

Minutes
Wildland Fire Operations Research Group
Fall Advisory Meeting
October 7, 2010
Kitchener, Ontario

In Attendance:

Kerry Anderson	Canadian Forest Service
Brad Hawkes	Canadian Forest Service
Dave Schroeder	Alberta SRD
Cordy Tymstra	Alberta SRD
Chris McGuinty	Alberta SRD (on Webex)
Jed Cochrane	Parks Canada
Doug Higgins	Wildfire Environmental Inc.
David Illing	FTS
Chris Lindsay	FTS
Revie Lieskovsky	Conair Group Inc.
Rob McAlpine	Ont. Min. Natural Resource
Paul Maczek	Sask. Min of Environment
Chad Nelson	Thermo Technologies
Jay Simmons	Thermo Technologies
Gordon Ramsey	Mercedes Textiles Ltd.
Aaron Tweedy	Dagon Division/Bambi Bucket
David Milne	Yukon Fire Management
Shawn Corrigan	Yukon Fire Management
Soung Ryu	U of Alberta
Colin Cameron	ICL Performance Product Canada Ltd.
Ian Wilson	Wildcat Helicopters Inc.
Rick Solomon	Firefox
Richard Wilson	Wiltronics (Australia)
Lyle Gawalko	BC Wildfire Management Branch
Dave Martell	U of Toronto
Ray Ault	FPInnovations
Greg Baxter	FPInnovations
Jim Thomasson	FPInnovations
Colleen Mooney	FPInnovations
Jon Large	FPInnovations

On Webex:

Larry Nixon	Govt of NWT
Kris Johnson	Govt of NWT
Steve Newton	BC Ministry of Forests & Range
Kevin Wilchak	Millar Western
Peter DeBruijn	FPInnovations
Roy Campbell	FPInnovations

1:20 pm. Meeting began.

Introduction

Ray Ault provided an overview of the meeting and format for new attendees.

Minutes

Are available on line for the last meeting.

2010 Project Presentations

The following presentations summarize the fire group's activities during the summer of 2010. For further information on these or any of the fire group's activities please contact the lead researcher or Ray Ault.

1. Wildland Fire Operations Research Group Website

(<http://fire.feric.ca>)– Colleen Mooney

Colleen demonstrated how the current website functions and the best method to find reports and projects. Colleen asked for input from members regarding changes or 'nice-to-have' features for an improved website.

Feedback – hard to locate reports and find project updates. Web site is very cluttered.

QUESTION: [Dave Schroeder] Could we have an e-mail list that can be used to notify people when 'new' items are posted on the website?

ANSWER: We think so, but need to confirm with Rex.

2. Aviation – Water enhancing gel - evaporation study – Peter de Bruijn (on Webex)

The objective of this exploratory research project is to develop a methodology to compare evaporation rates of water, gel water enhancers, and Class A foams. Seven evaporation trials were conducted between late July and mid August of 2010. These trials helped refine the methodology for subsequent evaluations. The methodology, as it stands today, has been able to reproduce results. We are seeking input and suggestions from members to fine-tune the methodology further.

QUESTION: [R. Lieskovsky] How did you apply products? Rate, coverage levels. Pressure application is required.

QUESTION: [C. Nelson] The trays are good. What were viscosity ranges for different levels and patterns of drop?

ANSWER: Materials supplied, used 1 gel product at 1.3%. Used Kamloops tap water. Viscosity unknown.

COMMENT: [C. Nelson] Need to record viscosity and levels need to be varied.

QUESTION: [C. Tymstra] What was the number of replicates?

ANSWER: 1 replicate. 2-3 in proposed research.

COMMENT: [R. McAlpine] Experimental design – look at temperature and viscosity treatments. Factorial design may be better, it would reduce inputs. Also include the dry weights on the graph.

QUESTION: [D. Schroeder] Is solar radiation a factor?

COMMENT: [J. Simmons] Use a marsh funnel for viscosity. Brookefield viscometer at 60 rpm. 5 rpm for distilled or tapped.

