Chisholm-Dogrib Fire Research Initiative

Foothills Model Forest

Board of Directors Meeting

June 20, 2002

Chisholm Fire

- one of the best documented wildfires in Canadian history
- provides an outstanding opportunity for fire and forest management research.
- recognized immediately by Alberta government, committed to making this one of the most studied wildfires in Alberta's history

Dogrib Fire

- also well documented fire behaviour
- opportunity to study fire in Upper Foothills, Subalpine and Alpine Natural Subregions (similar ecologically to FMF landbase)

Mission Statement

- Research will be directed towards fire behaviour, fire pattern, and/or fire impacts projects.
- Goal is to conduct efficient and effective fire research - lead to a better understanding of the risks and impacts of extreme fire events on Alberta's landscapes

Collaborators

- University of Alberta
- Alberta Sustainable Resource Development
- Canadian Forest Service
- Bandaloop Landscape Ecosystem Services

Project Development

- Alberta SRD agreed to fund project, have staff participate as Activity Leader, advisory group members
- FMF administers project with assistance from FMF Natural Disturbance Program
- Collaborative research agreements with other research agencies

Project Management

- Activity Leader- Don Harrison, SRD Forest Protection
- Project Supervisor- Dennis Quintilio
- Project Advisors-Kris McCleary and Dave Andison (FMF Natural Disturbance Program)

Advisory Group

- Cordy Tymstra- Alberta SRD Forest Protection
- Patti Campsell- Alberta SRD Slave Lake
- Robert Stokes- Alberta SRD Edmonton
- Cliff White- Parks Canada
- Gord Saunders- West Fraser Timber
- Tom Daniels- Sunpine
- Gary Mandrusiak- Alberta SRD Rocky Mtn House

Linkages with other FMF projects

- Natural Disturbance Research Program- proposal proponent for riparian disturbance project, guidance for project management/research program framework
- Fish and Watershed Research Program- co-proponent for riparian disturbance project
- Firesmart- project proponent

Funding

- $150,000 per year for 2 years from Alberta Sustainable Resource Development (10% administration fee paid to FMF out of these funds)

- $70,000 from FMF for project administration

Project Duration

- 2 years, 2002 and 2003

Proposal Funding Process

- Solicited proposals from selected researchers and agencies
- 8 proposals presented at a workshop in February
- After consultation with activity team, decided to fund all projects at 85% of original funding requests to accommodate all projects

Overview of Projects

- Firesmart communities
- Effects of fire and harvesting on CWD, beetle populations, plant succession, elk foraging patterns
- Fire growth modeling
- Fire behaviour in aspen under severe spring burning conditions
- Impacts of fire on riparian areas

Projects

- University of Alberta
  - Cumulative effects of wildfire and post-fire harvesting on the diversity and stability of saproxylic beetle assemblages
  - Boreal moss communities: succession and implications for establishment after fire in Alberta's spruce-dominated forests
  - Ya Ha Tinda Elk and Wolf Ecology Project: Effects of fire on elk forage in the eastern slopes of the Rockies

Projects

- Ecological Functions of Coarse Woody Debris Under Fire and Harvesting: Implications for Management of Surface Materials and Site Productivity (CFS)
- Fire Smart: ForestWise Communities in the Foothills Model Forest (JNP)

Projects

- Disturbance Dynamics in Riparian Zones in Alberta (FMF NDP)
- Fire behaviour in immature vs mature aspen stands under severe spring burning conditions: does fire history matter? (CFS)
- Design and incorporation of spotting and breaching of fire break functionality in Prometheus- the Canadian Wildfire Growth Model (ASRD)

Cumulative effects of wildfire and post-fire harvesting on the diversity and stability of saproxylic beetle assemblages

- Determine whether cultural and natural disturbances have a cumulative effect on beetle populations

- Determine whether multiple natural disturbances have less of an effect on beetle populations than salvage harvesting

Cumulative effects of wildfire and post-fire harvesting on the diversity and stability of saproxylic beetle assemblages

- Determine whether CWD retention can mitigate habitat losses due to salvage logging

Boreal moss communities: succession and implications for establishment after fire in Alberta's spruce-dominated forests

- Describe structure and development of moss community after fire and harvesting
- Relate community to variations in abiotic conditions
- Determine factors that affect establishment success

Ya Ha Tinda Elk and Wolf Ecology Project: Effects of fire on elk forage in the eastern slopes of the Rockies

- Determine whether elk respond to large fires by shifting summering and/or wintering areas to take advantage of forage availability in burn

Ecological Functions of Coarse Woody Debris Under Fire and Harvesting: Implications for Management of Surface Materials and Site Productivity

- Characterize surface organic matter properties under different disturbances (fire, harvesting, salvage logged, undisturbed)
- Identify role of saproxylic beetles and bryophyte communities in the decomposition of coarse woody debris and nutrient turnover

Ecological Functions of Coarse Woody Debris Under Fire and Harvesting: Implications for Management of Surface Materials and Site Productivity

- Identify relationships among surface organic matter, nutrient availability, foliar nutrition and productivity of regenerating stands under different disturbance types
- Provide scientific basis for the treatment of surface organic materials under harvesting or salvage logging

Fire Smart: ForestWise Communities in the Foothills Model Forest

- Determine ways to manage forest fuels to reduce wildfire risk but also optimize ecological conditions, wildlife habitat values and aesthetic qualities in wildland/urban interface areas in the FMF

Disturbance Dynamics in Riparian Zones in Alberta

- Build team of stakeholders to identify research needs and project outcomes
- Baseline data collection to document riparian and stream conditions immediately post fire
- Classify riparian areas

Fire behaviour in immature vs mature aspen stands under severe spring burning conditions: does fire history matter?

- Quantify fuel consumption in aspen stands of various ages and fuel histories

- Compare estimated fuel consumption with predicted values from FBP system, recommend changes to system

Design and incorporation of spotting and breaching of fire break functionality in Prometheus- the Canadian Wildfire Growth Model

- Use observed spotting in the Chisholm and Dogrib Fires to calibrate and validate spotting and breaching of fire breaks in model

Project Timeline

- 2002-03 Fieldwork
- April 2004 Final reports, data delivery and wrap up workshop

The Future

- FMF is an appropriate home for this type of project
  - ✓project management experience
  - ✓collaborative research agreements with many other research agencies
  - ✓administrative support
- This project could serve as a model for future FMF projects design to study large fires