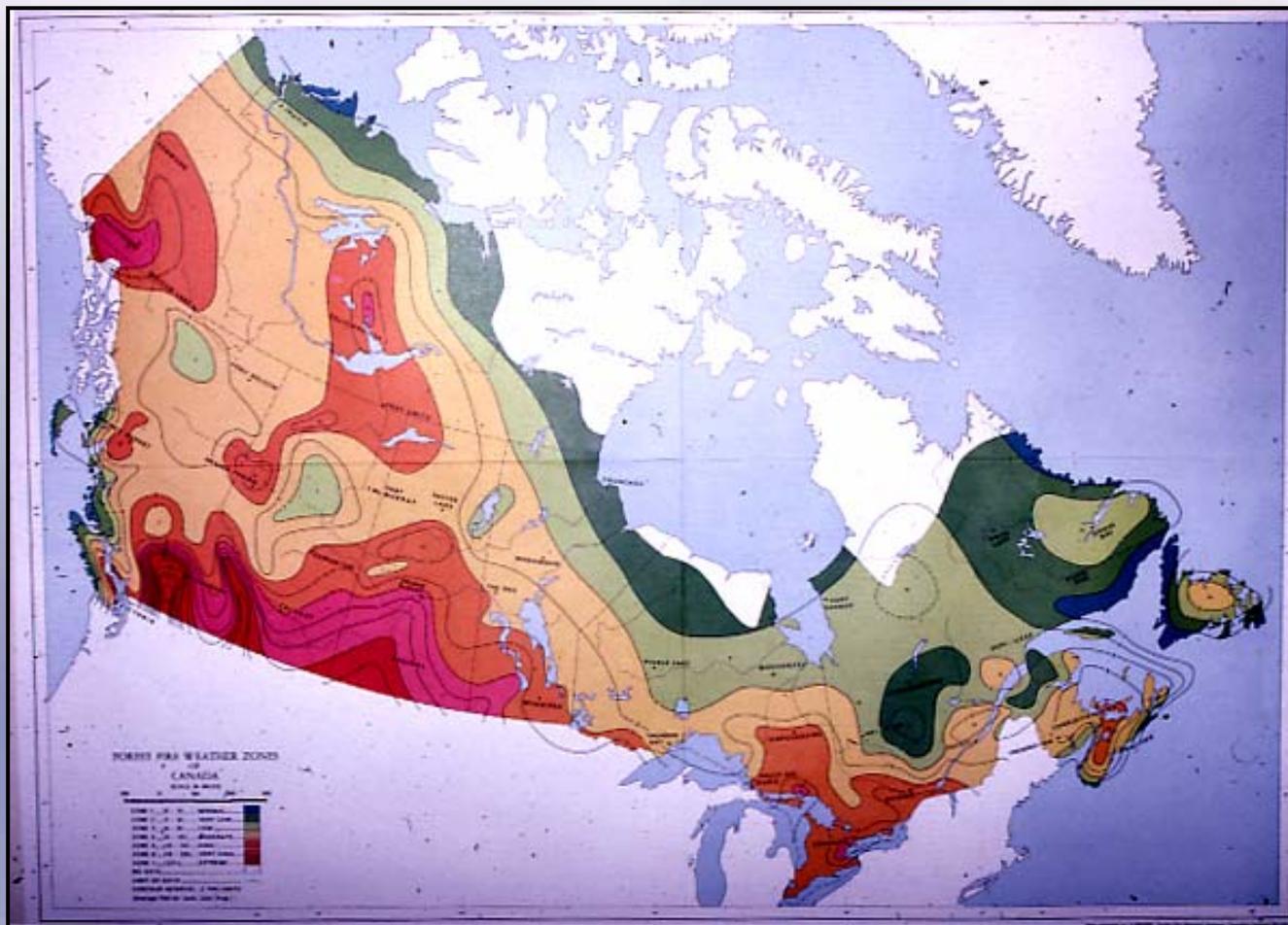
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