COMMENT: [R. Lieskovsky] Water temp also needs to be recorded.

Peter thanked everyone for their excellent feedback which he will incorporate in the final draft.

3. Equipment – Handheld infrared scanners for mop-up – Jim Thomasson for Scott Vandermeer

Jim presented the initial results of Scott Vandermeer's project to evaluate the use of handheld infrared scanners by initial attack crews during mop-up operations. Scott worked with Ontario fire crews looking into the usefulness of hand held infrared scanners during mop-up operations on three fires this spring.

The written report of Scott's results will be completed over the winter.

4. Equipment – Night-time helicopter water delivery operations – Jim Thomasson

Jim presented his observations from a demonstration of night time helicopter water delivery operations. A gimbal mounted infrared system was used to identify and target hotspots, and a heavy helicopter was used to deliver water to hotspots; both helicopters utilized Night Vision Google technology. The demonstration was funded by the Coulson Group and used its Sikorsky S-76 Firewatch platform for the command and control aircraft, and an S-61 for the water delivery

QUESTION: What is the cost of the Night Vision Goggles (NVG)?

ANSWER: About \$10,000.

QUESTION: [S. Newton] This was a Coulson driven project. BC Ministry of Forests was not involved. Has anyone looked at ‘accident hours’ for NVG operations? This would mean a change in policies. It is high risk – how do you handle first aid at night? How about use on the shoulder hours – early morning, late evening? How does it work in moon light or fire light? Ontario has a test video available on its website for viewing.

QUESTION: Is cross-correlation being done? To target back through laser to the actual target.

ANSWER: This would need to be done post-mission.

COMMENT: [R. McAlpine] NVG rated for Ontario – not for this research – this raises safety flags.

ANSWER: Clarification -two pilots were on board, the second pilot was NVG rated meeting aviation safety requirements.

5. Equipment – Thermal imaging and mapping technology evaluation – Jim Thomasson

Jim presented results from an airborne infrared mapping and data evaluation study carried out during the 2010 fire season. The evaluation was conducted in the Williams Lake area on several Cariboo Fire Center fires. This directed research was funded by the BC Ministry of Forests and Range and evaluated the Coulson S-76 Firewatch platform.

QUESTION: How big a fire did it map?

ANSWER: 14 ha.

COMMENT: Wildcat speed and altitude caused a difference in map vs. actual.

QUESTION: [S. Newton] How about a role as a higher elevation platform – can work while bucketing is on-going below it?

ANSWER: This is a test of the platform (r/w), not the technology. 100m can be improved upon.

6. Utility Corridors – Less-flammable grass species update – Greg Baxter

Greg presented an update on plots established using 3 less-flammable native Alberta grass species in and around the hamlet of Chisholm, AB. The objective of the study is to test the field competitiveness of the selected grasses along linear corridors under common Alberta conditions.

QUESTION: When will this multi year project be completed?

ANSWER: Report will be on website in early 2011.

QUESTION: [R. McAlpine] Why burn in the fall if spring is the big fire hazard?

ANSWER: Burning is opportunistic – if the chance comes with cured grass surrounding the plots we need to take the opportunity spring or fall.

7. Detection – Portable wildfire detection camera towers – Jim Thomasson

Jim discussed the 2010 operational use of a portable wildfire detection camera working in a blind area of the Chisholm fire lookout in Alberta. The system was designed and operated by FPIinnovations and is currently supported by the Fire Group. The system is funded by CN Rail, ASRD, and FPIinnovations. A second system is in development in Hinton and will be ready for deployment in 2011.

QUESTION: Were the smoke tests a surprise for the lookout observers?

ANSWER: No – they are warned of a time and general location.

QUESTION: [F. Nogarin] What is the cost of the tower, communications, and camera?

ANSWER: About \$110,000.

QUESTION: [C. Tymstra] Was the site road-accessible?

ANSWER: Yes – tower pulled behind a one ton pickup truck.

8. Detection Workshop Hinton November 2-4, 2010. Peter de Bruijn

Peter delivered information on FPInnovations upcoming 3rd workshop on wildfire detection.

