

Minutes

WFORG Advisory Committee Meeting October 6, 2009 Edmonton, Alberta

In Attendance:

FPInnovations

Peter Lister
Ray Ault
Greg Baxter
Jim Thomasson
Jonathan Large
Colleen Mooney
Rex Hsieh
Gary Dakin
Colin Bamsey
Steve Craft - Forintek

U of A

Sarah Gooding
Steve Janzen

Wildfire Group

Mike Guterson

ICL

Colin Cameron

Govt Yukon

Lorne Harris

Thermo-Gel

Rich Just

NR Can

Diana Boylen

ARC

Jay Woosaree

Doug Brown

CFS

Kerry Anderson
Brian Simpson

ASRD

Rob Thorburn (HTC)
Cordy Tymstra
Wally Born
Rory Thompson
Steve Simser
Bruce Mayer

Govt NWT

Kris Johnson

Bushfire CRC

Jim Gould

CIFFC

Dave Bokovay

Vanderwell

Lou Foley

ICL

Mark Campbell

USFS

Chuck George

Conair

Larry Pahl
Revie Leiskovsky

Rick Pederson

On Webex

Chris McGuinty (ASRD)
Tom Wells (BCTC)
Matt Meyers (Ontario)
Steve Newton (BCFS)
Colin (Ontario)
Peter DeBruijn (FPInnovations)

Introductions

Changes at FPIinnovations:

A number of changes have taken place in the Fire Group since the last Advisory meeting. Dave Schroeder has left and gone to ASRD as Prescribed Fire Coordinator, Rory Thompsons secondment ended and he has returned to ASRD and Wally McColluch resigned.

We have two new researchers: Jonathan Large has taken over for Dave and is working on Community Protection as well as finishing his M.Sc. this fall. Peter De Brujin has joined our group and is helping clean up outstanding work.

Peter Lister is FPIinnovations – Feric new General Manager and this is his second meeting.

Project Updates

1. Black Spruce Mulching with Industry – Jon Large

Investigating the use of mulchers for community fuels management and debris clean up. This work is with Encana to address their structure protection needs. This work will benefit both industry and fire operations. Have two sites, one in Lac la Biche and the other at the study site in the NWT. LLB plans for a winter mulching in January 2010 whereas the NWT site will be mulched in June while the crew is there.

Control lines of various widths and patterns will be tested against fire and ignition testing.

Comment: BC Transmission Corp: Expressed strong interest in the project. Jon to get ideas BCTC needs on mulching from Greg.

Comment: mulching on 1998 Mitsue fire – can visit to document regeneration and maintenance requirements.

2. Sprinklers for Control Lines – Jon Large

Alberta Sustainable Resource Development is using “focused burning” to achieve prescribed burn objectives. This project will document in case study format the use of sprinkler lines in controlling a prescribed burn at Archer Lake this past summer.

Jon will present the results of this case study at Partners in Protection and is available to give presentations as needed for members operations.

Comments: would it be useful to use and test additives?

Jim Gould: can be used for community protection but width of line needs documenting – how to account for spotting? As it is difficult to stop and predict.

Response: Yes, spotting is a concern and we did have short range spotting in this case.

Q) Have you used cups to collect in-stand coverage?

A) No, but we can calculate “coverage levels” based on water volume and area covered – we collected the data but have not yet made those calculations.

Q) What is a rough cost for homeowners?

A) About \$1800 all inclusive (hose, pump, sprinklers).

3. Fuel Break Effectiveness in Boreal Forests – Colleen Mooney

This is a project sponsored by Saskatchewan Environment and Parks Canada.

Includes: Literature review, current practices review, documenting challenged breaks and an expert opinion survey. The busy fire season in BC and Sask. has slowed the survey responses and has delayed the project.

A workshop synthesizing all of the above is to follow in the spring of 2010.

4. Survival Zone Research Update – Greg Baxter

Two reports have been completed and are on the Fire Groups website <http://fire.feric.ca>.

These are:

- An analysis of Dodge's escape fire on the 1949 Mann Gulch fire in terms of a Survival Zone for Wildland Firefighters.
- Is a wellsite opening a safety zone for a wildland firefighter or a survival zone or neither?