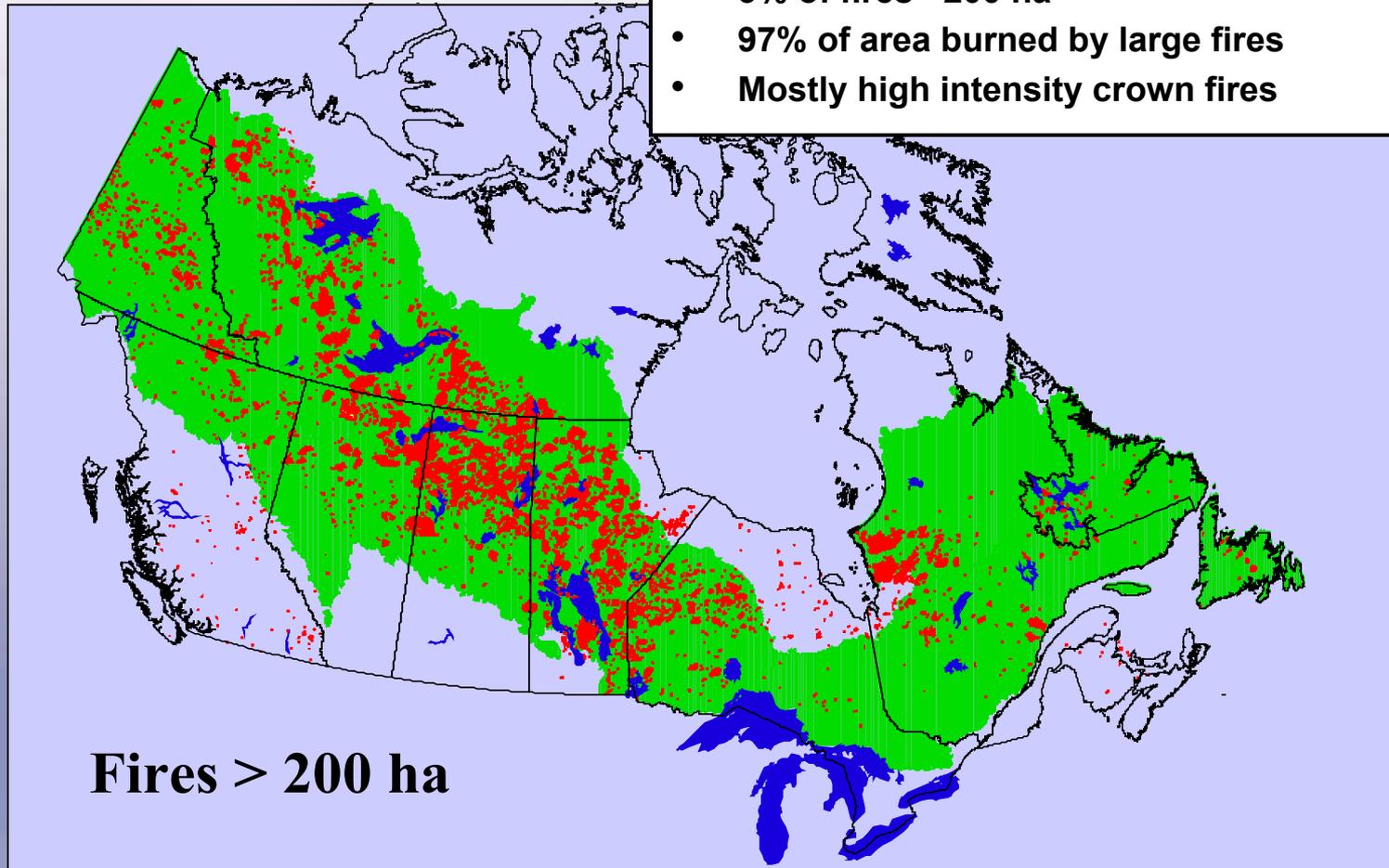
Canada

