

INDUSTRY

Travis Holder	Campbell Scientific
Rick Solomon	Direct Injection Inc.
Rob Hyslop	RGH Pacific EMS
Jeff Berry, Revie Lieskovsky	Conair Aviation
Mark Campbell	ICL Performance Products
Cliff Henderson	Forest Resource Improvement Association of Alberta (FireSmart)
Peter Debrujin	Budenheim
Mark Ackerman	MYAC
Eugene Wells	Global Fire Rescue
Terry Popowich	Discovery Air / MAG
Jim Newton	BlazeTamer
Kevin	ANC

For a review of all presentations please see:

<http://wildfire.fpinnovations.ca/AdvisoryMeeting/2016Fall/PresentationList.aspx>

Welcome and introductions

- Approval of spring minutes: Jeff Berry, (Conair) second Dave Schroeder (AAF)

Presentation of Wildfire Program Budget

Ray summarized the Group's projected budget deficit for 2016/17 of \$60,000.

He also revisited the wildfire programs goals, recent funding initiatives and discussed development of a new research funding model.

Discussion around the effectiveness of depending on our website to share results

Is Website enough?

Dave S - the website is the foundation, but is not enough. There are many fire related websites to go through. When in Google you can put in keywords and find documents, but it bypasses the website. Rex- is there a way to monitor this or to direct user to website?

Discussion regarding fire deployments of research staff

FPIinnovations provides staff to support fire operations under extreme conditions. Wildfire deployments enable researchers to remain connected to fire operations practices. Ray questioned if this is the best use of our efforts? Should we continue this practise?

Cordy T – during McMurray wildfire AAF put together a ‘Rapid Response Research Team ‘that is on the ICS chart – could see FPIinnovations adding to this team in the future.

Research Network – FPIinnovations is expanding its research network. Last year in the NWT New Zealand and the University of Alberta assisted in the experimental fires. The year before (2015) NASA and the USFS attended. Ray believes expanding the research network helps support members with a broad perspective and we will formalize these relationships in the coming year.

Diversify Membership – we have BC Hydro and had CN in the past. We are continuing to market the program to organizations that are impacted by wildfire. Wider membership and diversity will improve collaboration opportunities and add to program funding.

Jeff B – when fires occur in various countries they contact Conair. When groups respond to these fires, the result is usually a dis-jointed effort. There is no one group that coordinates and pulls together a group to respond. This could be a role for FPIinnovations and could result in extra membership from all the companies or agencies involved. FPIinnovations should consider this.

This would involve the Economic Development Agency and FPIinnovations could act as a neutral party.

Ray – would this take away from our core work?

Jeff B – there will not be any core work if there is no budget.

Dave S – FireSmart Canada finally getting interest from Insurance Companies. Some discounts for FireSmart work on property. FPI should discuss potential opportunities with Laura Stewart (Community FireSmart Engagement)

Goals any comments or thoughts on what FPIinnovations should be doing?

1. Partner with members to enable innovation and continuous improvement within their organization by playing a leading research and integrating role.
2. Deliver projects selected by members on time and on budget.
3. Enhance services offered to members to help them quickly adopt and implement targeted solutions for their business and realize positive returns.
4. Support members during extreme fire events with certified incident command personnel.
5. Expand research network to adapt knowledge created elsewhere to answer member issues and to influence the research community, including universities, to undertake projects that address knowledge gaps.
6. Diversify membership to include organizations impacted by wildfire or are responsible for mitigating the effects of fire to increase the scope of the program and widen the financial support.

Ray asked that you please send an email or call if you have comments on the program goals.

Funding Initiatives

Met with Parks Canada – Grants are difficult with the Federal Government. Contracts with defined deliverables are an accepted approach.

CN Rail – Genics, Jim and Dominik met with CN in Chicago this past summer. They have lost a number of bridges lately. Working to have CN to fund a Bridge Protection Research Program.

BC Wildfire Service – meeting with Executive Director November 30th (tomorrow) to discuss membership. They did fund a direct project this summer.

Canadian Wildfire Strategy – working with CFS on this. We are looked at as an Industrial Partner and involvement of industry may be a future benefit from an implementation and collaboration perspective.

Future Research Model

Current Membership funding is in form of a Grant which is placed in a pot. This approach has worked the last 15 years.

Since the Gomrey Commission the governments are reluctant to use grants. So if our model is based on grants and grants are out of favor the Model doesn't work anymore. What do we replace it with? Service Agreements, Contracts, Directed Projects? The problem is these are

good for one year and require deliverables. We have many projects that carry over more than one year and represent the interest of multiple funding members.