Lots of progress this year on the project:

- Grass burn field trials occurred at Slave Lake on Vanderwell Contractors land this spring.
- Five plots have been burned over and radiation and temperature data were collected to model intensity to determine fire fighter survival.
- Comparison of skin response to radiation and Protective Personal Equipment (nomex) protection has been established to determine maximum threshold for survival.

The project will next investigate the impact of air quality (smoke and superheated air) within survival zones and the effect on firefighter survival. We are pleased to have Rob Thorburn from ASRD helping out and he is heading up this section of the study looking at the effect of air quality. Rob will investigate previous close calls in the boreal forest to ensure the study reflects local Canadian conditions.

Future work includes: additional grass burns and burns in standing timber. A well site is also to be burned over near Lac la Biche.

Comments: Jim Gould – should focus on timber fuels.

A) Grass fires are fought by municipal fire crews. This information would assist them in identifying the potential risks caused by these. It also allows us to work on our methodology for tests in forest conditions.

Q) Steve Newton – any new flame resistant materials for aviation fire intensities?

A) Yes, contact Mark Ackerman (U of A) for this information.

5. Study to Predict Fire Behavior in Mountain Pine Beetle Infested Stands – Colleen Mooney

Collaborative research with Alberta SRD, BC Forest Service. Objective is to document difference in fire behaviour between green and red-attacked trees to enable fire managers to better prepare for wildfire in affected pine stands.

Conducted 2 prescribed burns in 2008 at high FWI values – both the green and red-kill trees burned vigorously. Nine burns in 2009 at lower FWI values. Initial results indicate greater fire intensity in the red needled trees, but difficult to document this as the difference was subtle.

Report will be completed once all the data collected by the various partners is received and analyzed.

Comments: Could girdling be a treatment for focused burning in low hazard? Probably not.

Colin Bamsey – how long before needles turn red?

A) In this case it took 2 years – which is longer than it takes the beetle to redden a tree.

BCTC – don't go to deep with girdling as trees can break off. There are good tools for girdling.

6. Infrared Scanning Evaluations for Helicopter Operations – Ray Ault

A background was presented on work done prior to this year. It started in 2001 with high altitude scanning. Working with Alberta, BC and Ontario and representatives from local helicopter companies a standard was established to improve the value received by the agencies in conducting scanning operations. The objectives of the evaluations are to evaluate performance and develop benchmarks for scanning. Five companies tested in 2009.

Results: future benchmark for operations: companies with best accuracy had best times; average of 67 minutes for 100 ha; 75% of hot spots detected; 10 m accuracy was attainable; delivery time 4 – 88 minutes and all companies used same format.

Q) Cordy Tymstra – were the missed hot spots the same for all companies?

A) No – we looked to see if there was a pattern and it appeared random.

Q) Was there a difference between handheld and mounted IR setups?

A) All successful operators used mounted cameras.

Comment: BC uses a lot of handheld cameras– should incorporate into study.

Comment: Companies that were successful in the evaluation process flew in BC on fires this summer– tested companies were effective.

Future: Ontario and Quebec are developing a grid and evaluation process based on the Hinton grid and this should increase the standardization and cost effectiveness of helicopter IR scanning nation wide.

7. Exploratory Research into using Environmental Lapse Rate as a Tool to Predict Blow-up Fire Conditions – Peter de Bruijn

Project brought up two years ago with the idea of using aircraft Resource Tracking communications tools to identify weather conditions and lapse rates that may contribute to blow up conditions.

Initial Data was collected around Kamloops in September to develop a methodology and try out new equipment– sensors placed at various altitudes to identify the lapse rate – hope to correlate this with fire action experienced in the area. The experience from this summer will help develop a future study.

Comment: Kerry Anderson – super adiabatic conditions are extremely rare – would be very difficult to identify. More to do with strong convection cells. ‘Nature abhors super adiabatic conditions’.