QUESTION: [D. Martell] Will this be available through Webex?

ANSWER: This has been discussed and is an option. Contact Peter in advance if a web connection is needed.

9. Safety – Survival zones update – Greg Baxter

Greg is the lead research in a project to identify the factors that determine the minimum opening size for firefighter survival in an entrapment situation. In 2010 five burns in grass were completed and data collected included fire intensity and carbon dioxide air quality information. Greg will report the grass burn results and these can be applied to fire operations around communities.

QUESTION: [R. McAlpine] Any studies on shelters making people act braver and put themselves in more dangerous situations?

ANSWER: Believe there is and will try to find them.

10. Planning – Fire behavior in mulched fuel types– Jon Large

Jon presented his plan to address questions related to fire behavior in areas treated by mechanical mulchers. Two primary project areas where mulching lines will be burned are the Fort Providence, NWT site and an area near Rainbow Lake, north of High Level.

The objective of this research is:

- Provide fire managers and planners with information on the fire behavior in mulched debris.
- To document the effectiveness of mulched lines as fuel/fire breaks

QUESTION: [B. Hawkes] The depth of mulching can affect the survivability of trees if roots disturbed. Have you done a follow up on mortality? A number of mulched lines were completed as part of the FPInnovations forest fuels workshop near Hinton in 2005. What was the mortality?

ANSWER: These trees have survived.

QUESTION: Have you documented productivity in different fuel types and terrains.

ANSWER: All mulching has been documented and a database is being compiled.

2011 Project Proposals

The following project proposals were submitted by wildland fire operations research advisory members. The process is: the proposal is read, followed by discussion, and then a show of hands indicates the level of priority.

1. Slash disposal best practices: investigate at-the-stump processing primarily along the east slopes and determine the risk of wildfire based on fuel load and continuity.

COMMENT: [B. Hawkes] Steve Taylor has looked at the amount of debris left on site and potential fire behaviour. He developed a Rating System (S1, S2, S3) at a coarse level study. He has a field guide using ocular estimates of fuel loading.

COMMENT: Bio-fuel are becoming important in BC and thus fuel left at landings may be more desirable.

COMMENT: In Alberta there is an increase in at the stump processing – need to define a threshold (T/ha) of slash and the associated fire hazard.

COMMENT: [S. Newton] How big is this issue? Determining the related debris hazard can also be used for community protection in fuel management. Also in pine beetle fuel management.

Votes: High Priority = 3
 Medium Priority = 3
 Low Priority = 5

2. Sprinklers – a need for a more versatile sprinkler head to allow variable head angles.

COMMENT: Not a mounting issue – this is an engineering issue. This could be an Industrial Design Project for an engineering student.

COMMENT: Need a team approach. Ontario has experience with sprinklers, but haven't worked on the head. An optimal angle could be defined for different fuels.

COMMENT: Does the agricultural industry have this?

COMMENT: Rainbird doesn't have the business need to look at this as the market is too small.

COMMENT: Requires a Literature review and Product search.

No vote held. Consensus was to report back at the spring meeting.

3. Ground ignition methodology – investigate techniques to create long ignition lines for prescribed or experimental fires.

As part of this proposal Dave Schroeder narrated a video of a rope soaked in diesel as a potential approach.

COMMENT: Have used the Terra-torch to date, but it takes a long time to ignite whole line. Uneven burn sometimes results.

COMMENT: Require an efficient line ignition system.

COMMENT: There are various torches available and these should be investigated.

COMMENT: Need to demonstrate what will work.

COMMENT: What about environmental issues – laying a gas/diesel soaked rope on ground may be frowned upon.

COMMENT: What about an Ignition Workshop. Bring together the practitioners for both aerial and ground ignitions.

COMMENT: Look at what is available and report back in spring?

COMMENT: Talk to Howard Herman regarding the National Ignition Course.

COMMENT: There is a US Ground Ignition Committee. Talk to Wes Troop.

No vote held. Agreed to look into this and report back at the Spring Advisory meeting.