Fire Weather Zones in Canada

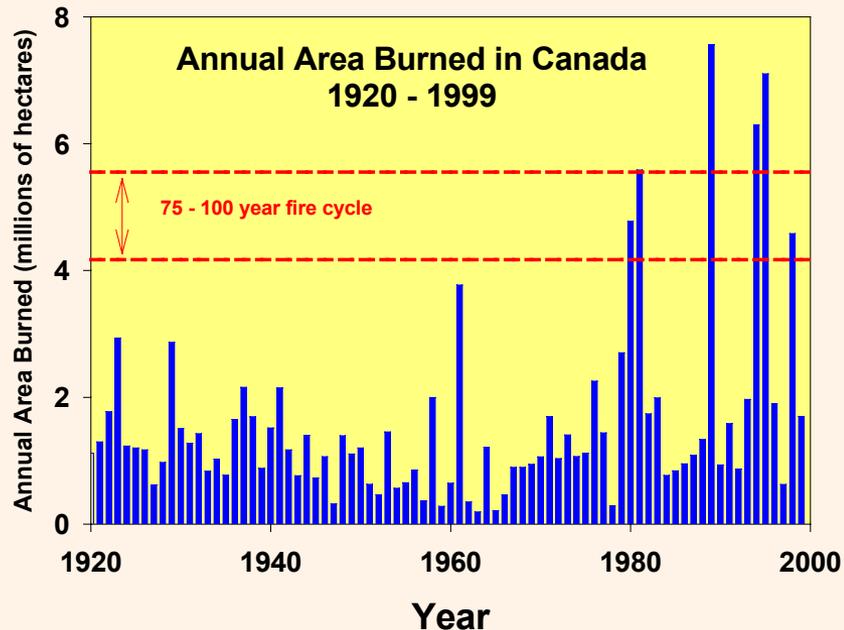


Area Burned in Canada, 1980-1995

- 3% of fires >200 ha
- 97% of area burned by large fires
- Mostly high intensity crown fires



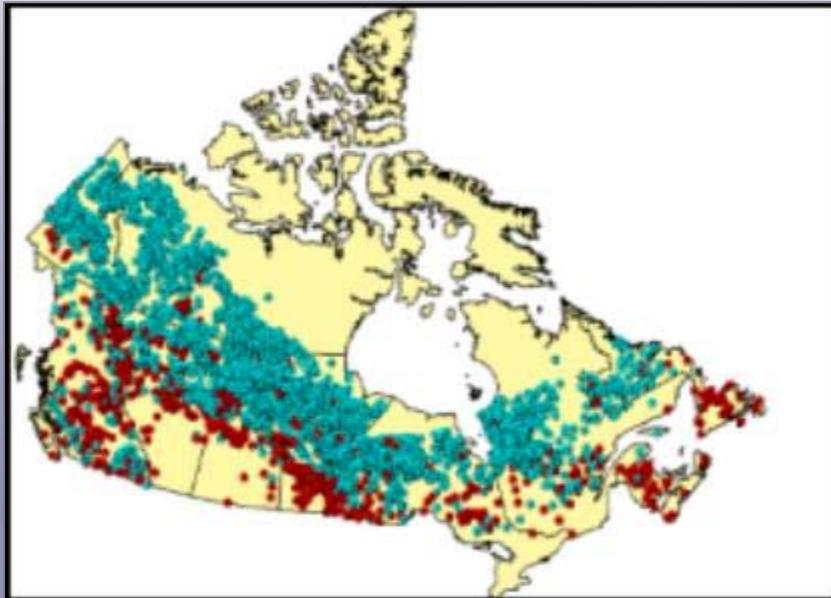
Canadian Fire Statistics



- 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



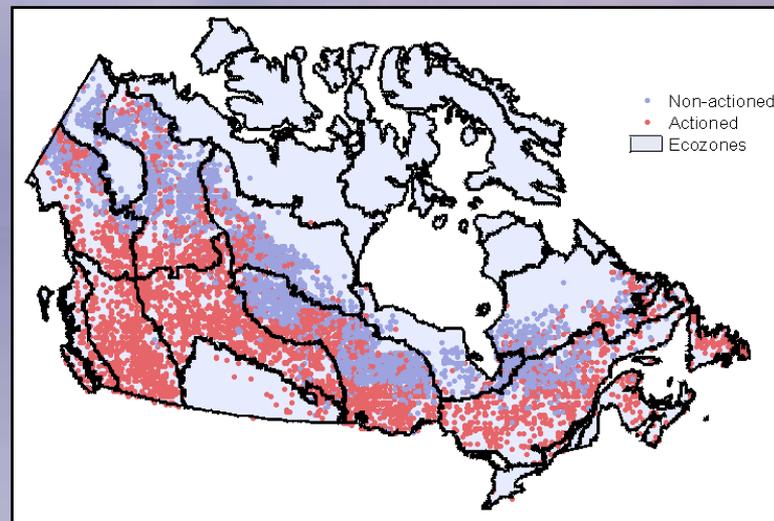
- **2 out of 3 fires are human-caused**
- **Most human-caused fires are in the southern forest zone**
- **Lightning fires account for 85% of area burned**