8. Slope and Aspect Affect on Litter’s Moisture Content – Kelsy Gibos

A discrepancy exists between actual and predicted fine fuel moisture content on slope and aspect. This has been identified as an important knowledge gap. This relationship needs to be improved for use in FWI and FBP models. This research will help folks in the field better understand the micro site weather and the associated fire risk.

Methods: quantify moisture content with destructive sampling; describe in-stand climatology; lay groundwork for further duff moisture content and other FWI adjustments.

Study was conducted in the Nordegg area with support from Rocky Mtn House fire operations. Study area includes north and south aspects at different slopes and a valley bottom site. Collected 1400 sample in 2008. These were low hazard samples as it was a wet summer. In 2009 collected 2000 samples with a number of sites done simultaneously. Will complete thesis by end of December. An Advantage report is underway and Kelsy will work on implementing the research.

Comment: in the Yukon this summer experienced fire behaviour between 7 and 11 pm when the late sun hit the slopes.

9. Gel, Water and Class A Foam Longevity Comparison – Peter de Bruijn

Exploratory research to develop a methodology to determine the retention rates of three products used for firefighting. Took 3 trays filled with ponderosa pine needles and added water, foam and gel to them. Collected weights of tray over time to determine retention rates. This is a first step in developing a simple evaluation method to collect relative information to guide field operations.

Comments: maybe the fuel is too arranged – make more random.

Wind would affect foam and is sensitive to RH. CL215 with foam drops was tested in Saskatchewan years ago in forest conditions, this may be a resource of information.

Chuck George – should have no drainage then you can accurately measure evaporation.

Dave Bok – good methodology, just add gels.

Steve Newton (BCFS) – need a basic methodology so field people can apply. Applications drive use.

Member consensus: Keep working on project.

Need volunteers to review proposal – a ‘design team’ to set parameters and questions.

Rory Thompson – identify when fuel burns – at what % loss.

10. Airtanker Drop Testing with the AT-802F and CL215 – Colleen Mooney

This project was directed research for Conair and ASRD. It required significant resource reallocation within the fire group as all team members were involved to some extent. The US Forest Service, BC, ASRD, NWT, ICL and a number of retired aviation types all worked together to pull this off. Two series of drop tests – Abbotsford in May and Kamloops in July. Documented difference in drop patterns between wheeled and amphibious 802’s and between two delivery

systems and compared to the CL-215. Abbotsfords grid had 1000 cups and Kamloops 800. 13 drops at Abbotsford and 30 at Kamloops. Upwards of 50 people were involved on a given day.

Collected flight data using GPS, video data and weather data. Cups collected following drops and then weighed. Data produced drop footprints.

Results:

Abbotsford

- 802 greater coverage than half drop from CL-215
- Full load from CL-215 produced on 27% greater area than 802.

Kamloops:

- New gating system produced drop patterns of greater concentrations than standard gate.
- Floats did not affect drop patterns.

10a. Aircraft Tracking AT802 Drop Testing, Kamloops - Jim Thomasson

Used Differential GPS to track drops in real time to accuracy of 0.02m and with 20 readings/second. The level of accuracy was very high and provided a new understanding of drop pattern data collection.

Allowed tracking over grid for both vertical and horizontal profiles. System was easy to use and verified aircrafts position over grid.

Comments: can use methodology to find optimal drop. Need a standard delivery as variation is common on approach. More work is required in BC as there will be new products.

Rob Thorburn – optimal hts/spds will be based on fuel types (grass/timber).

Chuck George – were pilots given any instructions?

A) Had same pilot – difference in profiles most likely from evacuation rates in tank. Pilots used standard drop procedures from approved flight manual.

11. Less Flammable Vegetation Field Trials - Greg Baxter

Combined effort between FPInnovations, CN, ASRD, ARC and the local municipality. Found 3 sites around the hamlet of Chisholm. A low damp site, a site on slope and a high, dry sandy site. Each site had numerous plots.

Species planted were: plateau fescue, white clover and yarrow. The sites were sprayed, burned, disked and then planted in May 2009. Sites visited over summer to monitor growth. Tufted vetch moved in and the sites were mowed to allow more light in as well as some selected spraying.

Will visit sites in spring of 2010 and begin ignition testing if growth is sufficient.