Cliff H – The FRIAA FireSmart Committee distributes about \$3 M for Projects. Difficulties are common for Contractors, Public Communication and Education as they do not understand Fire Hazard Reduction and the best treatments for their communities. FPIInnovations could be involved in Developing a Decision Matrix for Operations, Fire Managers and AAF. Chipping, fireguards, etc. size and location. Also, with sprinklers – there is a lot of knowledge but it is not applied.

There is an opportunity for FPI to develop this framework.

Dave S – the contractor pool does not have fire experience. They require training and support.

Is this something we could do through HTC? Would suggest going through the Office of the Fire Commissioner. They have been handed more responsibility in this area.

A multi-year strategy is needed with the Fire Commissioner's Office.

Cliff – FRIAA is composed of multiple agencies; AAF, Villages, etc. They are able to approve membership.

Jeff B – approach with a Labour Contract where time spent on project would be the contract and the deliverable would be all the Research from the Group.

Themes – could move to Research Themes and agencies could fund a "Theme". BC and PC could be specific to which Theme they are funding.

Jeff B – you could start down one theme and it branches out into other themes based on what is found.

Ray – We are open to ideas. If you come up with what you think is a better approach let us know.

Want to keep Core funding for private companies – this gives them access to all research. Also have 2-Tier funding. If a Member has a specific directed project they receive a reduced rate for the work.

Jon L (PC) – There appear to be gaps. FPIInnovations has developed specific tools such as camera boxes and torches very well. The gap comes into getting these – where do we purchase? Could FPI formalize an agreement with a manufacturer?

Jeff B – Contract work out and take a cut.

We are using *AP* to denote action plan items

AP – explore royalty and manufacture agreement (torch, cube, camera boxes)

Canadian Wildfire Strategy

Two points directly related to FPI – Innovation and Wildland Urban Interface

Jon L – what is the time line on this? Over-winter? Years?

Ray – work in progress, it is a long term initiative and I am not aware of the timeline.

Completed Projects

Dave S – is there a breakdown of how much has been spent on each individual project? When moving forward and voting to continue a project would be good to know how much the project has cost to date. This would help understand the ‘bang for the buck’ and ROI.

Ray – we have projects proposed by people who are no longer around – thus the project does not have a champion.

Dave S – have spent this much – how much to carry on? We vote to carry a project on but do not know costs.

Different funding model may alleviate this problem.

Jeff B – good point for Themes... work on project and then close it off. In safety theme you could close a project and then look for other safety ‘needs’.

AP - Revie L – put Start dates on list of projects – then vote yearly.

Jim T – Survival Zones project is an example. SZ are a collection of Case Studies – it is many years to collect data which depends on opportunity.

Revie – how long do you go on?

Jon L – vote on it (yearly)

Ray - Good suggestion, we will try it out.

AP for next meeting include for each project we will have when the project began, what we propose for the coming year and forecast completion date.

Other Comments

AP - Survival Zones – summarize project findings to date to support training initiatives. Forward to Hinton Training Center for future use.

Coffee Break

Aviation

UAV INFORMATION SHARING WORKSHOP

Jim provided an overview of the UAV conference in Edmonton and the wildfire panel discussion. Our task was to communicate wildfire realities to the UAS community. Valuable information was exchanged between the agencies and UAS vendors.

Jon L. Asked where do you see UAV use on fire going?

Jim T. Couple of survey companies developing tools for fireline use. The line of sight requirement limits the current efficiency of UAV.

Jeff B. Would be a good idea to develop a standard for sensors and data stream. Similar to what was done with aircraft flight following where the data packet is standard and many companies are offering competitive products using the same standard. Otherwise, if there isn't a standard we end up with companies delivering proprietary products like Sony with Betamax.

Quentin S. For a service to be used in Alberta they would first need to fly and pass the Hinton Grid. Visual line of sight requirements may make it difficult for UAV to fly Hinton Grid efficiently.

Jon L. Any companies fly the Hinton Grid

Quentin S. In 2015, 26 helicopter companies but no UAV.

Further questions and comments regarding sense and avoid technologies for UAV.

CANOPY PENETRATION OF AIRTANKER DROPS IN FOREST FUEL TREATMENTS AND UNTREATED STANDS

Rex presented results from the canopy drop penetration project in Slave Lake.

QUANTIFICATION OF RELATIONSHIP BETWEEN FUEL LOAD, COVERAGE LEVEL AND FIRE INTENSITY

Razim Refai from University of Alberta presented his project of fuel load, coverage level and burn intensity. Razim is a Graduate student in Mechanical Engineering and his thesis is being funded by NSERC and FPIinnovations.

Razim R. Can't draw conclusions or develop a model based on the work we have completed in the lab.