Fire Management in Canada



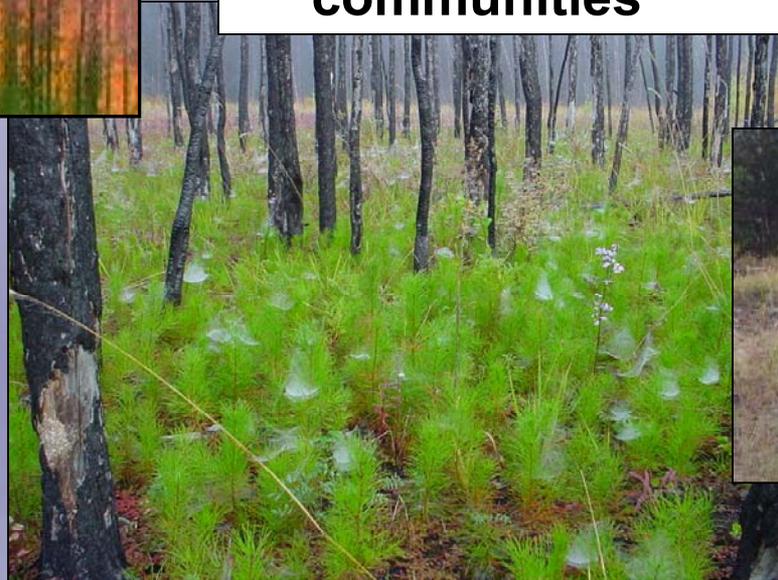
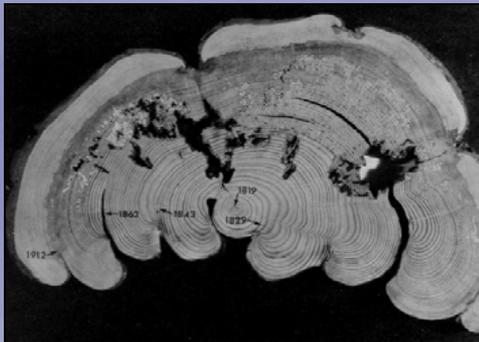
- Provincial/Territorial mandate
- \$500-900 M/yr fighting fires
- Loss of property \$8 million/yr
- Timber loss ~ \$2 billion /yr



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)



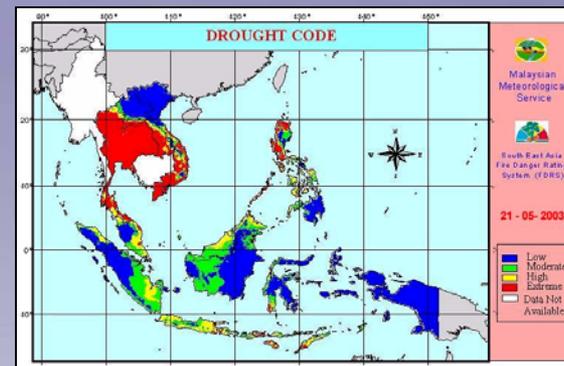
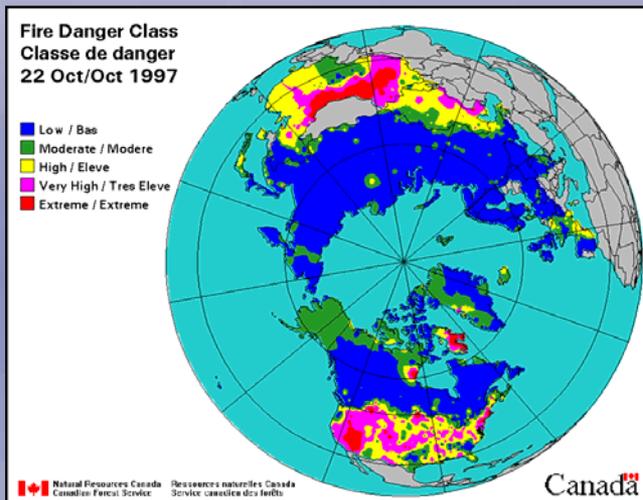
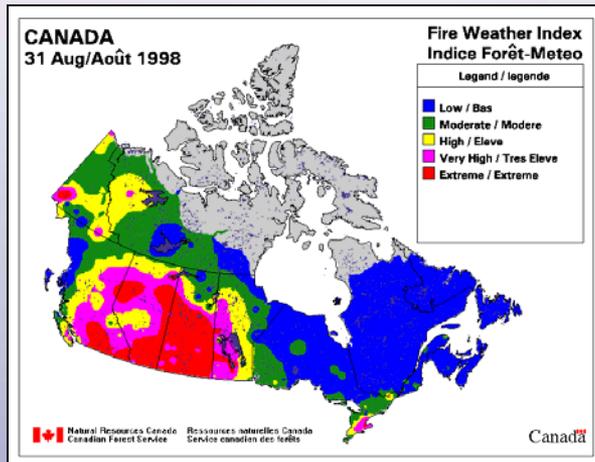
- Indicator of potential for fire to start, spread, and do damage
- Forest fire ‘measuring stick’
- Used for resource deployment, prescribed fire planning, implementing prevention and detection systems, measuring climate change impacts