12. Chisholm Portable Fire Detection Camera System – Jim Thomasson

Continued camera research with trials of various applications and equipment configurations to determine the best integration for the Alberta detection network.

Purchased a 106 foot telescoping portable tower and placed it 13 km from the Chisholm fire tower. Two cameras on the tower and two radio links. Portable tower is self powered and independent of electric grid. Third camera established at fire tower.

An evaluation of the system involved smoke generator. System found all the smokes and assisted in cross shots, area awareness and training. Portable tower increased visible area by 15% or 125 km². Shares 55% of the visible area with lookout and increased overall detection availability.

Best practices were documented over the fire season and will be included in a web report this winter.

Q) What is the cost of the system? A) \$110,000 where \$70,000 is for the tower.

Comment: there could be other uses for camera even in the winter.

13. 2010 Detection Workshop – Peter de Bruijn

Working with three provinces to develop an agenda and objectives. Due to travel restrictions workshop will not occur until 2010 fiscal year. Could be late April, early May or the fall.

14. Bridge Timber Protection – Jim Thomasson

Jim is actively investigating bridge timber protection technologies. This spring we tested bridge timbers and power poles in grass fires on Vanderwell Contractors land near Slave Lake.

Three burns were completed with 11 samples (4 RR and 7 Power poles), 6 were treated and 5 were left untreated. The treated wood painted up to one week prior to burn.

- No sustained combustion on treated wood, whereas all untreated wood ignited during fire passing. Intumescent paint prevented combustion.
- Longer the cure time the greater the swelling
- Sealed longevity treatment prevents swelling, but no combustion in experiments.

Future: more longevity treatments to determine the life span of the product and the effect of the product on wood rot; more test burning of products.

15. Helicopter Transportable Equipment – Ray Ault

BC is keen on identifying equipment that can be used for line building/fire fighting that can be transported by helicopter (less than 10,000 lbs). Have identified some equipment that can be flown in two or more pieces. The project will continue more formally next year, but there is difficulty locating equipment that would be effective and yet light weight.

Harvest Equipment Evaluations for use on wildfire –Owner approached FPIinnovations with piece of equipment with a request for a field evaluation. The fire group is frequently approached by private companies to help them break into the fire business and an evaluation is seen as a good marketing tool. Often the equipment is innovative but not unique.

Question to members: How should FPIinnovations handle these types of evaluation requests?

Consensus – cash is king, if they are willing to pay then do an evaluation.

16. Remote Start Pump – Jim Thomasson

The data has been collected and the report is underway. Jim has been working on other projects.

Project Proposals

1. Evaluation of smaller, cheaper scanners for use during mop-up - Proposed by Ontario.

Comment: County Fire Authority (CFA) in Victoria has used handhelds for mop-up a lot. Contact Jim Gould to get contact name.

USFS from Boise have done trials – should be contacted.

Lou Foley (Vanderwell) – crews may not do cold trailing if they had these. There may be a behavioural change in crews.

This is just another tool that if used correctly would help out.

Voting:

High	0	
Medium	5	
Low	6	<u>Score 2.55</u>

2. In-stand Drop tests CL-215 and the AT802 - Proposed by GNWT

Compare the drop penetration characteristics of the two aircraft in a boreal forest setting.

Comments: Chuck George – lots of this work has been done.

Alberta is the only place where these aircraft go head to head. AAO's could be surveyed to find out.

Contact Jim Gould to get report on drops in Eucalypt forests (has methodologies) used 'expert surveys'.

Voting:

High	1	
Medium	0	
Low	10	<u>Score: 2.67</u>

3. Fireline Telemetry Devices - Proposed by ASRD

Objective is to get IR information to ground crews in real time, by identifying:

1. Technologies that could be used.
2. Platforms to send, receive and display data

This would allow perimeter maps to be sent to ground crews much faster than is currently done.

Voting:

High	4	
Medium	7	
Low	0	<u>Score: 1.64</u>

Meeting adjourned

Next Meeting: Thursday, April 8, 2010

Meeting will be held at Alberta Research Council Parson Way.