Rex H. We have difficulty with higher coverage levels with the equipment we used. Higher coverage levels would put out of the fire and there was no re-ignition or fire intensity to measure.

Jeff B. Could you use Build up Index, it drives intensity.

Razim R. Yes, we looked at this but we are still challenged with our equipment.

Rex H. What we would like to do is collaborate with OMNR and U of T as they develop a decision support tool we would provide the lab data and they could use this to correlate with field data.

Would this be an acceptable approach, to share the data we have with OMNR and wait for them to deliver the final tool to satisfy this project?

Chris D. Saskatchewan OK

Andy L. BC, OK

Caleb T. Yukon, OK

DEVELOPING A TEST METHOD TO COMPARE THE RELATIVE PERFORMANCE OF WILDFIRE CHEMICALS

Razim presented a new approach to overcome some of the disadvantages of the radiant panel with. This was a custom-build thermal calorimeter, known as the "Thermal Canister." It was developed using a one-dimensional heat conduction model based on the inform heating of a rectangular-shaped body. Our goal was to validate the approach as a potential evaluation method of wildfire chemicals.

We tested the products based on the concentration levels stipulated on the manufactures published rates on the USFS QPL.

Rex H. This was a proof of concept to develop a standard test method. Revie L. An approach would be to start with water at coverage level 4 and determine how much foam or gel is required to perform at the equivalent level.

Community Protection

NATIONAL FOREST FUELS MANAGEMENT REFERENCE DATA BASE EXTENTION and TRAINING SERVICE

Rex explained the National Fuels Data Base Project and encouraged agencies to receive training before contract expiry date on February 20, 2016.

DEVELOP RAPID RESPONSE KIT FOR DOCUMENTING CHALLENGED FUEL TREATMENTS

Steve introduced the Rapid response kit project proposed by Yukon.

EFFECTIVENESS OF FOREST FUEL TREATMENTS

Steve gave a presentation on the Red Earth Creek and CBCFS experimental fires in mulched fuel treatments with video and detailed explanation of fire behaviour.

Cliff H. asked is this going to work? (How effective will it be?)

Jon L. asked if it is feasible to treat stands to withstand the 98 percentile fire occurrence.

Dave S. responded that we need to test these fuel treatments to the breaking point so we know when they are likely to fail.

Quentin S. added it is those 98 percentile fires that are coming into communities and causing the problems. The embers generated under these conditions are a real problem.

Firefighter safety

SURVIVAL ZONES FOR WILDLAND FIREFIGHTERS

Greg presented most recent survival zone case study. Provided an overview of 17 survival zone case studies to date. Greg asked for some direction related to the future of this project.

Tanya L. Asked for a summary of what we have learned so it can be incorporated into training at Hinton Training Center.

AP Greg will provide a summary for the spring meeting.

Dave S. is FPIinnovations collaborating with the USFS?

Ray A. Yes, we have worked with Brett Butler from the USFS in 2015 and we are sharing our data. Ours is a slightly different question.

Dave S. Bring a list of missing scenarios to AAF and this will help to identify future opportunities.

AP Meet with Alberta Agriculture and Forestry and discuss future survival zone opportunities.

USING THE ENVIRONMENTAL LAPSE RATE TO FORECAST WILDFIRE BLOW-UPS

Greg provided an overview of the Environmental Lapse Rate Project. So far we have analysed data from over 40 flights. Greg and Ray suggested we are at the point where we need to pass this information on to folks in the atmospheric science branch. We are clearly seeing a correlation between data collected from the RJ and the fireline but we believe this project requires a PhD and peer reviewed paper to move to further toward implementation.

AP Greg to follow-up with other agencies and develop next steps

Equipment design and evaluations

AN IN-LINE MIXING KIT FOR HELITORCH SYSTEMS

Roy worked with Mark and Gary to address issues in the mixing and the torch was retested in Fort McMurray. The group is confident the torch is now a reliable system. The final report will be ready for the spring meeting.

DESIGN AND EVALUATION OF A NEW WILDFIRE SPRINKLER

The sprinkler received a field test in Ft Providence in June. The objective of the project was to develop a sprinkler that would apply water to the forest canopy. The initial design from the U of A students was incomplete and this has required on going modifications to the proto-type. The mechanism that causes the sprinkler to rotate 360' does not work and a complete redesign is needed. Since this project began other products (FireBozz) have come to market that address the water delivery issue. This project will be wound up with the final report this spring.

PHOS-CHEK FOAM FAST SOLID AND SCOTTY FOAM FAST APPLICATOR EVALUATION

Jim presented a power point on the foam stick for Roy Campbell.