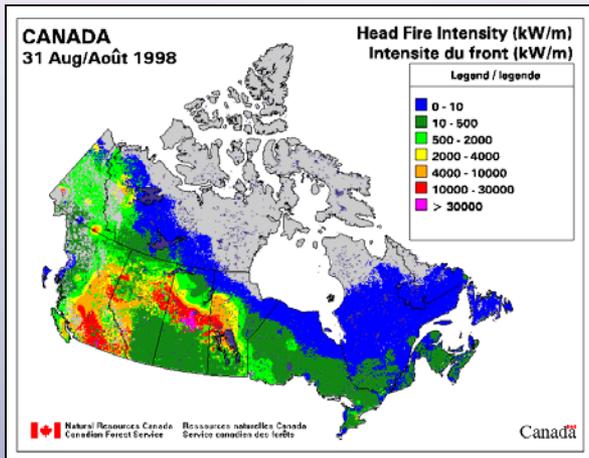
Canadian Forest Fire Danger Rating System (CFFDRS)

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)

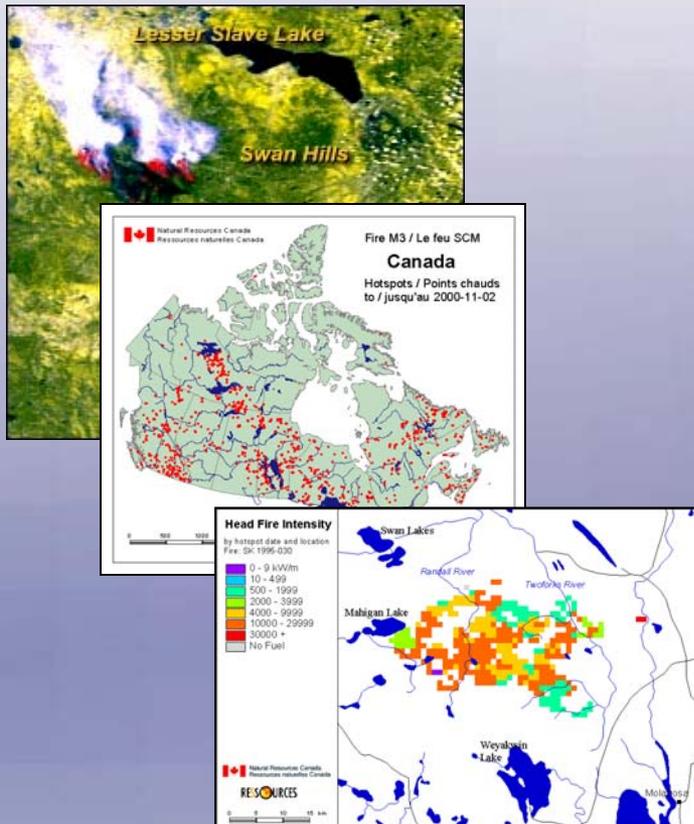


Canadian Forest Fire Behavior Prediction (FBP) System

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



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