4. Standard for helicopter bucket and tank drop data recording tools.

Proposal by S. Newton – Data standards for data collection.

The objective of this proposal is to develop an evaluation method and operational standard for helicopter bucket and tank data tracking systems.

COMMENT: What is available and currently being used? Summarize and talk to operators.

COMMENT: Evaluation method – develop. How accurate does the system need to be? What are the Key Performance Indicators?

COMMENT: [J. Simmons] Tie in software side for decision management. (understand this to mean the software needs to provide management with decision support capabilities)

COMMENT: Volume numbers are hard to get – large errors (~20%).

COMMENT: [A. Tweedy] Not all that easy to bring the various parts together.

Vote: High Priority = 3

Medium Priority = 6
Low Priority = 0

5. Post treatment assessment of FireSmart projects – there are many FireSmart treatments. Should these be documented with respect to treatment and effectiveness?

COMMENT: Some thinning projects resulted in blowdown. Information on various thinning densities might provide useful input into future decisions. Survey of fuel breaks across Canada last year by FPIInnovations indicated a need for documentation.

COMMENT: In 2009 spring meeting fire group asked Advisory Committee for direction on forest fuel treatment project and response was to keep going – more research is needed.

COMMENT: Need work on different stand densities: 2 m, 1.5 m.

COMMENT: Link with Soung Ryu from U of A. Require more scientific rigor.

COMMENT: Come back in spring with scope, method, partners, approachanother 3 years.

Vote: High Priority = 10
 Medium Priority = 0
 Low Priority = 0

6. Develop operational guidelines for the use of water enhancing gels delivered from the air – BC proposal.

COMMENT: Continue Peter de Bruijn’s work – carry methodology into field.

COMMENT: [D. Higgins] A lot of money in this in US where they are looking at Gel vs Water. Could be a joint project. the colour of gel should also be investigated.

COMMENT: Expensive to study colours – 2 years ~ \$180,000.

COMMENT: Would like to get study going next spring.

COMMENT: Don’t know if gels are included in the current qualification process for foams.

COMMENT: [J. Simmons] No field trials in US. Maybe collaboration with the US would increase the value of this research by combining resources.

COMMENT: CalFire is opening a gel bid – could tie in contacts. An agency thing.

COMMENT: Where is CIFFC on this?

Vote: High Priority = 7
 Medium Priority = 5
 Low Priority = 1

7. Need for improved fire equipment tracking – project proposed from the floor.

COMMENT: Bring in a guest speaker. Parks, Ontario, SK, AB and NT interested.

COMMENT: Is this a suitable project for the fire group? CIFFC has a working group responsible for fire equipment, is this better left with that group? This is not operational research.

COMMENT: Ontario went down this road and does not want to revisit it.

COMMENT: Look into bar codes - do a review of positives and negatives.

COMMENT: What are international agencies doing?

No vote held. Fire group will summarize for the advisory members the current state of fire equipment tracking at the spring meeting and if a next step is warranted, the advisory members can direct needed actions.

8. Calibration of moisture meter – Richard Wilson of Wiltronics (Australia) - project proposed from the floor.

Alberta has a Wiltronics unit and plans to use it over the winter 2010 and gather the baseline data needed for calibration. Alberta agreed to share the information with Wiltronics.

COMMENT: If Alberta calibrates it, only AB fuels will result from work.

REPLY: Boreal fuels are the same across the country.

QUESTION: Why was this proposal not presented with the other projects.

ANSWER: [Roy Campbell] I started proposal and was unable to get additional information or details. The proposal was submitted to Alberta managers along with 15 other proposals generated within Alberta. The decision was this is not a priority for Alberta.

COMMENT: Should not have gone through Alberta process.

No vote held. Decision is to wait and see how Alberta's efforts to gather baseline data proceed and discuss in the spring meeting.

Next Meeting

A date was not set at the meeting. Proposed Tuesday March 8, 2011 at Alberta Research Council in Edmonton.

Meeting adjourned at 5:28 pm.