Andy L. Will the foam stick melt in hot weather?

No, they use the foam stick in Arizona during the summer. It can soften but doesn't melt.

RADIO COMMUNICATIONS WILDFIRE AGENCY INTEROPERABILITY WORKSHOP 2016

Jim provided information on the workshop March 7 and 8, 2017 in Edmonton.

DESIGN AND MANUFACTURE OF STAND FOR INSTRUMENT TO MEASURE WILDFIRE INTENSITY: A FIELD-READY PACKAGE

Jim provided an overview of the thermal cube steering committee phone meeting and outlined what the next version of the thermal cube to measure fire intensity would look like. MYAC will manufacture 12 thermal cubes this spring for use in May.

Mark A. Reminded advisory members this will provide energy release at a single point at a known distance.

Cordy T. Could this tool be used for measuring rate of spread?

With multiple sensors and data loggers, yes you can calculate ROS.

EVALUATION OF FIREBOZZ SPRINKLER

Jim presented FireBozz sprinkler findings from log deck protection and community fire evaluations.

Jon L. Parks looked at the FireBozz and decided it was too bulky and they would remain with Rain Bird sprinklers.

Forest Management

FIRE BEHAVIOUR AND INITIAL-ATTACK CREW CAPABILITIES IN BURNING HARVEST DEBRIS

Greg provided an update on the project. The burning window for the research site in Foothills never worked out. Edson will move ahead with other treatment options for the site. This is an AAF proposed project. Unclear if this remains a research priority.

Revie L. Who is our contact at AAF? Check with them and decide if this is still a valuable project.

AP Report back to advisory status of project after AAF meeting.

FIRE BEHAVIOUR IN OLD BURN CONIFER REGENERATED STANDS

Ray explained that we had hoped to use a grad student to start on this project but this project did not fit with any of the students in 2016.

Project proposals and discussion

COST EFFECTIVENESS OF WATER ENHANCING GEL

Ray explained the approach for the coming year and asked for comments. The gel evaluation program has been a long process. We are focused on a lab approach because of challenges in documenting effectiveness in the field. We plan on conducting an agency survey to better understand what is being used, where and what the results are.

Too many comments to record. Direction from advisory is to bring a plan to the spring meeting.

Alberta projects in process but not ready for submission

BLACK SPRUCE AMENDMENT CONCEPT

Dave S. Alberta Agriculture and Forestry. Need to change the age class of black spruce. Need is for more than common fuel reduction approach because these stands are a threat to communities. (This proposal is fuel elimination) The concept is to configure the stand so it can be treated by fire under lower hazard conditions. The proposal is not ready but the hope is to have FPIinnovations involved to do documentation. The planned site is Pelican Mountain.

Comment – The impacts of black spruce fire include smoke concerns for communities and industrial operations.

Jon L. Parks Canada has a site in Jasper that might be another suitable location for a case study.

Lots of discussion and support for the concept from within the room and online.

INFRARED HOTSPOT PROTOTYPE CONSTRUCTION & EVALUATION

This project has received an Expression of Interest at the AAF Science and Technology meeting. Students at the U of A developed two designs to simulate a burning hotspot. The issue is having open flame targets on the grid during spring hazard. This project develops a proto-type based on the design solutions provided by the students.

NEXT GENERATION INFRARED CAMERA

This project has received an Expression of Interest at the AAF Science and Technology meeting. FPIinnovations assisted Alberta in selecting an IR camera for operations many years ago. This project will identify a short list of potential cameras suitable for wildfire operations.

INFRARED TECHNOLOGY APPLICATIONS IN WILDFIRE MANAGEMENT USING UAV'S

This project has received an Expression of Interest at the AAF Science and Technology meeting. FPInnovations will survey wildfire agencies and report on current uses of UAV technology on wildfire.

Saskatchewan future project area of interest

COMMUNITY FIRE RISK ASSESSMENTS

Chris D. Saskatchewan is interested in exploring new approaches to assessing fire risk to communities. This is currently an internal proposal. In 2004 – 05 Saskatchewan assessed 104 communities. A number of fuel treatments have been implemented. After hearing Jen Beverly's Kelowna presentation the thinking is to look at alternative risk assessments. Both the NWT and Yukon expressed interest in fire risk assessment.

Jen B. Developed a methodology for Slave Lake using Burn P3 and generating spotfires (which land and P3 runs grow the spotfires) which is a process to rank fire risk to communities.

Follow-up comments and discussion with support for a future project or grad support.

Ray asked for a date for the next meeting. March 9 was selected. Unfortunately, this date conflicted with FireSmart Canada and was subsequently changed to April 4, 2017.

Meeting adjourned.